THE CENTRAL ARIZONA PROJECT

HEARINGS

BEFORE A

SUBCOMMITTEE ON IRRIGATION AND RECLAMATION

OF THE

COMMITTEE ON PUBLIC LANDS

HOUSE OF REPRESENTATIVES

EIGHTY-FIRST CONGRESS

FIRST SESSION

ON

H. R. 934 and H. R. 935

AUTHORIZING THE CONSTRUCTION, OPERATION AND MAINTENANCE OF A DAM AND INCIDENTAL WORKS IN THE MAIN STREAM OF THE COLORADO RIVER AT BRIDGE CANYON, TOGETHER WITH CERTAIN APPURTENANT DAMS AND CANALS, AND FOR OTHER PURPOSES

PART 1

MARCH 30, 31, APRIL 1, 2, 4, 5, 6, 9, 27, 28, AND MAY 5, 6, 7, 9, 11, 1949

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THE CENTRAL ARIZONA PROJECT

WEDNESDAY, MARCH 30, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND
RECLAMATION OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to call, at 10 a. m. in the committee room of the House Committee on Public Lands, New House Office Building, the Honorable John R. Murdock (chairman of the subcommittee), presiding.

Mr. MURDOCK. The subcommittee will come to order.

We are convening as the Subcommittee on Irrigation and Reclamation of the Committee on Public Lands to take up for hearing H. R. 934, my bill, and H. R. 935, an identical bill introduced by my colleague from the Second Congressional District of Arizona, Congressman Patten, entitled "A bill authorizing the construction, operation, and maintenance of a dam and incidental works in the main stream of the Colorado River at Bridge Canyon, together with certain appurtenant dams and canals, and for other purposes."

The bill will be inserted in the record at this point.

(The bill is as follows:)

[H. R. 934, 81st Cong., 1st sess.]

A BILL Authorizing the construction, operation, and maintenance of a dam and incidental works in the main stream of the Colorado River at Bridge Canyon, together with certain appurtenant dams and canals, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purpose of controlling floods, improving navigation, and regulating the flow of the Colorado River, providing for storage and for the delivery of the stored waters to provide essential supplementary supply of water to irrigated lands, for municipal and domestic uses, and for the irrigation of public and other lands within the United States, and for the generation, use, and sale of electrical energy as a means of making the project herein authorized a self-supporting and financially solvent undertaking, and other beneficial purposes, the Secretary of the Interior, hereinafter referred to as the Secretary, subject to the terms of the Colorado River compact and the water-delivery contract between the United States and the State of Arizona, execued February 9, 1944, is hereby authorized to construct, operate, and maintain (1) a dam and incidental works in the main stream of the Colorado River at Bridge Canyon, which dam shall be constructed to an elevation of not less than one thousand eight hundred seventy-seven feet above sea level; (2) a related system of main conduits and canals, including a tunnel and main canal from the reservoir above the dam at Bridge Canyon to the Salt River above Granite Reef Dam, a canal from the Salt River to the Gila River above the town of Florence, Arizona, and thence a canal to Picacho Reservoir, and thence a canal to the Santa Cruz River flood plain; (3) such other canals, canal improvements, laterals, pumping plants, and drainage works as may be required to effectuate the purposes of this Act; (4) complete plants, transmission lines, and incidental structures suitable for the fullest economic development of electrical energy generated from water at the works constructed hereunder for use in the operation thereof and for sale in accordance with Federal reclamation laws (Act of June 17, 1902, 32 Stat. 338, and Acts amendatory thereof or supplementary thereto); and (5) such appurtenant dams

and incidental works, including interconnecting lines to effectuate coordination with other Federal projects, flood-protection works, desilting dams, or works above Bridge Canyon and a dam on the Gila River in New Mexico and such dams on the Gila River and its tributaries in Arizona as may be necessary in the opinion of the Secretary for the successful operation of the undertaking herein authorized and to effect exchanges of water to insure an adequate supplemental supply to lands presently or heretofore irrigated from the Gila River including and below Cliff Valley in New Mexico and from the tributaries of the Gila River by supplying water from the main stream of the Colorado River to lower lands now receiving water from the Gila River or its tributaries, thus releasing Gila River and tributary water for use and exchange on other lands served by the Gila River and tributaries and other exchanges of water which may be agreed upon by the users affected: *Provided, however,* That construction of the tunnel and that portion of the canal hereinabove described from the reservoir above the dam at Bridge Canyon to a junction with the aqueduct hereinafter authorized shall be deferred until Congress by making appropriation expressly therefor has determined that economic conditions justify its construction, and in order to provide a means of diversion of water from the Colorado River to the main canal pending the construction of said tunnel and said portion of the canal and for use thereafter as supplemental and stand-by works the Secretary is authorized to construct, maintain, and operate from appropriations authorized by this Act an aqueduct from Lake Havasu to and connecting with the main canal in the vicinity of Cunningham, Wash., and pumping plants to raise water from Lake Havasu to such elevation as may be required to provide gravity flow of such water to the main canal.

SEC. 2. The Secretary shall have the authority to acquire, by purchase, exchange, condemnation, or otherwise, all lands, rights-of-way, and other property necessary for said purposes: *Provided,* That, anything herein contained to the contrary notwithstanding, the Secretary shall not have the authority to condemn established water rights or the water to the use of which such rights are established, or works used or necessary for the storage and delivery of such water to the use of which rights are established, or the right to substitute or exchange water without the consent of the holders of rights or those entitled to the beneficial use of such waters as may be involved in the proposed exchange.

SEC. 3. The estimated cost of the construction of the said works shall be determined by the Secretary. The Secretary shall also determine (a) the parts of said estimated cost that can be properly allocated to flood control, silt control, navigation, river regulation, recreation, fish and wildlife conservation, general salinity control, respectively, and any other purposes served by the project which may hereafter be made nonreimbursable by law, the sums so allocated, together with the expenses of operation and maintenance attributed by him to such purposes, to be nonreimbursable, and (b) (1) the part of the estimated cost which can properly be allocated in irrigation and probably be returned to the United States in net revenues from the delivery of water for irrigation purposes; (2) the part of the estimated cost which can properly be allocated to irrigation and probably be returned to the United States by revenues derived from sources other than the delivery of water for irrigation purposes; (3) the part of the estimated cost which can properly be allocated to power and probably be returned to the United States in net power revenues; and (4) the part of the estimated cost which can properly be allocated to municipal water supply or other miscellaneous purposes and probably be returned to the United States.

Before any construction work is done or contracted for, the Secretary shall first determine that costs allocated to power, municipal water supply, irrigation, other miscellaneous purposes as herein provided will probably be returned to the United States: *Provided,* That the repayment period for costs so allocated shall be such reasonable period of years, not to exceed the useful life of the project, as may be determined by the Secretary.

SEC. 4. Electric energy developed at any of the generating plants herein authorized shall be used first for the operation of pumping plants and other facilities herein authorized, and for replacement purposes, and the remainder thereof sold or exchanged, to effectuate the purposes of this Act. In the production, sale, exchange, and distribution of electric energy generated by any of the works herein authorized in excess of that required for the operation of said pumping plants and other facilities, the Secretary shall be governed by the Federal reclamation laws. The Secretary is authorized to supply water for municipal and domestic purposes in accordance with the provisions of said laws.

SEC. 5. Contracts for the delivery of water for irrigation purposes shall provide for the delivery of such water at an identical price per acre-foot at the several points of delivery of water from the main canals and conduits herein authorized, and from such other points of delivery as the Secretary may designate. Such contracts shall be made with the State of Arizona or the State of New Mexico, or with persons, firms, public or private corporations, irrigation or other districts, municipal or other political subdivisions, thereof, in accordance with the reclamation law. No person shall have or be entitled to have the use for any purpose of any water delivered hereunder except by contract made as herein stated.

SEC. 6. The works provided for by the first section of this Act shall be used: First, for river regulation, improvement of navigation, and flood control; second, for irrigation and domestic uses and satisfaction of present perfected water rights; and third, for power. The title to all works herein authorized shall forever remain in the United States and the United States shall until otherwise provided by law control, manage, and operate the same: *Provided*, That the Secretary may in his discretion enter into arrangements for the operation or use of a unit or units of said works with the States of Arizona or New Mexico or any irrigation districts, reclamation project, or other subdivision or agency thereof.

SEC. 7. The rights of the United States in and to the waters of the Colorado River and its tributaries for the use of which the works herein authorized are incidental, convenient, or necessary as well as the rights of those claiming under the United States shall be subject to and controlled by the Colorado River compact.

SEC. 8. The United States in constructing, managing, and operating the works herein authorized, including the appropriation, delivery, and use of water for the generation of power, irrigation, or other uses, and all users of water thus delivered and all users and appropriators of water stored by said reservoirs or carried by said canals, including all permitees, licensees, and contractees of the United States, or any of its agencies, shall observe and be subject to and controlled, anything to the contrary herein notwithstanding, by the terms of the Colorado River compact and the water-delivery contract between the United States and the State of Arizona dated February 9, 1944, and by the laws of the State of Arizona or the State of New Mexico governing water rights wherever the same may be applicable.

SEC. 9. Nothing herein shall be construed as modifying or affecting any of the provisions of the treaty between the United States of America and the United Mexican States signed at Washington, District of Columbia, February 3, 1944, relating to the utilization of the waters of the Colorado River and other rivers as amended and supplemented by the protocol dated November 14, 1944, and the understanding recited in the Senate resolution of April 18, 1945, advising and consenting to ratification thereof.

SEC. 10. This Act shall be deemed a supplement to the reclamation law, which said reclamation law shall govern the construction, operation, and management of the works herein authorized except as otherwise herein provided.

SEC. 11. Nothing herein shall be contrued as interfering with such rights as the State of Arizona or any other State now has either to the waters within its borders or to adopt such policies and enact such laws as it may deem necessary with respect to the appropriation, control, and use of waters within its borders, except as modified by the Colorado River compact or any other interstate agreement.

SEC. 12. There are hereby authorized to be appropriated, out of any moneys in the Treasury not otherwise appropriated, such sums as may be necessary to carry out the provisions of this Act.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., March 29, 1949.

Hon. ANDREW L. SOMERS,
Chairman, Committee on Public Lands,
House of Representatives.

MY DEAR MR. SOMERS: This Department has been requested by the House Committee on Public Lands to report on H. R. 934, a bill authorizing the construction, operation, and maintenance of a dam and incidental works in the

main stream of the Colorado River at Bridge Canyon, together with certain appurtenant dams and canals, and for other purposes.

Some time ago this Department submitted to the President and the Congress its report on the central Arizona project. That report was, subject to certain conditions precedent therein enumerated, favorable. By letter dated February 4, the Director of the Bureau of the Budget advised me that he had been instructed by the President "to advise you * * * that he again recommends that measures be taken to bring about prompt settlement of the water rights controversy." In a subsequent letter, dated February 11, Mr. Pace explained that this advice was not to be taken as meaning that "the President * * * at any time indicated that suit in the Supreme Court is the only method of resolving the water-rights controversy which is acceptable to him" and that "If the Congress, as a matter of national policy, makes a determination that there is a water supply available for the central Arizona project, the President will consider all factors involved in any legislation to authorize the project and will inform the Congress of his views respecting the specific provisions of this legislation." Mr. Pace's letter of February 4 was published in the Congressional Record for February 7 at page A595. A copy of his letter of February 11 is attached.

Should the Congress, in the light of the very real need that exists in certain areas of Arizona for supplemental water for irrigation and of the urgent need for more power in the Southwest, determine upon the enactment of legislation along the lines of H. R. 934, then your committee may wish to consider the recommendations contained in paragraph 49 (8) of the report dated December 19, 1947, by the Bureau of Reclamation's regional director, region III. I urge your committee to consider also including, at an appropriate point in the bill, a provision affecting the Indians and reading along the following lines:

(*a*) In aid of the construction, operation, and maintenance of the works authorized by this act, there is hereby granted to the United States, subject to the provisions of this section, (i) all the right, title, and interest of the Indians in and to such tribal and allotted lands, including sites of agency and school buildings and related structures, as may be designated from time to time by the Secretary in order to provide for the construction, operation, or maintenance of said works and any facilities incidental thereto, or for the relocation or reconstruction of highways, railroads, and other properties affected by said works; and (ii) such easements, rights-of-way, or other interests in and to tribal and allotted Indian lands as may be designated from time to time by the Secretary in order to provide for the construction, operation, maintenance, relocation, or reconstruction of said works, facilities, and properties.

(*b*) As lands or interests in lands are designated from time to time under this section, the Secretary shall determine the just and equitable compensation to be made therefor. Such compensation may be in money, property, or other assets, including rights to electric energy developed at any of the generating plants herein authorized. In fixing such rights to electric energy, including the rates and other incidents thereof, the Secretary shall not be bound by section 4 of this act. The amounts of money determined as compensation hereunder for tribal lands shall be transferred in the Treasury of the United States from funds made available for the purposes of this act to the credit of the appropriate tribe pursuant to the provisions of the act of May 17, 1926 (44 Stat. 560). The amounts due individual allottees or their heirs or devisees shall be paid from funds made available for the purposes of this act to the superintendent of the appropriate Indian agency, or such other officer as shall be designated by the Secretary, for credit on the books of such agency to the accounts of the individuals concerned.

(c) Funds deposited to the credit of allottees, their heirs or devisees, may be used, in the discretion of the Secretary, for the acquisition of other lands and improvements or the construction or the relocation of existing improvements or the construction of new improvements on the lands so acquired for the individuals whose lands and improvements are acquired under the provisions of this section. Lands so acquired shall be held in the same status as those from which the funds were derived, and shall be nontaxable until otherwise provided by Congress.

(d) Whenever any Indian cemetery lands are required for the purposes of this act, the Secretary is authorized, in his discretion, in lieu of requiring payment therefor, to establish cemeteries on other lands that he may select and acquire for the purpose, and to remove bodies, markers and appurtenances to the new sites. All costs incurred in connection with any such relocation shall

be paid from moneys appropriated for the purposes of this act. All right, title and interest of the Indian in the lands within any cemetery so relocated shall terminate and the grant of title under this section take effect as of the date the Secretary authorizes the relocation. Sites of the relocated cemeteries shall be held in trust by the United States for the appropriate tribe, or family, as the case may be, and shall be nontaxable.

(e) The Secretary is hereby authorized to perform any and all acts and to prescribe such regulations as he may deem appropriate to carry out the provisions of this section.

(f) Nothing in this act shall be construed as, or have the effect of, subjecting Indian water rights to the laws of any State.

The Director of the Bureau of the Budget advised that there would be no objection to the presentation of an identical report to the Senate Committee on Interior and Insular Affairs regarding S. 75, an identical bill. A copy of Director Pace's letter of March 17 regarding that report is enclosed for your information.

Sincerely yours,

OSCAR L. CHAPMAN,
Under Secretary of the Interior.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
February 11, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington 25, D. C.

MY DEAR SENATOR O'MAHONEY: Members of the Congress have raised a question as to the interpretation to be placed upon the last clause of the last sentence of my letter of February 4, 1949, addressed to the Secretary of the Interior advising him of the relationship to the program of the President of the central Arizona project. The clause referred to reads as follows: "* * * and that he (the President) again recommends that measures be taken to bring about prompt settlement of the water-rights controversy."

During the last Congress in connection with consideration of Senate Joint Resolution 145 and House Joint Resolution 227, this office advised the Attorney General that it would be in accord with the program of the President to resolve the water-rights controversy by waiving immunity of the United States to suit and by granting permission to the States to bring such actions as they might desire, if the Congress felt it to be necessary to take such action. This advice was transmitted to the Congress by the Attorney General. Similar advice was also transmitted by the Secretary of the Interior, together with specific suggestions as to a form of a resolution which the Congress might consider.

In order that there may be no misunderstanding of the President's position, I shall be grateful if you will advise the members of your committee that the President has not at any time indicated that suit in the Supreme Court is the only method of resolving the water-rights controversy which is acceptable to him. On the contrary, the letters addressed to the Congress last year, as indicated above, stated specifically that enactment of the resolution authorizing suit would be acceptable to the President. "* * * if the Congress feels that it is necessary to take such action in order to compose differences among the States with reference to the waters of the Colorado River * * *."

The prospect report and materials relating to the positions of the several States affected are now before your committee for consideration. If the Congress, as a matter of national policy, makes a determination that there is a water supply available for the central Arizona project, the President will consider all factors involved in any legislation to authorize the project and will inform the Congress of his views respecting the specific provisions of this legislation.

Sincerely yours,

(Signed) FRANK PACE, Jr.,
Director.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., March 17, 1949.

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: On February 19, 1949, you transmitted to me the report which the Department of the Interior proposes to make to the chairman

of the Senate Committee on Interior and Insular Affairs on S. 75, a bill authorizing the construction, operation, and maintenance of a dam and incidental works in the main stream of the Colorado River at Bridge Canyon, together with certain appurtenant dams and canals, and for other purposes.

The President has authorized me to inform you that there is no objection to the presentation of this report to Senator O'Mahoney. It will be appreciated if you will attach a copy of this letter when you forward your report to the committee.

Sincerely yours,

(Signed) FRANK PACE, Jr.,
Director.

Mr. MURDOCK. We vary a good deal in our committee procedure, while attempting always to keep within the rules of the House.

In view of the fact that we have here several witnesses from the West, who are businessmen and away from their businesses at an expense of time and money, I want to vary the program a little bit in starting off the hearings by using our out-of-town witnesses first.

If the committee will bear with me, I would like to make a little opening statement, as the author of the bill, and then the gentleman from California, Mr. Engle, would like to make a statement following that in order to get both sides of the matter in dispute outlined briefly for the beginning of consideration.

Then I think I shall call next on my colleague after my opening explanation before calling on the witnesses.

STATEMENT OF HON. JOHN R. MURDOCK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

This is a simple bill and may be briefly and easily explained as follows:

It authorizes the construction of certain dams on the Colorado River and its tributaries, the chief multiple-purpose dam being at the Bridge Canyon site at the head of Lake Mead in northern Arizona. The other main features authorized by the legislation are: An aqueduct from the point of diversion eastwardly into the Phoenix area joining the river above Granite Reef Dam above Phoenix, and a continuation of the same into the central Gila Valley and further south to the Santa Cruz flood plain.

This authorization contemplates a temporary diversion from the Colorado River above Parker Dam, but ultimately a diversion by tunnel from the Bridge Canyon Dam, if and when economic conditions show the same to be feasible. The Parker diversion requires a pump lift which ought to be avoided, but it is recommended by engineers as being more easily and quickly built. The tunnel diversion would eliminate the pump lift and provide a gravity flow into the area to be served. The greater expense of the tunnel makes it wiser to defer, by a provision of this authorization measure, the establishment of the tunnel route for a date in the future when its feasibility can be more accurately gaged.

Generation of hydroelectric power is a necessary part of the plan. Some of this power is to be used for pumping and the major part of it to be marketed in a power-hungry area, and the resulting revenue, after repayment of investment, is to be used to aid in repayments of some irrigation costs.

This bill, like the Boulder Canyon Project Act of 1928 after which it is modeled, is based on the Colorado River compact of 1922, and H. R. 934 is supplemental to the Boulder Canyon Project Act of 1928, as it merely seeks to carry the original act another step forward. If there is anything constitutionally or legally wrong, or judicially unsound about the proposed bill, then the same thing is constitutionally and legally wrong and judicially unsound about the Boulder Canyon Project Act of 1928. They are on a par legally and rest upon the same basis. Both documents are in accord with the Colorado River compact and recognize the compact as their basic authority. Brilliant, legal authority on this committee has said that Congress cannot interpret an interstate compact, but nevertheless Congress did interpret a compact, the great compact of 1922, in its enactment of 1928, else how could the congressional enactment state that it is supplemental to and in conformity with the Colorado River compact? This bill makes the same provision.

It would be too bad if some of our legal authorities should prove that a congressional enactment cannot interpret an interstate compact, for that might nullify and destroy our first great enactment starting the development on the Colorado River. The enactment of 1928 was but one step by Congress in the river development intended to furnish the needed benefits to the State of California, and now 20 years later we come with H. R. 934 intended to be another step, designed to give much-needed benefits to Arizona. No more of an interpretation of the Santa Fe compact is necessary for this legislation than was needed for the legislation of 1928. The two measures are exactly on a par in legal foundation.

What may we expect by way of opposition to this measure? We are assured of the opposition of certain water agencies in southern California. We may identify those agencies in opposition as first in reality the Imperial irrigation district officers who, in my opinion, are leading the opposition basically, but not as openly as others, and second the metropolitan water district with its chief city, Los Angeles, which will be prominent in opposition, and over all certain State officials of the State of California who will try to make it appear that California is about to be injured by Arizona's action.

This whole complex matter is much clouded and jumbled, but we hope after our positive and affirmative presentation to furnish evidence in the hearings that the State of California, as a State government, has little real interest in opposing this legislation. Also, that the city of Los Angeles and the State of California are being used by selfish interests in southern California to conduct a fierce opposition against Arizona's rights in the Colorado River. In view of the great mass of misinformation emanating from the propagandists in southern California, it will require some time throughout the hearings to make these facts clear. However, that is a part of the task of the proponents of this bill.

As before stated, this bill aims to confer benefits upon Arizona which are rightfully hers and to work no harm upon any American State or community. The real purpose of this bill is not to enrich a few land monopolists, as California has seen fit to charge, but to rescue, stabilize, and conserve a great capital investment in Arizona which is now threatened, and at the same time to insure the economic

future of the State. This project is important to the Nation and has an international aspect. Our witnesses will show that this proposal is engineeringly sound and economically feasible.

Mr. Engle?

STATEMENT OF HON. CLAIR ENGLE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. ENGLE. Mr. Chairman, I am very reluctant to find myself in disagreement with our distinguished chairman and with his colleague from Arizona, Mr. Patten, and with my distinguished friend, Senator McFarland, who is here with the committee in respect to this legislation.

The chairman has pointed up, I think, by implication at least, some of the disagreement which is implicit in this legislation.

I would like, Mr. Chairman, very briefly to outline to the committee what I consider to be the issues which this committee must face.

First is determining whether or not it should proceed on any extensive scale with a hearing of this legislation; and, secondly, with reference to whether or not a different procedure than that anticipated by the chairman should be followed, namely, whether or not we should determine certain basic legal questions first before we go into the question of the economic and engineering feasibility of this project.

I have given some attention, Mr. Chairman, to the Comprehensive Department Report on the Development of the Water Resources of the Colorado River Basin, published by the Department of the Interior in March of 1946. This, as I understand it, is the comprehensive report covering water development of the entire Colorado.

In that report, Mr. Warne makes the following statement, on page 3:

> There is not enough water available in the Colorado River system for full expansion of existing and authorized projects and for development of all potential projects outlined in the report, including those possibilities for exporting water to adjacent watersheds. The formulation of an ultimate plan of river development, therefore, will require selection from among the possibilities for expanding existing or authorized projects, as well as from among the potential new projects. Before such a selection for ultimate development can be made it will be necessary that, within the limits of the general allocation of water between upper-basin and lower-basin States set out in the Colorado River Co., the Colorado River Basin States agree on suballocations of water to the individual States.

This committee has just approved the division of water between and among the upper-basin States in the upper-basin compact.

On page 13 of the same report, there is the following language by Mr. Warne:

> There is not complete agreement among the States regarding the interpretation of the compact and its associated documents (the Boulder Canyon Project Act, the California Self-Limitation Act, and the several contracts between the Secretary of the Interior and individual States or agencies within the States for the delivery of water from Lake Mead). This report makes no attempt to interpret the Colorado River compact or any other acts or contracts relating to the allocation of Colorado River water among the States and among projects within the States.

I quote from that comprehensive report made in March of 1946 to indicate to the committee that there is a basic disagreement in regard to water and the allocation of water on the Colorado River.

It was contemplated that those disagreements should be settled in one fashion or another; that if all other projects which are contemplated or could be authorized were authorized, the water in the Colorado River would be oversubscribed.

I shall now go to the report on the central Arizona project forwarded to Congress, and I am reading from the letter of transmittal by Commissioner Michael W. Straus, under date of January 26, 1948, as follows:

Assurance of a water supply is an extremely important element of the plan yet to be resolved. The showing in the report of the availability of a substantial quantity of Colorado River water for diversion to central Arizona for irrigation and other purposes is based upon the assumption that claims of the State of Arizona to this water are valid. It should be noted, however, as the regional director points out, that the State of California challenges the validity of Arizona's claims.

I emphasize this statement:

If the contentions of California are correct, there will be no dependable water supply available from the Colorado River for this diversion. While water is physically available in the Colorado River at the present time, and is wasting to the sea, the importance of the questions raised by the divergent views and claims of the States is apparent. The Bureau of Reclamation and the Department of the Interior cannot authoritatively resolve this conflict. It can be resolved only by agreement among the States, court action, or by an agency having proper jurisdiction. It is assumed that the Congress, in considering this proposed project, will give this conflict the full consideration it deserves.

I again emphasize this statement:

The submission of this report—

This is the official report of the Bureau of Reclamation on this project—

is not intended in any way to prejudice full consideration of this controversial matter, nor should this report be construed as affecting the water rights of Indians and Indian reservations.

I go back to call the committee's attention again to the statement made by the Bureau of Reclamation that if the contentions of California are correct, there will be no dependable water supply available from the Colorado River for this project; and the further fact that the Commissioner states that they have not decided that question and their report is not to be considered as affecting that question one way or the other.

It is a fact, then, that the entire engineering, so far as the necessary water supply is concerned, as contained in the central Arizona project, is based on the assumption that Arizona's claims to the water necessary to serve the project are valid.

In other words, then, the Arizona project cannot be built unless it is definite and clear that Arizona has a legal right to use the water necessary to serve the project.

Here are the three major items of dispute between California and Arizona, and I will state them:

Whether the 3 (b) water in the compact—that refers to the basic Colorado compact—is apportioned and that, therefore, California has, by its limitation act, excluded itself therefrom?

Arizona will have to sustain its position on this point before it can legally use the water necessary to serve the central Arizona project.

The second question is whether Arizona is to be charged with the

amount of water that it actually uses and consumes from the Gila River and its tributaries, or whether it need only be charged with the amount that it depletes the virgin flow of the Gila River at its confluence with the Colorado River?

Arizona will have to sustain its position on this point before it can legally use the water necessary to serve the central Arizona project.

The third question is whether California, under its limitation act, is entitled to take its water from Lake Mead storage in a net quantity; that is to say, without being charged with evaporation or other losses occurring before it actually diverts the water?

Arizona will have to be successful on this point before it can legally use the water necessary to serve the central Arizona project.

In other words, then, Arizona will have to be sustained 100 percent in its contentions, and California will have to be overruled 100 percent in its contentions, before Arizona can legally use the water necessary to serve the central Arizona project.

Mr. CRAWFORD. Mr. Engle, who said that?

Mr. ENGLE. That is what I am saying; and I will follow it up and show you that other people are saying the same thing.

Mr. CRAWFORD. You are reading your statement?

Mr. ENGLE. That is correct. This is my statement.

California had a bill before the Congress last year seeking to have the controversy over the water supply in the lower basin of the Colorado put in the Supreme Court for a decision.

I now read from the hearings before subcommittee No. 4 of the Committee on the Judiciary, House of Representatives, Eightieth Congress, in the report of the Department of the Interior, under date of May 14, 1948, signed by Oscar L. Chapman, Acting Secretary of the Interior, wherein he states, on pages 24 and 25, as follows:

This is what you are asking about, Mr. Crawford. This is the statement of Oscar L. Chapman, reporting on the litigation bill before the Committee on the Judiciary.

He says this:

Confining my attention to this section of the Boulder Canyon Project Act—it being impossible to predict all of the issues that may be raised by the various parties to the proposed suit—four major problems would appear to be in dispute between California and Arizona. I may summarize them in question form thus:

(1) Are the 1,000,000 acre-feet of water for which provision is made in article III (b) of the Colorado River compact "surplus" or "apportioned" within the meaning of section 4 (a) of the Boulder Canyon Project Act? This is, is or is not California entitled to share in the use of III (b) water?

(2) Is the flow of the Gila River, for purposes of determining the water supply of the Colorado River Basin, to be measured at the mouth of the stream or elsewhere? And, as another aspect of the same problem: Is beneficial consumptive use by Arizona of the waters of the Gila to be measured in terms of diversions from the Gila River less returns to that river or in terms of the depletion of the virgin flow of that river at its mouth?

(3) Is the water required for delivery to Mexico under the treaty with that nation to be deducted from "surplus" water prior to determination of the amount available for use in California under section 4 (a) of the Boulder Canyon Project Act, or is California entitled to use a full one-half of the "surplus" diminished only by so much of the Mexican requirements as cannot be supplied from the other half?

(4) Is the burden of evaporation losses at such reservoirs as Lake Mead to be borne by California and Arizona in proportion to the waters stored there for each of them, or is the burden of these losses to be fixed in some other fashion?

The bare statement of these questions, the knowledge that there is disagree-

ment between Arizona and California about the answers to be given them, and the fact that, if the contentions of either State are accepted in full and if full development of the upper basin within the limits fixed by the Colorado River Compact is assumed—

I call that to the attention of all the gentlemen of the upper Colorado River Basin, because he puts it in—

if full development of the upper basin within the limits fixed by the Colorado River Compact is assumed, there is not available for use in the other State sufficient water for all the projects, Federal and local, which are already in existence or authorized, would seem to indicate that there exists a justiciable controversy between the States.

I quote also from page 26 as follows:

The water which California projects, Federal or other, now in existence or under construction will require when they are in full operation is a great deal more than the amount which that State is entitled to use if all of Arizona's contentions are taken to be true. Similarly, the water which Arizona projects now in existence, under construction, or authorized will require when they are fully developed is much more than the supply available to that State if all of California's contentions are taken to be true.

I also quote from page 26 as follows:

I have not attempted to examine the merits of the contentions made by the spokesmen for Arizona and California on these questions. Assuming, however, that there is some merit to both sides on all four of the major questions, it is obvious that there are many answers, in terms of the number of acre-feet of water which California may use under section 4 (a) of the Boulder Canyon Project Act that might conceivably be given. Using the long-run average flows shown in this Department's report on the Colorado River Basin as a basis for computations, the answers might range from as much as 6,250,000 acre-feet per year to approximately 4,000,000 acre-feet. Likewise, there is a great range in the amount of water from the Colorado River system which might be found available for use in Arizona. The maximum might be somewhat over 3,500,000 acre-feet, the minimum nearly as little as 2,250,000 acre-feet.

In other words, the central Arizona project, in the opinion of the Bureau of Reclamation, can only be built at the expense of California. That is, the water necessary to serve the central Arizona project must necessarily come out of the amount of water to which California, at this time, lays claim.

Now, Mr. Chairman, I present those as the legal questions before this committee to indicate to the committee that at the present time Arizona does not have any firm legal right to the water necessary for this project.

In my opinion it is not good judgment to go into a hearing on the economic and engineering feasibility of a project when we have not first determined that the water necessary for the use of that project has been established.

It would seem to me that the logical approach to this problem would be to determine whether or not Arizona or California is correct in its contention.

I expect, at a little later time, Mr. Chairman, to make a motion to postpone the consideration of the economic and engineering feasibility of this project until such time as there is a decision of the California-Arizona water rights controversy. I think that is an essential prerequisite to any consideration of the economic and engineering feasibility of this project.

I am not going to make that motion at this time because in deference

to the chairman and in deference to the fact that he has had witnesses come from great distances, we should hear those witnesses. I feel that the committee would probably take the same position.

However, Mr. Chairman, I want to address myself briefly, at least, to this proposition: Does this committee have any right or jurisdiction to undertake to determine the legal rights of California or the legal rights of Arizona?

Mr. CRAWFORD. Will the gentleman yield?

Mr. ENGLE. Yes, I yield.

Mr. CRAWFORD. Just a moment ago you referred to a decision to be made with reference to these rights. Who will make that decision?

Mr. ENGLE. The Supreme Court of the United States.

Mr. CRAWFORD. Has that case been instituted?

Mr. ENGLE. It has not and it cannot be instituted because the Supreme Court has ruled that the United States Government is a necessary party.

We have a bill pending in another committee of this House, the Judiciary Committee, to authorize a suit making the Federal Government a party to that litigation.

That legislation is now pending in another committee in this House. If that legislation is acted upon favorably by this Congress then this suit can be instituted.

There are only three ways in which States can determine controversy. One is by agreement. That is by compact such as we had here the other day and which was consented to by this committee and by Congress.

The second way is by arbitration, and the last way is by litigation.

California, in this instance, has offered to negotiate; California has offered to arbitrate; and California has offered to litigate; and Arizona has refused to do any one of the three.

Mr. LEMKE. When was that decision of the Supreme Court of the United States made?

Mr. ENGLE. The decision of the Supreme Court was in 1935.

Mr. LEMKE. It seems to me that that decision is erroneous. Under the compact it is the States who decide, or the court which decides the rights of the States under that compact. Uncle Sam has said, "That compact is okay, as far as I am concerned."

If I am any judge, that means that the question should be decided by the court as between the States.

However, if the Supreme Court ruled to the contrary, you are bound by it.

Mr. ENGLE. The Supreme Court, Mr. Lemke, has what we might say is the last guess. Anyway, the Supreme Court decided that the Federal Government is a necessary party because the Federal Government has gone into Boulder Canyon project and has built a huge project, and Federal interests and Federal property are therefore involved. For that reason, the Federal Government is a necessary party.

However, the question which I want to address myself to is whether or not this committee has any right to make a legal determination of water. If this committee decides that it has no power and no jurisdiction to decide the interpretation of the basic Colorado River compact, then that question must be decided before the engineering and

financial feasibility of the project should be considered by the committee.

It does not make good sense, does it, to spend weeks of our time hearing testimony from witnesses who come all the way from Arizona on the economic and financial feasibility of a project for which there is no water? That is utterly ridiculous, in my opinion.

Therefore, if this committee decides that it is going to undertake to decide that question, then we should go right back to the 1922 compact and try to determine what the States meant on an interpretation of that compact, to resolve the differences in interpretation between the respective States.

If we have not done that, we have not laid a proper foundation.

I will go one step further: I say that this committee has no jurisdiction. It has no power. This Congress has no jurisdiction and it has no power to interpret an interstate compact or to interpret an interstate contract, and that is what a compact is.

Therefore, the basic question which should be decided before the engineering and financial feasibility of this project is considered at all by this committee has to be settled in another forum. This Congress has no judicial power. No Congress under the Constitution has any judicial power. Congress cannot decide that California is wrong and that Arizona is right. Congress cannot take away any water from California. Congress cannot grant any water to Arizona.

The Federal Government does not own the water. There are 1,000,000 acre-feet of water in contention here. The Federal Government does not own that water. How, then, can the Federal Government give that water to Arizona and take it away from California?

Mr. LEMKE. Will you yield?

Mr. ENGLE. I yield; yes.

Mr. LEMKE. I think the gentleman is correct, with this exception: Congress can build all the dams it wants to, but they cannot decide where the water will go.

Mr. ENGLE. That is correct. When Congress builds the dams it allocates the water in accordance with the State water law. It is subject to the State sovereignty and jurisdiction. Only the judicial branch of our Government has the power to determine a conflict between the States.

The members of this committee are familiar with the plain language and intent of the Constitution, where it says in section 1, article I:

> All legislative powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

And where it says, in section 1, article II:

> The executive power shall be vested in a President of the United States of America.

And where it says, in section 1, article III:

> The judicial power of the United States shall be vested in one Supreme Court, and such inferior courts as the Congress may from time to time ordain and establish.

And where it says, in section 2, article III:

> The judicial power shall extend to all cases, in law and equity, arising under this Constitution, the laws of the United States, and treaties made * * *; to controversies between two or more States * * *.

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That is this kind of a controversy.

The members of this committee are familiar with section 233 of the Judicial Code of the United States, which has been in existence since 1787 and is now found in title 28, section 341, of the United States Code, Annotated, where the Supreme Court is given exclusive jurisdiction "of all controversies of a civil nature where a State is a party."

If the Supreme court is given exclusive jurisdiction, then no other agency, of course, can have such jurisdiction.

We know, therefore, that there is only one tribunal which has constitutional power to determine an interstate controversy of the character we have before us. True, there are other ways of settling a controversy other than by litigation, but I know only of two. One is for the parties to sit down across the table and give and take until a settlement is reached; and the other is for the parties to agree to submit their differences to arbitration and agree to be bound by what the arbitrators say.

Other than litigation, those are the only methods of settling a dispute, whether it be between two men, two corporations, or two States.

As I have said, California has agreed to negotiate; California has agreed to arbitrate; and California has agreed to litigate; but Arizona has refused to do all those three.

Mr. Chairman, you yourself have admitted that there is a serious controversy between Arizona and California.

I quote from the record before a former Irrigation and Reclamation Subcommittee of the House Committee on Public Lands, of which you were the chairman. We were considering at that time the authorization of the Gila project, and the record of these proceedings shows that on July 11, 1946, the chairman stated:

> To my personal knowledge, there has been effort made to get Arizona and California to get together for a quarter of a century, ever since 1923, certainly since 1927, and more certainly since the Boulder Canyon Project Act was passed. Somebody, some place, has held up the agreement.

On that same day, and in that same hearing, Mr. Charles A. Carson, the special attorney for the State of Arizona on Colorado River matters, who appeared before this committee in connection with the upper Colorado compact, was answering questions propounded by Congressman John Phillips, and this question and this answer appear on page 521:

> Now, I would just like to ask Mr. Carson in very simple language: Do I understand now that Arizona refuses to arbitrate?
> Mr. CARSON. Yes, sir; you can understand that.

So we find that a settlement by agreement and a settlement by arbitration is not possible. Therefore, nothing remains but to have litigation, and that litigation can go to and be decided only by the United States Supreme Court.

There is one other matter. I call the attention of the committee to the fact that we have already passed on this question; at least, it has been settled so far as this committee and this House is concerned.

On July 14, 1947, the House Committee on Public Lands reported on H. R. 1597, being a bill to authorize the Gila project. That report is Report No. 910 of the committee, and after authorizing the project the committee report made the following statement, which I will read.

This is the statement, Mr. Chairman, of the Committee on Irrigation and Reclamation of this House in reporting on the Gila project. I quote:

> It is the intent of the committee that nothing in this bill is to be construed as affecting the rights of the States of Arizona or California as to the use of the amount of water in the lower Colorado River Basin, that each State is entitled to under the existing compact, contracts, or law. The committee feels the the dispute between these two States on the lower Colorado River Basin should be determined and settled by agreement between the two States or by court decision because the dispute between these two States jeopardizes and will delay the possibility of prompt development of any further projects for the diversion of water from the main stream of the Colorado River in the lower Colorado River Basin.
>
> Therefore, the committee recommend that immediate settlement of this dispute by compact or arbitration be made, or that the Attorney General of the United States promptly institute an action in the United States Supreme Cour against the States of the lower basin, and other necessary parties, requiring them to assert and have determined their claims and rights to the use of the waters of the Colorado River system available for use in the lower Colorado River Basin.

In other words, Mr. Chairman, as I read the report of the committee in that instance, it made a specific direction in respect to this problem. It specifically refused to go into the matter or to undertake to determine the respective rights under that interstate contract, but directed that it should be done by agreement or by decision in the Supreme Court.

I think another very important matter is involved here. If we should attempt to authorize this project, we would be making a congressional determination of the question of water rights. It has been the policy of the United States Congress from the beginning to recognize that the control of the uses of water is vested in the States and that differences between the States with respect to the uses of water should be settled preferably by compact; but if agreement is not possible, then by litigation.

This proposal before us would be a reversal of that policy. A century of development of water law would be upset. State sovereignty over the rights to the use of water would be destroyed.

We are asked to determine a question of water rights by this legislation. We have no constitutional power to do it. We are violating both Federal precedent and policy to do it; and it is, therefore, beyond our jurisdiction even to consider doing it.

I may go just a little further in that respect and call the attention of my colleagues from the upper Colorado Basin to this situation: If this committee undertakes to make a political decision of the water rights of the lower Colorado River, what reason do you have to suppose that that will not be a precedent for the determination of the utilization of water in the upper Colorado River States?

In other words, let us make this assumption: Let us assume that the Congress authorizes this project and that after this project is authorized at an initial cost of some $750,000,000—with a total cost, including lost interest, of the sum of $1,400,000,000—and all of these vast developments are put in place, and California, as has already been stated in the statement submitted by the Bureau of Reclamation, now has projects either under construction or authorized to use all of this water, then what is going to happen in the upper basin in the event that the authorization of projects in the upper basin will require us

to leave one or another of those projects in California or Arizona high and dry some 10 or 20 years from now?

Mr. WELCH. Will my colleague from California yield?

Mr. ENGLE. I yield.

Mr. WELCH. Will you please tell the committee just what you mean by the statement with reference to the committee making a "political decision" with respect to this matter?

Mr. ENGLE. I mean by that this, Mr. Chairman: That if the committee makes a decision based upon what we might say is the representation from the various States on this problem, then you have what I call a political decision. It is not a decision in the courts. It is a legislative decision. Perhaps it more properly could be called a legislative decision, in the legislative branch of the Government.

There is another thing that I am calling the attention of my colleagues to.

Mr. WELCH. It is an economic question; not a political question, as I see it.

Mr. ENGLE. It is a political or legislative decision, when you decide and interpret a contract here in Congress.

The point I want to make to my friends up in the upper basin States is this: That in the event the situation should occur which I have described, do you have any reason to suppose that there will not be a similar political or legislative decision made with reference to the authorization of projects in the upper basin States which would leave, as I say, one or another of these million dollar projects high and dry, maybe 10 or 20 years from now, when the upper Colorado starts to use some of its water?

Mr. LEMKE. Will the gentleman yield?

Mr. ENGLE. Yes.

Mr. LEMKE. Just for an inquiry.

Do I state this correctly: Your position is that if we make a legislative decision that is contrary to the final interpretation of the contract by the court, our mistake will be corrected by the court although it may cost the Government considerable money?

Mr. ENGLE. No; I am not saying that.

What I am saying is that if we establish a precedent of making a political and legislative decision on matters involving the interpretation of an interstate contract, then every project that comes up on the Colorado River will be subject to the same kind of treatment.

Ten years from now, when California has 30 Congressmen instead of 23; or 20 years from now, when California has 40 Congressmen instead of 23——

Mr. LEMKE. May I make an observation?

Mr. ENGLE. Yes.

Mr. LEMKE. I do not agree with you if you mean that we can make a decision contrary to law and that that will be a precedent, because we cannot change the compact, except as interpreted finally by the court.

Mr. ENGLE. I am in hopes that this committee will not make that decision. I do not think it is proper for this committee to make that decision.

Now, Mr. Chairman, I want to summarize very briefly.

In summary I want to say this: That there is no water for this

project, nor is there sufficient water, if California is correct, in any one of its contentions. In other words, we are undertaking to give consideration before this committee to the economic and financial feasibility of a project for which there is no water, if California's contentions are correct.

Second, it is not sound to hear the economic and engineering feasibility questions involved in this project until the water question is determined, because we are talking about a project that may never exist.

Third, does this committee wish to go into that problem? That is, the problem of water rights involved in this legislation. Or would they rather leave it to the Supreme Court, where it belongs?

The determination of that question is a condition precedent to a proper consideration of this legislation.

Fourth, if the committee decides to go into the water issue, the committee should then hear first those issues and determine those issues before going into the questions of engineering and financial feasibility.

In such instance California should be given a full opportunity to get its witnesses back here to be heard with respect to the interpretation of this basic compact, upon which they predicate their water rights.

Fifth, and last, if the committee decides to undertake to determine this water question, and if the committee finds after a full hearing on the question that Arizona does have the water, then and only then will it be proper for the committee, in my opinion, to proceed with the hearing of witnesses on the question of economic and engineering feasibility.

Now, Mr. Chairman, I have said that at a little later time I intend to make a motion to defer the consideration of this project until the basic water problem is settled.

In my opinion, this committee has three questions to answer, and they must all be answered in the affirmative before it can put out this bill.

No. 1 is that the committee has to determine whether or not it will take jurisdiction, I might say, of the water question involved in this legislation. The committee should decide as No. 1, whether or not it has any right or jurisdiction to pass upon and to endeavor to interpret the basic documents in the Colorado River.

Secondly, if the committee determines that it does have such jurisdiction and that it is proper for this committee to determine the respective rights under the interstate contract, then the committee should hear the witnesses on the water issue first and determine the existence of the water before the committee undertakes to determine the questions of whether or not the project is economically and engineeringly feasible.

The third question the committee has to answer is whether or not this project, which will cost more than all reclamation has cost in its history—some $1,400,000,000, after it is put into full operation—whether or not that project is a proper project and is financially feasible and feasible from an engineering standpoint.

Mr. Chairman, those are the three basic questions which I intend to continue to submit to this committee with due deference to the chairman and his people who have come from a long distance to testify.

I will propose a motion which will put the issue before this committee, the basic question of whether or not this committee desires to

take jurisdiction or has any jurisdiction to determine and to interpret an interstate contract.

Mr. WELCH. Mr. Chairman, I ask to be excused at this time.

There is another phase of California's water and power pending before the House at this time. It is the appropriation bill for the Department of the Interior. Some of us are vitally concerned as to whether the benefits to be derived from public power in the great Central Valley will be enjoyed by the power users and irrigationists and farmers, or whether it will be enjoyed by the large power interests. I would like to be on the floor.

Mr. MURDOCK. Yes. We are sorry to have you go, Congressman Welch, but we understand the importance of that issue, also.

I think the issues now are outlined. As I said to my friend, Congressman Engle:

"I want to make a brief opening statement by way of explanation. I think you want to make a brief opening statement by way of explanation; so that we will get the matter before the committee."

Mr. ENGLE. My statement was not so brief, Mr. Chairman.

Mr. MURDOCK. The argument that the Congressman from California has given us is strangely reminiscent.

I intended to bring—but I forgot to bring—a stack of Government publications printed during the past 3 years, totaling about 5,000 printed pages, in 6-, 8-, and 10-point type, where all of these matters have been presented at great length.

They were presented before the Committee on Irrigation and Reclamation in 1946, again in 1947, and yet a bill was reported out unanimously by this committee and passed by the House unanimously, in the face of the arguments that we have heard.

Mr. POULSON. Mr. Chairman, the arguments through all those thousands of pages did bring out the fact that there was a basic dispute over the interpretation of the contract, which was a legal dispute.

Mr. ENGLE. Mr. Chairman, I might comment on that to say this: California had no objection to the Gila project, provided it was clearly understood that Arizona was making its choice and that the determination of the basic water-rights question would be settled.

The committee in its report, and I read the excerpt from the report——

Mr. MURDOCK. As for any assumed choice by Arizona on the Gila project, more will be said later. We have the official report to follow, also, in the record.

Mr. ENGLE. I think the language I have conforms, Mr. Chairman. If it does not it is supposed to.

I would like to ask our chairman a question, if you will yield to a question. It is just one brief question.

Mr. MURDOCK. All right.

Mr. ENGLE. Is it your opinion that this committee or that this Congress has the power to interpret an interstate compact or contract?

Mr. MURDOCK. This committee did interpret an interstate compact in 1928 and reported out the Boulder Canyon Project Act, and Congress passed it.

Mr. ENGLE. Mr. Chairman, I recall Mr. Breitenstein testifying specifically in answer to my question in the hearings on the upper Colorado River that Congress had no such power.

I asked him specifically: "In your opinion, does the Congress have the authority or the power to interpret such interstate compact?" and Mr. Breitenstein said, "No, sir."

It was agreed in the hearings on the upper Colorado River compact that Congress had no such power. It was written into the report.

The report issued by this committee says in just so many words that the Congress is not interpreting the basic compact, and Mr. Breitenstein, who appeared for the upper Colorado people, was so concerned about it that he would not consent to writing language in the bill saying that Congress did not by its consent to the compact, interpret the basic Colorado River compact.

When I asked him why he said that if you put such language in it might imply that such power did exist in the absence of such language.

That is the time, Mr. Chairman, when you will recall I asked him if I handed him a note saying that I did not intend to kick his dog, that I thereby implied that I would kick his dog in the absence of such a note; and he said he thought maybe his dog had been kicked first, because of some language in the Boulder Canyon Project Act.

However, he specifically denied that the Boulder Canyon Project Act was an interpretation of the basic Colorado River compact.

Mr. MURDOCK. Senator McFarland has kindly come over to our hearing. I believe the Senate is meeting at 11 o'clock today, also. I rather wanted the Senator to give the outline of this.

We cannot, in one short session, which has to be a short session, argue this matter. I think the issue is at last outlined. It has been joined in the minds of a few of us for a long time.

I note that my colleague, Congressman Patten is here.

Have you a word, Congressman Patten?

STATEMENT OF HON. HAROLD A. PATTEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Mr. PATTEN. Yes, Mr. Chairman and members of the commitee. I appreciate being here, and will submit a written report in the future.

I am pleased to sponsor this bill, or to be allowed to do so with your worthy chairman, because not only is it necessary for Arizona, but I am sure it is right and just.

As the committee listens to the witnesses I am sure they will be convinced by the facts that is the case.

I now ask permission of the committee to file a statement which I have prepared on this question.

(The statement is as follows:)

STATEMENT BY HON. HAROLD A. PATTEN, MEMBER OF CONGRESS, ARIZONA, BEFORE THE HOUSE PUBLIC LANDS COMMITTEE, REGARDING H. R. 934 AND H. R. 935

On the first day of the present hearings permission was most kindly granted me for the submission of somewhat amplified remarks, in addition to the very brief statement made by me at that time.

I am well aware that the numerous engineering, legal, financial, and technical details related to the central Arizona project, as proposed in House bills 934 and 935, either have been or will be amply presented to the committee by individuals expert in those fields; I, therefore, will refrain from amplification of those aspects of the case.

At the risk of being deemed completely ingenuous, I should like to say that I

am convinced that this committee and the Members of Congress are going to concentrate their attention upon the central and essential elements of right and justice in this matter, and that they will thus cast aside the many specious and technical arguments, however skillfully advanced, which are being raised by the opponents of the proposed legislation. Looking at the case in this fashion, it is clear that Arizona desperately requires her share of the waters of the Colorado River, and that she requires them now, today, to preserve her own civilization and her own way of life in the sisterhood of the various States. It is preposterous to assume that in the division of the Colorado system waters available to the lower-basin States it was ever intended or agreed that Arizona should be forced to content herself with little more than the waters of the Gila River, all of which had theretofore been appropriated and put to use within the boundaries of my State. Conversely, it is equally obvious that the division was intended to be, should, and must be, made upon a basis giving Arizona a substantial quantity of the waters of the main stream of the Colorado.

California, by her own legislative action, has limited herself to a maximum of 4,400,000 acre-feet per year of the waters of the main stream which were apportioned by article III (a) of the compact, plus one-half of any excess or surplus that might exist. That is the lion's share of a very large lion. Without laboring the point further and without engaging in any extended mathematical computations, I think it plain that Arizona is entitled to sufficient water from the main stream of the Colorado River to supply the central Arizona project, namely, 1,200,000 acre-feet, and that this would be the conclusion of any impartial group who would examine the case, either superficially or in the most minute detail.

I can see no justification in common sense for, nor does the law uphold the argument advanced by our opponents which seeks to obtain action favorable to California upon the basis that California's need is a greater need than the need of Arizona. However, because California has devoted, and is continuing to exert, great attention to the proposition that she is in some dire, urgent, and present necessity, I feel it proper if only in the interest of a dispassionate appraisal of the facts to point out that California is in truth in no such need, and that she is not likely ever to be in such need if she will merely refrain from the doing of a palpably unwise act. It is entirely within her power to refrain from such an act, and is to her distinct advantage as a State, and will occasion her no substantial (if any) losses.

I refer to California's avowed intention to transport waters of the Colorado River to the east and west mesas of the Imperial Valley, where she proposes in future to develop huge irrigation projects.

On the basis of conceded or undisputed facts, California finds herself in a somewhat rare circumstance. On the afternoon of April 6, the distinguished counsel for the metropolitan water district, Mr. James H. Howard, was testifying before a subcommittee of the Judiciary Committee of this House; and the chairman of the subcommittee, by a series of questions, drew from Mr. Howard the admission that the contemplated requirements for additional water to be used by the metropolitan water district for municipal purposes in the city of Los Angeles and the other large urban areas along the coast of that region, would not develop beyond the supply for which it has a present contractual right, until a time some 60 years hereafter.

California has elsewhere admitted (during the hearing on Senate bill 1175, see p. 377) that the present total annual use by California of the Colorado River water is approximately 3,000,000 acre-feet. California also admits that she intends to develop and to place under irrigation a total of some 300,000 acres in the areas which I have mentioned as being within the east and west mesas of the Imperial Valley. They have not denied, and they cannot deny, that if these 300,000 acres are not placed under cultivation California will have, in ample degree, all the water of the Colorado River which she is likely to need.

The Bureau of Reclamation in concert with the University of California and the United States Department of Agriculture has been conducting a detailed study of the two mesas. The Bureau has already formulated and filed its report on the Imperial east mesa, which report is entitled "Land Classification and Development Report, Imperial East Mesa, All-American Canal Project, California." The report is a thorough treatment of the subject, and it appears to be well documented and substantiated. The Bureau has likewise prepared a report concerning the ability of the east mesa to repay the cost of California's proposal for the development thereof. That report, I believe, is entitled, "Report

of Repayment Ability, Imperial East Mesa, All-American Canal Project, California."

I do not pretend to have made an exhaustive personal study of these reports, but I do wish to present their essence in a summarized manner.

In a letter whereby the regional director transmitted the land classification and development report to the Commissioner of the Bureau of Reclamation the following language appears:

"2. The report shows that of 225,300 acres covered in the survey, only 35,900 acres or 16 percent were classified as irrigable. Most of this acreage (30,550) is class 3, and the remaining acreage (5,350) is class 2. The class 2 and 3 lands are scattered throughout the east mesa. Only 18,612 acres of irrigable land are so grouped that they could be included in the seven potential areas considered most feasible of development. The remainder of the class 2 and 3 lands, 17,288 acres, is considered, from an economic standpoint, to be beyond the reach of a distribution system."

It also follows, that the balance of these lands on the east mesa, an area of some 189,400 acres, are not irrigable, and they were so classified in the report. The report also points out that due to the circumstance that the irrigable lands are scattered here and there, the cost of irrigation is extraordinarily high, so high as would appear to render irrigation unfeasible.

The lands on the west mesa are reported to be inferior to those of the east; however, assuming that the lands are generally equal, and applying the finding that 16 percent of such east mesa lands are irrigable, it follows that there would be on the west mesa some 12,000 irrigable acres. The net result is that of the total area on both mesas, more than 250,000 of the 300,000 acres are nonirrigable whereas only some 48,000 are susceptible of irrigation. Assuming a water need of 6 acre-feet per acre, the application of this water requirement to the 48,000 irrigible acres indicates a requirement of 288,000 acre-feet of water per year. Add 3,000,000 acre-feet of the maximum use which California has thus far made annually of the Colorado River to the 288,000 acre-feet which would be required at some indefinite future time if California persists in her plan to irrigate the east and west mesas, and you have a total of 3,288,000 acre-feet. The difference between that quantity and the 4,400,000 acre-feet to which California has limited herself leaves approximately 1,112,000 acre-feet to be applied to other future requirements, apart from any share of excess or surplus waters which might be deliverable to California; which makes it manifest that California will have ample water to cover any losses or diminutions which she would have to stand, including losses from evaporation.

The foregoing remarks are based upon the favorable position California takes for itself. I do not at all concede that California has an absolute right in any event to 4,400,000 acre-feet per year of the IIIa water; that quantity appears to me to be just what the California statute says; that is, a limitation to a maximum of 4,400,000 acre-feet.

I think the committee will recall that Senator McFarland pointed out that the amount of Colorado River water wasting into the Salton Sea from Imperial Valley irrigation activities is some 1,074,150 acre-feet per year according to information furnished by the Bureau of Reclamation. Certainly, California will make a serious effort to avoid this extravagant waste, and although I am no engineer, I am of the opinion that at least half of this loss can and should be averted. If so, she will have more than a million acre-feet of water in which to increase her uses and to offset losses and depreciations such as evaporation and the like. I offer the following excerpts taken from the report of repayment ability, bearing date of March 1948:

"This report presents an analysis of the repayment capacity of lands classified as irrigable within seven potential development units on the Imperial east mesa division of the All-American Canal project in California. Irrigation water would be supplied from the Colorado River and delivered through the All-American and Coachella Canals. Of the 33,872 acres in the potential units 32,440 acres are publicly owned lands withdrawn from entry. A complete discussion of the land classification of the area and anticipated farming problems is given in the east mesa land classification and development report, dated April 1947. This report shows that 18,612 acres of the 33,872 acres in the potential units have been classified as irrigible; 3,782 acres are class 2 and 14,830 acres class 3" (p. 1).

"Project development costs are estimated to average $615 an acre, which includes $390 for a distribution system and $225 for predeveloping the lands" (p. 1).

"On the basis of a budget analysis it has been shown that class 3 lands would not be able to pay for the cost of constructing a distribution system" (p. 2).

"However, the class 2 lands are so interspersed with class 3 and 6 lands that their separate development would be physically impractical. If all 80-acre tracts of predominately class 2 and 3 lands were developed, it is estimated that less than 20 percent of the total construction and predevelopment cost would be recoverable from the settlers" (p. 2).

"This classification shows a total of 35,900 acres of class 2 and 3 lands, of which 18,612 acres are located within seven potential development areas. Most of the lands tentatively classified as irrigable are of marginal character, and were designated as class 3. The class 2 and 3 lands not located within the development areas represent isolated tracts scattered throughout the mesa, which could not be served by a distribution system without the inclusion of a large acreage of class 6, nonirrigable land." (Last paragraph, p. 3.)

"It appears likely that the irrigation of any substantial acreage of the mesa lands would tend to enhance seriously the drainage difficulties in Imperial Valley unless additional drainage facilities are constructed" (p. 4).

"Most of the mesa is publicly owned land under reclamation withdrawal. Of the 33,872 acres in the potential units, 32,440 acres are publicly owned lands, withdrawn from entry. There are 1,219 acres of privately owned lands located within unit 1; 84 acres of State land; and 129 acres owned by the Southern Pacific Co." (Last paragraph, p. 4.)

On March 28, 1949, the Secretary of the Interior announced that the irrigation development of public lands on the east mesa would be inimical to the public interest; and in a letter written to the president of the board of directors of the Imperial Irrigation District at about the same time, the Secretary among other things states that he is compelled to advise the district that he does not contemplate that any public lands on the east mesa will be open to reclamation, homestead entry and settlement, and that he therefore could not approve the construction of canal turn-outs designed to serve these lands. Whether certain interested persons in California will stubbornly persist in their efforts to place the lands of the east and west mesas under cultivation, is a matter which remains to be seen; however, there can be no doubt that the continuation of such efforts is an unwise thing. Certainly California should not be heard to cry forth her urgent need for water if this is the sort of project which is to be included in the substantiation of her supposed necessity.

I think I might repeat that the report specifically stated that "of the 33,872 acres in the potential units" of the Imperial east mesa "32,440 acres are publicly owned lands withdrawn from entry."

I am in no position to state that all of California's claims are as spurious as her claim that she now needs and must have practically all of the water flowing in the Colorado River below Lee Ferry, except that which may be required to meet the Mexican requirements under the international treaty; but these simple facts of the case certainly should deflate the ever-ballooning claim of the California propagandists and apologists that their State is presently drawing upon what they are pleased to call their last water hole and that the great civilization of the Golden Empire is about to wither and blow away. Has the Los Angeles Chamber of Commerce heard about this?

Mr. MURDOCK. Senator McFarland, will you enlighten us further?

STATEMENT OF HON. ERNEST W. McFARLAND, A UNITED STATES SENATOR FROM THE STATE OF ARIZONA

Senator MCFARLAND. Thank you, Mr. Chairman.

Mr. MURDOCK. This is only with a view to opening up the matter so that we can get the whole matter before the committee.

We do expect to bring the whole matter before the committee; and, naturally, only one side of it—and not the Arizona side of—has ever been presented to this committee or to this House. That is the thing we want to see; that both sides are fully presented.

Senator MCFARLAND. Mr. Chairman and members of the committee, I wish to thank you for the privilege of coming before you and explaining some of the things that have taken place before our committees in the Senate, and giving you a summary of the evidence.

If I may, Mr. Chairman, I would like to submit my prepared statement to you without reading it in full, because it is rather lengthy. The statement contains a summary of the evidence. In the Senate we had hearings on S. 1175, which is the antecessor of, and practically the same as S. 75. S. 75 is identical with House bills 934 and 935, which you are considering here this morning.

I want to say to you in the first place, though, that I appreciate appearing before a committee of which my good friend, Congressman Engle, is a member. He and I have fought a lot of battles together and before we have always been on the same side. I hope before this is over that he will see the error of his ways and will come over on the right side and be with Arizona.

I want to say to the Congressman, though, before I start on this summary that he mentioned here this morning that there had been authorizations for projects in California, most of which had been constructed. Did you gentlemen ever hear of California asking for litigation before they asked for one single one of those projects to be authorized by Congress? If you did, you have heard more than I have. No one ever heard of California asking for litigation until Arizona comes in and wants a little of this water.

I want to explain that in a little more detail, later.

(The prepared statement of Senator McFarland is as follows:

STATEMENT OF SENATOR ERNEST W. MCFARLAND IN SUPPORT OF HOUSE BILLS 934 AND 935

Mr. Chairman and members of the committee, experience has convinced me that my own understanding of measures before the Senate is greatly increased if I may have the benefit of the history and course of the companion bills in the House. With the thought that you gentlemen may derive a fuller understanding of the central Arizona project, as the same is reflected in the bills now in hearing, if you were apprised not only of the general factual background and purpose of the project, but if you also were acquainted with the relevant developments in the Senate, I shall attempt to state the case as it has there been presented.

As you doubtless know, the Senate Committee on Interior and Insular Affairs now has under consideration S. 75, which is a bill identical with House bills 934 and 935. S. 75 is, with a few minor changes, the same as S. 1175, which was filed during the Eightieth Congress and upon which full hearings were held in the Senate during the term of that Congress. Such hearings were printed and you doubtless have copies thereof.

It is clear at this point that the testimony for and against S. 75 is generally equivalent to that introduced in connection with S. 1175, and likely the equivalent of the testimony which will be here adduced.

Therefore, as a prologue and perspective of the case, I desire to summarize, first, the provisions and purposes of S. 75 and House bills 934 and 935 and, second, the evidence which has been hitherto taken in support of S. 75 and of its antecessor, thereby accomplishing the parallel purposes as to House bills 934 and 935.

Final action was not taken on S. 1175 for the reason that the report of the Department of the Interior on the central Arizona project had not become final at the time of the hearings and did not become final until September 16, 1948. In general and fundamental support of House bills 934 and 935, I wish now to introduce that report as an integral part of the evidence which is offered by the proponents of the bills.

I also desire now to offer in evidence, by reference, those portions of the testimony offered by the proponents of S. 1175 and by officials of the Bureau of Reclamation during the hearings on S. 1175 in June and July of 1947, as the same has been printed in the report of said hearings. My references at this time will be to the foregoing sources, for convenience and certainty.

S. 75, which was introduced by Senator Hayden and myself, is a bill to authorize the construction, operation, and maintenance of a dam and incidental works in the main stream of the Colorado River at Bridge Canyon, together with appurtenant dams and canals for the purpose of providing supplemental water

for lands now being irrigated in central Arizona. House bills 934 and 935 have the identical purposes.

The amount of land which would receive supplemental water under these bills is estimated in the report of the Secretary of the Interior to be approximately 639,680 acres (table B-23 of report). Other persons estimate this acreage to be approximately 725,000 (see testimony of W. W. Lane, pp. 218–219 of the hearings on S. 1175).

However, as may be plainly deduced from all the testimony, the bills would attain many other desirable objectives, direct and indirect, of incalculable value.

The provisions and objectives of the bills are best understood if considered against the background of the long and toilsome battle Arizonians have waged to reclaim desert land and to convert it through the magic of irrigation to productive abundance. To preserve and maintain the rewards of this monumental struggle, we now are in mortal necessity of a supply of water wherewith to supplement such inadequate stores as nature and terrain have made available, which stores are depleted to an extremely critical point. (Note testimony of Mr. E. A. Moritz, for example, on p. 31 of said hearings).

Our only source for self-preservation is the waters of the Colorado River, which can best be obtained for the major area of our developed lands by raising those waters to an altitude sufficient to permit them to flow naturally to points of need, whence they may be used directly or in exchange for waters now derived by inflow from higher regions, thereby releasing the latter for use in such higher regions.

S. 75 and House bills 934 and 935 propose to authorize a project to deliver these life-sustaining waters to the people of Arizona.

They will do so under a plan engineeringly feasible and financially self-liquidating, which will preserve a great and sturdy American community that will continue to be an invaluable fountain of strength and revenue for its own and our Nation's security.

The bills provide for a dam at Bridge Canyon on the Colorado River in northwestern Arizona, and for a tunnel and main canal to transport water from the reservoir impounder by that dam in a general southeasterly direction to the Salt River above the presently existing Granite Reef Dam. From there a canal would be built to the Gila River above the town of Florence, Ariz., whence a canal would be constructed to the Picacho Reservoir and thence to the flood plains of the Santa Cruz River. Appurtenant to these would be a related system of conduits and canals to distribute water to lands in Maricopa and Pinal Counties. The delivery of water to these areas will satisfy the demands there, consequently affording a greater supply of the waters of the Salt and Gila Rivers to higher areas along their courses and on all their tributaries within Arizona, such as Duncan and Safford. Relief will also extend to areas along the Gila in New Mexico, and will augment municipal supplies, as in the case of Tucson, Ariz.

You will note that the boring of the tunnel will be deferred until Congress determines that economic conditions so justify. In the meantime, a hydroelectric generating plant would be installed at Bridge Canyon Dam. Part of the energy there produced would operate pumps to lift water from Lake Havasu, behind the present Parker Dam, to an aqueduct which would be constructed to convey the water easterly to the main canal previously described, at a point near Cunningham, Wash. The remainder, fully two-thirds, of the electricity to be produced at Bridge Canyon Dam would be sold within an area where the demand already exists and will increase.

The cost of the tunnel will not be in evidence, as construction thereof would not occur until some date in the future, when Congress by making appropriation expressly therefor has determined that economic conditions justify its construction.

The bills also provide for a fully coordinated system for the efficient distribution and storage of water, and for the generation and transmission of electrical energy.

Revenues derived from the delivery of water and the sale of electricity would, well within the useful life of the project, repay the reimbursable costs thereof, although the costs allocated to flood control, desilting operations, recreation, and fish and wildlife control would not thus be reimbursed.

Mr. Chairman, the testimony in the previous hearing to which I have referred, and the documentary evidence which I have introduced today in support of these bills, may be divided into three subheads. First, the need of water for central Arizona; second, the feasibility of the central Arizona project; and third, the availability of the water for the project. I shall attempt to give a brief summary of the evidence under these three subheads.

THE NEED OF WATER FOR CENTRAL ARIZONA

We in Arizona have a high appreciation of the value of water and its proper and conservative use. Probably no State in the Union has produced more with the amount of water available than has Arizona. There are now or have been approximately 725,000 acres of irrigated land in central Arizona. In addition Arizona has irrigated approximately 60,000 acres of the original Yuma project from the Colorado River and some other small areas of the Colorado River which would not be benefited by this legislation. (Statement of W. W. Lane, p. 218 of the hearings on S. 1175.) There remain approximately 5,000,000 additional acres of fertile land which could be irrigated if only water were available.

However, as pointed out in the report of the Bureau of Reclamation, the central Arizona project " is essentially a 'rescue' project designed to eliminate the threat of a serious disruption of the area's economy" (p. 6 of the report).

The existing agricultural development in Arizona has made it a rich agricultural empire founded upon irrigation and playing a considerable part in the economy of the Southwest. The remains of irrigation facilities found by early settlers are evidence of an extensive prehistoric agriculture development, a development which was abandoned because of prolonged droughts. Irrigation started in Arizona as far back as the 1860's. In general, we think of our principal irrigation systems as falling within two areas traversed by the Gila and the Salt River and their respective tributaries.

W. W. Lane, in his statement found on pages 218 and 219 of the hearings gives the location of the 725,000 acres of irrigated land.

Our present sources of water supply for central Arizona consist of gravity water from the Salt and Gila Rivers and their tributaries, and water pumped from underground. The first major dam for the storage of water to be built in our State was the Roosevelt Dam, on the Salt River, which dam has a storage capacity of approximately 1,637,000 acre-feet of water; its construction was begun in 1903 and completed about 1910. Since that time three other dams have been constructed on the Salt River and two dams on the Verde River, a tributary of the Salt River. The resultant total capacity of all reservoirs for the Salt River is somewhat in excess of 2,000,000 acre-feet of water. Within the borders of the Salt River Valley Water Users' Association project there are 242,000 acres of irrigated lands. Adjoining this project there are several smaller ones; part of these lands are irrigated entirely by gravity water, part by pumped water, and some both by gravity and pumped water. The total irrigated area of these smaller projects, some of which are below the confluence of the Salt and Gila Rivers, is over 200,000 acres.

On the Gila River we have the San Carlos project. This project comprises some 100,000 acres, half of which are Pima Indian Reservation lands. It is irrigated in part by pumped water and in part from water impounded by the Coolidge Dam, which has a storage capacity of 1,200,000 acre-feet of water. There are also in Pinal County, adjoining the San Carlos project, over 100,000 acres of land irrigated entirely with pumped water. Further upstream on the Gila River, there is the upper Gila project, in Graham and Greenlee Counties, comprising some 40,000 acres, which are dependent entirely upon the normal flow of the river and upon pumped water.

It is of the essence to bear in mind that although the capacity for storage of water is commensurate to the need thereof, the quantity of actual water required to supply these areas is woefully inadequate.

The need for additional water for this area of land arises from an overdevelopment which has resulted from two causes.

(1) In the early days of the Bureau of Reclamation, it was estimated that the annual per-acre requirement at the farms was 3 acre-feet, and the water supply was estimated accordingly. This was based upon general farming in practice at that time. The chief crops were grain and alfalfa. Grain requires a relatively small amount of water; but with the development of irrigation, it was found to be more profitable, due to highly fertile soils and the long growing seasons permitted by favorable climatic conditions, to grow specialized crops out of season to most of the Nation, and multiple crops per year. This provides fresh foods to the Nation at times they are otherwise not available. However, it requires a high duty of water, and it is now found that 4 acre-feet of water per acre at the farm is required to maintain such production. (Note testimony of W. W. Lane, pp. 218–221, and of Vic Corbell, pp. 127–140, of said hearings; and the Bureau report, p. R–29.)

(2) Pumping first started principally because some of the lands were water-

logged; but with the increased efficiency of pumping and lower power costs, pumping increased because it was very profitable for irrigation. The net result is that pumping has overdeveloped, and the underground water supply is being exhausted. This overpumping from the basins underlying the central Arizona project area was estimated to be 468,400 acre-feet per year for the period 1940–44, inclusive. (Bureau report, p. R–6.)

Even with this water developed from overpumping, much of the land has been out of cultivation because of inadequate water supply. The Bureau of Reclamation report (pp. R–9 and R–29) states that 671,960 acres have been irrigated at some time in the past. Of this total an annual average of 566,170 acres was irrigated between 1940 and 1944. This meant that 105,790 acres of project land was idle between the years 1940 and 1944. In some areas this condition was even worse between 1944 and 1949. Mr. K. K. Henness, farmer and county agricultural agent of Casa Grande, testified at the hearings in June 1947 (p. 174 of said hearings) that there was only one-fourth enough water for the irrigated land in the San Carlos project at that time, and that the allotment was only eighty-five one-hundredths of an acre-foot. I understand some additional water was later made available by rains during the year, but this meant that the farmer could not adequately irrigate more than 25 percent of his land. This testimony was also corroborated by A. L. Bartlett, a farmer in that valley (said hearings, p. 207) and by Leon Nowell (said hearings, pp. 210–211).

While the Salt River Valley project, which has the more adequate water supply, was not in as bad a condition, they were likewise very short of water. Vic Corbell, in his statement at the earlier hearing (p. 130) spoke as follows:

"The history of the project has been that the amount of water available in any given year may range from a full supply down to 2 acre-feet per acre per annum, such as has been the case in the year 1947. In only 2 years in the last 25 years has a full supply been available. Based on rainfall records, tree-ring records, and other records and data available, it can be said that the rainfall has been normal the last 25 years; therefore, the unescapable conclusion is that there is more land within the project than that for which there is an adequate supply of water." This meant that in years like 1947 they had either to let one-half of the lands lay idle or inadequately to irrigate all of them, which amounts to about the same thing.

The need for this project development is shown by paragraph 9, page 2, of the Bureau report, which paragraph reads as follows:

"In spite of the developments now available, there is an acute water shortage in the project area. The 1940–44 average annual surface water supply was 1,676,600 acre-feet. This figure includes some reuse of surface water. To supplement the surface water supply an average of 1,163,000 acre-feet annually was pumped from the ground-water basin during the same period. This pumpage is estimated to be about 468,000 acre-feet in excess of the safe annual yield of the underlying ground-water basins. Obviously continued pumping at the present rate will lower the water table to such a point that many of the wells will become dry. The wells on the edge of the water basin could not be rehabilitated by deepening because the perimeter of the water-bearing strata will be constricted as this process continues."

It will be noted that the surface water supply is here estimated at 1,676,600 acre-feet per annum, including reuse, and according to the report this amount is comparable to the average over longer periods of time. For this reason, the noted periods were taken.

I would like to call your attention to the testimony of Mr. W. W. Lane (found on p. 219 of the hearings) which gives an average diversion from the Gila River system, from 1930 to 1944, of 1,697,000 acre-feet. It is calculated, according to Mr. Lane's testimony, found on page 220 of the hearings that the water so included in the total diversions is made up as follows:

	Acre-feet
Net river supply	1,135,000
Return flow from higher diversions	200,000
Salvage water, or water if permitted to flow in small flows as would if undisturbed and which would be lost to the stream by natural causes in the stream bed	362,000
Total	1,697,000

The Bureau of Reclamation estimates (p. 4 of its report) that in order to obtain the needed water for the project, it will be necessary to divert 1,200,000 acre-feet of Colorado River water, which will deplete the main stream flow 1,077,000 acre-feet. The balance will be returned to the river. This together with the small development from other dams would make up the water supply and would, according to said report as stated in paragraph 18, page 4, thereof—

"(Studies) indicate that this new water made available for diversion at the headgates of the irrigation districts each year would be sufficient to: (1) Replace the overdraft on the ground-water basins; (2) permit the drainage of excess salts out of the area and maintain a salt balance; (3) provide a supplemental supply to lands now in production, but not adequately irrigated; (4) increase the water supply for the city of Tuscon; and (5) maintain irrigation of 73,500 acres of land formerly irrigated but now idle for lack of water. There would not be sufficient water to permit irrigation of new land. There would, however, be sufficient water to permit stabilization and some improvement of the existing agricultural economy of the area."

Table 5, found on page R–31 of the Bureau of Reclamation report, shows the new surface water needed at the district headgates to be 1,082,000 acre-feet, which needs are set forth in the table following:

Water needed—Ultimate development

	Acre-feet a year
New surface water at district headgates	1,082,000
Pumpage in excess of safe annual yield	468,000
Increase in safe annual yield of ground water due to Colorado River water diverted to area	400,000
Net reduction in pumping	68,000
Outflow to maintain salt balance	376,000
Net reduction in pumping available for irrigation	444,000
Reduction in water at farm headgate assuming a 15 percent loss for pumped water	377,000
Surface diversions required to replace 377,000 acre-feet a year, assuming losses of 30 percent for diverted water	539,000
Supplemental water required for lands now irrigated	113,000
Water required for municipal supply	12,000
Subtotal	664,000
Water available for lands formerly irrigated but now idle for lack of water	418,000

The new surface water to be developed to meet these needs is set forth in table 4, page R–28 of said report as follows:

New surface water—Developed by central Arizona project ultimate development

New water available:	*Acre-feet a year*
Diverted from Colorado River	1,200,000
Developed by Horseshoe Dam enlargement	42,000
Developed by Buttes Reservoir	64,000
Developed by upper Gila River developments	19,000
Channel losses conserved by Charleston Reservoir	7,000
Gross new surface water	1,332,000
Losses, Granite Reef aqueduct	200,000
Losses, Salt-Gila aqueduct	50,000
Total aqueduct losses	250,000
New surface water at district headgates	1,082,000

According to the report, if this water supply is made available for the project, 73,500 of the 105,790 acres formerly irrigated but now idle for lack of irrigation, can be irrigated. In addition to this amount, as shown in table B–5 of the report, it would be possible to sustain irrigation of an additional 152,520 acres which would otherwise have to be retired from irrigation. This would mean a total of 226,020 acres, which would otherwise be compelled to remain forever idle, could be maintained in production by this project.

If this project is not developed, what would this mean to the economy of the State? The estimated population of the agricultural communities of Arizona in 1947 was 504,000 (see first table on p. 152 of said hearings). Figuring upon a percentage basis, the previously indicated exclusions from cultivation, which must occur if the project is not authorized, would deprive approximately 150,000 persons of their incomes or means of livelihood, and they would be "displaced persons." It would mean the failure of banks and businesses, that literally thousands of families would lose their life earnings invested in farms, homes, and business establishments. The problem of overcoming these business failures and placing these bankrupt and homeless people upon their feet would indeed be great.

I need not further dwell upon the testimony showing the need for this project; but I will call attention to the testimony of various witnesses at said hearing, all of whom portrayed this picture. They are: Wayne M. Akin, pages 111–120; A. L. Bartlett, pages 204–209; Walter R. Bimson, pages 147–151; V. I. Corbell, pages 127–140; E. R. Cowden, pages 215–216; N. M. Dysart, pages 160–162; K. K. Henness, pages 172–182; Alfred Jackson, pages 200–202; J. M. Jacobs, pages 162–165; D. A. Johnson, pages 415–417; A. T. Jones, pages 196–200; W. W. Lane, pages 217–221; P. J. Martin, pages 158–160; G. W. Mickle, page 214; J. T. McChesney, pages 216–217; C. H. McKellips, pages 121–125; C. Neely, pages 212–213; L. M. Nowell, pages 209–212; D. Stanley, pages 165–169; J. A. Udall, pages 169–172; and A. Van Wagenen, pages 203–204.

FEASIBILITY OF THE CENTRAL ARIZONA PROJECT

It is estimated in the Bureau of Reclamation Report that this project, leaving out the cost of the tunnel for the reasons I have already stated, would cost approximately $738,408,000, which is made up from the table of items found on page 15 of the report as follows:

Construction costs

Bluff Dam and Reservoir	$29,628,000
Coconino Dam and Reservoir	7,487,000
Bridge Canyon Dam and Reservoir	191,939,000
Bridge Canyon power plant	73,419,000
Havasu pumping plants	25,973,000
Granite reef aqueduct	131,716,000
McDowell pumping plant and canal	3,346,000
McDowell Dam and Reservoir	16,326,000
McDowell power plant	1,012,000
Horseshoe Dam (enlargement) and Reservoir	7,078,000
Horseshoe power plant	2,628,000
Salt-Gila aqueduct	34,585,000
Buttes Dam and Reservoir	29,037,000
Buttes power plant	1,159,000
Charleston Dam and Reservoir	9,270,000
Tucson aqueduct	6,401,000
Safford Valley improvements	4,090,000
Hooker Dam and Reservoir	15,484,000
Irrigation distribution system	54,086,000
Drainage system for salinity control	9,973,000
Power transmission system	83,771,000
Total	738,408,000

The allocations of these costs are found on page 16 of the report in table 2, as follows:

Allocations

Item	Existing reclamation law	Rockwell bill, H. R. 2873	McFarland bill, S. 1175	Combination of S. 1175 and H. R. 2873 as slightly modified by recommendations of the regional director
Power	$291,160,000	$243,744,000	$247,190,000	$243,798,000
Irrigation	420,019,000	397,488,000	404,982,000	397,693,000
Municipal	18,014,000	16,605,000	16,865,000	16,605,000
Flood control [1]	6,290,000	6,907,000	6,270,000	6,641,000
Fish and wildlife [1]	2,925,000	3,127,000	2,826,000	3,129,000
Silt control [1]		28,097,000	26,511,000	28,097,000
Recreation [1]		37,454,000	33,764,000	37,459,000
Salinity control [1]		4,986,000		4,986,000
Total	738,408,000	738,408,000	738,408,000	738,408,000

[1] Nonreimbursable items.

NOTE.—The item known as the Rockwell bill may be eliminated as the authorization would be made under S. 75 as far as the repayments provision is concerned.

The report definitely shows that the central Arizona project has engineering feasibility in that there are no physical obstructions that would be encountered during its construction that could not be overcome (par. 27, p. 7, report).

The project is also financially feasible under the provisions of S. 75 and House bills 934 and 935 in that it could reasonably be expected to repay the reimbursable portions of its construction costs well within the useful life of the project. It has been found that $4.75 per acre-foot, which local interests have indicated they are willing and able to pay, would more than pay the operation and maintenance costs and replacement costs allocated to irrigation. It has also been found that a charge of $0.15 per thousand gallons for municipal water would fully repay all costs allocated to that purpose and would be equally advantageous to the municipal water users. The power rate necessary to accomplish a repayment of all reimbursable costs assigned to be repaid from power revenues would be extremely reasonable. Such low-cost power would represent a distinct advantage to power users in that area (pp. 7–8, report).

The project represents a sound investment for the Nation in that the tangible benefits of the project would exceed the total cost to the Nation in the ratio of 1.63 to 1.

In addition, there would be innumerable intangible benefits accruing to the State of Arizona and to the Nation as a whole as a result of the central Arizona project (pp. R–73–77, report).

In addition to the sources which I have more specifically indicated, the feasibility of the project is thoroughly supported in the testimony of the following witnesses at such hearings: Dr. G. W. Barr, pages 183–196 and 558; E. B. Debler, pages 292–307; L. G. Galland, pages 202–203; H. A. Leggett, pages 151–158; R. A. Meeker, pages 473–481; E. A. Moritz, pages 31–35; R. J. Tipton, pages 522–548; Wm. Warne, pages 8–24 and 25–30; K. S. Wingfield, pages 552–555; V. E. Larson, pages 35–111 and 395–404.

AVAILABILITY OF WATER FOR THE PROJECT

When speaking of the availability of water, one must remember that there is the separate item of the physical quantities which may be available, and the distinct but related item of legal entitlement to the use of water.

I say with positive assurance that there is adequate water in the Colorado River fully to supply the central Arizona project and that Arizona is clearly entitled as a matter of right and justice to the exclusive use of that water. Moreover, such use will not interfere with or burden any other right of use existing in law.

The long-term (1897–1943) average annual flow of the Colorado River under virgin conditions at Lee Ferry was 16,270,000 acre-feet; at the international boundary it was 17,720,000 acre-feet. The average annual flow under virgin conditions for the years 1931 to 1940, a period of low flow, at Lee Ferry was

12,214,000 acre-feet; at the international boundary it was 13,001,000 acre-feet. (Statements of V. E. Larson, pp. 46–47 of hearings, and E. B. Debler, pp. 301–303.) Mr. Debler pointed out that in low run-off period, and allowing for evaporation and other losses, the over-all or total availability for depletion to all users of the Colorado River water may be a bit less than the maximum quantities apportioned in the Colorado River compact and by the water treaty with Mexico. Even so, there would be available for diversion to Arizona for its central Arizona project 1,200,000 acre-feet, which is the amount required. (See Mr. Larson, p. 54; Mr. Debler, p. 303.) Mr. R. J. Tipton took occasion to note his concurrence with Mr. Debler (pp. 535–539). Mr. Debler estimated that the net annual depletion of the Colorado River water by the central Arizona project will be 1,067,000 acre-feet (p. 303).

I have condensed my statement concerning the physical availability of water to the foregoing ultimate factual assertions, but the other and more extensive evidence will supply both detail and corroboration.

Now we come to the question of the availability of water or Arizona's right to water as a matter of law.

This phase of the case may be much more readily presented and grasped by a review of matters leading to our present situation.

In the year 1922 the States of the geographical area described in the testimony as the Colorado River Basin, were striving among themselves to arrive at an agreement leading to the beneficial use of the waters of the Colorado River for irrigation and the generation of electric power. The delegates from these States proposed the now renowned Colorado River compact. A controversy arose over the inclusion of the waters of the Gila River within the Colorado River system and hence with those to be apportioned by the compact, a move unalterably resisted by the Arizona delegation because the waters of the Gila had long been put to beneficial use by the citizens of that State, and because the waters of the Gila enter the Colorado at a point so southerly as to prevent the enjoyment thereof by any of the basin States other than Arizona. In fine, the Gila was no part of the Colorado waters which were the proper subject of apportionment. The Arizona delegates were agreeable, however, to the provisions of article III (a) of the compact, which proposed the annual apportionment to the upper basin, and a like apportionment to the lower basin, of 7,500,000 acre-feet of water from the Colorado River if the waters of the Gila were reserved for Arizona. As a consequence, and in order to compensate Arizona for the inclusion of the Gila waters in the Colorado River system, the delegates agreed upon article III (b) of the compact, which reads as follows:

"(b) In addition to the apportionment in paragraph (*a*), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum."

This quantity of 1,000,000 acre-feet per annum corresponds to the then estimated annual flow of the Gila River at its mouth where it empties into the Colorado.

The history of the meaning and purpose of article III (b) of the compact is related in the testimony of Mr. Ralph Meeker, who was, during the negotiation of the Colorado River compact at Santa Fe, the engineer adviser for the State of Colorado. He was present at the compact sessions and of his own personal knowledge is familiar with the background of the compact. His testimony is found from page 473 to page 481 of the record of the hearing on S. 1175. I call particular attention to pages 475 through 476 thereof, where Mr. Meeker makes it plain that it was understood by all the negotiators that 1,000,000 additional acre-feet were apportioned to the lower basin to be used in Arizona, because the Gila River was included in the compact. He also quoted (p. 475) from the report of Frank C. Emerson, commissioner for the State of Wyoming for the Colorado River compact, and from a citation from The Colorado River Compact, by Rouel Leslie Olson, showing that this was understood by L. Ward Bannister, special representative for Colorado at the negotiations.

Likewise, in support of the identical history and meaning of this article III (b), I refer to the testimony of Mr. Charles A. Carson, now chief counsel for the Interstate Stream Commission of Arizona, wherein he incorporates testimony of Hon. Thomas E. Campbell, former Governor of Arizona (p. 225 et seq. of said hearings); of Mr. W. S. Norviel, Arizona's commissioner at the compact sessions (p. 227 et seq. of said hearings); and of Mr. C. C. Lewis, another of Arizona's representatives at such sessions (p. 229 et seq. of said hearings). The testimony of the three individuals last named is based upon personal participation and direct knowledge of these matters.

Hon. Herbert Hoover, then Secretary of Commerce, who represented the Federal Government and presided at the compact sessions, most certainly knew and recognized that Arizona had succeeded in gaining the apportionment made in article III (b) to compensate for the inclusion of the Gila within the Colorado River system. (Note Mr. Carson's testimony, pp. 222–224 of said hearings.)

Mr. E. B. Debler, who has had intimate personal connection with the problems of the Colorado River continuously since a date prior to the compact, who from 1921 to 1943 was in charge of most of the project planning for the Bureau of Reclamation, and who from 1944 to April of 1947 was regional director of the Bureau's region 7, is entirely clear that an additional million acre-feet was apportioned by article III (b). (See, for example, his statement at pp. 292–294 of said hearings.)

When the Arizona delegate signed the compact in November of 1922, he did so with a clear understanding and agreement that the States of Nevada, California, and Arizona would enter a tri-State agreement which, among other things, would apportion to Arizona the exclusive beneficial use of all water of the Gila River, the equivalent of the 1,000,000 acre-feet of water apportioned in article III (b) of the compact. (See pp. 222, 225–226, 228–229.) Thereafter, California would not agree to a just division of the water of the Colorado River which had been apportioned to the lower basin; so the people of Arizona would not ratify the compact at that time.

The Colorado's uncontrolled flow proved increasingly harmful as well as wasteful of potential benefit. California's anxiety to avoid floods along the neighboring California lowlands and to procure water and electric energy for her coastal communities made her especially anxious to harness and utilize the Colorado. Further interstate negotiations having proved unavailing, congressional action for the construction of Boulder Dam was inaugurated. This led to the passage of the Boulder Canyon Project Act (45 Stat. 1057, Public Law 642, 70th Cong.) on December 21, 1928.

As to the course of that bill in the Senate, I quote from testimony given by Senator Hayden at the hearings on Senate Joint Resolution 145 of the Eightieth Congress (pp. 333–334):

"The only thing I might contribute very briefly is a little bit of history of the adoption of the Boulder Canyon Project Act, which might interest this committee. It was designed to make sure that the State of Arizona obtained no water out of the Colorado River until we had adopted the Colorado River compact. Senator Ashurst and I objected to that; that we thought it should provide for the irrigation of land in Arizona as well as California.

* * * * * * *

"The bill came up in the Senate toward the end of a long session of Congress, and it was made the unfinished business, but, as the situation is now, the appropriation bills had the right-of-way, so Senator Ashurst and I had no difficulty at all in keeping the unfinished business and preventing a vote on it even though there was a cloture petition which failed to obtain two-thirds majority. It was then made the unfinished business in the December session exclusively, and we just debated it day by day.

"In an effort to work out some method whereby the bill might pass, Senator Pittman, of Nevada, made this suggestion to Senator Ashurst and I, that inasmuch as the State of California had obligated itself not to take out of the apportioned water more than 4,400,000 acre-feet, that left the remainder of the 7,500,000 acre-feet to be apportioned in the lower basin. He said, 'Of course, Congress cannot divide water among States, but Congress can approve a compact among the States and indicate what the compact means.' 'Therefore,' he said, 'all of the water that Nevada wants is some 300,000 acre-feet,' and we could put a provision in the bill looking to an interstate agreement in the lower basin and give the advance approval that would allocate to Nevada 300,000 acre-feet and Arizona 2,800,000 acre-feet.

* * * * * * *

"So, when we came to work out what should be done about the lower basin, I insisted that we should make the Gila Basin thing perfectly clear, and so you will remember that there is in the act that provision that the State of Arizona shall have the exclusive beneficial use of all of the waters of the Gila River within its boundaries, and that no part of it should be allocated to Mexico.

"As I say, we continued to filibuster until we worked out that kind of an arrangement. It was entirely satisfactory to Senator Johnson and Senator Shortridge, of California, because their State was obligated to obtain so much water. So far as the Gila Basin was concerned, they agreed with us that it

entered the Colorado River below any possible point of diversion into California, and, therefore, they had no interest in it, and on that basis we concluded that we would allow a vote on the bill, and it passed the Senate."

I would like to call attention to the fact that the act by its own terms (sec. 4 (a)) was to become effective upon either of two conditions. The first of these was ratification of the Colorado River compact within 6 months by all seven of the States affected. The second was ratification of the compact by six of the interested States, including California, and the irrevocable and unconditional enactment by the legislature of the latter State of a statute which (and I now quote the exact language of said section 4 (a)): "shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an express covenant and in consideration of the passage of this act that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this act and all water necessary for the supply of any rights which may now exist, shall not exceed four million four hundred thousand acre-feet of the waters apportioned to the lower basin States by paragraph (a) of Article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact."

California promptly enacted a statute (act 1492, Calif. Stat. 1929, p. 38), sometimes spoken of as the Self-Limitation Act, the pertinent part of which is verbatim with the language just quoted from the Boulder Canyon Project Act. In view of the extremely liberal quantity of water specified as a maximum, and in view of her need for flood control, water, and electrical energy, California's willingness to adopt her Self-Limitation Act is quite understandable.

Section 4 (a) of the Boulder Canyon Project Act also unequivocally voiced the permanent intention of the Congress to define and limit California's maximum rights, and California irrevocably and unconditionally agreed to that limitation.

Having limited California to 4,400,000 acre-feet per annum of the 7,500,000 acre-feet apportioned by article III (a) of the Colorado River compact, as I have already shown, and having further limited California to half of any excess or surplus waters unapportioned by that compact, Congress further provided that—

"The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico * * *."

The foregoing factors plainly define the congressional purpose. Congress manifestly intended that of the 7,500,000 acre-feet of Colorado River water apportioned by article III (a) of the compact, Nevada is to receive 300,000; Arizona not less than 2,800,000; and California not to exceed 4,400,000. It is also clear that Arizona should receive, in addition, all the waters of the Gila River, both because of the previously mentioned insertion in the compact of its article III (b)—which apportions 1,000,000 acre-feet per annum to the lower basin to compensate Arizona for inclusion of the Gila in the Colorado River system—and because of the specific authorization (in sec. 4 (a) of the Boulder Canyon Project Act) of the agreement whereby Arizona is to receive all the water of the Gila and its tributaries within Arizona's boundaries.

From the mere reading of the language of the Boulder Canyon Project Act it is evident that Congress proposed to California the terms of a contract for the explicit benefit of Arizona, Nevada, and the other interested States. The contract thus proposed was as follows: Of the 7,500,000 acre-feet of Colorado River water apportioned to the lower basin by article III (a) of the compact, California should have not to exceed 4,400,000 and that California could use

not more than one-half of any water in excess of or surplus to the water apportioned by the compact, which might be available in the lower basin. California, by adopting its Self-Limitation Act, unequivocally and unconditionally accepted this proposal and thereby completed a binding contract. As California may not have more than 4,400,000 acre-feet of the water apportioned by article III (a) of the compact, the balance is for Nevada and Arizona; and Congress has in terms indicated its intent that Nevada have 300,000 acre-feet and Arizona not less than 2,800,000 acre-feet. This intent has been executed. The water involved in article III (b) of the compact not only is "apportioned" water, but is in effect apportioned to Arizona for the reasons shown. The Colorado River water which is available in the lower basin in excess of or surplus to that apportioned by articles III (a) and III (b) of the compact is to be equally divided between California and Arizona.

This contract between the State of California and the United States—for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming—just as completely settled California's rights as any compact could do. Congress by approving in advance a compact between Arizona, California, and Nevada definitely gave its interpretation of the California Self-Limitation Act, which is the one Arizona now relies upon; and California by adoptng the act accepted and agreed to this interpretation.

Arizona, relying on the protection thus afforded her, adopted and ratified the Colorado River compact. A large number of the people of Arizona believed that Congress had not required California to limit herself to a small enough quantity of the waters of the Colorado River. However, Arizona had little choice, as the rights of the States were well defined in the Boulder Canyon Project Act. She has entered into a contract with the Secretary of the Interior, which contract calls for delivery of 2,800,000 acre-feet of Colorado River mainstream water per year, plus one-half of the excess of surplus water unapportioned by the compact which may be available in the lower basin, less one twenty-fifth of such surplus water, to be used by Nevada. (The contract appears at pp. 240–243 of said hearings on S. 1175.)

It is significant that the Department of the Interior in a regulation promulgated by it under date of February 7, 1933, authorized the proffer to Arizona of a water-delivery contract which contained this provision:

"Ten. From storage available in the resorvoir created by Hoover Dam, the United States will deliver under this contract each year, at points of diversion hereinafter referred to on the Colorado River, so much of the available water as may be necessary to enable the beneficial consumptive use in Arizona of not to exceed 2,800,000 acre-feet annually by all diversions effected from the Colorado River and its tributaries below Lee Ferry; *but in addition to all uses of waters from the Gila River and its tributaries.*" [Italics supplied.]

Also article 15 (a) provided—

"The State of Arizona will hereafter grant no permits for, nor otherwise authorize, uses of the waters of the Colorado River and its tributaries other than the Gila River and its tributaries, except subject to the terms of this contract." (Hoover Dam Contracts, p. 373; p. 238 of said hearings.)

The change in administration shortly thereafter terminated negotiations for this contract; but the noted language is most illuminating as an administrative determination by the Bureau of Reclamation of Arizona's right to all the water of the Gila, as well as 2,800,000 acre-feet annually of the main-stream waters of the Colorado stored at Hoover Dam Reservoir (see p. 238 of said hearings).

California admits that she is bound by the California Self-Limitation Act and is not entitled to more than 4,400,000 acre-feet of III (a) water and one-half of any excess or surplus water unapportioned by the compact. However, in an effort to procure more so-called surplus waters for herself, thereby in actuality reducing the quantity of apportioned water to which Arizona is rightfully entitled, California has elected to pursue a stratagem based largely upon two patently strained and inequitable constructions of the wording of the Colorado River compact. In a general way, these false constructions may be stated as follows:

(*a*) The water described in article III (b) of the compact is water unapportioned by the compact.

(*b*) A definition of "beneficial consumptive use" which would charge Arizona with the total water reaching the Gila watershed rather than with the amount by which she depletes the waters of the Colorado River at the mouth of the Gila.

Neither of these contentions is supported by the intentions of the framers of the compact or by those of the Congress.

As to the contention that the water embraced in article III (b) of the compact is not apportioned, and therefore falls within the class of "surplus or unapportioned" water of which California may have half under the provisions of the Boulder Canyon Project Act, enough has been said above to demonstrate its utter fallacy. Congress in effect has indicated its intention as to the division of the waters apportioned by article III (a) of the compact (i. e., California, not more than 4,400,000; Nevada, 300,000; Arizona, not less than 2,800,000; total, 7,500,000). As shown, the ultimate purpose of article III (b) was to apportion the waters of the Gila to the lower basin for use by Arizona, and Congress explicitly recognized this apportionment by express language in the Boulder Canyon Project Act. It is therefore clear to anyone who cares to see, that the waters upon which article III (a) of the compact is effective (i. e., 7,500,000 acre-feet of Colorado River water) and those upon which article III (b) is operative (that is, in final effect, the 1,000,000 acre-feet of the Gila which was thought to be substantially all thereof) are "apportioned water." The excess or surplus waters above such apportioned water are for equal division between California and Arizona (with the small reservation for Nevada previously noted).

The record abounds with proof, both within the context of the compact and of the project act, as well as in collateral circumstances, that this is the true and just situation.

I invite attention to the testimony of Judge Clifford H. Stone, director, Colorado Water Conservation Board and commissioner for Colorado for the Upper Colorado River Basin Compact Commission, whose ability, impartiality, and knowledge of these problems are generally recognized. His testimony appears on pages 513 through 521 of said hearings on S. 1175. Judge Stone demonstrated that the water embraced in article III (b) of the compact is definitely "apportioned water" (p. 513), and that the Supreme Court of the United States has so held in the case of *Arizona* v. *California* (292 U. S. 341 et seq. (p. 517)). He points out that the compact is clear and unambiguous, within its own four corners, as to the apportionment of water (p. 513); that the will of the legislatures which ratified the compact is paramount (p. 514), and that such will cannot in law be now thwarted through collateral efforts and documents (pp. 516–517). At page 517, Judge Stone quotes the following language from a letter from the Honorable Herbert Hoover, who was the chairman of the Colorado River Compact Commission:

"Due consideration is given to the needs of each basin, and there is apportioned to each 7,500,000 acre-feet annually from the flow of the Colorado River in perpetuity, and to the lower basin an additional million feet of annual flow, giving it a total of 8,500,000 acre-feet annually in perpetuity."

I also wish to call attention to page 395 of the book entitled "The Hoover Dam Contracts," which contains the following question to Mr. Hoover in a letter of Mr. Clarence C. Stetson, and Mr. Hoover's answer:

"Why is the basis of division changed from the 'Colorado River system' to the 'river at Lee Ferry' in paragraph (d) of article III, the period of time extended to 10 years and the number of acre-feet multiplied by 10?"

"I do not think there is any change in the basis of division as the result of the difference in language in articles III (a) and III (b). The two mean the same thing. By reference to article II (f) it will be seen that Lee Ferry, referred to in III (d), is the determining point in the creation of the two basins specified in III (a)."

Mr. Carson ably and fully establishes the accuracy of the foregoing outline of historical and legal matters, as well as other cogent factors leading to the inescapable conclusion that Arizona is entitled to all the waters of the Gila within Arizona and not less than 2,800,000 acre-feet annually of water of and from the main streams of the Colorado (pp. 221–291; 481–495). In noting that the Supreme Court had held the III (b) waters to be apportioned, Mr. Carson added that the Court also pointed out that that article is without ambiguity (pp. 235, 481 of said hearings.)

The second of the devices by which California hopes to gain additional water involves its own definition, highly beneficial to that State, of "consumptive use." The question is whether the quantity of water put to "beneficial consumptive use" along the course of a tributary to the Colorado River is equivalent to the amount of depletion of the virgin flow of such tributary at the confluence thereof with the Colorado River. California applies its definition of consumptive use to Arizona by insisting that Arizona is chargeable with all the water flowing in the Gila watershed which does not reach the Colorado. As California has no real tribu-

tary to the Colorado River and contributes practically no water to the main stream thereof, her definition is therefore peculiarly beneficial to herself and detrimental to Arizona and the upper-basin States.

It is Arizona's theory that we are chargeable only with the amount of water by which we deplete the main stream of the Colorado River. That is the only amount which affects the other States. The Gila River, as has been explained, admittedly empties into the Colorado at a point which prevents use of the Gila waters by any other State. The virgin flow of the Gila at such confluence is now estimated at approximately 1,270,000 acre-feet per annum (pp. 35, 47 of said hearings), although when the compact was drawn, as above noted, the virgin flow was thought to be about 1,000,000 acre-feet and the latter was consequently the amount used in article III (b) as the additional quantity apportioned to the lower basin for use by Arizona.

As has been demonstrated, the framers of the compact, for the precise purpose of compensating Arizona for the inclusion of the waters of the Gila River within the Colorado River system, apportioned an extra million acre-foot per annum to the lower-basin States, for use by Arizona. Simply stated, Arizona was to have the use of the waters of the Gila. Congress then proceeded to place an absolute and concrete interpretation upon the compact when it enacted the Boulder Canyon Project Act, wherein it specifically authorized a compact for apportionment of the 7,500,000 acre-feet of water flowing in the Colorado River below the point of delivery at Lee Ferry (the water embraced in article III (a) of the compact) and for the exclusive beneficial consumptive use by Arizona of the Gila River and its tributaries within the boundaries of that State (the equivalent quantity of water embraced in art. III (b) of the compact) explicitly providing that, except as to return flow of the Gila waters after the same enter the Colorado, the Gila waters should never be subject to diminution by any allowance of water to Mexico under treaty. As indicated, the physical, geographical fact is that water of the Gila, after entering the Colorado, can be used solely in Mexico. It follows that Congress clearly recognized and intended that any measurement of Gila waters under the compact and project act must necessarily be gaged by the amount of depletion of the Colorado at the mouth of the Gila, a process inevitably involving establishment of the difference between virgin flow and actual outflow.

Congress made its views clear to California in the Boulder Canyon Project Act; and as California accepted the terms of that act by promulgating its own Self-Limitation Act, restricting itself to 4,400,000 acre-feet of the Colorado waters apportioned by article III (a) of the compact plus not more than one-half of any excess or surplus waters unapportioned thereby, California perforce recognized the method for determining what was "excess or surplus waters," which method among other elements gave to Arizona 2,800,000 acre-feet per annum of the Colorado River water controlled by article III (a) of the compact, as well as all the Gila waters, except return flow after the same entered the Colorado.

The foregoing is by no means the only argument or theory substantiating Arizona's contention; it is merely supplemental to other probative circumstances appearing in the testimony.

In any consideration of the term "beneficial consumptive use" it is essential that a differentiation be maintained between the chemical and physical processes which attend the consumption and use of water, and the geographical place where such use is to be measured. It seems evident that the framers of the compact had in mind the apportionment of gross quantities of water and the measurement thereof in terms of depletion of the Colorado River.

As Mr. Meeker states, the negotiators of the compact were thinking of and dealing with surface waters (p. 476); and they considered consumptive use in terms of depletion of the Colorado (p. 477), the measurement of which depletion in the case of a tributary involved the difference between the virgin flow and the actual out-flow, such difference being the consumptive use (p. 480). The negotiators' intention was that the upper basin could deplete the Colorado by 7,500,000 acre-feet per year, measurable at Lee Ferry, and that the lower basin might deplete the river by 8,500,000 acre-feet per year, measurable at the boundary between the United States and Mexico (p. 475). The depletion caused by use of the water of the Gila was to be measured at its confluence with the Colorado (p. 475).

Mr. Tipton summarized the respective positions of California and Arizona in this language (p. 522 of said hearings):

"Beneficial consumptive use as it is used in the Colorado River compact is interpreted by California to mean the aggregate of all the individual items of

consumptive use at the points of use. Arizona interprets the term to mean depletion of main-stream Colorado River waters as a result of man's activities."

He then conclusively demonstrated the propriety of the Arizona view, noting the peculiar and unique benefit which would accrue to the benefit of California alone and the harm which would fall upon all the other basin States if California's theory is sound. He states (p. 529):

"It is my conclusion that the Colorado Compact Commission did apportion the virgin flow of the Colorado River and that it considered consumptive use to be synonymous with depletion at Lee Ferry and that it did consider consumptive use on the Gila to be synonymous with the depletion of the Gila river flow at the mouth."

He also logically pointed out that the term should be taken as intended by the commissioners, rather than by latter day partisans, and that the commissioners used such term as I have just outlined (pp. 523–524). Mr. Hoover also held this view as to the equivalence of consumptive use and depletion (p. 525). Mr. Tipton noted that notwithstanding California's claim to a self-created "priority" of 5,362,000 acre-feet of Colorado River water per year, her actual maximum diversion up to 1945 was approximately 2,800,000 acre-feet (p. 540). Of 2,717,530 acre-feet delivered to California in 1946, 1,074,150 flowed as waste to the Salton Sea (Bureau of Reclamation chart, p. 568). Mr. Tipton noted that California is attempting to carve out her fanciful "priority" from Arizona's water and the supplies of the upper basin (pp. 541–542).

In the course of his testimony (pp. 522–548), Mr. Tipton is at pains to support his opinions by references to minutes of the meetings of the compact sessions, and the views of eminent engineers and lawyers.

I would also call attention to the testimony of Mr. Charles A. Carson, given upon this topic (pp. 481 to 490), which sustains the soundness of Arizona's position.

Particularly, I desire to reemphasize the testimony of the Honorable Clifford H. Stone on this subject (pp. 519 to 521). I call special attention to that portion where it is pointed out that the framers of the compact intended depletion to be the measure of consumptive use. I also call attention to the language of Judge Stone at the conclusion of his testimony, which language I now quote:

"Then, in conclusion, the Congress, we believe, will not approve an unconscionable position in interpreting the Colorado River compact for the purpose of proposed legislation. Nor would a court give approval to any interpretation of a solemn agreement among States which would be inequitable. It cannot be assumed that the compacting States intended to apportion water between the upper and lower basins of the Colorado River by terms and conditions the interpretation of which would limit one of the States to its existing uses of water when the compact was made, with a comparatively small opportunity for future development. We submit that the States did not do so."

Patently, throughout the testimony of California, this is exactly what her witnesses are saying: The compact must be so interpreted that the Gila River is practically all of the water to which Arizona is entitled.

I will not reiterate the arguments at length, but will call attention to the fact that it is admitted by California witnesses that if Arizona did not appropriate water of the Gila and allowed such water to flow in an uncontrolled manner, the other States would not even get the benefit resulting from the supply of a million acre-feet to Mexico under the treaty. Because of the terms of the treaty, and because the unappropriated waters would go down the river in flood periods, not nearly a million acre-feet could be used by Mexico under the circumstances. Reference is made to the testimony of Mr. C. C. Elder, hydraulic engineer, metropolitan water district of southern California (pp. 423–424), and of Mr. James H. Howard, general counsel, metropolitan water district of southern California (p. 332), where admissions of this point are made.

Nothing is more indicative of California's stubborn intention to gobble up much more than the lion's share of the water, than her stand upon the question of evaporation losses. She contributes nothing to the Colorado, and she is far and away the greatest beneficiary thereof. Yet, she would bear none of the loss of evaporation, and would foist that, too, upon her sister States. Arizona favors an equitable distribution of these losses in proportion to the beneficial interests (note Mr. Carson's remarks as to evaporation losses, pp. 62–64; and Mr. Debler's remarks and schedules, pp. 300–307).

Some point was made of the absence of an underground water code in Arizona. Such a code now exists. It is contained in chapter 5, Laws of the Sixth Special Session of the Eighteenth Legislature of Arizona.

A contention which California has been at pains to make, and which is a most prolific part of the propaganda which she is spreading far and wide, including a general distribution to the Members of Congress, is that California has an overwhelming, present, imminent need for all of what it describes as "its established rights to its share of Colorado River water." As I have already noted, California has raised itself by its bootstraps to the point of creating for California agencies, by agreement among themselves, so-called priorities to the use of 5,362,000 acre-feet of water per year. By her Self-Limitation Act, the State of California restricted herself and all uses in that State to 4,400,000 acre-feet per year of the apportioned waters, plus one-half of the excess or surplus waters of the river.

Arizona does not admit that California's argument based upon her alleged need has any proper place in this hearing. Assuming that there were a need, as claimed, such need alone would certainly not give California any right to water which belongs to and is needed by Arizona.

However, inasmuch as California persists in this argument, I desire to point out various facts which demonstrate that the alleged need does not in truth exist, and that the claim in this respect is not supported by the evidence.

To begin with, California herself admits that her present annual use of the Colorado River water is "something like 3,000,000 acre-feet" (see Mr. Matthews' testimony, p. 377 of said hearings on S. 1175). Her witnesses also admit in their testimony that she desires to place into cultivation an additional 300,000 acres of the areas known as the east and west mesas in the Imperial Valley. They do not deny that if this land were not placed into cultivation, California would have all the water she needs (for example, note Mr. Matthews' testimony at pp. 386–388 of said hearings).

I desire to make it clear, first, that California's asserted needs are for the future, to permit her to grow and to expand; Arizona's need is immediate, not for growth and expansion, but for the maintenance and support of the property and livelihood which our people now have and are in jeopardy of losing. Secondly, if only California does not persist in her plan to place into cultivation the additional 300,000 as yet undeveloped acres in said mesas, Los Angeles and San Diego may continue to drink, and her farmers in the areas now supplied by the Colorado River may continue to farm.

This is a topic set forth in considerable detail in the Land Classification and Development Report on the Imperial east mesa, which has been submitted to the Commissioner of Reclamation by the regional director, Mr. E. A. Moritz. The soil surveys upon which this report is based were conducted cooperatively by California's own university and the United States Department of Agriculture. The report on the Imperial west mesa has not yet been completed. This is perhaps due to the circumstance that the lands of the west mesa, taken at their best, are no more than equal to those of the east mesa, and probably are considerably inferior. Even so, most of the west mesa could be irrigated only by pumping water to elevations ranging up ward to 300 feet.

Of the 225,300 acres covered in the report above mentioned, only 35,900 acres (or about 16 percent) are classified as irrigable; and of this number of irrigable acres only 5,350 acres were classified as class II lands, the remaining 30,500 acres being classified as class III lands, the poorest class of irrigable lands. The balance of the lands on the east mesa, comprising 189,400 acres, were classified as nonirrigable lands, defined as follows:

"Lands that appear to be permanently nonagricultural under the practices of irrigation farming" (p. 49 of the noted report last mentioned).

However, even as to the lands classified as irrigable, the Bureau of Reclamation has not made its recommendations as to feasibility for irrigation. The irrigable lands are spotted over the mesa in such a manner that the cost of irrigation thereof, if not prohibitive, is so high as to render irrigation unfeasible in view of their inferior quality.

The point that I desire to repeat is, that even assuming the same percentage of irrigable lands on the west mesa as are on the east mesa—which is probably not a permissible assumption because the lands of the west mesa are not as good as those of the east mesa—there would be only about 12,000 irrigable acres on the west mesa. The result is that of the total area some 300,000 acres on both mesas, more than 250,000 thereof are nonirrigable, whereas only 48,000 are susceptible of irrigation. The amount of water estimated by the noted report as required to irrigate the irrigable area is 12 to 15 acre-feet per acre per year (see question E, p. IV of the report).

This accentuates why California cannot and does not deny that if these 300,000 acres were not subjected to cultivation, there would be plenty of the water in question for use in that State. Even if only the 48,000 acres classified as irrigable were to be placed in cultivation, the exclusion of the 252,000 nonirrigable acres would eliminate all consideration of the sufficiency of the water supply to meet California's needs.

It is interesting to note that practically all of the lands of the east and west mesas are owned by the Federal Government. It follows that no private individual would be injured by the failure to place into cultivation such federally owned lands as are classified as nonirrigable.

In the course of my testimony at the hearings upon Senate Joint Resolution 145 and at the earlier hearings on S. 1175, I had occasion to point out that if California would refrain from her proposed program to put under irrigation some 300,000 unimproved acres of the Imperial east and west mesas, there would be an abundance of Colorado River water available for her uses, present and future, well within the quantities to which she restricted herself in her Self-Limitation Act.

Since the conclusion of the hearings on S. 1175, I have received a copy of the Economic Repayment Capacity Report for the Imperial east mesa, which report was prepared by the Department of the Interior and dated March 1948.

The report strongly etches and underlines the absolute unwisdom of an attempt to irrigate these areas. The following are self-explanatory excerpts from the summary and introduction prefacing such report:

"This report presents an analysis of the repayment capacity of lands classified as irrigable within seven potential development units on the Imperial east mesa division of the All-American Canal project in California. Irrigation water would be supplied from the Colorado River and delivered through the All-American and Coachella Canals. Of the 33,872 acres in the potential units, 32,440 acres are publicly owned lands withdrawn from entry. A complete discussion of the land classification of the area and anticipated farming problems is given in the East Mesa Land Classification and Development Report, dated April 1947. This report shows that 18,612 acres of the 33,872 acres in the potential units have been classified as irrigable, 3,782 acres are class 2 lands, and 14,830 acres class 3" (p. 1).

"Project development costs are estimated to average $615 an acre, which includes $390 for a distribution system and $225 for predeveloping the lands" (p. 1).

"On the basis of a budget analysis, it has been shown that class 3 lands would not be able to pay for the cost of constructing a distribution system" (p. 2).

"However, the class 2 lands are so interspersed with class 3 and 6 lands that their separate development would be physically impractical. If all 80-acre tracts of predominantly class 2 and 3 lands were developed, it is estimated that less than 20 percent of the total construction and predevelopment cost would be recoverable from the settlers" (p. 2).

"This classification shows a total of 35,900 acres of class 2 and 3 lands, of which 18,612 acres are located within seven potential development areas. Most of the lands tentatively classified as irrigable are of marginal character, and were designated as class 3. The class 2 and 3 lands not located within the development areas represent isolated tracts scattered throughout the mesa, which could not be served by a distribution system without the inclusion of a large acreage of class 6, nonirrigable land" (last paragraph, p. 3).

"It appears likely that the irrigation of any substantial acreage of the mesa lands would tend to enhance seriously the drainage difficulties in Imperial Valley unless additional drainage facilities are constructed" (last sentence of middle paragraph, p. 4).

"Most of the mesa is publicly owned land under reclamation withdrawal. Of the 33,872 acres in the potential units, 32,440 acres are publicly owned lands, withdrawn from entry. There are 1,219 acres of privately owned lands located within unit 1, 84 acres of State land, and 129 acres owned by the Southern Pacific Co." (bottom paragraph, p. 4).

As practically all of these lands are publicly owned and have been withdrawn by the Bureau of Reclamation, it is quite clear that the decision as to the development and irrigation of its own land is for the Federal Government, not California. What the decision should be is manifest; the report constitutes an answer and refutation of arguments for proceeding to develop and irrigate the mesas.

Assuming, however, that California would persist, in the face of these decidedly unfavorable factors, in a program to deliver Colorado River water to the 18,612 irrigable acres scattered among the seven areas potentially susceptible of development, and assuming a similar ratio of irrigable to nonirrigable acres on the west mesa (which is a most optimistic assumption), she can deliver the required quantity of water and nevertheless remain with ease within her limitation of 4,400,000 acre-feet.

I likewise noted in my final statement in the hearings on S. 1175 that the amount of Colorado River water wasting into the Salton Sea from Imperial Valley irrigation activities, namely, some 1,074,150 acre-feet, is almost enough to supply the entire central Arizona project. I request that there be admitted as evidence in this hearing the table which I submitted as exhibit A with my final statement at the earlier hearings on S. 1175, which table was furnished by the Bureau of Reclamation at Yuma, Ariz., and which shows the number of acre-feet of water flowing into the Salton Sea from the Imperial irrigation district and from the Imperial Valley in Mexico. I also request that the two photographs which I submitted, as exhibits B and C, with my final statement at such earlier hearings on S. 1175, be admitted in conjunction with my present statement as evidence in the present hearing.

Such table is as follows:

EXHIBIT A

Year	Imperial irrigation district		Imperial Valley in Mexico				Return flow to Salton Sea	
	Land irrigated	Water delivered	Land irrigated	Water delivered			From Mexico at boundary	Total including that from Mexico
				Pilot Knob	Hanlon Heading	Total		
	Acres	*Acre-feet*	*Acres*	*Acre-feet*	*Acre-feet*	*Acre-feet*		
1936	421,202	2,270,550	201,282	.....	870,268	870,268	.....	.....
1937	437,017	3,026,632	226,244	.....	878,086	878,086	.....	.....
1938	416,180	2,973,593	200,619	.....	794,403	794,403	.....	.....
1939	419,826	2,757,015	172,040	.....	774,581	774,581	.....	.....
1940	416,709	2,270,550 [1] 79,290	131,808	.....	856,397	856,397	.....	.....
1941	399,287	1,491,041 [1] 1,095,958	159,668	.....	768,737	768,737	.....	875,563
1942	382,179	255,019 [2] 394,503	175,706	.....	734,381	744,381	64,102	709,740
1913	379,947	[1] 2,345,900	200,000	.....	1,152,106	1,152,106	58,022	1,073,004
1944	384,256	[1] 2,451,860	205,716	398,044	710,213	1,108,257	40,298	1,085,102
1945	393,699	[1] 2,494,860	221,068	681,658	384,483	1,065,141	37,902	1,068,424
1946	405,646	[1] 2,717,530	242,059	1,022,444	232,858	1,255,302	42,050	1,116,200

[1] U. S. Bureau of Reclamation figures for delivery past drop No. 1 through All-American canal.

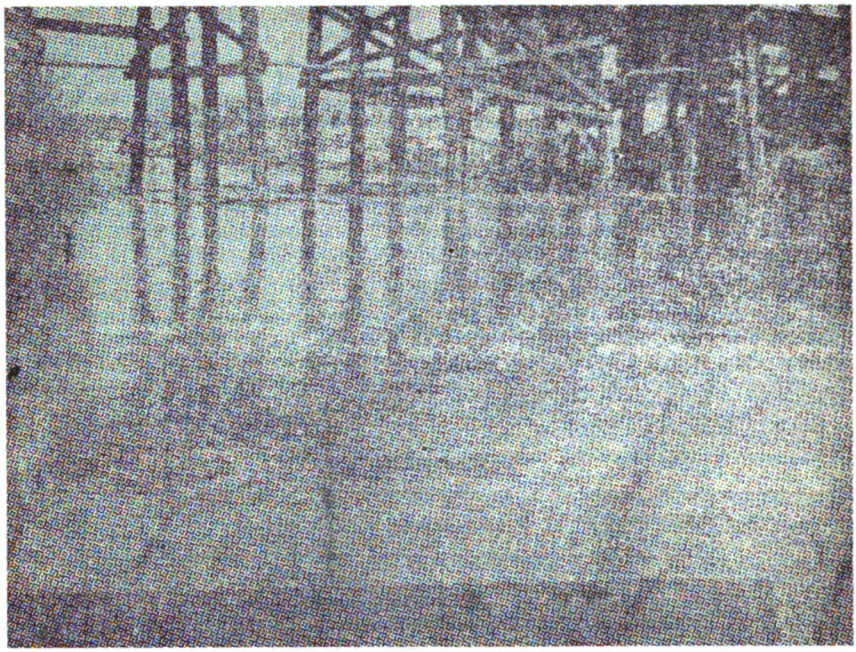
NOTE.—All figures are from Imperial irrigation district except as otherwise noted. Operation of All-American Canal began November 1940.

The photographs appear at pages 568 and 569 of said hearings on S. 1175. It is requested that, if possible, these photographs be inserted in the record at this point.

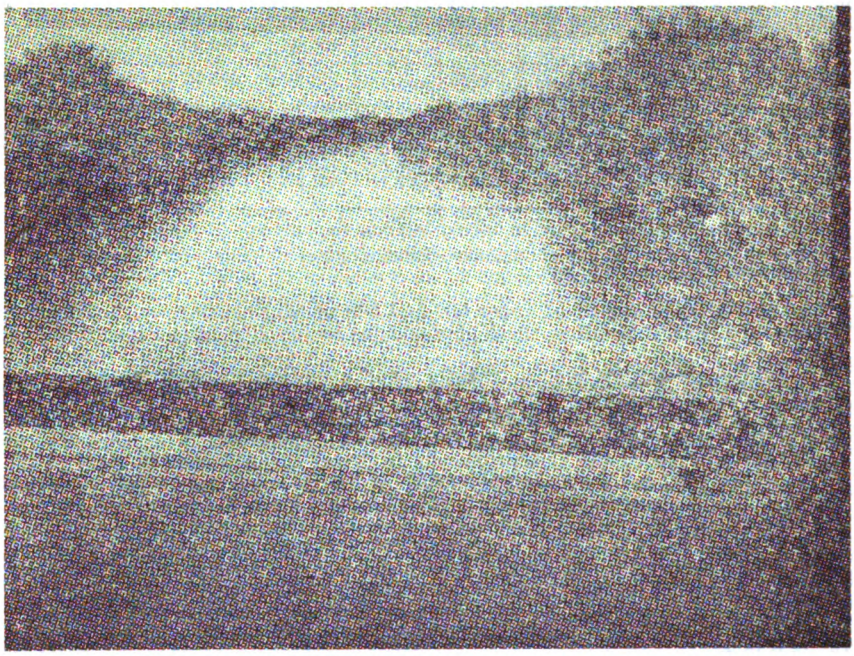
In conclusion, permit me to transfer your attention to another but closely related phase of the case.

On the final day of the hearings on S. 1175, California and Nevada introduced Senate Joint Resolution 145 before the Eightieth Congress. The ostensible or superficial purpose of the resolution was to direct the Attorney General to file in the Supreme Court a suit in the nature of interpleader, against Arizona and the various other interested States in the Colorado River Basin, for the purpose of determining the respective claims and rights to the use of Colorado River water. House Joint Resolutions 225, 226, 227, and 236, and H. R. 4097 were concurrently introduced in the House, they being the counterparts of Senate Joint Resolution 145 and having the identical objective, both ostensible and actual.

Senate Joint Resolution 145 was actively employed as an obstruction to the adoption of S. 1175; and under the circumstances there is no question but that the true purpose of the resolution was to delay or defeat the passage of legislation to authorize the central Arizona project.



New River carrying Imperial Valley waste water to Salton Sea, April 1947.



Alamo River carrying Imperial Valley waste water to Salton Sea, April 1947.

In May 1948 hearings were held in both branches of the Congress upon these resolutions. The Colorado River Basin States Committee opposed the resolutions on various substantial grounds, including that there is and cannot be a justiciable controversy until the authorization bill is passed.

Since the opening of the present session of Congress, California and Nevada have introduced Senate Joint Resolution 4 in the Senate and a considerable number of companion resolutions in the House, this time for the apparent purpose of consenting to the joinder of the United States as a party in any suit which may be commenced in the Supreme Court for the settlement of the rights to the use of the water of the Colorado.

The vice of these resolutions will be exposed before the respective committees hearing the same; and I therefore refrain from particularized discussion of such rsesolutions beyond stating that they, too, are merely more wolves disguised as innocent lambkins. They seek to divert or destroy the central Arizona project, that is their sole motivation.

I am confident that Arizona will win in the Supreme Court of the United States if and when there is presented to it a justiciable controversy within the jurisdiction of that Court and involving Arizona's rights under the Colorado River compact, the Boulder Canyon Project Act, the California Self-Limitation Act, and the Arizona water-delivery contract.

The delays incident to litigation prior to authorizing legislation, and the delays after conclusion of such litigation in favor of Arizona, and the delays attendant upon the presentation and passage of authorizing legislation thereafter, would be disastrous. California will no doubt oppose the passage of such legislation on some ground whenever it may be considered.

The people of Arizona by that time would have had to abandon their farms and seek other places; business houses and banks would have failed; and the economy of Arizona would have suffered to the point of disaster. It would be too late to cure the damage suffered by reason of such delays.

And then California would come in and state that they had in the meantime built up communities using Arizona's water, and that to permit Arizona to use its share of the water would dry up California communities; and in that manner California would attempt to defeat the moral, equitable, and legal rights of her neighbor and sister State.

Mr. MURDOCK. A quorum call has just been sounded. It is a straight "No quorum." That will mean, of course, that we cannot tarry long, now.

Can you summarize the matter, Senator? We would appreciate it.

Senator MCFARLAND. I wonder if you will meet this afternoon? If I am to give you a brief oral summary of what the project is all about, it would take me not as long as the time already consumed before the committee this morning; but I would like to have 20 or 30 minutes, which would probably be longer than you would want to wait now.

Mr. D'EWART. Mr. Chairman, I would like to hear the Senator in full, and have him submit himself to questions. I would prefer that he come back when we have more time.

Mr. CRAWFORD. Also, Mr. Chairman, I cannot see why we could not agree some way, so that Senator McFarland does not have to come over here and sit for an hour or two waiting to be called. Let him come over here, appear before the committee, make his statement, answer our questions, and then go back to do his work.

Senator MCFARLAND. That is all right. I was glad to listen to my good friend, Mr. Engle. I want to answer some of the things that he said.

Mr. MURDOCK. Off the record.

(Discussion off the record.)

Mr. MURDOCK. We will recess for 15 minutes or so, and then return.

(Thereupon, at 11:15 a. m., Wednesday, March 30, 1949, a recess was taken until 11:45 a. m. of the same day.)

AFTER RECESS

(The subcommittee reconvened pursuant to recess.)

Mr. MURDOCK. The subcommittee will come to order, please.

Our witnesses and guests from out of town will appreciate the fact that the life of a Congressman is pretty hectic.

The bill we have up on the floor is an important bill for all westerners, and most of the members of this committee are westerners. I think there will be some members of the committee returning, in spite of the fact that they are tremendously interested in what is going on on the floor of the House, especially a little later.

However, we simply cannot ask the Senator to run away from his busy duties to come over to talk to us.

Senator, I wish we had a full attendance of the committee. The quality is here in those present. We would like to have you summarize your statement in your own way.

Senator MCFARLAND. Thank you, Mr. Chairman. I appreciate your coming back.

I think it is well, when we talk of one of these projects, to know a little bit concerning the country about which we are talking; although I am sure that most of the members of this committee are well informed as to central Arizona.

I would like to point out the territory which comprises the central Arizona project.

We have under cultivation in central Arizona approximately 725,000 acres of land. That is, we have had at least approximately that number of acres under cultivation. That project consists of lands in Maricopa County, which are the lands along here in the green [indicating].

There are, in Maricopa County and in here [indicating] under cultivation approximately 450,000 acres. Of that amount 242,000 is in what is called the Salt River Valley Water Users' project. That land is irrigated partly by gravity and partly by pump water.

This project in Maricopa County extends clear down to Gila Bend and includes that land under the Gillespie project, irrigated from the Gillespie Dam and irrigated partly by gravity and partly by pump

With regard to the rest of the project lands, some of them are irrigated partly by gravity and partly by pump water, and some entirely by pump water.

Then we have over in this country here [indicating], the San Carlos project and adjoining areas, containing approximately 200,000 acres of land in Pinal County, altogether. One hundred thousand acres of that land is irrigated partly by gravity and partly by pump water; and the remainder of it is irrigated chiefly by pump water.

Over in the Safford Valley [indicating] we have some 40,000 acres of land which is irrigated primarily by gravity, but is supplemented by pump water.

This project would include some land in New Mexico, a little over 8,000 or something like 8,000 acres, at least, which has been irrigated or which is now being irrigated.

Mr. MURDOCK. Senator, will you lift up your voice a bit and make it quite clear that New Mexico is in on this project. I want the former Governor to hear that.

Senator MCFARLAND. Thank you.

Our water supply consists, as I said, of gravity and pump water. The supply of gravity or surface water is approximately 1,676,600 acre-feet of water, which is use and reuse water.

We have in our projects, first, the Roosevelt Dam. Below that we have three other dams.

The Roosevelt Dam impounds approximately 1,637,000 acre-feet of water [indicating].

Then we have the Horse Mesa Dam, the Mormon Flat Dam, and Stewart Mountain Dam below that; and two dams on the Verde River, Horseshoe Dam, and Bartlett Dam. The Verde empties into the Salt along about this point [indicating].

The total storage of those dams is approximately 2,000,000 acre-feet of water.

On the Gila River we have the Coolidge Dam which has a storage capacity of approximately 1,200,000 acre-feet of water.

As you will note, we have plenty of storage capacity for our projects, but we do not have sufficient water for the projects.

Between 1940 and 1944 we pumped an average of 1,163,000 acre-feet of water annually.

According to the Bureau of Reclamation report we overpumped an average of 468,000 acre-feet of water per year. In other words, we were exhausting our underground water to that extent.

Even with that overpumping there was idle during that time approximately 105,000 acres of land which had previously been irrigated but which had to lay out because of the lack of water supply.

Since that time the supply has been even worse.

During the hearings in May 1947 Mr. K. K. Henness, agricultural agent in Pinal County, testified that at the time of those hearings there was then only one-fourth enough water for the irrigated land in the San Carlos irrigation project, which comprised 50,000 acres of land belonging to white owners and 50,000 acres of Indian lands. He testified that the allotment was then only eighty-five one hundredths of an acre-foot of water.

On the Salt River Valley project Mr. Corbell, of the Salt River Valley water users, testified at that time there was apportioned 2 acre-feet of water annually on that project. Just what did that mean?

The duty of the water, as estimated by the Bureau of Reclamation, now is 4 acre-feet delivered at the head gate. It meant that in the San Carlos project three-fourths of that land had to lay out or that any larger portion would not be adequately irrigated. It meant that in the Salt River Valley project one-half of that land had to lay out or that all could not be adequately irrigated. That spelled about the same thing.

It was probably better for the farmer to cultivate half of his land than to try to irrigate all of it with half enough water.

I would like to explain to you, before going into the other features of this project, just why we are short of water. It is due to two things.

The irrigation in central Arizona dates back to the 1860's, as I recall it, from the trial of water cases when I was on the bench in my State. There are water rights dating back at least to 1867.

The first dam of major importance that was built was the Roosevelt Dam. That was started in 1903. At the time that these early projects were started in Arizona, the duty of water was then estimated to be

3 acre-feet delivered at the head gate. Later on, with new developments in irrigation, we went to the point where we had multiple crops, and we raised crops which were not raised in other parts of our Nation, or else raised them when they could not be raised in other parts of our Nation, thereby supplying valuable foods which were needed. This proved to be very profitable but it raised the duty on water to 4 acre-feet delivered to the head gate.

Then, the shortage was due partly to the fact that we first started out pumping, because some of our lands were water-logged. Then, with the increase in efficiency of pumping and lowered power costs, it was found to be profitable. So we have come to the point that we are overdeveloped in our State, and according to the report of the Bureau of Reclamation, which is referred to in my prepared statement, if this project is not authorized and built it will mean that 226,000 acres of land which have previously been irrigated will have to go out of cultivation permanently.

According to the population reports of 1947, the population of the agricultural areas of my State was 504,000 people. Estimating on a percentage basis, if you take 226,000 acres of land out of cultivation, it means that 150,000 people will have to be looking for homes elsewhere.

This is a "rescue project" and it has been so described by the Bureau of Reclamation. If we do not receive this aid these 150,000 people will be coming to some of your States, or some place, to find homes, because they will have lost their life's earnings which they have built up; and you will find that the banks will be closing their doors, and the business establishments will be bankrupted or suffer serious loss. You will find that there is a serious loss to the revenue of the United States in various forms, including taxes, income taxes and such, which come from that area at this time.

All of this testimony will be developed before you in detail, and I do not want to take your time now to describe it.

This project has been described by the chairman. It will start out with the building of Bridge Canyon Dam and then with the aqueduct from Lake Havasu, which will take water down to the main canal and thence to Granite Reef. From Granite Reef a canal will take water to the San Carlos project, at approximately the Ashurst-Hayden Dam, then by canal on down to Picacho Reservoir, and then on down to the flood plains of the Santa Cruz, which would include lands in the Picacho country.

Mr. POULSON. Senator, is that Hoover Dam? What is the direction of that map?

Senator MCFARLAND. Here is the Hoover Dam, which is practically north here [indicating].

Mr. POULSON. I see. I think that is the Hooker Dam below, is that right?

Senator MCFARLAND. Yes; this is the Hooker Dam, to be built in New Mexico [indicating].

Mr. POULSON. I see.

Senator MCFARLAND. These lands would be served up here with supplemental water, by trading water for the Colorado River water, which would be brought down in this area [indicating], thereby releasing the duty on this land in order to give the people up here, as

in the Safford and Duncan Valley, more supplemental water for their lands; and so in New Mexico and on the San Pedro, and in other areas.

Mr. MURDOCK. Senator, may I interrupt with an observation and possibly a question?

Senator MCFARLAND. Certainly.

Mr. MURDOCK. I just wanted to say that the Senator is well informed legally and in every other respect with regard to the water rights, having struggled with this for a long time.

Do you mean to say, Senator, that by an exchange of water we are going to revivify all the agricultural counties of the State, if we can get the water that the bill asks for?

Senator MCFARLAND. I believe the Bureau of Reclamation estimates there would be at least 672,000 acres which would get supplemental water, of this approximate total of 725,000 acres; and others have estimated it would be the full 725,000. In that way we would save the whole economy of the State of Arizona. It is just that important to our State.

Now, we might well divide our discussion of this bill into three subheads. One would be, of course, the need for water which I have just discussed. The second would be the feasibility of the project. The third would be the availability of water.

I presume, Mr. Chairman, that you have the project reports available for the committee and that they will probably be printed in the record?

Mr. MURDOCK. That is right.

Senator MCFARLAND. I would call your attention to page 17 of my statement, which page deals with the feasibility of the project. You will note that the project will cost some $738,408,000.

That does not include the tunnel from Bridge Canyon down to the aqueduct, which was described by the chairman. The building of the tunnel will be postponed until economic conditions justify it.

The cost of construction is so high at this time that the Bureau of Reclamation felt that it would not be feasible now to build the tunnel. That can be left over until a day when it is definitely proved that the amount of revenue from the electricity used in elevating this water 985 feet would build the tunnel.

Mr. MURDOCK. Senator, I think that needs to be emphasized.

The entire construction authorized here is not to be done immediately. The object is to get the water where it is so terribly needed as soon as possible, but the more expensive parts of the project are deferred until economic conditions justify them.

Senator MCFARLAND. That is correct. It would take years and years to build all this project. For example, it calls for the building of a dam at Coconino Dam site, on the Little Colorado, and one at the Bluff Dam site, in Utah.

These dams are dams, all of which should be built and will be built, whether the central Arizona project be authorized or not. This is work that needs to be done for the protection of the lower projects, and on account of the need for electrical energy in that area.

Mr. POULSON. Is this tunnel necessary?

Senator MCFARLAND. That tunnel is not shown here, but the tunnel would come out, Mr. Congressman, approximately right above the

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Bridge Canyon Dam and would come right down to the Big Sandy Wash to about this point [indicating] and then by open aqueduct would intercept this down here [indicating].

Mr. POULSON. Before that is built where would you bring the water?

Senator MCFARLAND. By these four pumping plants here, described as 1, 2, 3, and 4, it would be lifted out of Lake Havasu and brought through this aqueduct here [indicating].

The engineers have stated in their report for the Bureau of Reclamation, that the project is engineeringly feasible in that there are no physical obstructions that would be encountered during its construction that could not be overcome.

The project is also financially feasible under the provisions of S. 75 and under the provisions of the bills which you are considering here, in that it could be reasonably expected to repay the reimbursable portions of its construction costs well within the useful life of the project.

It has been found that $4.75 per acre-foot, which local interests have indicated they are willing and able to pay, would more than pay the operation and maintenance costs and replacement costs allocated to irrigation.

It has also been found that a charge of 15 cents per 1,000 gallons for municipal water would fully repay all the costs allocated to that purpose, and would be equally advantageous to the municipal water users.

The power rate necessary to accomplish a repayment of all reimbursable costs assigned to be repaid from power revenues would be very reasonable. Such low-cost power would represent a distinct advantage to power users in that area.

The project represents a sound investment for the Nation, in that the tangible benefits of the project would exceed the total cost to the Nation in the ratio of 1.63 to 1.

In addition, there would be innumerable intangible benefits accruing to the State of Arizona and to the Nation as a whole, as a result of the central Arizona project.

Now, the next feature of the project which we should discuss is a matter which has to be determined by Congress as it always does before a project is authorized. That is the one touched upon by Congressman Engle; and that is the availability of water for the project.

When we speak of the availability of water one must remember that there is the separate item of physical quantities which may be available and the distinct but related item of legal entitlement to the use of water.

I say with positive assurance that there is adequate water in the Colorado River fully to supply the central Arizona project, and that Arizona is clearly entitled as a matter of right and justice to the exclusive use of that water. Moreover, such use will not interfere with or burden any other right of use existing in law.

The long-term (1897–1943) average annual flow of the Colorado River under virgin conditions at Lee Ferry was 16,270,000 acre-feet. At the international boundary it was 17,720,000 acre-feet. Those are the figures that are given to us by the Bureau of Reclamation, and I believe they are pretty well accepted by everyone, except as to the dis-

pute as to some constructions, in regard to where the use of the water should be made, which I will discuss later.

I will not go into this in further detail, because I believe, as I say, that it is pretty well settled and that the physical water is available.

Mr. MURDOCK. Senator, we shall have representatives from the Bureau, also, to appear.

Senator MCFARLAND. No doubt, you will, Mr. Chairman. I am only attempting to give to the committee a brief summary of the evidence which has been presented before our committee in order that you will have a little understanding, maybe, of what the witnesses will testify to when they come here.

I am not trying to go into detail on any of these matters. Of course, physical feasibility and availability involve data which will be testified to by the engineers on both sides.

Mr. MURDOCK. I agree with you, Senator, that there are two phases to availability; physical availability as well as legal availability. We are convinced that there are both for this bill.

Senator MCFARLAND. Mr. Chairman, we now come to the question of the availability of water, or Arizona's right to water as a matter of law.

This phase of the case may be much more readily presented and grasped by a review of matters leading to our present situation.

In the year 1922 the States of the geographical area described in the testimony as the Colorado River Basin were striving among themselves to arrive at an agreement leading to the beneficial use of the waters of the Colorado River for irrigation and the generation of electric power. The delegates from these States proposed the now renowned Colorado River compact. A controversy arose over the inclusion of the waters of the Gila River within the Colorado River system, and hence with those to be apportioned by the compact, a move unalterably resisted by the Arizona delegation because the waters of the Gila had long been put to beneficial use by the citizens of that State, and because the waters of the Gila enter the Colorado at a point so southerly as to prevent the enjoyment thereof by any of the basin States other than Arizona.

In fine, the Gila was no part of the Colorado waters which were the proper subject of apportionment.

The Arizona delegates were agreeable, however, to the provisions of article III (a) of the compact, which proposed the annual apportionment to the upper basin, and a like apportionment to the lower basin, of 7,500,000 acre-feet of water from the Colorado River if the waters of the Gila were reserved for Arizona.

As a consequence, and in order to compensate Arizona for the inclusion of the Gila waters in the Colorado River system, the delegates agreed upon article III (b) of the compact, which reads as follows:

(b) In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

This quantity of 1,000,000 acre-feet per annum corresponds to the then-estimated annual flow of the Gila River at its mouth, where it empties into the Colorado.

The history of the meaning and purpose of article III (b) of the compact is related in the testimony of Mr. Ralph Meeker, who was,

during the negotiation of the Colorado River compact at Santa Fe, the engineer-adviser for the State of Colorado. He was present at the compact sessions, and of his own personal knowledge is familiar with the background of the compact. His testimony is found from pages 473 to 481 of the record of the hearing on S. 1175.

I call particular attention to pages 475 and 476 thereof, where Mr. Meeker makes it plain that it was understood by all the negotiators that 1,000,000 additional acre-feet were apportioned to the lower basin to be used in Arizona, because the Gila River was included in the compact. He also quoted from the report of Frank C. Emerson, commissioner for the State of Wyoming for the Colorado River compact, and from a citation from the Colorado River compact, by Reuel Leslie Olson, showing that this was understood by L. Ward Bannister, special representative for Colorado at the negotiations.

Likewise, in support of the identical history and meaning of this article III (b), I refer to the testimony of Mr. Charles A. Carson, now chief counsel for the Interstate Stream Commission of Arizona, wherein he incorporates testimony of the Honorable Thomas E. Campbell, former Governor of Arizona, and also incorporated the testimony of Mr. W. S. Norviel, Arizona's commissioner at the compact sessions as well as that of Mr. C. C. Lewis, another of Arizona's representatives, all of such testimony demonstrates that 1,000,000 acre-feet were intended to be apportioned to the lower basin for use by Arizona. The testimony of these individuals is based upon personal participation and direct personal knowledge.

I would also call your attention to the fact that there will be introduced here, and the witnesses will testify, that this was the understanding of Hon. Herbert Hoover at that time. I am not going into this testimony in detail. I am merely pointing it up to you because you will hear it at first-hand later on from the witnesses.

Mr. MURDOCK. I am sure, Senator, that that part of it will certainly be pointed up in this hearing.

Senator MCFARLAND. It was for this reason that Arizona's compact representatives were willing to sign the compact at that time.

The Colorado's uncontrolled flow proved increasingly harmful, as well as wasteful of potential benefit.

California's anxiety to avoid floods along the neighboring California lowlands, and to procure water and electric energy for her coastal communities, made her especially anxious to harness and utilize the Colorado. Further interstate negotiations having proved unavailing, congressional action for the construction of Boulder Dam was inaugurated. This led to the passage of the Boulder Canyon Project Act. I would like to call your attention to the testimony of my colleague, Senator Hayden, who testified at the hearings on Senate Joint Resolution 145 and gave some of the congressional history of the Boulder Canyon Project Act, and how it was filibustered from time to time until the present provisions of the act were agreed to.

I believe that that testimony will appear very interesting and valuable to the members of this committee as it is the testimony of one who was here and took an active part in the debate and controversy at that time.

Mr. MURDOCK. May I interrupt you just a moment, Senator?

Was not the entire effort of the moment, from the intermountain

country, an effort to write in a limitation so that they would be protected in future years? Was that not the effort of men like Pittman, of Nevada, Hayden, of Arizona, and Ashurst?

Senator MCFARLAND. The chairman is absolutely correct, and I will come to that in just a moment.

I would like to call attention to the fact that the act, by its own terms, section 4 (a), was to become effective upon either of two conditions. These are the conditions which the chairman had in mind, I am sure.

The first of these was ratification of the Colorado River compact within 6 months by all seven of the States affected.

The second was ratification of the compact by six of the interested States, including California, and the irrevocable and unconditional enactment by the legislature of the latter State of a statute which, and I now quote the exact language of said section 4 (a):

Shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming—

May I stop here to say that all of the States were then afraid of the power of California and they wanted something to protect themselves, just as the chairman has pointed out; and they had reason to be afraid.

Mr. MURDOCK. Yes. When we talk about the lion and the lamb lying down together, there is such a thing as the lamb being inside the lion. And that could be true if there were six lambs.

Senator MCFARLAND. I thank you. I continue:

As an express covenant and in consideration of the passage of this act that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this act and all water necessary for the supply of any rights which may now exist, shall not exceed 4,400,000 acre-feet of the waters apportioned to the lower basin States by paragraph (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

California promptly enacted a statute sometimes spoken of as the Self-Limitation Act, the pertinent part of which is verbatim with the language just quoted from the Boulder Canyon Project Act.

In view of the extremely liberal quantity of water specified as a maximum, and in view of her need for flood control, water, and electrical energy, California's willingness to adopt her Self-Limitation Act is quite understandable.

Section 4 (a) of the Boulder Canyon Project Act also unequivocally voiced the permanent intention of the Congress to define and limit California's maximum rights, and California irrevocably and unconditionally agreed to that limitation.

Having limited California to 4,400,000 acre-feet per annum of the 7,500,000 acre-feet apportioned by article III (a) of the Colorado River Compact, as I have already shown, and having further limited California to half of any excess or surplus waters unapportioned by that compact, Congress further provided that:

The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado

River Compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity——

Mr. MURDOCK. Is that figure 2,800,000 acre-feet?

Senator MCFARLAND. Yes, that is correct. [Continuing:]

and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River Compact and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico * * *.

Mr. Chairman and members of the committee, the foregoing factors plainly define the congressional purpose. Congress manifestly intended that of the 7,500,000 acre-feet of Colorado River water apportioned by article III (a) of the compact, Nevada is to receive 300,000; Arizona not less than 2,800,000; and California not to exceed 4,400,000. It is also clear that Arizona should receive, in addition, all the waters of the Gila River, both because of the previously mentioned insertion in the compact of its article III (b)—which apportions 1,000,000 acre-feet per annum to the lower basin to compensate Arizona for inclusion of the Gila in the Colorado River system—and because of the specific authorization in section 4 (a) of the Boulder Canyon Project Act of the agreement whereby Arizona is to receive all the water of the Gila and its tributaries within Arizona's boundaries.

From the mere reading of the language of the Boulder Canyon Project Act it is evident that Congress proposed to California the terms of a contract for the explicit benefit of Arizona, Nevada, and the other interested States.

The contract thus proposed was as follows: Of the 7,500,000 acre-feet of Colorado River water apportioned to the lower basin by article III (a) of the compact, California should have not to exceed 4,400,000, and that California could use not more than one-half of any water in excess of or surplus to the water apportioned by the compact, which might be available in the lower basin.

Mr. MURDOCK. May I ask you something there, Senator?

Senator MCFARLAND. Yes.

Mr. MURDOCK. There was an act of the California Legislature in March of 1929 that limited California to 4,400,000 acre-feet of the III (a) water?

Senator MCFARLAND. That is correct.

Mr. MURDOCK. Is it not possible for a statute to be repealed?

Senator MCFARLAND. No; not that statute. I will come to that, Mr. Chairman. It would not be possible.

California, when they entered into that agreement and passed that act, entered into a contract with the United States for the benefit of these other States; and I want to say to you that that contract is just as binding upon California as any compact which might be adopted and ratified by the Congress of the United States.

Mr. ENGLE. Will the gentleman yield?

Senator MCFARLAND. Yes; I yield.

Mr. ENGLE. Did you state, Senator, that California, by passing the

Self-Limitation Act, had entered into a contract with the United States Government?

Senator McFARLAND. It amounts to that.

Mr. ENGLE. Do you think it is right for one party to a contract to interpret it?

Senator McFARLAND. I am going to come to that in just a moment.

Mr. ENGLE. The point I am making, Senator, is this: If your statement is correct that California, by passing its Limitation Act entered into a contract with the United States Government—and I want you to comment on this later—then what right has this Congress, representing the Federal Government, to interpret the contract?

Senator McFARLAND. If I may, I will answer that. I could answer it right now, but I desire to just make one more statement and then I will answer it.

California, by adopting its Self-Limitation Act, unequivocally and unconditionally accepted this proposal and thereby completed a binding contract. As California may not have more than 4,400,000 acre-feet of the water apportioned by article III (a) of the compact, the balance is for Nevada and Arizona; and Congress has, in terms, indicated its intent that Nevada have 300,000 acre-feet and Arizona not less than 2,800,000 acre-feet. This intent has been executed.

The water involved in article III (b) of the compact, not only is "apportioned" water, but is, in effect, apportioned to Arizona for the reasons shown.

The Colorado River water which is available in the lower basin in excess of or surplus to that apportioned by articles III (a) and III (b) of the compact is to be equally divided between California and Arizona.

The contract between the State of California and the United States—for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming—just as completely settled California's rights as any compact could do. Congress, by approving in advance a compact between Arizona, California, and Nevada, definitely gave its interpretation of the California Self-Limitation Act, which is the interpretation Arizona now relies upon; and California, by adopting the act, accepted and agreed to this interpretation.

This is the point that answers your question, Congressman. Congress did give its interpretation of that Self-Limitation Act. If I may say this, the witnesses here will state that the tri-State compact which authorized by the Project Act, was never entered into; but, Mr. Chairman, and Congressman Engle, while the tri-State compact was never entered into, the Project Act definitely amounted to an interpretation of Congress as to what that Self-Limitation Act meant. Otherwise it would have been futile for Congress to have provided for a compact if that amount of water were not available.

When Congress provided for that compact to apportion 2,800,000 acre-feet of water for Arizona, plus one-half of the excess or surplus, and 300,000 acre-feet of water for Nevada, and gave to Arizona the Gila water, Congress meant that that was its interpretation of the California Limitation Act, that that amount of water was available to be distributed between Arizona and Nevada.

Surely, California did not have to accept this Self-Limitation Act. They did not have to enact it into law, but they did do it. When they

did it they necessarily enacted it with the interpretation that was adopted by Congress in the Boulder Canyon Project Act. That interpretation is just as binding as any other part of the act.

Mr. ENGLE. Senator, will you yield for a question?

Senator MCFARLAND. Certainly.

Mr. ENGLE. Assuming but not agreeing that the Boulder Canyon Project Act is an interpretation of the basic compact by Congress——

Senator MCFARLAND. Pardon me. May I just correct you right there?

Mr. ENGLE. Yes.

Senator MCFARLAND. The Boulder Canyon Project Act was more than just an interpretation of the Colorado River compact. The Project Act was an interpretation of the Self-Limitation Act. While the provisions of the Boulder Canyon Project Act were a legislative interpretation of the rights of the States under the compact, the point I am now trying to make is that Congress specifically interpreted the California Self-Limitation Act before the enactment thereof by the advance approval of a compact to be thereafter adopted by the lower-basin States for the division of the remainder of the water not embraced in the Self-Limitation Act. As noted in my prepared statement, Senator Hayden has fully explained the reason why Arizona ceased her filibuster in opposition to the Boulder Canyon Project Act. Arizona did so because of the compromise by which Congress required California to enter into a statutory contract of Self-Limitation, for the benefit of the other States. In doing so, Congress necessarily placed its interpretation upon the Colorado River compact; but Congress purposely placed its interpretation not only on the compact itself, but upon the Self-Limitation Act, which Congress required California to accept so as to eliminate future controversy.

Pardon me for interrupting. Go right ahead.

Mr. ENGLE. Assuming, but not agreeing, that the act of Congress placed an interpretation on the California Self-Limitation Act—which, as I understand it, embodies in identical words the language set forth in the Boulder Canyon Project Act——

Senator MCFARLAND. That is correct.

Mr. ENGLE. Is it your belief, then, that the language of section 4 (a) defining consumptive use as "diversions less returns to the river" is a definition of beneficial consumptive use under the compact?

Senator MCFARLAND. It is definite, in my opinion, that Congress had in mind the depletion; that consumptive use was the amount of water that each State burns up by use, and thereby reduces the main flow of the Colorado River. If they had had any other interpretation in mind, definitely there would not have been that water available for this other compact.

Mr. ENGLE. The point I am getting to, Senator, is this: The ax cuts both ways. If you contend that there is a definition and an interpretation of the California Limitation Act, then the language in section 4 (a) of consumptive use as "diversions less returns to the river" would, in effect, throw out the interpretation now set up in the upper Colorado River compact and would also, it seems to me, apply with equal force in the lower section.

Senator MCFARLAND. Congressman, they were talking about mainstream water, were they not?

Mr. ENGLE. I am not so sure, because the compact is a division of water in the basin, and not in the streams.

If you set up a definition in an act and fail to specify that it is main stream water, rather than to the basin—correct me if I am in error—my understanding is that the basic Colorado River compact divides the water in the basins, not in the streams but in the basins.

What I am driving at is this: That you cannot claim the benefits of interpretation and not take the detriments of the interpretation.

Senator MCFARLAND. We are not trying to. That will be thoroughly developed. There is no question but what, when you talk about the main stream water, the interpretation becomes very plain.

However, that is not the interpretation which California is trying to put on us and to put on the Upper Basin States here. They would try to charge us with all the water that falls in the basin, whether it would have reached the Colorado River or not. Congress could not have been talking about anything but main stream water, because that was the only water authorized to be contracted, and the only water California could get, because she does not have a tributary. It could not have been referring to anything other than the main stream water for California.

Mr. ENGLE. Senator, I do not want to interrupt the continuity of your statement.

Senator MCFARLAND. That is perfectly all right.

Mr. ENGLE. I just wanted to say that when you speak of Congress making an interpretation of the Limitation Act of California or of the Boulder Canyon Project Act, that you cannot take an interpretation for its benefits and decline it for its detriments. I just want to throw that out as something for the committee to consider.

Senator MCFARLAND. I am perfectly willing for them to consider it, because I think the interpretation is perfectly plain as to meaning.

I shall try to develop this aspect a little bit more fully in my statement, that there could be no misunderstanding about it at all.

As I say, the interpretation was made there in the Boulder Canyon Project Act. If they had not made that interpretation, the water would not have been available.

As I said, that contract between the State of California and the United States, for the benefit of the other States, has just as completely settled California's rights as any compact could do. No one here would state that you should start a lawsuit now, immediately, to settle the rights and interpret the upper basin compact which has been made.

Arizona, relying on the protection thus afforded her, adopted and ratified the Colorado River compact. A large number of the people of Arizona believed that Congress had not required California to limit herself to a small-enough quantity of waters of the Colorado River. However, Arizona had little choice, as the rights of the States were well defined in the Boulder Canyon Project Act. She has entered into a contract with the Secretary of the Interior, which contract calls for delivery of 2,800,000 acre-feet of Colorado River main stream water per year, plus one-half of the excess or surplus water unapportioned by the compact which may be available in the lower basin, less one twenty-fifth of such surplus water, to be used by Nevada.

It is significant that the Department of the Interior, in a regulation

promulgated by it under date of February 7, 1933, authorized the proffer to Arizona of a water-delivery contract which contained a provision giving to Arizona 2,800,000 acre-feet of main stream Colorado River water and all of the water of the Gila.

I do not want to read that contract in full. It will be elaborated on by witnesses during this hearing. However, it showed that the Secretary of the Interior thoroughly understood the meaning to be given these instruments.

Mr. MURDOCK. What was the date of that?

Senator MCFARLAND. That was submitted on February 7, 1933.

Mr. POULSON. Mr. Chairman, will the Senator yield?

Senator MCFARLAND. Certainly.

Mr. POULSON. You stated that the Federal Government or Congress has the right to interpret the contract between the State of California and the Government.

If two parties enter into a contract, does not the other party have the right of interpretation, also? In other words, would the State Legislature of California have the right to interpret that contract, to put us back in the same position again?

Senator MCFARLAND. No. What I said was that the Congress did interpret that Self-Limitation Act; and, having interpreted it and it being part of the same act, California, when they adopted it, accepted the interpretation of Congress.

Mr. MURDOCK. I have just been notified that the general debate in the House has ended and they are about to begin to read the bill.

Senator MCFARLAND. In view of that, I will close my remarks with a brief summary of these matters. How long will it be, Mr. Chairman?

Mr. MURDOCK. You go right ahead, Senator.

Senator MCFARLAND. I will close it just as fast as I can, in a few words.

California admits that she is bound by the California Self-Limitation Act and is not entitled to more than 4,400,000 acre-feet of III (a) water and one-half of any excess or surplus water unapportioned by the compact. However, in an effort to procure more so-called surplus waters for herself, thereby in actuality reducing the quantity of apportioned water to which Arizona is rightfully entitled, California has elected to pursue a stratagem based largely upon two patently strained and inequitable constructions of the wording of the Colorado River compact. In a general way, these false constructions may be stated as follows:

The water described in article III (b) of the compact is water unapportioned by the compact.

A definition of "beneficial consumptive use" which would charge Arizona with the total water reaching the Gila watershed rather than with the amount by which she depletes the waters of the Colorado River at the mouth of the Gila.

Neither of these contentions is supported by the intentions of the framers of the compact or by those of the Congress.

As to the contention that the water embraced in article III (b) of the compact is not apportioned, and therefore falls within the class of "surplus or unapportioned" water of which California may have half under the provisions of the Boulder Canyon Project Act,

enough has been said above to demonstrate its utter fallacy. Congress in effect has indicated its intention as to the division of the waters apportioned by article III (a) of the compact; i. e., California, not more than 4,400,000; Nevada, 300,000; Arizona, not less than 2,800,000; total, 7,500,000. As shown, the ultimate purpose of article III (b) was to apportion the waters of the Gila to the lower basin for use by Arizona and Congress explicitly recognized this apportionment by express language in the Boulder Canyon Project Act.

It is therefore clear to anyone who cares to see that the waters upon which article III (a) of the compact is effective, the 7,500,000 acre-feet of the Colorado River water, and those upon which article III (b) is operative, in final effect the 1,000,000 acre-feet of the Gila which was thought to be substantially all thereof, are "apportioned water." The excess or surplus waters above such apportioned water are for equal division between California and Arizona, with the small reservation for Nevada previously noted.

The record abounds with proof, both within the context of the compact and of the project act, as well as in collateral circumstances, that this is the true and just situation.

I invite attention to the testimony of Judge Clifford H. Stone, director, Colorado Water Conservation Board and commissioner for Colorado for the Upper Colorado River Basin Compact Commission, whose ability, impartiality, and knowledge of those problems are generally recognized. His testimony appears on pages 513 through 521 of said hearings on S. 1175.

Judge Stone demonstrated that the water embraced in article III (b) of the compact is definitely "apportioned water," and that the Supreme Court of the United States has so held in the case of *Arizona* v. *California* (292 U. S. 341). He points out that the compact is clear and unambiguous, within its own four corners, as to the apportionment of water; that the will of the legislatures which ratified the compact is paramount; and that such will cannot in law be now thwarted through collateral efforts and documents.

At page 517 Judge Stone quotes the following language from a letter from the Honorable Herbert Hoover, who was the chairman of the Colorado River Compact Commission:

> Due consideration is given to the needs of each basin, and there is apportioned to each 7½ million acre-feet annually from the flow of the Colorado River in perpetuity, and to the lower basin an additional million feet of annual flow, giving it a total of 8½ million acre-feet annually in perpetuity.

That is what Herbert Hoover said, Mr. Chairman.

I could go ahead here and quote other testimony, but for the sake of brevity I will only refer to the quotations I have given in my statement.

I would just like to call your attention to these words of Herbert Hoover, in closing upon this point:

> I do not think there is any change in the basis of division as the result of the difference in language in articles III (a) and III (b). The two mean the same thing. By reference to article II (f) it will be seen that Lee Ferry, referred to in III (d), is the determining point in the creation of the two basins specified in III (a).

The second of the devices by which California hopes to gain additional water involves its own definition, highly beneficial to that State, of "consumptive use."

The question is whether the quantity of water put to "beneficial consumptive use" along the course of a tributary to the Colorado River is equivalent to the amount of depletion of the virgin flow of such tributary at the confluence thereof with the Colorado River.

California applies its definition of such consumptive use to Arizona by insisting that Arizona is chargeable with all the water flowing in the Gila watershed which does not reach the Colorado. As California has no real tributary to the Colorado River and contributes practically no water to the main stream thereof, her definition is therefore peculiarly beneficial to herself and detrimental to Arizona and the upper basin States.

It is Arizona's theory that we are chargeable only with the amount of water by which we deplete the main stream of the Colorado River. That is the only amount which affects the other States.

The Gila River, as has been explained, admittedly empties into the Colorado at a point which prevents use of the Gila waters by any other State. The virgin flow of the Gila at such confluence is now estimated at approximately 1,270,000 acre-feet per annum, although when the compact was drawn, as above-noted, the virgin flow was thought to be about 1,000,000 acre-feet, and the latter was consequently the amount used in article III (b) as the additional quantity apportioned to the lower basin for use by Arizona.

As has been demonstrated, the framers of the compact, for the precise purpose of compensating Arizona for the inclusion of the waters of the Gila River within the Colorado River system, apportioned an extra million acre-feet per annum to the lower basin States, for use by Arizona.

I must move along, because of the limit of time which the committee has.

I want to say this, Mr. Chairman: I have tried in my statement here to give the summary of the evidence which has been submitted, which clearly demonstrates the correctness of Arizona's theory as to these two provisions.

I would like to close my statement with regard to those two provisions by pointing out again the testimony of the Honorable Clifford H. Stone on this subject, appearing on pages 519 to 521. I call special attention to that portion where it is pointed out that the framers of the compact intended depletion to be the measure of consumptive use.

I also call atention to the language of Judge Stone at the conclusion of his testimony, which language I shall now quote:

> Then, in conclusion, the Congress, we believe, will not approve an unconscionable position in interpreting the Colorado River compact for the purpose of proposed legislation. Nor would a court give approval to any interpretation of a solemn agreement among States which would be inequitable. It cannot be assumed that the compacting States intended to apportion water between the upper and lower basins of the Colorado River by terms and conditions the interpretation of which would limit one of the States to its existing uses of water when the compact was made, with a comparatively small opportunity for future development. We submit that the States did not do so.

Mr. POULSON. Mr. Chairman?

Mr. MURDOCK. Mr. Poulson.

Mr. POULSON. In quoting Judge Stone you are quoting him as an advocate of either one side or the other, but not as a judge sitting in a judicial capacity passing on the matter; is that right?

Senator McFARLAND. I am quoting the testimony that he gave before the committee. It is not as a judge; that is correct.

Mr. MURDOCK. We refer to him as "Judge" because he is an eminent water authority and is so recognized all through the West.

Senator McFARLAND. The other point which I made in my summary is that California would attempt to charge Arizona with all of the evaporation losses. In other words, "Give us everything, and we will give you nothing in return," as far as water is concerned.

California contributes nothing to the river, but she is profiting by this development of the river.

I will not take the time to go into my argument on that point.

I would like to state this to you in regard to these resolutions: The first time that those resolutions were ever heard of was on the last day of the hearings on S. 1175. You never heard of California wanting to litigate upon this subject until Arizona came in with a project; and then California filed resolutions for a suit in the Supreme Court for the express purpose of defeating the project.

Now, what does this mean? What does it mean if these resolutions are passed?

According to the testimony of Mr. Breitenstein and all the other basin States with the exception of California and Nevada, it would mean this: That there is not a justiciable issue at this time. It would mean that there would be a delay here of another year or two for the Supreme Court to determine what is involved. There is not a justiciable issue in these matters now before the Congress of the United States.

In the meantime, the people of Arizona would have to wait and again present this legislation to Congress, collect new data, new engineering data, which would mean another delay, upon which to ask for the authorization legislation.

By that time, of course, California would have completed all its appropriations and would come in before you then and oppose this legislation on another ground, as she has indicated she would do over in the Senate hearings.

What we ask you to do, gentlemen of the committee, is this: We ask you to do the same thing for the State of Arizona—a sovereign State, although not as powerful as our good neighbors from California—that has been done for California. We ask you to do the same justice for us that has been done for California in the past. Authorize these projects in order that when we have to go into court we can do so on an equal footing and with equal standing.

I do not have the time now to point out to you—because you are being called to the floor—the various legal arguments made in those hearings. I wish I did have time, because you will find, as pointed out by Mr. Breitenstein, that there was authorization for all these projects in the cases where there was held to be a justiciable issue before the Supreme Court, and where that court took jurisdiction.

Gentlemen of the committee, we must have this authorization, or there cannot be any lawsuit. California well knows that. As I said, she never introduced this resolution until we came in for our project, and her true purpose is to defeat or delay the authorization of our project.

Did you ever hear of California asking for litigation when she was coming before Congress and asking for money and authorization for

her projects, which we supported from Arizona and which you supported from your States? No.

For the first time we come before Congress with an authorization bill, when Arizona wants her just share of the Colorado River water.

Mr. MURDOCK. Senator, on Monday of this week I made an offhand extemporaneous statement before the Judiciary Subcommittee which is hearing these resolutions, and I said:

> In my judgment the passage of this resolution would mean interminable delay.

Does it strike you that way?

Senator MCFARLAND. It could only mean that, because at this time there is not a justiciable issue. To be sure, when the project is authorized, there may then be a justiciable issue; and California knows that.

This is the way, if any, to get the lawsuit—to pass this project for Arizona.

We have seen a lot of literature about this lately.

Mr. POULSON. At that point let me interrupt. I am not going to attempt to pronounce that word, but you claimed that there had been an opportunity for California to go in and take it to court. In other words, you are admitting there is a dispute and that it should be settled in the Supreme Court?

Senator MCFARLAND. No; I do not admit that, not for one moment.

I say that without authorizing a project there could never be any question about a justiciable issue. You could never present a claim of damages or an infringement of a right because there has not been a threat for us to take this water which we claim we are entitled to. There cannot be a justiciable issue until there is at least a threat.

We have tried to get in court. We have tried to get in on three occasions, and every single time California has blocked us. Every single time the court has said, in the cases where it was pertinent, that there was not a threat.

The only way there can be a threat is to pass this legislation authorizing a project, and then there will be a threat which the court will recognize, if they say that under all pertinent circumstances there is a justiciable issue.

Mr. POULSON. Very well. The Secretary has admitted in his report that there are two interpretations, and that there is a threat upon California's rights. You say that you would substantiate that threat by the authorization of this project. That in itself would certainly mean to me as a layman that there is a dispute which will eventually have to be settled in the Supreme Court.

Senator MCFARLAND. Let us just answer that——

Mr. ENGLE. Mr. Poulson, will you yield?

Mr. POULSON. Yes.

Mr. ENGLE. I want to add to that.

Mr. Oscar Chapman, in his statement to the Committee on the Judiciary of the House, said that there was a justiciable issue or controversy between the States. That is just one man's opinion.

Senator MCFARLAND. I know that you have had a quorum call. I just want to differ with that.

I just want to say this, if I may, in conclusion: The Secretary discourages the passage of this resolution until there can be known that a

justiciable issue exists. That means it could only be done after the project authorization is passed.

Now let me say this: I want the committee to hear the evidence in full. I hope that you do. I have not had the time to carefully outline all these matters. That will be done by other witnesses. I wish I had just a few more minutes, but let me say this to you:

This literature that is being spread by California here talks about the drying up of California. All California has to do to get all the water they need is to refrain from placing under irrigation the east and west mesas of the Imperial Valley. I am not contending that we should tell them where to get or to use their water, but the Department of the Interior has said that the area is nonirrigable.

I would like, Mr. Chairman, to place in the record the news release on that subject, from which it appears that the Secretary of the Interior has rejected the proposal to irrigate the east mesa.

(The document is as follows:)

DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

Bureau of Reclamation.
For immediate release March 28, 1949.

LETTER ON CALIFORNIA EAST MESA DISPATCHED

Secretary of the Interior J. A. Krug has dispatched a letter informing the Imperial Irrigation District, El Centro, Calif., that in view of land classification and repayment feasibility reports, irrigation development of public lands on the east mesa by either the Government or the district "would be inimical to the public interest." The east mesa area lies within the Imperial irrigation district served by the All-American Canal in southern California.

While the lands were originally withdrawn from public entry in the hope that they could be successfully developed, detailed investigations which have since been made, revealed them to be not practicable of irrigation and reclamation. The detailed land investigations were made by the Department of Agriculture, the University of California, and the Bureau of Reclamation.

The letter was addressed to Mr. Evan T. Hewes, president of the district's board of directors. The text follows:

Mr. EVAN T. HEWES,
President, Board of Directors, Imperial Irrigation District,
El Centro, Calif.

MY DEAR MR. HEWES: The Commissioner of Reclamation has brought to my attention the correspondence between your district and Regional Director Moritz, concerning assumption by the district of the care, operation, and maintenance, under the All-American Canal contract of December 1, 1932, of the common section of the Coachella Canal between engineer station 0 and approximately station 2603.

Particularly, your letter of December 6, 1948, suggests the necessity for clarification of the position of this Department with respect to the desire of your district to install turn-outs in the common section of the Coachella Canal at such locations, with such capacities, and at such time or times as the district may determine, following transfer of the canal to the district.

"The district's expressed desire for a free hand in constructing turn-outs in the common section of the Coachella Canal necessarily raises the question of whether the district may have the consent of the United States, express or implied, to construct turn-outs designed to serve public lands on East Mesa. In view of the conclusions reached in the land classification and development report of April 1947, and in the repayment feasibility report issued in March 1948, both of which you have received and which I have approved, it is evident to me that the irrigation development of public lands on East Mesa, either by the United States, or by Imperial Irrigation District, would be inimical to the

public interest, inasmuch as such lands are not "practicable of irrigation and reclamation." Accordingly, after full consideration, I am compelled to advise you I do not contemplate that any public lands on East Mesa will be opened to reclamation homestead entry and settlement, and, therefore, I could not approve the construction of canal turn-outs designed to serve these lands. In reaching this conclusion, I am not unmindful of the provisions of article 23 of the contract of December 1, 1932, insofar as they relate to East Mesa lands. I have been advised by the solicitor of this Department concerning the legal issues raised by this article. A copy of the solicitor's opinion is enclosed.

This decision has been made with reluctance insofar as it may disturb the existing contractual relationship with your district, but I am sure that my responsibility under the reclamation and public land laws permits me no choice in the premises. I assure you that I am prepared to consider a proposal from your district for a modification and equitable adjustment of the contracts of December 1, 1932, in order to bring the contract ino accord with the facts as we know them today, and to join with the district in submitting to the Congress appropriate recommendations to his end.

Sincerely yours,

J. A. KRUG,
Secretary of the Interior.

Senator MCFARLAND. California has never put more than 3,000,000 acre-feet to irrigation. She really has all the water she needs.

Arizona is in here fighting for her very existence. We are not trying to go out and say that Los Angeles is not going to be the biggest city in the world. It is all right for Los Angeles to be the biggest city in the world, as has been prophesied by some of the people here in Congress. That is okay.

All that we ask of the Congress is to give us the same opportunities that they have given California. Give us the same rights. Give us the same authorization legislation in order that we will stand on an equal footing. If the Supreme Court says there is a justiciable issue, we will fight it out; but give us an equal footing. Do not cut us off here. Do not deprive us of our rights just because we are a smaller State. Hear our testimony. When you do, I think that you will be convinced of the justice of this legislation and that it should be enacted.

Mr. ENGLE. One more question, Senator.

Senator MCFARLAND. Certainly.

Mr. ENGLE. I am going to request, if you can do so, that you come back tomorrow.

I would just like to throw out this thought: You say that there is a question about there being a justiciable issue, until this project is authorized. Would you have any objection to our writing into this bill, "in the event this project is authorized, there is a consent by Congress to take this matter to the Supreme Court?"

Would you object to writing in a consent by Congress to take this matter to the Supreme Court for a settlement of this question in the Supreme Court, as a condition precedent to any appropriation?

Senator MCFARLAND. Let me ask you this question, Congressman: Would you be willing to vote for authorization of this project with that provision in it?

Mr. ENGLE. I cannot answer that question. I do not know about the economic feasibility.

Senator MCFARLAND. If the Congressman will answer that question I will give serious consideration to the idea contained in his question. Otherwise it is a moot question.

Mr. ENGLE. We have to hear all the evidence on the economic and engineering feasibility. I think that raises some grave questions.

Assuming that the Senator is right, then I say this: Just assuming for the sake of argument that this committee should see fit to vote the bill out, would the Senator have any objection to such a provision?

Senator MCFARLAND. I will answer that question when the Congressman answers my question as to whether he is willing for the authorization to pass. I will give it serious consideration.

Mr. ENGLE. It might make a lot of difference.

Senator MCFARLAND. Maybe we could end this thing, if the Congressman will come in here with that definite proposal.

Mr. ENGLE. It might make a lot of difference as to whether I voted for the project or not.

Senator MCFARLAND. Maybe we can get together. If the Congressman is really sincere and will definitely come in here and state that California will support the project bill with that provision in it, I will give it consideration.

Mr. POULSON. In other words, Senator, so far your biggest argument to authorize this is not on the basis of its feasibility economically or engineeringly, but the fact that it will give you an advantage of going into the courts to be on an equal standing?

Senator MCFARLAND. Not an advantage, Congressman, mere equality of opportunity.

Mr. POULSON. For that reason you might be willing to do it?

Senator MCFARLAND. Not at all. I touched upon the feasibility of the project here, and I touched upon it lightly because of the lack of time. I could go into that. I dwelt briefly upon these other matters because they were the matters that were touched upon by Congressman Engle.

I say to you in all sincerity that we are not asking any advantage of you. Just put us on an equal footing and we will be satisfied.

Mr. POULSON. Then your answer is in opposition to the fact that this is a legal cause and should be settled as in a case dealing with problems entirely relating to judicial matters. In bringing this up in your argument against that you say, "We should pass this to bring the thing to a head eventually in the Supreme Court."

Senator MCFARLAND. Congressman, you misunderstood me. I say that we should pass the project because it means 150,000 people will otherwise have to leave the State of Arizona; also because it is good business for the Government of the United States to do it, and also because the project is a proper and feasible one.

I do say that if California is sincere in wanting to litigate, passage of a project authorization is the only possibility of establishing a threat of potential damage of a nature to get into court. I maintain that the issues have been settled. Even on California's theory of the case, it can very likely never get into court.

There will never be a justiciable issue until this problem is settled and this project is authorized. On Arizona's theory of the case, there is not a justiciable issue and there will not be.

On California's theory of the case, looking at it the way you construe it, there cannot be a justiciable issue until this project is authorized, because there is no threat to your rights at this time.

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Mr. ENGLE. Senator, we are going to have to go over to the floor, but I want to suggest that if it is possible for you to come back tomorrow morning we would like to discuss the matter a little further.

Senator MCFARLAND. If I cannot come back in the morning I will come back some other morning.

In the meantime, will the Congressman answer my question as to whether he would be willing to vote for this project with that provision in the bill?

Mr. ENGLE. I will answer that when you put it in.

Mr. POULSON. I will eliminate one of your arguments. I will say that you need the water and want to develop the area. I will qualify it by saying that we need it over in California. The question which arises is that there is not enough water for both of us.

Senator MCFARLAND. You can determine that under Congressman Engle's proposal.

Mr. MURDOCK. We thank you, Senator McFarland, for your helpful presentation.

The subcommittee will stand adjourned until 10 o'clock tomorrow morning.

(Thereupon, at 1:05 p. m., Wednesday, March 30, 1949, an adjournment was taken until 10 a. m., Thursday, March 31, 1949.)

THE CENTRAL ARIZONA PROJECT

THURSDAY, MARCH 31, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 10:10 a. m., in the committee room of the House Committee on Public Lands, New House Office Building, Hon. John R. Murdock (chairman of the subcommittee), presiding.

Mr. MURDOCK. The committee will come to order. This is a continuation of our hearing on H. R. 934.

We plan this morning to give our time to lay witnesses. It was suggested that lay witnesses from Arizona who are appearing here on the measure be heard.

Our first hearing was given over pretty largely to attorneys. I think most of the men who will be called on today are not attorneys.

They are prominent businessmen and are here in the interests of their business, the most important fact of which is to get Arizona's needed water.

For that reason, we have changed the plan of hearing that we may hear them.

The first witness we will call this morning is Mr. Wayne M. Akin, chairman of the Arizona Interstate Stream Commission.

STATEMENT OF WAYNE M. AKIN, CHAIRMAN OF THE ARIZONA INTERSTATE STREAM COMMISSION

Mr. AKIN. My name is Wayne M. Akin. I am a resident of Phoenix, Ariz., and have been for some 14 years. I am here to testify on behalf of the Arizona Interstate Stream Commission.

Mr. MURDOCK. Mr. Akin, would you prefer to give a connected presentation without interruption and then hold yourself in readiness to answer questions?

Mr. AKIN. Yes, Mr. Chairman; that would be fine.

The commission was created by the Legislature of the State of Arizona for the purpose of formulating plans and the program for the practical and economic development, control, and use of the water of streams originating outside of the boundaries of the State and flowing into or upon the borders of the State.

The commission is made up of seven business and professional men drawn from all parts of the State and includes, ex officio, the State land and water commissioner and the chairman of the Arizona Power Authority.

This commission is vitally interested in H. R. 934, not only because of its economic importance to Arizona, but likewise because of its importance to the United States as a whole from an economic, social, and national defense standpoint.

As an official body, this commission is not interested in furthering the interests of any particular area or group of people. It is rather our purpose to maintain an objective viewpoint in the creation of a broad program calculated to develop the natural resources of the Southwest, integrating that development with the economy of Arizona as it fits into the entire economy of the United States.

It is important to emphasize the fact that the Colorado River constitutes one of the major, natural resources of our country. Its proper development is of vital importance, not only to the seven States through which it flows, but it is especially important in the over-all economy of the United States because of the fact that it provides one of the last great undeveloped frontiers which will provide room for expansion for the ever-increasing population of the United States.

The resources are not only agricultural, but provide an enormous power potential, the development of which will release large quantities of petroleum products by the substitution of hydroelectric power, which is not expendable, for oil-generated power which uses our declining oil reserves.

Furthermore, the development of the basin means the implementation of much-needed resources for national defense distributed over an area away from coastal or metropolitan areas and therefore strategically located for defense.

In order to understand the place of the State of Arizona in this over-all basin development program, it is essential that a clear understanding be had of the topography of the State and its relationship to the basin as a whole.

Of the seven basin States, Arizona, except for a very small portion of the extreme southeastern part of the State, lies wholly within the Colorado River Basin.

Roughly, two-thirds of the State is high, mountainous plateau, ranging from an elevation of around 4,000 feet to approximately 12,600 feet.

The Colorado River enters Arizona from Utah east of the center of the interstate boundary and for a distance of about 325 miles cuts the plateau with its tremendous canyon.

If you will look at this topographical map, perhaps as I talk you can get a rather clear idea of what we are talking about.

The Colorado River enters Arizona at this point [indicating], passes through the canyon and down between Nevada and Arizona, and provides the boundary between California and Arizona for the rest of the distance.

I will return to my text, if you are following it.

Thereafter it forms the boundary between Arizona and Nevada for roughly 150 miles and the California-Arizona boundary for another 240 miles so that for a total of some 700 miles the river flows in or along the boundary of Arizona. Roughly one-half of the State drains into the main stream of the Colorado River and the balance drains into the Gila River, flowing westerly across the south half of

the State and entering the main stream of the Colorado just north of the Mexican boundary.

You can follow this on the map. This area all drains into the main stream of the Colorado [indicating].

This area drains into the Gila with small areas here which drain south into Mexico.

Climatically the two-thirds of Arizona lying on the plateau as above described, is similar to other mountain States. However, the plateau ends in a series of precipitous cliffs and mountains and the remaining third of the State lies at a low elevation, running from about 100 feet up to approximately 2,500 feet.

Much of this area is desert and except for irrigation its economic value is limited to its mineral resources and the comparatively limited livestock grazing potential.

The river valleys provide some of the finest soil and the most productive climate to be found anywhere in the world. Within this area has developed the irrigated agriculture of Arizona with which we are immediately concerned.

As early as the fourth century A. D. irrigation was practiced on a significant scale by the Indians of this region. Portions of the canals built by these Indians can still be found.

On the Gila River, near the Casa Grande ruins which are preserved as a national monument, are found canals more than 40 miles in length with dimensions up to 20 and more feet wide on the bottom and 10 feet in depth.

Similar canals are found in the Salt River Valley in the vicinity of Phoenix. The engineering and development work done by these Indians is one of the marvels of bygone civilization when one considers that they were constructed and used by a people living in the Stone Age, without engineering or construction equipment other than stone or wooden hoes and baskets.

Four hundred years ago, when the Spaniards first came into this area, they found the remnants of this culture, but largely the civilization had disappeared because of the failure of their irrigation water. Archeologists tell us that as many as four civilizations have heretofore developed and have succumbed to periodic water failure.

The present problem of insufficient water is comparable to that which has gone before, with this notable exception: Engineering skill and mechanical development have now made it feasible to supplement the local water supply with that of the Colorado River.

H. R. 934 is designed to provide the supplemental water that will prevent a recurrence of disaster. At this point I want to emphasize the fact that it is not the purpose of this proposed project to provide water for the development of new lands. This water is to be used for the purpose of providing the essential supplementary supply for lands already under cultivation, the details of which I now desire to discuss.

During and immediately after the Civil War farming began to be carried forward on an important scale in the valleys of the Gila and Salt Rivers and by 1869 there was under cultivation by white men, with an established water right, 3,210 acres in the Salt River Valley and a somewhat smaller amount in the Gila Valley.

In addition to the lands of white farmers, Indians had under cultivation something in excess of 2,500 acres. During the 10-year period

following this, there was active expansion so that by 1880 something over 40,000 acres was under cultivation.

By 1900 this expansion had continued in the Salt River Valley to the point where approximately 150,000 acres was being farmed and the supply of water by direct diversion was subjected to disastrous, periodic droughts so that it was apparent that the storage of flood-waters was essential if the community was to survive.

In the year 1903 the United States Government, acting by the authority of Congress under what is known as the Reclamation Act, commenced the construction of the Roosevelt Dam upon the Salt River just below the confluence of Tonto Creek with the Salt River at a point some 75 miles east of the city of Phoenix. The original capacity of the reservoir was 1,300,000 acre-feet of water. This control of the river made possible the expansion of the irrigated area thereunder to approximately 240,000 acres.

At the time of this construction the use of the river for power was given only incidental consideration. However, the development of the use of electrical energy became early an important item and subsequently five additional dams were built on the Salt and Verde Rivers for further control of the storage of water and for the development of power.

In addition, a number of power plants were built on the canals. In 1928 a dam was completed on the Agua Fria River and at the same time the Coolidge Dam for the use of the middle Gila Valley was constructed. The water of this project, known as the San Carlos project, provided for 50,000 acres of the land of white farmers and 50,000 acres of Indian lands.

It was during this period that the influx of people into the Southwest was accelerated and the pressure for additional farm lands became great. As a result additional areas were brought under cultivation.

These bordered the older projects and extended on down the Gila River for a distance of 100 miles below Phoenix. Coincidentally the Yuma Valley at the mouth of the Gila River was developed with water from the Colorado River. This development paralleled that of the Imperial Valley in southern California.

The additional development was made possible by the peculiar conditions which existed on the rivers where, though dry above, waters rise in the channel of the river below, forming a new source of supply independent of that diverted above.

Water from this source was further supplemented by pumping and the area thus provided with water was expanded by over 200,000 acres.

However, the development of pumping for both drainage and supplemental irrigation water demonstrated the fact that the peculiar geology of the valleys of central Arizona is such that large bodies of underground water are available in underground gravel strata which make it practical to pump extensively for irrigation.

Furthermore, the development of more efficient pumps and the availability of power for their operation brought about an enormous stimulation of pump irrigation.

As a result during the last two decades, the cultivated area of central Arizona has been expanded to a total of approximately 700,000 acres.

This expansion was greatly accelerated by the demand for agricultural products to supply the war effort. The use of the underground

water has now progressed to a point where it is clearly apparent that the withdrawal exceeds the recharge and that only Arizona's share of the Colorado River can prevent the return to desert of at least 250,000 acres and the serious limitation of the use of the remainder of the irrigated lands.

By virtue of the compacts, laws, agreements and contracts as set forth in detail elsewhere in this hearing, the State of Arizona has a fundamental right to certain waters of the main stream of the Colorado River.

It is the purpose of H. R. 934 to provide the works necessary for the use of this water, and I would like to catalog the uses to which this water is to be put. In the interest of clarity I will discuss them simply by geographical location.

No. 1. Salt River project: While this project has excellent water rights, that under irrigation practice followed at the inception of the project would be considered adequate, it has now been found that by intensive tillage and the utilization of water sufficient for the full 365-day growing season, the productive capacity of the plant can be greatly increased.

Furthermore, it has been found that alkali accumulation on the lower areas of the project can be controlled only by the application of additional water sufficient to carry off the salt at the lower end.

Furthermore, the utilization of a supplementary supply of water for irrigation would make it possible to equalize the reservoir reserves, thereby firming up the hydroelectric power supply so essential for the continuation of irrigation pumping throughout central Arizona as well as providing the power for domestic and industrial use.

No. 2 Roosevelt water conservation district: This is an area which adjoins the Salt River project on the east. This district secured a right to certain water salvaged by lining the canals of the Salt River project and additional water from pumps.

The water strata from which this water is drawn are progressively being depleted so that pumping is now done at a depth in excess of 200 feet. It is essential to the economic stability of this area that supplemental water be supplied so that the underground supply can be protected.

No. 3. Roosevelt irrigation district: This area lies west of the Salt River project and the situation is essentially the same as above described, although part of the water for this project was obtained by salvaging drainage water from the Salt River project.

No. 4. Maricopa County municipal water conservation district: This district lies northwest of Phoenix and utilizes gravity flow from the Agua Fria River, stabilized by the Carl Pleasant Reservoir and supplemented by pumps. The gravity water has proven erratic and insufficient for this project and the underground reserves are demonstrably on the decline. Only by the addition of supplementary water can the retrenchment of this district be avoided.

No. 5. The Buckeye district, Arlington district, Gillespie project: I will discuss these together, as they are contiguous and their problem is identical.

These districts are irrigated by gravity water returning to the river below the Salt River project with the lower areas supplemented with pumps.

The problem of these districts is primarily salt control. Inasmuch as they secure their water by return to the river bed from irrigated areas above, the salt accumulation is intensified.

The water rights of these districts are among the oldest of the Southwest. The change in water quality has been beyond their control and as a result of the river water above them.

It is only by supplying these districts with additional fresh water from the Colorado River that declining usefulness and ultimate ruin can be avoided.

No. 6. Bordering upon the organized districts above mentioned are numerous small privately owned farms supplied entirely by pump water. These of necessity must be supplied with supplementary water for the reasons above discussed.

No. 7. San Carlos project: This is located on the Gila River and supplied with gravity water from the San Carlos Reservoir above the Coolidge Dam.

The development of this area by the Indian Service in cooperation with the white farmers was based upon a river flow history prior to its inception.

The flow records for that period indicated a much greater available supply than has been the case since the construction of the dam.

While those records indicated ample water for the developed area, the protracted drought since the construction of the dam has demonstrated that the water is insufficient.

In fact, the reservoir has never been filled since its completion. Supplemental water to firm up the required flow for both these Indian and white lands is one of the major objectives of the central Arizona project.

No. 8. The Santa Cruz River drains the border area of southern Arizona, extending its drainage area into Old Mexico.

This river is largely subterranean and flows from the south border into the Gila River at a point approximately southeast of Phoenix.

Approximately 200,000 acres of the finest agricultural land to be found anywhere has been developed by pumping from this subterranean basin.

The water supply for this area has proven to be definitely on the decline. Wells which 10 years ago were pumping at a depth of 80 to 90 feet are now pumping at a level of 200 feet or more.

It is apparent that the underground water supply is being exhausted. A large and important community which has grown up in and around this fertile valley is facing imminent return to the desert unless supplementary water can be provided.

No. 9. Some of the finest farm lands lie near Safford in the Gila River Valley near the eastern boundary of Arizona.

This land is irrigated by water directly diverted from the river. It has old water rights but by agreements at the time of the construction of Coolidge Dam, these rights were limited.

Because of the deficiency in the flow of the Gila River, as discussed heretofore, the water for this extremely productive area has been found to be short.

However, by using Colorado River water at a lower level, and the construction of an impounding works above this Safford Valley, an

exchange of water can be made which will firm up this irrigation supply.

In addition to the major areas above discussed, there are several smaller areas which I will not discuss in detail but which, by exchange of use and firming up of water requirements at lower elevations the economy of these smaller areas at higher elevations can be preserved.

Likewise, it is important to mention the essential nature of additional water supplies for rapidly growing population centers such as Tucson, Phoenix, and the intermediate towns.

The population of all of these towns has more than doubled in the past 10 years, and the influx of people continues unabated.

I have discussed at length the need for water and I am very conscious of that need as my business is farming. I am very conscious of the impending disaster, not only financial, but to social and human values which are painfully real to those of us who can see homes and whole towns facing desolation unless this problem is solved.

It is easy to visualize the impending disaster to farm homes and towns which are subject to flood, such as is the case in many portions of the Middle West and eastern portion of our country.

The disaster which faces our farms and homes is just as real and imminent although the causing factor is failure of water instead of excessive water. It is our conviction that these farms and home are entitled to the same consideration from the Congress of the United States as is that of the areas which are endangered by flood.

However, there is this important difference. Many of the flood-control projects are in the nature of things unable to carry the burden of construction costs and hence this burden must fall on the United States as a whole.

We, on the other hand, are asking not for a grant, but for the financing of a self-liquidating project. The economic feasibility of the project is a subject which will be discussed in detail elsewhere in these hearings.

I wish merely to point out that the farms and farmers of this area are willing and able to carry a just proportion of the cost of the project and the power developed by virtue of the project will provide the revenue necessary for completely paying it out.

Furthermore, the power requirements of the community which the project will serve are such that by the time the works can be built, this community will need the power developed at a price which will liquidate the cost of the project.

But this is not all. The Federal income, taxes generated within this social and economic structure by virtue of the continued prosperity which would ensue upon the construction of this project will, during the course of its life, repay the Treasury of the United States many times for the cost of the project.

The Congress should enact H. R. 934 because:

1. It will preserve nationally important existing agricultural values, both economic and social.

2. It will provide development of great national power resources, important not only to the peacetime economy, but of real urgency from a military standpoint as we face the new atomic age.

3. It will stabilize an already developed area which is capable of

sustaining a large population and which is geographically located for defense.

4. It is self-liquidating within the economic unit of the State of Arizona.

5. It will create a permanent national asset of tremendous proportions and provide the base for a perpetual large source of Federal taxes.

Thank you, Mr. Chairman.

Mr. MURDOCK. Thank you, Mr. Akin.

We would like to ask you a few questions. I think the committee will indulge me perhaps if I lead off, not with questions directly bearing on your statement but some others.

What is the Interstate Stream Commission of which you are chairman?

Mr. AKIN. The Interstate Stream Commission is an official body created by the Legislature of Arizona for the purpose of administering the interstate water problems of the State of Arizona.

Mr. MURDOCK. How old is the commission?

Mr. AKIN. It was created a year ago, in January.

Mr. MURDOCK. Are there other members of the commission present this morning?

Mr. AKIN. Yes.

Mr. MURDOCK. Would you mind introducing them?

Mr. AKIN. Dr. Alfred Atkinson, of Tucson; Mr. Jesse A. Udall, of Safford; Mr. R. H. McElhaney, of Yuma; and Mr. Jay Gates, of Kingman.

Mr. MURDOCK. Thank you. And there are many questions which come to my mind, but I think I should await the pleasure of the committee.

Mr. Engle, have you questions?

Mr. ENGLE. I will defer for the time being, Mr. Chairman.

Mr. MURDOCK. Mr. Welch, have you any questions?

Mr. WELCH. Mr. Chairman, has it been stated for the record the number of acre-feet of water taken from the Gila River from its source, to a point where it intersects the Colorado River near Yuma?

Mr. MURDOCK. Mr. Welch, I should have said before opening the matter to questioning that many of these witnesses we are to have will have anticipated a good many of these questions so, of course, they will be answered by witnesses but we also have the engineering experts who have all these facts tabulated.

However, it is a good question, if Mr. Akin will answer it.

Mr. AKIN. As the chairman and the committee know, no doubt, the matter of supply and use of water is complicated. We will develop it in the course of our testimony at great length and I believe as a layman it would be better if I did not undertake the answer at this time, if the committee would bear with us.

Mr. WELCH. The answer of course would apply to the average annual figure. We will develop that thoroughly before we finish our testimony.

Mr. MURDOCK. That is right. All these streams are quite variable. As a matter of fact the Gila River is now dry as a bone, is it not?

Mr. AKIN. For most of its length, yes.

Mr. MURDOCK. Mr. Morris.

Mr. MORRIS. I believe I have no questions at this time.

Mr. MURDOCK. Mr. Lemke.

Mr. LEMKE. I have several questions.

In the first place, I wish to state that my sympathies are always with the underdog, as compared with the glamorous sister protected with fruit and gold.

Mr. ENGLE. Do not leave Nevada out of this. Senator McCarran made a very persuasive statement the other day over on the other side.

When you speak of this being a matter between poor Arizona and rich California, it is a matter between poor Arizona and poor Nevada also.

Mr. LEMKE. Also my sympathies are with Nevada too.

The underdog needs defense and protection. However, there is this question in my mind concerning the necessity of this. You are asking us to build a big dam at considerable expense. Do you have water enough that legally belongs to you to fill it? What is your answer to that?

Mr. AKIN. Do you want my opinion?

Mr. LEMKE. Not your opinion; I would like to have facts.

Mr. AKIN. Again you have raised a question that is both a legal and an engineering question and should, I am sure you will agree, be answered by experts.

I feel confident that by the time we have completed this testimony we will have presented the facts that will convince you that the water is physically available and that we have a legal right to its use.

Mr. LEMKE. Let me ask you this: Do you have enough water, leaving out of the consideration the controversy between California, and Arizona, have you enough water, assuming that the decisions will be made in favor of California, have you enough water to fill the dam?

I know of the necessity; I am with you 1,000 percent that you need it and should have it if you can get it, within the compact you have agreed to.

I think you made a mistake when you agreed to the compact. I note California took all but 3,100,000.

Mr. AKIN. You must recognize this: We were coerced into accepting that water division. We did not accept it voluntarily. We spent 25 years trying to prevent a thing which we thought was unjust.

We had no choice in the matter. We were coerced into accepting it. However, at the same time California, in order to get what they were after, the Hoover Dam and works appurtenant thereto, limited themselves. We accepted that limitation and the protection provided thereby. What we are asking California to do is live up to that limitation.

If they do, we will have plenty of water.

Mr. LEMKE. As I say, my sympathies are with Arizona but suppose the Supreme Court holds to the contrary and we have a big dam there and no water? I think the Supreme Court is the only tribunal that can finally settle this question unless you folks can get together and make some agreement between yourselves personally.

Mr. AKIN. I think Senator McFarland yesterday brought that out quite well.

Mr. LEMKE. I was unable to hear that discussion yesterday because I was busy on the floor. The position of Arizona is that until this bill

is authorized there is not a judicial controversy. If after the authorization, a judicial controversy is created, then the United States Supreme Court can rightly make the decision.

I shall read Senator McFarland's opinion because I have a great deal of respect for his ability. As I stated, I think your big job here is to convince the committee that you will be able to fill that dam and have water enough to do what you want to.

Mr. AKIN. I feel confident we will convince the committee.

Mr. LEMKE. We do not want to be up against the position of having a dam with no water. The dam would do no good without water would it?

Mr. AKIN. Arizona is no more interested in producing a monument to mistaken engineering than is any other part of the United States. After all, we pay for our share of the mistakes as well as the proper development program.

Mr. LEMKE. We all make mistakes.

Mr. ENGLE. You would not want to build a monument, either, to a mistaken concept of the law, would you?

Mr. LEMKE. No.

Mr. ENGLE. In other words, the engineering features of this project and its financial feasibility are wholly separate and distinct questions from that of the legal availability of the water. It is true that Senator McFarland talked about a justiciable issue, cause of action or controversy. In my opinion the Supreme Court will decide that. We will not be able to decide it. The Supreme Court will decide whether there is a cause of action.

Mr. LEMKE. We have had this since 1935, and it seems that there could be some way to get it to the Court. Yet, I see, the Supreme Court did not take jurisdiction.

Mr. ENGLE. The Federal Government was not a party to the suit. We are trying to get the Federal Government made a party to the suit.

Mr. MURDOCK. Have you further questions, Mr. Lemke?

Mr. LEMKE. That is all.

Mr. MURDOCK. Mr. D'Ewart?

Mr. D'EWART. I have a number of questions with regard to the points Mr. Engle raised yesterday as to the limitation of this committee in authorizing the project.

If his thesis prevails, that he presented to the committee yesterday, that we have no right to authorize any project wherein there is a question as to the availability of supply of water, I believe the committee will have to reappraise all of its authorizations heretofore made and certainly we should reappraise what we did in the case of H. R. 1770.

I think we raised a very, very interesting legal question on that. I would like to see it discussed before this committee.

Mr. AKIN. If the committee will bear with us, I am sure we will have that thoroughly presented.

Mr. MURDOCK. Mr. Marshall——

Mr. MARSHALL. I have just a few questions for my own information.

How far is it feasible to pump water for an irrigation project, usually?

Mr. AKIN. Usually? Well, that is a difficult question to answer be-

cause a lot depends on the type of crops. For very high priced crops you can pump water from great depths. It also depends on the cost of power.

Of course, the efficiency in pumps, which has vastly improved in the last few years, is a great factor. We can pull water now from greater depths at a smaller cost than we could 15 years ago.

The practical water lift would have to be tied into the price of crops also. In other words, you can pump water at a cost that is in proportion to the value of the crop you are selling.

Mr. MARSHALL. About how many irrigators are involved in the three projects of Buckeye, Arlington, and Gillespie?

Mr. AKIN. I do not have those figures on the tip of my tongue. Very roughly it would be something above 30,000 acres.

Mr. MARSHALL. As I understand your statement, you do not contemplate opening up any new land; it is to take care of the land presently being farmed?

Mr. AKIN. That is right.

Mr. MARSHALL. Do you have a zoning ordinance or something like that?

Mr. AKIN. Yes; we have a law enabling the State Water Commissioner to prevent new pumps going into any critical area. It is intended to prevent further expansion in critical areas.

Mr. ENGLE. Mr. Chairman, may I ask Mr. Akin to point out on the map, if he will, where the diversion will take place from the Colorado River to supply the water?

Mr. AKIN. Just above Parker Dam [indicating].

Mr. ENGLE. You have a pumping lift there of close to 1,000 feet, have you not?

Mr. AKIN. Yes.

Mr. ENGLE. Where does the power unit come from to do that?

Mr. AKIN. Bridge Canyon.

Mr. ENGLE. Where is Bridge Canyon on the map?

Mr. AKIN. Right here [indicating].

Mr. ENGLE. It is just below the Grand Canyon?

Mr. AKIN. It is right in the Grand Canyon.

Mr. ENGLE. How far is it from where you made your diversion to the place where the power plant is located, in river miles?

Mr. AKIN. In river miles or power-line miles?

Mr. ENGLE. Well, both, if you know.

Mr. AKIN. I would have to determine that.

Mr. ENGLE. Could you give it to us roughly?

Mr. AKIN. It would be somewhere around 250 river miles, and 100 or a little more air-line miles.

Mr. ENGLE. There is no physical connection, then, between the power dam to create the power and the diversion for irrigation?

Mr. AKIN. I do not know what you mean by the physical connection.

Mr. ENGLE. What I mean is this, that in the average instance they build a dam for irrigation from which there is incidental power, such as we have at Shasta, for instance.

In this case, the power program is set up for the specific purpose of financing the water division several miles below; is that right?

Mr. AKIN. I did not understand your question.

Mr. ENGLE. A little over 100 miles below; is that not right?

Mr. AKIN. Will you state your question again? I am sorry, I did not get it.

Mr. ENGLE. I say, in this instance the power project is set up some 100 miles away for the sole purpose of financing the pumping lift and the cost of the diversion; is that right?

Mr. AKIN. Yes, and no. Of course, as originally planned the water was to be diverted by gravity from Bridge Canyon and that is a part of the ultimate plan.

If in the future at some time it is decided that it is desirable to do that, it is perfectly physically possible to do it.

Mr. ENGLE. You have to dig a tunnel, do you not?

Mr. AKIN. Yes.

Mr. ENGLE. It is an 80-mile tunnel?

Mr. AKIN. No, it is about 78 miles.

Mr. ENGLE. How much does that cost?

Mr. AKIN. You will have to ask the engineers. That has never been accurately figured out. It is too much to be done under present cost conditions.

Mr. ENGLE. Does this bill authorize the construction of that tunnel?

Mr. AKIN. It does not.

Mr. BENTSEN. Do you have a ratio of cost on your project?

Mr. AKIN. The engineers have it.

Mr. BENTSEN. How much will your project cost?

Mr. AKIN. The figure based, I believe on 1948 values and costs, is $738,000,000.

Mr. BENTSEN. That is not just for 30,000 acres?

Mr. AKIN. No.

Mr. BENTSEN. How many acres are you going to irrigate?

Mr. AKIN. The project will supply supplementary water for approximately 650,000 acres.

By exchange it will be for considerably more than that. Of course, also you must remember that the project we are talking about also provides silt control, which is essential for the use of Bridge Canyon Reservoir and for the protection of Lake Mead and the Boulder investment, which is of vast importance.

Mr. ENGLE. How many acres will not have water if this project is not built?

Mr. AKIN. Variously estimated, and of course, in the nature of things, something over a quarter of a million acres will have to return to desert.

Mr. ENGLE. It is something around 225,000 acres, and this project costs $738,000,000. Is that right?

Mr. AKIN. Yes.

Mr. POULSON. You will remember yesterday the Senator said it would be $738,000,000, omitting that pipe line which they are putting off for the time being because of the prohibitive cost, so it will cost more than that.

Mr. ENGLE. That is correct, is it not; the $738,000,000 does not include the tunnel?

Mr. AKIN. It does not include the Bridge Canyon tunnel.

Mr. MURDOCK. Mr. Poulson.

Mr. POULSON. I was very much interested in the question brought

up by my distinguished colleague, Mr. Lemke, who is well known in his fight for what he considers justice to those who he thinks do not have the proper support but at the same time he always adheres to what are actual facts and the law and he brought up a question on that same basis which I think hits at the kernel of the whole thing.

He said, if Arizona is right, they will have enough water. If California is right, he asked you if you would have enough water for the project, and I believe you referred to later witnesses. Did not the Secretary of the Interior in his report state that if Arizona is right, you have enough water; if California is right, there is not enough water?

Now, when we start to spend $738,000,000 plus the unknown quantity that would be required to be spent in the event that we build the tunnel afterward, in a project which costs as much as TVA, and as much as the St. Lawrence seaway and five times as much as Boulder Canyon, with the possibilities of having a dry reservoir, because in your statement on page 9 you are speaking of the San Carlos project or the Coolidge Reservoir and you say, "In fact, the reservoir has never been filled since its completion."

So with all of these question marks before us, do you think it sound business for Congress to appropriate that amount of money which means that other projects will have to stand by until its completion, in the face of the fact that there is a possibility—we will say it even that way, I will not say that it will be—that there is a very strong possibility that you will not have enough water.

Mr. AKIN. We do not ask for the appropriation of any money. There are many questions that must be settled that cannot properly be settled until authorization has been had. We are asking for authorization. Before this money is spent, these problems will be resolved.

Mr. POULSON. Do you think Congress should go ahead and make authorizations when they know that there is a strong possibility that it cannot be carried out? Do you think that is good judgment on the part of Congress in doing that?

Mr. AKIN. I think it is excellent judgment to bring this thing to a focus. It will be brought to a focus by the authorization.

Mr. POULSON. I am very sympathetic also to social and human values that you mention in your statements and I realize that there will be a great many who would suffer, but that is on both sides, as well as in the Nevada and California side, as well as the Arizona side?

Mr. AKIN. If the Congressman will excuse me, we take issue with that. There will be no suffering in Nevada or California as a result of this.

Mr. POULSON. Did you know that right at this moment, for instance in the event the water is going to be used, that San Diego is depending entirely upon the water from the Colorado River, and speaking of defense, San Diego is probably one of the most strategic spots in the entire West?

Mr. AKIN. More power to San Diego. They have their aqueduct built at the expense of the United States Government and they are getting the water.

Mr. POULSON. California paid for its own aqueduct.

I am glad you brought that up.

Mr. AKIN. I will ask the Congressman to bear with me. We will

bring that out further and I am not qualified to be discussing it with you, sir.

Mr. POULSON. You say on page 11:

> We, on the other hand, are asking not for a grant but for the financing of self-liquidating projects.

You say the interest money is to be used in paying for the aqueduct.

In other words, it is not to be paid into the Federal Treasury but that money which is figured in interest in setting up the price of power, that interest is being used to subsidize the aqueduct and the interest alone for 80 years at 2 percent, which it is costing the Government to put that up, will equal approximately $1,000,000,000, so do you think your statement is true when you say it is self-liquidating?

Mr. AKIN. I would like to ask the Congressman if he has figured the income taxes which the Federal Government will receive in lieu of that interest used for assisting the agricultural end of the thing?

Mr. POULSON. Does not the Federal Government collect income taxes in California or Nevada just as they do in Arizona?

Mr. AKIN. Certainly.

Mr. POULSON. So that is eliminated as far as that is concerned.

Mr. AKIN. I do not think it is eliminated at all.

Mr. POULSON. But they are putting up $1,000,000,000 in the form of interest which they are putting out in financing and not getting the interest back.

Mr. AKIN. I do not agree there is a parallel there at all.

Mr. POULSON. That is in the bill.

Mr. AKIN. California will not provide those taxes that will go out when that community returns to the desert.

Mr. POULSON. If the water is used anywhere it is all going to be used and is going to make income regardless where it is going to be used.

That is a sympathetic and emotional appeal. We are confining ourselves to the actual facts.

Is that not the basis upon which we should proceed?

Mr. AKIN. I hope that California will confine themselves to the facts.

Mr. POULSON. That is what we want. That is why we wanted to have it taken into the Supreme Court.

Mr. AKIN. And we will likewise do the same thing.

Mr. POULSON. We come to the Bridge Canyon Dam now. Is it not true that when you use that Bridge Canyon, that that Bridge Canyon Dam which will supply the power which I personally, and I am sure California would do likewise, are for the building of all these power projects, we need them along the river.

However, the water is what we are objecting to, that you are taking out of the river which we claim is not your water.

But in using that to finance or to subsidize your irrigation, your aqueduct across there, you are using the proceeds from that power dam on Bridge Canyon to finance things in Arizona.

Has not the upper basin just as much right to use the power revenue and the interest on that in the Bridge Canyon as you in Arizona? In other words, they could have a project up in the upper basin and tie in the Bridge Canyon Dam on it just the same and use the power rev-

enue to help finance the upper-basin project just as well as you are there?

So are you not in reality getting the jump on the upper-basin boys by coming in with this project, using up the revenue off that to finance yours, while the upper-basin boys are sitting by and allowing you to do that?

Also, there is the fact that while we are appropriating that $1,000,000,000, the upper basin will have to stand by and wait until that is paid off before they will have a chance to come in and ask for any appropriations to get money for their projects over which there is no water dispute?

Mr. AKIN. You have asked an extremely complicated and far-reaching question that I would not attempt to answer at this time except to say this: The basin States have discussed that matter at great length and are in agreement. We are not in any way impairing the rights or opportunities of the upper-basin States and they thoroughly agree.

Mr. MURDOCK. There is one simple phase of the complicated question, however, which I believe you could answer, Mr. Akin:

Could you tell us "who got the jump on whom" in this development?

Mr. AKIN. I think that is perfectly obvious.

Mr. ENGLE. Mr. Chairman, I have two very brief questions.

Mr. Akin, on page 11 of your statement you say:

> I wish merely to point out that the farms and farmers of this area are willing and able to carry a just proportion of the cost of the project.

Now, Senator McCarran, of Nevada, in making a statement in opposition to this project before the Senate committee, said:

> The central Arizona project is the first project presented to Congress on which the irrigators are unable to repay any part of the investment and are unable to pay even the operating cost and the cost of the power for pumping.

Now, those statements—yours and Senator McCarran's—are diametrically opposed. Would you like to comment on that?

Mr. AKIN. If the Congressman will bear with me, I would prefer not to enter into that discussion, although I think it is a perfectly pertinent question which I think we will answer as we go along.

I think it is something so technical that we should have the Bureau with their figures and our engineers and economists with their figures, to present the thing adequately to the committee, and I think that any answer I would make would be simply superficial.

Mr. ENGLE. You admit that the statements are in conflict, that you cannot reconcile the two statements. You say you people are able to pay and willing to pay and Senator McCarran says that the irrigators cannot pay.

I think, Mr. Chairman, that is something that should be resolved.

There is one further question:

I have before me a copy of the letter sent by the director of the Bureau of the Budget under date of February 4, 1949, in which he said that the authorization of this project is not in accordance with the President's program at the present time, but he made this significant statement in connection with the project.

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He says:

Even so, the life of certain major parts of the project is appreciably less than the recommended 78-year pay-out period.

Did he have reference to certain portions of this project wearing out? That is, the life of certain elements of this project not being equal to the length of the pay-out period?

Mr. AKIN. I have no means of knowing to what he referred because he did not elaborate on it.

Mr. ENGLE. You are familiar with the statement, are you not?

Mr. AKIN. I am.

Mr. ENGLE. Was he referring to the silting-up of some of these dams?

Mr. AKIN. I have no means of knowing to what he referred. I think that is a question that can be resolved by the Bureau of Reclamation engineers and the other private engineers who have studied these things.

Mr. ENGLE. If it is true that we have a 78-year pay-out period on this project and certain elements of the project have a life appreciably less than the recommended 78-year pay-out period, that would affect the financial feasibility, would it not?

Mr. AKIN. Certainly.

Mr. ENGLE. You would have to rebuild those parts or clear them out, if it was silt?

Mr. AKIN. I hesitate to get into that thing. It will be developed. I assume what we are talking about is the reservoir above Bridge Canyon Dam which is a very narrow canyon with a limited storage capacity and hence the danger of quick silting.

The Coconino Dam and the Bluff Dam are part of a program to check that immediately.

The ultimate development of the river above the dam is essential. However, that is not a pertinent question here because whether this job is done for the Central Arizona project or not, it will be done for power.

California is in a somewhat difficult position in that thing because they want that dam built for power. And so do we. The dam will be built for power because there is a natural resource that the economy of the United States demands.

Mr. ENGLE. I will say this, Mr. Akin, we are in agreement that it is proper to build a power project here but we do have great doubts as to whether it is proper to build a project to finance the diversion of water which you claim.

Mr. AKIN. That is a different question.

Mr. ENGLE. It is. Thank you very much.

Mr. MURDOCK. Governor Miles, have you any questions?

Mr. MILES. I believe not at this time.

At the conclusion of the balance of the testimony I may have some questions.

I would like to know if Congressman Poulson is satisfied with Commissioner Akin's answer to your question as to "who got the jump on whom."

Mr. POULSON. I think by coming in at the last, about a year ago, you figured you were getting the jump on everyone.

Mr. MILES. No further questions.

Mr. MURDOCK. Mr. Barrett.

Mr. BARRETT. No questions.

Mr. MURDOCK. Mr. Aspinall.

Mr. ASPINALL. If this committee is going to enter into any judicial question whatsoever in the interpretation of this matter before us, it might be well to bring former President Hoover and Mr. Bannister and others before this committee, who can speak personally on what took place in the ratification of the first compact that is involved here. This seems to be the whole question as far as the judicial part is concerned. The matter being presented now rests on a question of fact.

Mr. MURDOCK. The Chair has been pleased to note that we have had other Congressmen drop in this morning for a short time. Some have gone because they had other business.

My colleague from Arizona is present again this morning. Have you any questions, Congressman Patten?

Mr. PATTEN. No, thank you. I think the situation has been well handled. I appreciate particularly the question of the chairman about "who got the jump on whom."

Mr. MURDOCK. Thank you, Mr. Akin, for your presentation.

When I went to Arizona in 1914 I found there a pioneer family, having long ago taken root in the Valley of the Sun, and had become one of the leading families in the State. That was the O. S. Stapley family.

I would like to call as our next witness, Mr. D. L. Stapley, who is the vice president and general manager of the O. S. Stapley Co., and one of the most prominent businessmen in central Arizona.

Mr. Stapley.

STATEMENT OF D. L. STAPLEY, VICE PRESIDENT AND GENERAL MANAGER OF THE O. S. STAPLEY CO.

Mr. STAPLEY. Mr. Chairman and members of the committee, my name is D. L. Stapley. I am vice president and general manager of the O. S. Stapley Co., Phoenix, Ariz., dealers in hardware, steel products, International Harvester Co. farm implements, tractors and motortrucks; industrial equipment and supplies.

Our company operates a wholesale hardware subsidiary, the Arizona Hardware Co., both institutions serving the entire State of Arizona.

I am also an executive committee member of the Central Arizona Project Association and a citrus grower.

Because of the acute water shortage in our State, I am deeply concerned about its future unless supplemental waters from the Colorado River can be secured for our cultivated farm lands.

In the beginning, may I inform you that I am a native Arizonian and I have observed, from almost its earliest stages, the development of our agricultural economy to what it is today. My father and mother, as children, settled with their parents in the Salt River Valley at Mesa, Ariz., in the years 1882 and 1884, respectively.

Frontier life with these early pioneers was one of disappointments, hardships, and privations.

Their discouragements only served to make them work harder to make a living and to establish homes while developing the soil and

finding markets for such farm products as they were able to raise.

My father, O. S. Stapley, on reaching maturity, was an untiring worker and leader in all worth-while activities and developments of our valley and State. As a very young man he established a hardware business at Mesa, Ariz. It was a small beginning with only $800 stock investment, but through his industry and foresight, the business has grown to a sizable institution today.

Each of these early years brought additional desert waste lands under irrigation and the rich soil grew abundant crops. My father not only witnessed this development, but was a part of it. He worked and counseled with the farmers, knew and called them by their first names, and, as his business grew, he extended them credit to get started and carried them through hard and difficult times.

He, with others of the early leaders, caught the vision of what could be a vast and productive commonwealth and when water storage dams were contemplated and built, and roads had to be constructed and canals extended, he was in the foremost ranks to accomplish the goals set.

He, with all other early settlers, gave unselfishly of time and money to develop the vast resources about them. His business grew with the community and eventually the original store developed into a State-wide business and is supervised today by his family, a family of five sons and three daughters.

While recognizing the State's many advantages, we also know that the future of our homes and valleys is the future of farms, and the future of farms is an adequate water supply.

The life work of our parents and other pioneer settlers and the work and livelihood of future and present generations of these pioneer families depend upon a stable irrigation water supply.

A great and progressive commonwealth has been built upon the vision and hard work of these early pioneers.

Their record is one of far-sighted planning and outstanding development. The State's growth is primarily due to agriculture, the result of their labors and a basic requirement for a successful economy.

Arizona has a great future, providing ample water can be assured. However, sufficient water for irrigation purposes is not now available and unless immediate action is taken, in face of our sustained drought conditions, to secure use of additional waters from the Colorado River our picture now, and for the future, is dark indeed. Central Arizona has harnessed every available internal water source.

Therefore, stabilizing our State's economy and utilizing the fullest production of our vast cultivated acreage requires firming up present water supplies with supplemental waters from the Colorado River.

Unless these supplemental waters are obtained, Government moneys now invested in Arizona, particularly in certain irrigation projects, will be undermined.

This also applies to other Federal loaning and insuring agencies, as all loans are made secure through the constant irrigation of lands and consequent growing of crops.

Government moneys have helped build our State's economy and these investments in turn have produced millions in Government revenues.

Unless these Government investments and sources of revenue are protected by making available supplemental waters from the Colo-

rado River, not only the Government stands to lose heavily, but also the people of our State will suffer losses in income and value of property holdings.

Our own business, founded in 1895, which now consists of seven retail hardware and farm implement stores, one retail motortruck and service-shop operation, and a wholesale hardware division located in the heart of central Arizona's agricultural lands, has paralleled the development of reclamation and irrigation projects.

The number of our stores have increased as additional waters were made available by man-made reservoirs and economical use of underground water by pumping.

The present serious water shortage is of great concern to both farmers and businessmen alike and all planned moves are predicated upon an insecure feeling.

Water reserves, both surface and underground, are being depleted. Our farmers last year took a 50-percent reduction of normal irrigation water requirements and again this year, are only assured 2 acre-feet per acre, 50 percent of need.

This, of course, presents two alternatives—either 50 percent of our farm land must lay idle, or if an attempt is made to cultivate 100 percent of the land on 50 percent of normal irrigation water requirements, harvests will be greatly reduced. Four acre-feet of water for each acre of growing crops is the annual minimum irrigation safety factor.

The past 2 years Coolidge Dam, located on the Gila River, with 100,000 acres in the San Carlos irrigation project depending upon it for irrigation water, went below the point of use the latter part of May and for the balance of the year contributed nothing in the way of irrigation waters, and again this year, the present supply is not sufficient. Therefore the only available water for this vast acreage is water from an already reduced underground supply.

When it was apparent last year Coolidge Dam reservoirs were going dry, the San Carlos irrigation project secured a rush Federal loan to sink wells and install pumps to take up some of the slack.

This, however, provided only a portion of irrigation water requirements and gave but temporary relief and the added load on the underground water supply was merely one of reserve depletion.

There are approximately 150,000 additional cultivated acres in the Coolidge, Eloy, and Casa Grande districts irrigated by pumping only.

The water level in these wells has been steadily lowered year after year as the underground supply has had to carry the full load of this entire cultivated acreage and without rains to restore underground reservoirs results in further depletion, increasing the critical water condition for the farmers of this area.

The sustained seriousness of this water shortage continues to hold up a planned building program of my company to improve service to farmers in both Casa Grande and Coolidge districts.

Declining farm prices and a serious water shortage does not justify further investments until supplemental waters are made available to these lands.

The land of this valley is rich and productive with water, but without water it is valueless and can only return to the desert.

Back of our reservoir dams are hydroelectric plants, but as these surface waters are depleted, generated hydroelectric power also de-

creases, and even now there are designated days when power cannot be used for pumping purposes.

Therefore, where formerly electricity was used, gasoline, gas, and Diesel-powered engines have or must yet be acquired at considerable extra cost to the farmers to supply needed underground waters to grow crops.

This has and will work an extreme hardship upon our farmers, and unless the price of crops are extremely profitable these farmers will either lose considerable money or will have to close down farm operations altogether.

Pumped irrigation water costs at present are high, already reaching a cost of $39 per acre, and with the constant lowering of wells will necessarily be higher.

These factors, along with declining farm prices, will soon place farmers in an unprofitable position, and producing agricultural lands, unless supplemental waters at reasonable prices can be obtained, will revert to a desert status.

Agriculture in central Arizona has been developed on a broad and diversified scale, and if deprived of an adequate water supply will seriously affect the economy the State in that the agricultural districts will be unable to bear their proportionate share of the taxes necessary for the State's operating expenses, and will thus throw upon other industries such a heavy burden of taxation that they will be handicapped in meeting competition in the production and sale of their products. The scope is broader than just our own State.

The economy of all sections of the United States with whom our farmers, cattlemen, and business concerns trade are also affected. It further lessens Government tax revenues, not only from Arizona citizens but also from those who buy and sell our produce and products.

Similarly, it affects the profits and taxes of the many manufacturers and producers who now ship large quantities of machinery, equipment, farm implements, supplies, foodstuffs and the thousand and one miscellaneous items necessary to sustain the commonwealth of our State.

These companies are located in the East, the South, the Midwest, and Pacific coast area. Our problem is the Nation's problem because our economy is wrapped up with the entire economy of the country, and if anything happens to it, the country at large suffers.

Our company perhaps is a fair example of how extensively Arizona business concerns must look to manufacturers outside our State for merchandise, materials, and supplies.

The combined operations of both our companies, beginning with our fiscal year October 1, 1945, through March 31, 1948, disclose purchases in round figures of $1,445,000 from the Eastern States.

The industries in Connecticut contributing $551,000; New York State, $455,000; Pennsylvania, $105,000; Massachusetts, $95,000.

The Midwestern States supplied us with $5,530,000 in merchandise. Industries in Illinois, except the International Harvester Co. as noted below, furnished in round figures, $941,000; Wisconsin, $558,000; Ohio, $381,000; Indiana, less International Harvester Co. purchases, $273,000; Missouri, $267,000; Michigan, $130,000; and Minnesota, $54,000.

The Western States supplied us with $4,873,000 in merchandise, California furnishing $2,964,000—I want the Congressman from Cali-

fornia to please note that—Arizona, $1,025,000; Colorado, $104,000; and Washington, $22,000.

The difference between amounts furnished above for given grouping of States and the total amounts of the States listed are represented in purchases from other States than those named.

A few of the nationally known companies from whom we buy, and the approximate value from each during this period are:

International Harvester Co (Approximately $930,000 of this supplied from Pacific coast operations or branch houses and the balance from the Midwest and Eastern States.)	$3,507,000
Columbia Steel Co. and subsidiaries (subsidiary of United States Steel Corp.)	625,000
Sherwin-Williams Co., Cleveland, Ohio	120,000
Glidden Paint Co	138,000
Remington Arms Co. and Peters Cartridge Co. (division of du Pont Co., Bridgeport, Conn.)	196,000
Williams Radiator Co., Los Angeles, Calif	270,000
Imperial Brass Manufacturing Co., Chicago, Ill	172,000
Bucyrus-Erie Co., Milwaukee, Wis	191,000
Corning Glass Works, Corning, N. Y	85,000
J. D. Adams Co., Indianapolis, Ind	137,000
American Fork & Hoe Co., Cleveland, Ohio	99,000
The Stanley Works, New Britain, Conn	112,000
Reynolds Metal Co., Richmond, Va	103,000
Wilson Sporting Goods Co., Chicago, Ill., and Los Angeles, Calif	97,000
Total	5,852,000

During the past 6 years we have paid in excess of one and two-thirds million dollars in taxes, both to State and Federal agencies. Our company's major volume of business direct and indirect is with farmers.

We also sell extensively to cattle ranchers, contractors, industrial organizations, transportation concerns, some departments of Government and also dealers in hardware and related items.

It may be argued we have presented the best period of our operations. However, the tremendous population growth in the last 7 years cannot be overlooked, and it also must be remember we have been subject to restrictions in many categories, either by directives or allocations or inability to furnish merchandise that has greatly limited available potential sales.

Even at present, sales are still restricted in many lines; some of which are volume items.

We employ approximately 350 people, and most of these employees' total savings are invested in homes and small acreages, and depressed conditions brought about by any water shortage will seriously affect not only their investments but living standards.

There have been many sales of properties, the former owners moving away because of the serious water condition facing central Arizona.

Businessmen are casting a watchful eye on the term of events resulting from insufficient irrigation waters; extension of credit is more closely analyzed because of the obscure outlook and the difficulty people may have in meeting forward commitments.

The seriousness of our situation is apparent to every thinking individual and owner of Arizona interests or investments. We cannot overlook the interdependence of all industries, particularly the basic industry—agriculture.

For example, cattle raising embraces feeding and finishing in the

irrigated districts and the sheep industry through the winter months bring their flocks to the valley for feeding, where normally a plentiful supply of pasture is available.

Our mining communities depend upon the irrigated valleys for produce and dairy products. Our farm produce for the most part is ahead of other sections of the United States and is therefore vital—filling in at a time when most needed.

In the central Arizona and Yuma Valley areas, we enjoy a 12-month growing season and crops of varying kinds are harvested every month of the year. With a porous underground for movement of water, our soil can be kept sweet by use of irrigation waters and with adequate amounts and proper care, can produce crops for thousands of years to come, thus creating wealth year after year. This assures stability to investments, tax revenues and the home and cultural life of our people.

As an additional part of my testimony, I shall read into the record several letters received by me from three Arizona companies which reflect the general feeling of all Arizona businessmen toward Arizona's water problem and its effect upon the State's economy.

Because of the pressing need of supplemental irrigation water for our now cultivated lands, and to preserve our economic stability, the people of our State are united and determined in their efforts to secure the water benefits that rightfully belong to them.

They are convinced that Arizona has a definite and firm right to the water they are seeking to use through the enactment of H. R. 934, and I respectfully urge that this bill be enacted into law.

ALLISON STEEL MANUFACTURING CO.,
Phoenix, Ariz., February 4, 1949.

Mr. D. L. STAPLEY,
O. S. Stapley Co., Phoenix, Ariz.

DEAR FRIEND: I understand you are to testify before the committees of Congress in behalf of Arizona in her fight for legislation to secure our portion of Colorado River water. As the Allison Steel Co. is entirely Arizona owned and operated, I cannot emphasize enough the importance of the passage of this legislation to our company and to its approximately 600 employees.

We have spent many thousands of dollars in our industry, so that we may be able to meet any contingency presented by the continued growth of this area, which will be entirely lost if we do not receive supplemental water for our irrigated lands.

To emphasize the importance of this matter, to us, we are setting forth our annual sales in central Arizona, directly or indirectly, dependent on the stability of agriculture in this section of the State.

Mines	$650,000
State, county, city and Federal Government	500,000
Contractors	1,500,000
Industrial	300,000
Agriculture (produce procession equipment, lettuce sheds, etc.)	750,000

We have an annual pay roll of approximately $1,500,000, with most of our employees being small landowners, making us even more vitally concerned.

To those in other States who do not realize the far-reaching seriousness of our impending plight, we present our larger annual purchases of raw material and manufactured goods in other sections of the country:

California	$500,000	Chicago area	$300,000
Utah	250,000	Detroit area	90,000
Colorado	425,000	Ohio	55,000
Pittsburgh area	200,000		

We hope these few points will be of some value to you in presenting our mutual problem to Congress.

Yours very truly,

W. L. ALLISON, *President.*

MARICOPA TRACTOR CO.,
Phoenix, Ariz., January 20, 1949.

Mr. D. L. STAPLEY,
O. S. Stapley Co., Phoenix, Ariz.

DEAR DEL: Answering your letter of January 15, wish to advise that our farm machinery sales during the year of 1948 was $421,246.

The principal manufacturers that we represent are as follows: J. I. Case Co., Racine, Wis.; Jumbo Steel Products Co., Azusa, Calif.; Goble Disk Works, Fowler, Calif.; Wetmore Pulverizer & Machinery Co., Tonkawa, Okla.; W. W. Gringer Corp., Wichita, Kans.; Laird Welding Works, Merced, Calif.; B. Hayman Co., Los Angeles, Calif.; Eversman Manufacturing Co., Denver, Colo.; R. J. Piper Manufacturing Co., Princeton, Ill.

As you know, we sell practically all together to farmers and when they do not have sufficient water for irrigation they do not grow crops, and do not purchase farm machinery, and it indirectly hurts every merchant and every manufacturer in this country.

The water situation right ahead of us is the most critical in our history and we would hate to think of what would happen to this valley if this Colorado River water does not come some time in the near future.

Yours very truly,

M. J. VALENTINE, *Manager.*

PRATT-GILBERT HARDWARE CO.,
Phoenix, Ariz., January 15, 1949.

Mr. D. L. STAPLEY,
O. S. Stapley Co., Phoenix, Ariz.

DEAR DEL: In response to your letter of January 5, we have prepared the attached statement, which reflects our purchases of steel products and related items for the years 1942 to 1948, inclusive. Also included in this statement are the names of leading manufacturers from whom the purchases were made.

It might be contended that the figures presented are for an inflated period, inasmuch as the years for which they were compiled include the war years.

However, it should be borne in mind that during the entire war period, and since to a lesser degree, we were restricted in the total tonnage of steel, and most items made from steel, which we were permitted to purchase, either by directives or by allocations established by the producers.

The nature of our business is that of providing consumable and small equipment merchandise to industrial users, including the mines, smelters, lumber mills, utilities, cotton gins and oil mills, heavy construction, municipalities, shops, etc. Although we do a substantial volume of business in the Phoenix and Salt River Valley area, perhaps the larger volume of our business stems from areas outside of Maricopa County.

Our relationship with the farming trade is more on an indirect basis because we do not sell agricultural equipment, but do service shops which are repairing and building equipment for the agricultural industry.

Inadequate water supply for irrigation has already reflected in the volume of business we are doing currently in the agricultural areas.

Industry in Arizona is interrelated—what seriously affects one industry very quickly reflects in other industries. For example, cattle raising embraces feeding and finishing in the irrigated districts, and the sheep industry depends largely upon winter feeding in agricultural areas where a plentiful supply of pasture is available.

If the irrigated districts of Arizona, and I am speaking more especially of the central area where agriculture has been developed on a broad and diversified scale, is deprived of an adequate water supply, it will seriously affect the economy of the State in that the agricultural districts will be unable to bear their proportionate share of the taxes necessary for the State's operating expenses, and will thus throw upon other industries such a heavy burden of taxation that they will be handicapped in meeting competition in the production and sale of their products. I trust that the information furnished and the ideas expressed in this communication will be of assistance to you in the preparation of your paper in support of the central Arizona project, and wish to express appreciation to you for your willingness to undertake this public service.

Yours very truly,

ED. GOLLWITZER, *Secretary and Manager.*

ATTACHMENT TO LETTER OF PRATT-GILBERT HARDWARE CO., DATED JAN. 15, 1949

1942–48, inclusive:

Pipe, valves, fittings	$500,000
Screw fasteners	260,000
Steel items (steel, wire products, wire rope, drill steel, etc.)	2,100,000
Tools (precision, files, hacksaw blades, threading devices, abrasives, electric, wrenches, axes)	415,000
Transmission	215,000
Welding equipment and supplies	400,000

Manufacturers:
Air Reduction Co., New York City.
Smith Welding Equipment Corp., Minneapolis, Minn.
Stoody Co., Whittier, Calif.
Stulz-Sickles Co., Newark, N. J.
Bethlehem Steel Co., Bethlehem, Pa.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
A. Leschen & Sons Wire Rope Co., St. Louis, Mo.
Timken Roller Bearing Co., Canton, Ohio.
Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.
Allen Manufacturing Co., Hartford, Conn.
Rockford Screw Products Co., Rockford, Ill.
Republic Steel Corp., Cleveland, Ohio.
The Lunkenheimer Co., Cincinnati, Ohio.
Tube Turns, Inc., Louisville, Ky.
Stockham Pipe Fittings Co., Birmingham, Ala.
Browning Manufacturing Co., Maysville, Ky.
Chain Belt Co., Milwaukee, Wis.
Hewitt Rubber Corp., New York City and Buffalo, N. Y.
The Lufkin Rule Co., Saginaw, Mich.
Blackhawk Manufacturing Co., Milwaukee, Wis.
Parker-Kalon Corp., New York City.
Fayette R. Plumb, Inc., Philadelphia, Pa.
Cleveland Twist Drill Co., Cleveland, Ohio.
Van Dorn Electric Tool Co., Towson, Md.
Toledo Pipe Threading Machine Co., Toledo, Ohio.
Henry G. Thompson & Sons, Co., New Haven, Conn.
Delta File Works, Philadelphia, Pa.
Greenfield Tap & Die Corp., Greenfield, Mass.
The Carborundum Co., Niagara Falls, N. Y.
Ridge Tool Co., Elyria, Ohio.

Mr. MURDOCK. Thank you very much, Mr. Stapley.

We would like to ask you some questions, too.

I think I should reverse the order of questioning by the committee, beginning with the members who have more recently become members.

Are you a native son?

Mr. STAPLEY. That is correct, sir.

Mr. MURDOCK. I knew you were from a very famous pioneer family. You speak of Arizona's being able, if we can only get the supplemental water which we need, to produce for a thousand years?

Are there any such projects that have been cultivated and productive so long?

Mr. STAPLEY. I guess there are, Mr. Chairman, throughout the world. Of course, as you know, in our valley our prehistoric peoples farmed the areas years and years ahead of the white man and evidences are still there of the old canals that yet form a network of our valley.

Mr. MURDOCK. In fact, some of those prehistoric canals are used, are they not, to this day?

Mr. STAPLEY. That is correct, or our present canals follow right along the general contour.

Mr. MURDOCK. But those men have gone, they have been swallowed up by the desert?

Mr. STAPLEY. They are gone.

Mr. MURDOCK. What reason have you to believe that the present inhabitants will not follow the same course?

Mr. STAPLEY. If we rely upon the Indians, the few who remain there, it was the lack of water.

Mr. MURDOCK. It was the lack of water which drove them out. They were men of the stone hoe; they did not have blasting powder and power shovels and all those things which we have.

These men were not able to erect structures such as our engineering skill can do today.

You have sufficient confidence in our financing and business ability to think we can overcome the difficulties which overtook these prehistoric people?

Mr. STAPLEY. I think so, Mr. Chairman. We cannot only talk in acres, we have to talk in terms of the Commonwealth that has been established upon the present number of cultivated acres that we have.

Any reduction, of course, in that acreage means a corresponding reduction in our economic set-up.

It is just bound to follow.

Mr. MURDOCK. You think, then, that a dust bowl condition can be established which will have the same devastating effect upon part of our humanity that it formerly had?

Mr. STAPLEY. Yes.

Mr. MURDOCK. Mr. Barrett.

Mr. BARRETT. No questions.

Mr. MURDOCK. Mr. Aspinall.

Mr. ASPINALL. I have a question.

Mr. Stapley, in the formation of the economy of Arizona in the last 25 or 30 years, has there been a program on the part of Arizona to build toward this sort of a development?

Mr. STAPLEY. I would say "Yes" and "No." In fact no one foresaw the coming of a war and the location of training centers in our valley, so our vision did not extend really far enough to visualize the tremendous increase in population that would take place in our area.

So many boys were stationed at the fields and camps there and families came to visit them who were attracted by our country.

They have returned and made homes in our area. Of course, our growth has really been beyond anything we had anticipated.

Mr. ASPINALL. When did the first combined business intelligence of Arizona realize the difficulty with which you are confronted at the present time?

Mr. STAPLEY. I would say we would have to go back to the time that the Roosevelt Dam was contemplated.

The need then for water was very apparent, and after the passage of the Reclamation Act of 1902, the Roosevelt Dam was the first project I think initiated under that reclamation program.

Mr. ASPINALL. I appreciate that but I am referring in my first question now to this over-all development of the central Arizona project and ask you whether or not there was a program and when it originated.

Then the next question was supposed to be in line with that, when

did you first realize your difficulty in being overpopulated and being overdeveloped with your farming interests.

Mr. STAPLEY. Going back again to the building of the Roosevelt Dam it was visualized that other dams would be required on the streams providing the irrigation waters for our area.

These dams were added as money was available and the land was brought under cultivation.

It was pretty hard to measure the waterfall and the available surface water supplies to determine the limits of our cultivated areas.

The apparent need for these waters did come, I would say, just before the beginning of the war period when we had severe drought conditions but we were able to push through.

The development of lands during the war, and so forth, made it very apparent at that point that with continuing drought, something had to be done about it.

Mr. ASPINALL. When did Arizona decide that this project was something that they desired?

Mr. STAPLEY. There has been a mixed condition, I would say, as far as Arizona is concerned, but the real beginnings of what we are trying to do here today started about 3 years ago. That was the start of the big emphasis. This general idea has been in the minds of many people ever since the signing of the Colorado River Compact, but nothing definite was done about it until about the year 1939, at which time some businessmen got the then Commissioner of Reclamation, John Page, interested and preliminary surveys were started. This was interrupted by the war, and actually the concerted effort, resulting in this bill now before Congress, really got under way about 1944.

Mr. ASPINALL. That is all.

Mr. MURDOCK. Mr. Poulson.

Mr. POULSON. Now, the fact that you have overexpanded your economy down there and have enlarged beyond your capacity to take care of it and to which we are all sympathetic, is that still a basis for coming in and asking for a project costing $1,000,000,000 or more, which ultimately might not have the water when the matter is finally settled in the Supreme Court? Do you think that is justification on that alone, the basis that you have overexpanded?

Mr. STAPLEY. It is questionable whether we overexpanded our economy or not. The fact still remains, as far as Arizona is concerned, that we feel we have certain waters under the Santa Fe Compact available and it would certainly be up to Arizona to say what distribution she would want to make of those waters.

Mr. POULSON. You admit there is a dispute about those?

Mr. STAPLEY. We have to admit that after we listened to California for a day in relation to this.

Mr. POULSON. And the Secretary of the Interior stated so too, did he not, in his report?

Mr. STAPLEY. Of course, I think the Secretary of the Interior has more or less "passed the buck" as far as California and Arizona are concerned.

Mr. POULSON. He stated there was a dispute, did he not?

Mr. STAPLEY. He mentioned that, yes.

Mr. POULSON. And according to the 1944 Flood Control Act, these things must be settled before projects are carried out?

Mr. STAPLEY. That is the purpose of our being here, of course.

Mr. POULSON. The testimony would indicate that you have been a very successful businessman. Is it not true that this water will help the economy and make money, whether it goes to Nevada, New Mexico, Arizona, or California?

Mr. STAPLEY. I do not think that is entirely the point, Mr. Congressman.

Mr. POULSON. I just asked that question.

I point out the fact that you brought up a great argument which is the importance of the income taxes that would be denied the United States because of the fact that you were not able to expand.

The point I am bringing out and that you as a good businessman will admit, that it will make money anywhere and you will have to pay income tax in any State wherever you are.

Mr. STAPLEY. There is this important difference——

Mr. POULSON. Is that not true?

Mr. STAPLEY. There is this important difference: Our commonwealth is already established. Our industries are there. Our people are there. Our land has been reclaimed and so this is a rescue project that we are working on. Very definitely we must find waters to supplement our present supplies to take care of present irrigated lands.

Mr. POULSON. That still did not answer the question but I am going to ask you another one: If you say the water would make more money for the Federal Government in Arizona than it would in any of the other States, then you are inadvertently admitting that the benefits from this water will go into the hands of fewer people because they will pay higher income taxes than if it was distributed among a great many of the smaller-income taxpayers; is that not so?

Mr. STAPLEY. I do not think that is true, sir.

Mr. POULSON. You know that the Government gets more money from the higher-income people than from the lower-income people. Is that not true?

Mr. STAPLEY. No.

Mr. POULSON. Do you mean to say that when you make a higher income you don't pay a higher tax?

Mr. STAPLEY. That is correct, but the point I am thinking of is the distribution as far as people are concerned. As our commonwealth establishes itself, this thing is spread more. It is not just reducing itself to only a few.

Mr. POULSON. Then you would not pay higher income taxes on that same water in Arizona than you would in some other State. That is my point.

Mr. STAPLEY. That is perhaps true in that respect, but again we come back to the fundamental thing from Arizona's position and that is that we are entitled to certain waters from the Colorado River.

We say it is available and later will testify, substantiating that we are not now receiving the benefit of it.

Mr. POULSON. As a good businessman, do you think that the Government, and Congress represents the Government, should authorize a project which they know will cost the taxpayers of the United States $1,000,000,000 in the form of interest which is used to subsi-

dize your irrigation project over there, which equals the amount we put into the TVA, or which will equal the cost of the St. Lawrence seaway or 5 times the cost of the Boulder canal fund, or even the Panama Canal fund?

Mr. STAPLEY. If I did not think so, Mr. Congressman, I would not be here.

Mr. POULSON. Those figures will definitely be brought out by the engineering department, that that is what we eventually will contribute in the form of interest.

Mr. STAPLEY. I think as our testimony continues, the answers to your questions will be quite well developed.

Mr. POULSON. That is all.

Mr. MURDOCK. Mr. Bentsen.

Mr. BENTSEN. Is there any action in the courts to approve the water rights or has any action been initiated in California?

Mr. STAPLEY. We have initiated no action that I know of.

Mr. MURDOCK. Mr. Sanborn.

Mr. SANBORN. No questions.

Mr. MURDOCK. Mr. Marshall.

Mr. MARSHALL. Mr. Chairman, this question is beside the point, and I realize that it is. However, I would like to ask a question. I notice on page 6 of your testimony you say, "These factors, along with declining farm prices"—do you feel that farm prices are going to decline?

Mr. STAPLEY. They have declined.

Mr. MARSHALL. Yes; I realize that they have, but you are talking in terms here of a point that would make it unprofitable. Do you think that will be so?

Mr. STAPLEY. That will definitely be so. A point was brought up a few moments ago in the testimony of Mr. Akin. Of course, crop values are one of the determining factors, and in the pumping of water we have three power-plant units. We have electricity, we have natural gas, and also gasoline and Diesel fuel, for that matter.

Of course, the cost of each is different. It therefore depends upon what a man is using what his cost of pumping will be.

Some of the ranches are close to natural-gas lines, and they have the benefits. Others do not have that advantage. As I related in my testimony, it has cost up to $39 an acre in some sections for sufficient waters to raise an annual crop. With declining farm prices, prices could get down to such a point that the farmer could not afford to pay $39, or even $30 or $25, for his water, because he is at the point where there is no profit left to him, and there is only one answer.

Mr. MARSHALL. We know in times past that farm prices have taken some terrific slumps which make it difficult for farmers all over the United States to pay their operating costs, and your operating costs are considerably higher, no doubt, because of the cost of supplying water than they are in some particular areas.

However, I would like to call some things to your attention, because I do think it may relate to thinking in terms of irrigation and reclamation.

The population of this country is steadily increasing. The amount of available land is not increasing to any large extent. The fertility of our agricultural-producing land is dropping.

We are not carrying out in this country the conservation measures needed in order to maintain fertility of the soil. We are also becoming more and more an industrialized Nation, where our population is kept busy in supplying the needs of not only our country but the world.

In doing that, perhaps the income of labor is going to have the greatest single effect upon the price of agricultural products.

Personally, I am one of those who believe that in the welfare of this country, in maintaining a national income, that people will be employed—we had about 60,000,000 people employed some short while back, and that was unheard of before.

I am from Minnesota, which is not an irrigation area. However, I think we have to think in terms of doing everything we can to maintain the acreage of land in this country that can produce foods and fibers needed for the welfare of not only ourselves but future generations.

I can visualize in just a span of a few years where we are going to have a very difficult time feeding and clothing our own population.

I would like to say this, also, as a matter of observation, that a lot of our farm prices have been supported more or less at times by the amount of money which we have spent in re-creating, should we say, foreign markets.

My good friend over here, the gentleman from North Dakota—I would like to say to him in the next few days when we are going to be appropriating money for a plan to loan or give money to our European nations, that that is going to have a great effect upon the State of North Dakota's income, as well as my own.

Mr. LEMKE. May I answer that? You pay it in taxes. They take it out of one pocket and have a lot of wet nurses and take it over there and you have made more in the end.

Mr. MARSHALL. I think the answer is entirely determined in the amount of income which we get. It is my contention that I will take 50 cents out of my pocket and get a dollar in return.

Mr. POULSON. Who gives the other 50 cents?

Mr. MARSHALL. I am a farmer. I am interested in my farm income and I am interested in things in my State.

Mr. ENGLE. Will the gentleman yield to me?

Mr. MARSHALL. Yes, sir.

Mr. ENGLE. This is probably an irrelevant comment but it is in line with what the gentleman says: In 1947 we shipped to Europe 123,000 tons out of a total crop of 213,000 tons of dried prunes in California.

Our prune industry in California, which produces 90 percent of the prunes of the Nation—those prune orchards which it took years to grow—were set up on an anticipated export of between 40 and 50 percent of the crop.

When we got into this war everybody ate our prunes. After the war nobody could eat our prunes because nobody could buy them. The question we face is whether or not we are going to pull out our orchards and wreck our economy, or try to build up a few foreign markets in line with the program that the gentleman mentioned.

Mr. BENTSEN. Will you sell your prunes under the ECA?

Mr. ENGLE. We have. In 1947 we sold 123,000 tons of a total crop of 213,000 tons. The crop producers in California would have written red ink all over their books had it not been for the Marshall plan.

Mr. WELCH. Does my California colleague mean to create the impression that California desires to fill the world full of prunes?

Mr. ENGLE. Yes, and we would like also to send them some peaches, pears, and a great many other things.

Mr. LEMKE. Does the gentleman from California realize that the Nation furnishes the money and pays interest on it and at the end we are creating a bunch of beggars we will have on our back forever?

Mr. MURDOCK. The gentleman from Minnesota has the floor. The witness was getting ready to make an answer. Would you do that, Mr. Stapley?

Mr. STAPLEY. I would like to say this, that in regard to your statement, we have developed fertilizers that are very helpful in the production of crops.

We have learned a lot in the field of agricultural experimentation, so that yields are considerably heavier today than they were in the very immediate past.

Of course, there are still lands yet to be cultivated, for which water could be acquired. The fact remains that cotton has taken a reduction in price. It was about 38 cents and is down around 27 cents or 28 cents at the present time. The price of cattle of course is down. Oranges and grapefruit are priced at a pretty low level—particularly grapefruit. It is a drug on the market. We cannot get the money back out of raising it, and of course the price of alfalfa is down and there are many other agricultural commodities that are down in price right today over what they were a year ago.

Therefore looking back over the experience of the past and what is taking place right before us, there can only be one answer, it seems to me, and that is that we must anticipate that prices will go down.

I agree with you, that perhaps our markets are extended and there should be a bolstering effect but for how long? That is the problem. I do not think it can go on. The law of economics does not work that way.

Mr. MARAHALL. We have to take into consideration a long-and short-time view in determining an answer.

Certainly we have had through the Midwest where I am from, some very good crop years where there was excellent production.

Climatic conditions have been very favorable. I certainly agree with the gentleman that we have learned a lot through chemicals, fertilizers, and insecticides, and so forth, which take a lot of risks out of farming.

However, I still know that we are going to have to do continually more of it if we are going to maintain our production.

The reason I raised part of this question is that I think agriculturally, Arizona, Minnesota, California, and the rest of these States, if they are going to prevent a collapse in our economy, we better find ways and means of maintaining our national income at a high level.

Mr. STAPLEY. I agree with that.

Mr. MURDOCK. In that connection, you did a good job in showing the interrelationship between business in Phoenix and Mesa and the rest of the country by your tables here. Is there not the same relationship in the disposition of our agricultural production?

Mr. STAPLEY. I would think so, yes, sir.

Mr. POULSON. Mr. Chairman, since you have brought that problem

up and since you have shown how much you bought from California, you did not show the figures of how much you sell the cattle for.

Is that not one of your chief markets?

Mr. STAPLEY. You will get that information during the course of our testimony, Mr. Poulson.

Mr. MURDOCK. Mr. D'Ewart.

Mr. D'EWART. I yield to the gentleman from California, Mr. Engle.

Mr. ENGLE. I have just one question in regard to the financial aspects of this project: He read a statement made by Senator McCarran, of Nevada. I read that to Mr. Akin. The Senator made another statement before the Senate committee which reads as follows:

> Under the plan set up by the bill, no part of the capital cost will be repaid by the Arizona irrigators. Either the Federal Treasury or the power users are expected to pay for it all. The water will be sold to the irrigators at $4.50 per acre-foot, which, according to the Reclamation Bureau, is less than the cost of operation and maintenance alone.

Without discussing whether or not that is true, but assuming that it is true for the purposes of this question, as a businessman do you think it is a sound proposition to set up a project where the land cannot even pay the cost of the operation and maintenance of the project without any reference at all to paying off the capital investment?

As a businessman would you go into that kind of a deal?

Mr. STAPLEY. I would prefer not to answer that, because it is an assumption, and I see nothing to be gained by it. I think the evidence that will be presented later will answer your question.

Mr. ENGLE. We expect to determine before this case is over whether or not the statements made by the Senator are true. He also stated that this is the first project in the history of this Nation in which Congress had been asked to authorize a project where the irrigators are unable to repay any part of the investment and are unable to pay even the operating cost and the cost of pumping.

Now, I am not asking you to say whether or not that is true. That statement that Senator McCarran made is diametrically opposed to the statement made by Mr. Akin just a few minutes ago. What I am asking is, If it is true, do you think it is a sound project?

Mr. STAPLEY. Again I prefer not to answer it because it is still an assumption. It is Mr. McCarran's opinion and whether he is right or not is a question to be decided, and I think the statement made by Mr. Akin, of Arizona, the evidence presented here will sustain Arizona's cause.

Mr. MURDOCK. Mr. D'Ewart.

Mr. D'EWART. I believe I will pass. I was going to comment on some of the statements Mr. Marshall made.

Mr. MURDOCK. Mr. Lemke.

Mr. LEMKE. I just wanted to make a suggestion. I am for this project but there is something I want cleared up. I understand this compact that was signed was even more binding than a marriage price where the young lady takes you for better or for worse, mostly for worse. I know no way you can get out of this. You are in it.

Now, I want to be shown, and I do not say that you cannot show it, that you have enough water to fill that reservoir and you have a legal right to it. I do not want to build a big dam and then have California take it all away from you anyway.

Mr. STAPLEY. Your question will be answered in the testimony to be presented at these hearings.

Mr. MURDOCK. Mr. Morris.

Mr. MORRIS. I do not intend to ask questions at the time, but later on there will be several questions.

Mr. MURDOCK. Mr. Welch.

Mr. WELCH. No questions.

Mr. MURDOCK. Mr. Engle.

Mr. ENGLE. No questions.

Mr. MURDOCK. The Chair would like to say that we have fixed the order of the hearings in such a way that these businessmen can be heard as expeditiously as possible, that they can go about their business, of course.

Naturally, right now we are emphasizing the need phase of this matter.

However, I imagine, Mr. Stapley, that all of your statements and those of Mr. Akin and other witnesses to come are based on the assumption that we have water in the Colorado River rightfully belonging to us, and your emphasis here is that we need it and need it now. Is that correct?

Mr. STAPLEY. That is correct, Mr. Chairman.

Mr. POULSON. Mr. Chairman, I think you made one of the best statements that has been made yet. We agree that there is a need. You stated that it is made on the assumption—and the word "assumption" is the basis of our disagreement.

Mr. MURDOCK. Thank you very kindly, Mr. Stapley.

I am informed that there will be 3 hours of general debate in the House on the oleo bill today.

We will meet at 9 o'clock tomorrow morning and the committee stands adjourned until that hour.

(Whereupon, at 12: 08 p. m., the committee adjourned, to reconvene at 9 a. m., Friday, April 1, 1949.)

THE CENTRAL ARIZONA PROJECT

FRIDAY, APRIL 1, 1949

HOUSE OF REPRESENTATIVES,
COMMITTEE ON PUBLIC LANDS,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION,
Washington, D. C.

Met, pursuant to adjournment, at 9 a. m., the Honorable John R. Murdock presiding.

Mr. MURDOCK. The committee will come to order. We will continue hearings on H. R. 934. This is an early hour and full attendance can hardly be expected at 9 o'clock, but we have so many witnesses from out of the city and from the Far West that we would like to hurry along with the hearings.

Our last witness was Mr. Stapley, a businessman from Phoenix and Mesa and other valley towns. I did want to ask him a few questions myself but we did not have time yesterday. Possibly we could have him here yet.

As it was announced, this plan of furnishing supplemental water to the central Arizona area includes water not only for the Salt River Valley around Phoenix, but for the central Gila Valley around Florence and Coolidge, and even farther south, in the valley of the Santa Cruz River. As has already been explained by witnesses, through an exchange of water we hope to furnish supplemental water to a very large area that cannot receive the water because it is somewhat higher than the water that will be furnished for irrigation under this plan.

We are glad to have with us this morning Mr. Francis I. Curtis, a farmer of Eloy, Ariz., who will discuss briefly the system of farming in the Santa Cruz Valley. Mr. Curtis.

STATEMENT OF FRANCIS I. CURTIS, ELOY, ARIZ.

Mr. CURTIS. Mr. Chairman and members of the committee, my name is Francis I. Curtis. I am a farmer and my residence is Eloy, Ariz. I have a farm located on the Santa Cruz Delta south of Eloy on which there is one well.

This delta is an alluvial deposit of rich bottom land laid down by the Santa Cruz wash. This area was originally opened up by vegetable producers back in the middle twenties, before the failing water table brought about the increase in irrigation pumping costs. There are still about 2,000 acres, however, in the upper reaches of this river land devoted to the production of asparagus, carrots, broccoli, and peas, grossing over a million dollars annually.

The Eloy area, of which this is a part, comprises some 150,000 tilled

acres and includes the towns of Eloy, Toltec, and Pichaco. In this community there are three vegetable packing and shipping plants and five cotton gins. The output of these gins will amount to approximately 59,500 bales which, including the seed, will gross in excess of 9 million dollars this year. It is estimated by local feeders that there are over 20,000 head of cattle being fed in the community this winter on barley and alfalfa pasture.

I might mention right here, Mr. Chairman, that this paper was prepared a few weeks ago.

Mr. MURDOCK. You would like to revise it?

Mr. CURTIS. No; I just wanted to add that our seasons change and the cattle are in. The thing that struck me at that particular point is there are a number of head brought in there to graze off the cotton stalks, and it is probably over the 20,000 head.

Mr. MURDOCK. We understand that these valley areas are centers for a large part of the grazing land around about.

Mr. CURTIS. Yes, sir.

Mr. MURDOCK. And they are used as centers for winter feeding and that sort of thing.

Mr. CURTIS. There is shipped from this vicinity an average of 500 carloads of grain, grossing in the neighborhood of $1,250,000 annually.

At the age of 7, after a 4-day trip overland from Mescalero, N. Mex., in my father's model T Ford, we settled in this valley. It was in those days supported by a few cow outfits, some scattered mines in the mountains to the south, two Indian reservations, and a number of homesteaders. There were a few cultivated acreages in the valley irrigated from shallow wells. My father homesteaded a piece of land in the lower end of the valley and I rode 6 miles to school on a mule. Later I acquired from my father the land he homesteaded and used the proceeds from the sale thereof to help pay for the land I now own.

Mr. MURDOCK. Would you mind telling us about what date that is, without revealing your age?

Mr. CURTIS. The date we came in there was the year that you mentioned yesterday, of 1914.

Mr. MURDOCK. That establishes your age too.

Mr. CURTIS. I have watched the Eloy area develop from a plain dotted with homestead shacks and an occasional cow camp, into a substantial farming community, supporting three grammar schools and a high school, with busses bringing students in from farms over a fine network of surfaced county highways. We enjoy a theater and have our own local newspaper.

The economy of this community is based solely upon one industry, agriculture. There is only one threat to our economy—our wells are failing. We are on the threshold of the sort of thing that results from any other failure, such as a failing river levee or a range failing in freezing weather. It is only natural that we look to our Government at a time like this. We need a lift, not a haylift, a water lift.

Without supplemental water for these lands, investments by individuals, businessmen and farmers like myself, amounting to over 15 million dollars in this community alone, will revert to the picture which greeted me over 33 years ago when I first saw the Casa Grande Valley. In my own case it will mean the loss of the lifetime effort of two generations, my father's and mine.

Now if we are unsuccessful in our mission here, it will be that same mule that will be taking our youngsters to school. Perhaps from him, this hybrid who boasts neither pride of ancestry nor hope of posterity, our children may absorb enough of that stubborn determination, courage, and hardiness to enable them to start over again.

Mr. MURDOCK. We thank you, Mr. Curtis. You will not have any difficulty in believing me when I tell you that instead of a Model T Ford I drove one of the old Overlands—you remember them—with the V-shaped springs front and rear. I drove one of those over an Indian Reservation.

Mr. CURTIS. I do remember them.

Mr. MURDOCK. That was when it was not the green, fertile area that it later became. I carried water in a can on the running board for the safety of my family. That, of course, may be strange to some of the folks here, but those are the conditions that you saw and I saw when we both entered the State of Arizona in 1914.

Are there any questions that the members of the committee would like to ask Mr. Curtis?

Mr. MARSHALL. Yes, I have a few questions that I am rather interested in asking.

About what is the average size of the farms in this valley that you are talking about?

Mr. CURTIS. The average size of the farms, Mr. Marshall, was originally based upon the size of the well that was brought in when they drilled. This is primarily a pumpting district in there. Farms originally were around 300 acres, I would say, roughly speaking, to a well. The cost was usually figured on water at approximately $100. That is what it cost to put your water in there. In later years, however, the size of the cultivated acreage has gone down because these wells are not delivering the amount of water that they were originally, and the lift as well has increased. In other words, the well that was pumping from one level originally, is lower.

Mr. MARSHALL. You mentioned growing vegetables. On a 300-acre farm, how many men is it necessary to employ during the growing season?

Mr. CURTIS. On the Henry Hind ranch, I imagine there are in the neighborhood of 60 to 80 people there.

Mr. MARSHALL. Who are these 60 to 80 people? Are they imported in there, or are they natives?

Mr. CURTIS. They are farm laborers, and perhaps a couple of foremen.

Mr. MARSHALL. They are principally natives of that area?

Mr. CURTIS. Yes, sir. Now, I would not say they were born there.

Mr. MARSHALL. But they make their living there the year around?

Mr. CURTIS. Yes.

Mr. MARSHALL. On the first page of your testimony you talked about feeding 20,000 cows or head of cattle. I am not sure in my mind about that. Are those cattle that are brought in there to winter?

Mr. CURTIS. There are a lot of them brought in there for the winter; yes. We raise quite a bit of alfalfa in and about Toltec and Eloy, up near the center of this alluvial delta formation which I described. There is a number, or quite a few cattle, that are brought in there every year to feed on that alfalfa and barley. There is a mixture

of alfalfa and barley, and in some places they are straight barley and straight alfalfa. It is harvested later, some in the late spring and early summer.

Mr. MARSHALL. Where do these cattle go then? Do they go on to the market to feed?

Mr. CURTIS. Yes. Some of those go to feeding pens for finishing. They are not finished there. Some go to feeding pens at Los Angeles and Phoenix. There is a good-sized packing plant at Phoenix and different points.

Mr. MARSHALL. When you bring them in to feed, where do they come from?

Mr. CURTIS. There are a number of dealers in and about Phoenix and Tucson, and through those little towns there. I do not know just where they do bring the majority of them from. I know a lot come in from Texas and Oklahoma and various places. I would not be able to say as to the ratio, though.

Mr. MARSHALL. You were mentioning in your statement something about cotton, to the effect that you have 59,500 bales?

Mr. CURTIS. Yes, sir.

Mr. MARSHALL. Is my understanding correct? Is that all long-staple cotton?

Mr. CURTIS. Oh, no, sir. I would say that practically all of that is short staple.

Mr. MARSHALL. In other words, you are in some competition with the cotton States farther east, in that regard?

Mr. CURTIS. We are; but in over-all quantities I do not think we are hurting them too much.

Mr. MARSHALL. It is just a small quantity.

Mr. MURDOCK. Will my colleague yield for a moment?

Mr. MARSHALL. Yes, sir.

Mr. MURDOCK. We have great difficulty here in getting ourselves in step with the various committees. There is a meeting of the full committee at 9:45 a. m. today. I was rather hoping to get these men from the Eloy district on the stand first. If you do not mind withholding your questions we will not let this witness get away until we hear from some other witnesses, and then you can put your questions to them.

Mr. MARSHALL. It is certainly agreeable.

Mr. MURDOCK. Would you hold that question, please?

Mr. Curtis, please do not leave as we may want to ask you some further questions.

Mr. CURTIS. I will sit right here in back.

Mr. MURDOCK. Mr. Van Wagenen.

Mr. Van Wagenen, I believe, is one who helped to develop this area in the Eloy country and the Santa Cruz country.

STATEMENT OF A. VAN WAGENEN, JR., PINAL COUNTY, ARIZ.

Mr. VAN WAGENEN. Mr. Chairman and members of the committee, my name is A. Van Wagenen, Jr., and, as the chairman stated, I do feel that I did help to develop the country around the Casa Grande Valley. When I came to Arizona about 25 years ago as a young lawyer, I was instrumental in helping to get organized three electrical districts by

which power was brought in and used to pump water for irrigation. I have continued to work along that particular line continually, ever since, although in the last 10 years, I guess, I have kind of half way turned farmer and have confined most of my legal work to just assisting the electrical districts.

In deference to the committee and at the request of one of the committee members, Congressman Lemke, yesterday, that the matter be speeded up a little bit as far as the presentation by lay witnesses is concerned, I have been asked to just file my paper instead of imposing myself on the committee too much today, and just make a brief statement in lieu thereof.

I would like to call the committee's attention to one point that I have not heard brought out at any time while I have been here, although I have been here only a short time, and it may have been covered, although I have not heard it mentioned.

If you will bear with me I will just read a short excerpt, starting at the last paragraph on page 4 of my statement, which runs for a couple of paragraphs.

In eastern States where rainfall is plentiful, rivers are of value to drain off surplus water. In the arid West the opposite is true. Water is a natural resource which, when applied to the land, is more valuable than the minerals which are mined or the oil which is reclaimed from subterranean sources. One acre-foot of water placed on Arizona land will produce an average of $50 in agricultural products.

The point I especially wish to emphasize is that this wealth is gone and it can never be recovered. Our copper, oil, and coal remain as permanent natural resources until they are mined. Not so with the water of the arid West; unless it is captured before it reaches the ocean, it is lost, never to be recovered.

Some place I heard, while I have been in the hearing room, that there are about 8,000,000 acre-feet of water a year flowing into the Gulf. That means there are about $400,000,000 in natural resources that we in the United States are letting go into the Gulf, and when that is gone, it is gone, and there is no way of getting it back.

As I stated, oil and copper and coal remain there, but this is a natural resource that, while we are bickering here, we are letting it go to waste and it is gone forever.

Mr. ENGLE. Will the gentleman yield for a question?

Mr. VAN WAGENEN. Certainly.

Mr. ENGLE. Do you mean to imply that there is more water in the Colorado River than there are commitments for that water?

Mr. VAN WAGENEN. Congressman Engle, I have not made a study of that and I am not qualified to answer it, I believe. We do have witnesses here on that. I have not made a study of the engineering part of it.

Mr. ENGLE. Of course, the practice is that the upper basin States are now using only about a third of their water, and Mexico, which is entitled to a large allocation of water, is only using half of it. Regardless of what we ever do, we are going to have to even up the water in the Colorado River to service the Mexican treaty, whether they use it or not. It is going to have to be there and we cannot build facilities in Arizona and California, or any place else, which take away the water which the upper basin States are entitled to, because if we

build those facilities, as Mr. Lemke said the other day, we will be sitting here high and dry.

In other words, the upper basin States are entitled to 7,500,000 acre-feet of beneficial and consumptive use of water. The water they are entitled to may flow for the next 30 years out into the Gulf of Mexico, but there is not anything those of us in the lower basin can predicate the construction of an irrigation project on with relation to that water. If we do, when they get ready to use it they are entitled to it and they will take it, so there is no way that I know of to stop the waste that you speak of.

Mr. VAN WAGENEN. I think the only way it could be stopped is to proceed with the development of both the lower and upper basin. Until we do proceed with that in full, I think we are going to lose all of those natural resources.

Mr. ENGLE. I agree with you on that.

Mr. VAN WAGENEN. And we are trying to get started on it now.

Mr. MILLER. Is the witness prepared to say whether the Reclamation Bureau said this was feasible?

Mr. VAN WAGENEN. No. I have not read the report.

Mr. MILLER. Or what the cost would be per acre if it were feasible?

Mr. VAN WAGENEN. No. I have not made a study of that. I am sorry.

Mr. POULSON. Mr. Chairman, may I ask a question?

Mr. MURDOCK. Yes.

Mr. POULSON. For your main testimony then, you intend to be to the effect that you need the water. Is that it?

Mr. VAN WAGENEN. That is primarily it. Yes, sir. I am very closely associated with the farmers in Pinal County and I know their needs, and they do desperately need additional water.

Mr. POULSON. Now, you are telling us how much they produce—an average of $50 in agricultural products. That money is lost. Now, as my colleague, Mr. Engle, brought out, the first thing to do is to know how much water is available. The main dispute is between Arizona and California as to the amount available, whether it belongs to Arizona or whether it belongs to California. But since you have brought out this matter that it produces $50 in agricultural products, and that is money that is lost, you would not say that it would not bring any values at all over in California when it is used there, would you?

Mr. VAN WAGENEN. No. I would say if it is put in California it would but the Bridge Canyon Dam is wholly within the State of Arizona, both the dam and the basin entirely. I cannot imagine Arizona asking California for part of their central California project water.

Mr. POULSON. Yes; but the point is you are taking water which incidentally belongs to California. In other words, as the Secretary of the Interior said, there are two different contentions. If Arizona is right, she has the water. If California is right, there is not enough water in the Colorado River for this central Arizona project. So, while we are not arguing about the need we still have to go back to the original contention and to the real basis of this whole problem, which is, Is there enough water?

As Mr. Lemke brought out on the question of there not being enough

water, we certainly do not want to spend $138,000,000, which is not even the entire cost, but which is the cost of the project, leaving out the amount of the aqueduct which is to be built. As was brought out later on, the interest on that money which is to be used to pay for the construction of this aqueduct, which would be used to liquidate that, will not be paid into the Treasury but will be paid in to liquidate that amount of principal due on the aqueduct with the irrigation facilities, and the Government then will be putting up the interest on this amount, which will amount in 78 years to close to $1,000,000,000 which the Federal Government will be contributing to the State of Arizona for this irrigation.

So how many years is it going to take to pay this back on that basis alone?

Mr. VAN WAGENEN. I have not made a study of that, Congressman. I would like to see a study made of that in comparison with the Central Valley project as to what it would take to pay that back and what percentage the irrigators pay in the Central Valley project. Could you answer that question? It will be informative to me because I do not know the answer to either question.

Mr. POULSON. That has been paid back for years and that has been paid back on the same basis. There is no dispute over the water there.

Mr. VAN WAGENEN. We did not think there was here.

Mr. POULSON. But here there is a water problem.

Mr. MURDOCK. I think in order to facilitate the matter, Mr. Van Wagenen, that you might hold yourself in readiness to answer questions. This subcommittee is handicapped for time.

At this point we will insert your statement in the record.

(The matter referred to is as follows:)

STATEMENT OF A. VAN WAGENEN, JR., PINAL COUNTY, ARIZ.

My name is A. Van Wagenen, Jr. I came to Arizona in 1922 and located at Casa Grande in Pinal County and still maintain my legal residence in Pinal County.

Pinal County joins Maricopa County on the south. The Gila River flows through the county from east to west and joins the Salt River about 15 miles to the west and a little south of Phoenix.

Casa Grande, along with Coolidge, Florence, and Eloy, are small towns serving the farming community which is located in what is known as the Casa Grande Valley. The floor or plain of the valley runs about 75 miles in a northwesterly and southeasterly direction and is almost 50 miles across at its widest point.

The Casa Grande Valley has very fertile soil. It is, on the whole, a remarkably level plain and merges into the fertile Salt River Valley south of Chandler. In driving from one valley to the other it is impossible to recognize any geographical or physical division. Both valleys have the same climatic and rainfall conditions; both valleys are blessed with large areas of level fertile ground and have about the same elevation, and, in fact, the economic, social, and agricultural development of the two valleys are inseparable.

The greatest difference between the two valleys is the fact that the Salt River Valley in Maricopa County is served with irrigation water from the Roosevelt Dam on the Salt River, while the gravity irrigation in the Casa Grande Valley is served with irrigation water through the San Carlos irrigation district and from water stored by the Coolidge Dam on the Gila River.

The Coolidge Dam is intended to serve gravity water to approximately 100,000 acres of land in the valley, one-half belonging to the Pima Indians and the other half belonging to white settlers.

In addition to the gravity lands being served, individual farmers have reclaimed the desert by drilling wells and pumping water for irrigation. In this manner nearly 250,000 acres of additional farming land have been brought into

cultivation and have furnished homes and independence for thousands of farm families, among whom are included many veterans of both the First and Second World Wars.

I, myself, came to the Casa Grande Valley shortly after being discharged at the end of the first war. I practice law at Casa Grande and handled the legal proceedings in the organization of municipal electrical districts to bring electricity to farmers for pumping water for irrigation, and am now legal representative for two such districts.

I have, therefore, had an opportunity to watch closely the development of the Casa Grande Valley for the past 25 years. I have seen the pioneers who have gone out on the hot desert, have cleared away mesquite, greasewood, and cactus, and invested their savings in a well and pumping plant to change it all to green fields, homes, and productive farms, farms that helped produce the fiber, food, and feed so badly needed during the last war.

During the last few years I have noticed many tracts of land in central Arizona that are under cultivation and irrigated by gravity water. Many of these fields were planted to alfalfa, much of which is now dead for lack of water, and on the rest there are grazing hungry, lean cattle trying to nibble the last sprigs of feed, and the farmers who are farming these fields are trying to pay expenses on a production basis of farming 4 or 5 acres and producing only as much as normally would be produced on 1 acre.

The farmers who pumped water for irrigation have been forced to drill new wells, deeper wells, and lower their pumps to follow the falling water tables. All this has been brought about because the farmers have not had available water sufficient to irrigate the cultivated lands. Reservoirs have gradually been depleted, the underground water supply has been called upon for more than ordinary demands to make up for the lack of surface water; water tables are falling and our farmers are facing disaster.

Experience has shown that even abnormally large rains only bring temporary relief so we know now that either we must have supplemental water from the Colorado River or a large portion of the presently developed lands will go back to the desert and ghost towns will appear on the returned dry plain.

The lands surrounding Eloy, which is in the heart of the Santa Cruz flood plain, are among the most fertile in the State or Nation. Millions have been spent in developing this land; modern grade and high schools have been built and the area dotted with substantial farm homes. Water was obtained by drilling and equipping wells for irrigation from the underground basin. However, during the past few years the water table has been dropping dangerously—not solely from local pumping but also because of pumping upstream and by the adjacent San Carlos project to supplement its gravity water. This area has approximately 150,000 acres of improved farm land most of which will go back to the desert unless pumping can be supplemented with gravity water from the Colorado River.

We farmers—for I am mainly a farmer—visit the Colorado River, where we see the water flowing peacefully into the Gulf of Lower California. We see the great Boulder Dam which regulates the flow of a part of the water into the Imperial Valley of California to irrigate hundreds of thousands of acres with such a plentiful amount of water that a million acre-feet is wasted into the Salton Sea each year. We know that practically all of this has been accomplished with funds furnished or loaned by our great Government.

In central Arizona we only need a small portion of the remaining water that continues to flow, and will for many, many years continue to flow into the Gulf to be lost forever, not only to us but to the whole United States.

In Eastern States where rainfall is plentiful, rivers are of value to drain off surplus water. In the arid West the opposite is true. Water is a natural resource which, when applied to the land, is more valuable than the minerals which are mined or the oil which is reclaimed from subterranean sources. One acre-foot of water placed on Arizona land will produce an average of $50 in agricultural products.

Every year millions of acre-feet of water go down the Colorado River to the Gulf. This means that, not only Arizona but the whole United States has lost millions of dollars of potential wealth which would have gone to labor in producing and processing farm products. This wealth is gone; it can never be recovered. Our copper, coal, and oil remain as permanent, natural resources

until they are mined. Not so with the water of the arid West. Unless it is captured before it reaches the ocean it is lost, never to be recovered.

Arizona is asking that only about 1,000,000 acre-feet of water each year be brought into the central portion to save the present population and development. The cost of the project will be paid back to the Government time and time again during the life of the project. This cannot be denied. Must we in Arizona, with our parched lands, watch the waters of the Colorado continue to flow on through our State to the ocean because of lack of constructive action?

Our only hope is congressional action. Therefore, we are now before Congress seeking that aid. Passage of the legislation now being considered by this committee will save us.

Mr. MURDOCK. I will call one more witness before we turn this meeting over to the full committee. We have another outlying area that will be benefited by an exchange of water. That is the upper Gila area.

We are glad to have as a witness this morning Judge Udall from Thatcher, Graham County, Ariz.

STATEMENT OF JESSE A. UDALL, ATTORNEY AT LAW, THATCHER, ARIZ.

Mr. UDALL. Mr. Chairman and gentlemen of the committee, I live over in the Gila Valley in eastern Arizona in the town of Thatcher. The valley I come from is frequently referred to as Safford Valley. I have lived in Arizona all of my life and I am a veteran of both world wars and a graduate of the Law School of the University of Arizona.

I come here this morning, however, not to testify as a legal expert, because I have not made a study of that phase of it. I come as a lay witness, since I am a property owner and a farmer and, I of course do practice law. I have held quite a number of public offices in my county and at the present time I am a member of the Interstate Stream Commission of the State of Arizona.

Mr. MURDOCK. I would like to make this one little statement before you go forward. It is plainly evident here that there are several aspects to this problem. What we are trying to establish now is the need aspect. The others will by no means be neglected. Let me say again what I said previously, and I want to impress this upon all present: The full study of Arizona's case has never been presented to this committee nor to the House of Representatives. No final judgment can be made in this matter until the facts are presented and that is why we have to go into these rather extensive hearings.

Please proceed, Judge.

Mr. UDALL. My experience with reclamation and the diversion of water on arid lands dates back to my early boyhood, when all the people of the town of St. Johns and other towns in northern Arizona banded together in a community enterprise to build dams on the Little Colorado River and divert the water onto virgin lands.

In the year of 1935 a consent decree was entered in the Federal court of the district of Arizona, in which water from the Gila River was decreed to lands in Greenlee, Graham, Pinal, and Gila Counties in

Arizona and Hidalgo County in New Mexico. The lands so decreed, beginning with the upper reaches of the river, are as follows:

	Acres
The Virden Valley in New Mexico	2,860
The Upper Gila in the vicinity of Duncan, Ariz	5,201
The Safford Valley in Graham County	32,512
Total lands in Upper Gila	40,573
The San Carlos, Apache Agency	1,000
Below Coolidge Dam, Winkelman Valley	1,335
San Carlos project in the Florence, Coolidge, Casa Grande area:	
Indians	50,546
White	50,000
Florence, Casa Grande project	1,544
Gila crossing	2,992
Total lands decreed on Gila River	147,990

The supply of irrigation water derived from the Gila River during the years of 1938, 1939, 1945, 1946, 1947, and 1948 was entirely insufficient for a stable agriculture. During the other years of that period there was sufficient water to carry on.

To meet the lack of irrigation water from the Gila River, it has been necessary to supplement the water supply by pumping from underground sources. However, the sources of underground water are very irregular and spotted in the Safford and Duncan Valleys. As as result, some of the land in these two valleys receive sufficient supplemental water to assure maturing crops, whereas many hundreds of acres in these two valleys are inadequately watered.

It is now becoming generally recognized that Arizona is one of the most desirable places to live in the United States. Its mountains and deserts, its sunshine and pure air, its desirable summer and winter climates are attracting new citizens by the thousands.

It has experienced a most remarkable growth in population during the last several years. From April 1940 to January 1947 its population has increased 37.3 percent. (See the United States News, Mar. 28, 1947.) This increase is one of the greatest that has been made by any State in the Union. Of the new population coming to Arizona, many thousands are ex-servicemen from other States who have come here to make their homes. In most instances these returned servicemen are attracted to Arizona after having spent a period of time in training within its borders.

From a survey made by the Valley National Bank and published in a recent issue of Arizona Progress, it is shown that there are 84,000 veterans of World War II now residing within the boundaries of Arizona. Of this number, more than one-third have migrated from other States since leaving military service. The publication goes on to say:

> Veterans and their families are potentially great assets to the State. However, their absorption into our economy creates problems that call for considerable patience on the part of the veteran and plenty of serious planning on the part of the State leaders.

The Upper Gila Valleys in Graham and Greenlee Counties, like all the rest of Arizona, are faced with this very serious dilemma, an increasing population with a diminishing supply of water for the irrigated valleys that have been reclaimed from the desert by the toil, courage, and faith of the pioneers during these many decades past.

For the years of 1946, 1947, and 1948, the farmers of the Safford Valley under the terms of the decree, were able to divert from the Gila River the following quantities of water:

69,900 acre-feet for 1946;

51,978 acre-feet for 1947; and

39,848 acre-feet for 1948, for the 32,512 acres of decreed land.

This supply was supplemented by pumping in some areas where underground water was available, but about one-third of the irrigation wells in the valley failed entirely in 1948. Hundreds of acres of land, however, did not have access to adequate underground sources of water, and these lands in the upper Gila Valleys are on the verge of reverting back to the desert. The sight of burning crops, dying trees, and parched lands that once were fruitful, makes a close observer wonder if this generation is keeping faith with the generation of pioneers that carved an empire out of the deserts. It also raises the question as to what this generation's responsibility is to the next.

Mr. MURDOCK. If I may interrupt, the witness before us is of that generation, I happen to know, as well as the witness who was last with us yesterday. These men came in there then as native sons, and they certainly know what they are talking about when they speak about carving homes in the wilderness.

Go ahead, Judge Udall.

Mr. UDALL. Due to the extreme droughty conditions prevailing in Arizona in 1948, the farmers in the Safford Valley were only able to raise good crops on approximately 14,000 acres of land that was planted to cotton. Approximately 12,000 acres of land planted to alfalfa, grain, and pasture, yielded only one-fourth of the usual crop. The remaining acreage of 6,512 stood idle and was entirely unproductive for the year 1948. It should be pointed out also that the yield on the hay, grain, and pasture lands was so small that the operation ran at a loss for the year.

If the agricultural valleys of Arizona are to be preserved for the peoples that are now here and the prospective citizens that are coming here in the future, it is imperative that additional sources of water be brought into central Arizona for distribution on the lands that are already under a high degree of cultivation. In Arizona it isn't acres, but acre-feet that spell prosperity and progress. If a million acre-feet of water, more or less, could be brought into the Salt River and Casa Grande Valleys from the Big Colorado, farmers in Graham and Greenlee Counties could be benefited directly by retaining and receiving additional quantities of water by being permitted to divert a larger proportion of the water of the Gila River, than they now receive, and in turn the farmers in the Casa Grande Valley could be compensated therefor by water brought from the Big Colorado River. By this exchange of water, all lands presently or heretofore irrigated from the Gila River and its tributaries, would be insured an adequate supplemental supply of water.

It should also be pointed out that this legislation now pending before Congress which contemplates the bringing of water from the Colorado River into central Arizona, outlines in general terms the building of additional storage dams on the Gila River. The construction of such dams at proper places so as to be readily accessible to the valleys sought to be served, would greatly stabilize agricul-

ture in the Upper Gila, Safford and Casa Grande Valleys, and sufficient quantities of water could thus be stored to be released in the dry season of the year, when crops are most likely to be lost because of the lack of water. Thus, by the exchange of water and by the storage of supplemental water to be used in the dry seasons of the year, all of the lands presently or heretofore irrigated from the Gila River would be benefited and stabilized.

Several of the Colorado River Basin States consider the Colorado River to be one of their greatest natural resources. That is especially true of Arizona, because it is the only river of any size in the State, and it drains practically all of the area of the State, and because it can furnish additional water for the irrigation of lands already redeemed and power for industrial growth. If each of the States of the Colorado River Basin are permitted to utilize to the fullest capacity their respective interests in the Colorado River, the future growth of each State will be founded on a sure foundation, and in addition thereto the interests of the Federal Government will be greatly enhanced.

It is more to the interests of the Government to have agriculture and industry strong in each of the States of the lower Colorado Basin where centers of population can thrive and grow, than to have all of the waters of this great river, that belong to the lower-basin States, taken into one compact area, where only one of the lower-basin States will be materially helped. The great development contemplated under the legislation being considered by this committee will work out to the joint advantage and progress of the State of Arizona and the Federal Government, and Arizona, like every State in the Union, should be encouraged and assisted in developing and putting to use every natural resource within her boundaries.

The products of Arizona's agriculture are prolific and are of the finest quality. Citrus fruits, winter vegetables and cantaloupes are food items that come onto the market when most other States are still in the grip of winter and early spring. These products of Arizona's soil contribute greatly to the health and well-being of the American people. Many other products of Arizona's agriculture form the basis for a never-ending source of wealth to the State and Nation.

In conclusion, I respectfully urge that this legislation be enacted into law by the Congress of the United States. Justice and equity dictate that Arizona, as the youngest State of the Nation, should be given its opportunity to develop and grow and take its place beside the other great commonwealths of this Nation as a strong, vigorous member of the group.

Mr. MURDOCK. Thank you, Judge Udall.

Mr. UDALL. Thank you.

Mr. MURDOCK. Will you please hold yourself in readiness to answer questions later? We had stated that at this hour the subcommittee would adjourn and the full committee would meet. These committees are the same in personnel. I will turn the gavel over to the acting chairman, Mr. Peterson.

(Whereupon, at 9:45 a. m. the hearing was recessed until 11 a. m. of the same day.)

(The committee reconvened at 11 a. m.)

Mr. MURDOCK. The Subcommittee on Irrigation and Reclamation will reconvene and continue with the hearings on H. R. 934.

We had heard briefly three witnesses this morning. I would be glad to hear at least three more, asking that the members minimize their questions, or reserve them so that we can probably get them all together.

I am glad to note the presence with the committee now of my colleague from the Second Congressional District of Arizona, Congressman Patten. I am also glad to note that Senator McFarland is with us. Senator McFarland is a distinguished authority on water law. I think, however, the Senator ought not to appear again as a witness at this time because it would involve legal matters, Senator, which we want to reserve for a later date.

Senator MCFARLAND. Mr. Chairman, I had completed my statement except that briefly I want to put in the record that there are quite a number of witnesses, I know, who want to go home, and I will be available here if the committee should want to ask me any questions later on.

Mr. MURDOCK. I will pass that word along, Senator. I am glad to hear you say so, because I know there are a lot of questions that members want to ask you because of your intimate knowledge of all the circumstances. Some of these witnesses have come here by plane. One of these I called this morning, and he must have parachuted into the city of Washington after floating all over the map in the fog.

Is Mr. Jacobs present? Mr. Jacobs, will you come up and present your statement, please?

STATEMENT OF JOHN M. JACOBS, FARMER, PHOENIX, ARIZ.

Mr. JACOBS. My name is John M. Jacobs. I live in Phoenix, Ariz. I am a farmer.

Mr. MURDOCK. Several members of the committee have asked that the dirt farmers tell us their story.

Mr. JACOBS. I am principally engaged in the growing of perishable and semiperishable vegetables, but also in the livestock business, raising and feeding cattle for market. Associated with me in my operations are two sons-in-law and two brothers-in-law and one nephew who are engaged in the management of my business.

Mr. MURDOCK. Would you care to summarize your paper, Mr. Jacobs, instead of reading it entirely, and then inserting the paper as furnished us, in the record?

Mr. ENGLE. I observe that this man is a real dirt farmer. Is that correct?

Mr. JACOBS. That is correct.

Mr. MURDOCK. You are not a lawyer?

Mr. JACOBS. No, sir.

Mr. ENGLE. Thank you very much.

Mr. MURDOCK. Go ahead, Mr. Jacobs, and present the matter in your own way.

Mr. JACOBS. It would be rather hard for me to brief it, but I will read it as fast as I can, if that is agreeable.

I have farmed all my life, locating in the West after I was discharged from the Army in 1919. I have farmed in Arizona since 1934. My

first trip to central Arizona was in 1931. At that time I saw the possibility of growing and shipping mixed vegetables through the fall, winter, and spring months, when the same would be in demand in Northern, Midwestern, and Southern States. I realized also that due to the long growing season in Arizona, they were able to make two crops a year on most items. The early crops are planted mostly in August and September for harvesting starting in November and continuing through February. The late crops are planted as soon as the early crops are taken off and harvested mostly in March, April, and May. Early potatoes and melons are harvested through June and finished in July.

When I first started farming in Arizona, the principal vegetable production was lettuce and cantaloupes. Since that time the production of these two items has increased and a more diversified production has increased the total acreage planted to perishable crops. Now these crops produced in central Arizona include practically every item in the seed catalog, but mainly lettuce, melons, carrots, broccoli, celery, cabbage, cauliflower, brussel sprouts, spinach, beans, turnips, potatoes, and onions.

Central Arizona's total production last year, from approximately 100,000 acres in fruits and vegetables, shows a record of 37,908 cars, and brought a cash return to Arizona producers of approximately $50,000,000. Most of this production was from land of a fine quality loam soil that produces two crops annually. These figures are from the records of the Office of Standardization of Fruits and Vegetables for Arizona.

This production of fruits and vegetables last year resulted in a cash pay roll (production and harvesting) of from 18 to 20 million dollars' worth of crate material, paper, and other packing supplies. This production required the use of fertilizer costing approximately $1,250,000, imported from other States. It represents an investment of around $5,000,000 in farm equipment, trucks, and packing equipment, practically all of which is supplied by the major national implement and equipment manufacturing companies in the Midwest and East.

Figures from the quartermaster market center show that more than 2,000 cars of produce were purchased from this district for military use during the war. In viewing the records of the distribution from records of the United States Market Service, it is disclosed that approximately 50,000 cars annually moved to 300 markets in 45 States, mostly Eastern, Northern, and Midwestern, with some considerable shipments to Canada, Hawaiian Islands, Alaska, and other ports. These records show that this tonnage moved mainly from late November to late May, except for melons and potatoes, which moved through June and July. This indicates that this production is not competitive, but rather is needed during those months when the area receiving them is dormant or is producing little fresh fruits and vegetables.

The production of fruits and vegetables is a big business and is, no doubt, the most intensive type of farming. Due to the high cost of production, most growers have found it profitable to spend considerable time, effort, and money in heavy fertilization and the growing of cover crops in order to maintain a high state of fertility in the soil. Practically all of these fruits and vegetables require a lot of hand

labor in weeding, thinning, hoeing, and harvesting. With our present agricultural costs more than doubled in the last few years, our investment per acre is so high that we cannot afford to neglect any part of our operations, even though expensive.

We rely entirely on irrigation, and even a slight shortage in our water supply can cut our yield so low that the high labor and other production costs make it prohibitive to maintain our present acreage of these essential crops. All acreage is planted according to the amount of water available per acre and full production cannot be made on less than 4 acre-feet of water per acre per year on this land. We have developed to its fullest extent the available water supply for land now in cultivation in central Arizona, and we have only one place to look for supplemental water to maintain our present production, and that is to the Colorado River.

The vegetable industry, due to its intensive nature and the large amount of hand work necessary, employs more labor per acre than any other type of agriculture. A small vegetable farm will carry many employees and their families. During the housing shortage, scarcity of transportation and rationing of gasoline and tires, most of the vegetable growers had to provide housing on their farms for a large percent of their employees. A water shortage, cutting down the production of these crops, is bound to cause displacement of many families now established either as operators or employees on these farms.

This is really a serious situation for all farmers in this area, as all the gravity water has been fully developed and for several years we have been borrowing from the underground water supply by pumping from large capacity wells running day and night. Our water table is lowering at an alarming rate. If we do not get a supplemental supply, a considerable portion of the land now in cultivation will have to go back to the desert. Most of our growers have gone ahead, under the impression that Arizona had a substantial allotment of water coming from the Colorado River; that this water would be brought in and made available when needed; and again I repeat, this is our only source of a supplemental supply for our lands now under cultivation.

To make this problem more serious, we are now faced with a power shortage. Practically all of our water is pumped by electricity and these pumping operations have been seriously curtailed by this power shortage. The building of Bridge Canyon Dam will result in a further power development that will, to some extent, relieve this situation.

Another very important basic crop produced in central Arizona is sugar-beet seed. We do not produce the sugar beet for sugar but for seed only. We produce most of the seed for all of the western and midwestern beet-sugar-producing States, as well as support a lot to Europe. This subject is more fully covered in the detailed statement of Dean Stanley, one of the men who pioneered this industry. In his statement he emphasizes the importance of this industry to the national beet-sugar production of the entire United States.

Mr. CRAWFORD. Will the gentleman yield?

Mr. JACOBS. Yes, sir.

Mr. CRAWFORD. When the World War came on, this country was

caught without sugar beets. A portion of the Western Hemisphere had to supply all of the Allies with sugar by hook or by crook, and they did manage to get a few seeds in here. At that time we imported all of our sugar beet seed from Europe. That was all of it; every pound of it.

Since World War I, through your assistance down there in Arizona, we have now become the exporter of sugar beet seed to Europe.

Mr. JACOBS. That is correct.

Mr. CRAWFORD. Still, the whole allied world depends on the Western Hemisphere for sugar in wartime because immediately your sugar fields of western Europe are overrun when war starts, the sugar goes out of production. So, this development of the beet sugar seed in the Southwest is one of the biggest political headlines and one of the most essential things to the supplying of food for the allies of any single operation that has been carried on under the American flag.

Mr. JACOBS. Might I ask you a question? You are familiar with the production in Arizona that has developed there?

Mr. CRAWFORD. Yes, sir. I watched it from the first dream up to the present time.

Mr. JACOBS. The State of Arizona has an area of over 73,000,000 acres. It is the fifth largest State in the Union. There are 775,000 acres of irrigated land in the State, or slightly over 1 percent of the entire area. The balance of 72,000,000 acres is suitable only for grazing of livestock. Of this total, more than 80 percent is owned and administered by Federal agencies. Approximately 50 percent of this area has an average rainfall of less than 10 inches. The higher mountain areas have more rainfall than the lower desert area in which practically all the irrigation production lies. Central Arizona has an average annual rainfall of less than 8 inches.

The raising of livestock on the range is one of the most important industries of Arizona. During the period from 1920 to 1947, the number of cattle in the State declined from the figure 1,620,000 to 921,000. The number of sheep also declined. At the same time, the human population of the State increased from 340,000 to 700,000. In 1946 Arizona marketed approximately 410,000 head of cattle, the State consumption being approximately 235,000 head. Considerable of this surplus is sold to California markets. However, this year several hundred carloads have been shipped to midwestern and some eastern markets. Records of some cattle sold for slaughter show them shipped as far as Detroit and Baltimore, principally to Fort Worth and Kansas City, and other large midwestern markets.

A large part of these cattle raised on the range are fed and prepared for market on the farms in central Arizona and many cattle are shipped in each year from Texas, New Mexico, Colorado, Utah, and California for pen fattening. Some of these are slaughtered in Arizona, but most of them are shipped to other points for slaughter. Records of the Los Angeles Union Stockyards show that they received cattle from a total of 28 States, and Arizona furnished 20 percent of this total. It is estimated that the cattle production is approximately 35 percent of the State's cash agricultural income.

The sheep are grazed on the higher elevation during the summer months and brought to central Arizona in the fall for lambing and shearing. This vast livestock industry is dependent on the irrigated

lands of central Arizona as winter feeding grounds for both cattle and sheep. We there produce hay, grain, ensilage and cottonseed meal and are self-supporting on these feeds which are necessary to the finishing of these livestock for slaughter. We also export to California large quantities of alfalfa, hay, grain, and cottonseed meal, which is used mostly in their vast dairy industry. If this livestock industry is to continue and help to furnish food for the Nation, the farms of central Arizona must remain in cultivation and this can only be assured by the bringing in to central Arizona of Colorado River water.

In the farming operations which are carried on by my family, as I heretofore pointed out, we farm land immediately adjoining the Salt River project. We get our entire water supply from underground pumping. We have about one-half of of our acreage in alfalfa, grain and ensilage crops. We raise cattle and practically all the feed we raise is used in the fattening of cattle each winter, the young stock running on green pasture until sufficiently mature to go to the feed pens. We have a small herd of registered cattle from which we produce for range replacement registered bulls and heifers. In our combined operation we produce a diversified line of vegetables of all kinds and for our forage crops, alfalfa, barley, and other grain. We also produce certified seed for the leading seed companies in this area, pure seed being particularly important in the matter of grain seeds.

During the early part of the war, in fact, in 1942, the labor situation became very critical in all agricultural areas. We decided to try and work out some plan of bringing in Navajo Indians from northern Arizona to take care of our farm labor problem. We checked with the reservation officials and agreed that we would provide transportation from the ranch back to the reservation when we were finished. In our operation we need a lot of labor from November until early July. In the fall of 1942 we brought in approximately 150 Navajos. We used this labor in the harvesting of our winter vegetables. We furnished them with lumber and material to build houses, although material was scarce. In 2 weeks the Indians had built houses and were housed in about 35 homes. We piped in good water for their camp and put in showers and sanitary toilets for their use. They were not accustomed to these facilities, but finally learned to use some of them, particularly the showers.

Mr. MURDOCK. May I interrupt for just a moment? I do hope the chairman of the Indian Affairs Subcommittee, and all the members of the Indian Affairs Subcommittee, will pay careful attention to what is just being said, because you are touching on one of the big questions before the Congress now.

Mr. POULSON. Will the chairman yield?

Mr. MURDOCK. Yes, sir.

Mr. POULSON. Do you know whether the Indians of the State of Arizona vote?

Mr. MURDOCK. Yes, I do. There was a decision of the State Supreme Court and they voted last November 2.

Go right ahead, please.

Mr. JACOBS. Since 1942, each year we have increased the number of Navajos used in our farming operations and, of course, added to the housing facilities for this labor. In this matter we have cooperated with the Indian Service and we are very well satisfied with the work

performed by the Navajos. More than half of our production has been harvested by Navajo labor.

Our heaviest need for them is from November to March. Then we have a break in our harvesting operations through April, during which time the Indians return to their reservation, where they care for their flock, generally shearing during that period of time, and then come back to our farms to help us harvest in May, June and July. We then return the Indians to the reservation for the summer months. Some of these Indians work in the vegetable farms near Grants, N. Mex., during the months of August, September, and October, going back to the reservation for a short time to get their small farms and herds in shape, and then coming back to central Arizona for the fall crops.

This arrangement has worked out very satisfactorily now for 6 years. The Indians want to go back to the reservation some two or three times a year. We are close enough that we can make the trip to or from the reservation in 1 day. There are three other producers in the area who have adopted this same plan and together we are now using probably around 800 Navajos each year in this work. Our own pay roll this last year to Navajo Indians was approximately $100,000.

I have given considerable thought and study to the Navajo problem and believe they are a people who can satisfactorily supply the need for extra labor in central Arizona 8 or 9 months of the year. A part of this labor is now being supplied by Mexican nationals. This plan will relieve a congested situation which now exists on the reservaton and which, as you know, has become a serious problem of national importance. I am convinced that 4 or 5 thousand Indians could be used to good advantage in central Arizona in the agricultural field and that the Indians would profit greatly thereby.

The Indian readily adopts white man's conveniences and habits and the first year we had them, all they wanted was a board shack with a roof and dirt floor. Now many have floors in their cabins, stoves, individual cooking utensils, carpeting, linoleum, curtains, and have lined their cabins with paper. Their living conditions have been vastly improved. Schooling is a serious problem, but we are trying to work that out with the Indian officials and local school authorities.

Among these Indians we find considerable leadership. We have one Indian who is a general foreman who has done a fine job in the handling of his people. We have another Indian who is a camp boss and whose duty it is to see that the camp is kept clean and the liquor and other abuses are kept down to the minimum. We have one man working with the Indians whose duty it is to see that any sick Indians or anyone needing medical attention is taken to the hospital.

Incidentally, there is an Indian hospital in the Phoenix area to which we take any Indians who are sick.

The Indians are good traders and are reliable workers, as a rule.

We are planning further improvements for their benefit, particularly the building of a recreation hall which can be used for a church on Sunday. A surprisingly large percentage of them want to save money, and we have provided an arrangement through our office where this is made possible. We take care of their savings and hold them during the work season. When they return to the reservation, they take with them a considerable accumulation of money that has been held for them. Several of them bought automobiles and they always

stock up on household items of one kind or another which they take back to the reservation.

We pay the prevailing scale in the area for all work done by these Navajos. I am convinced that the Navajo will become an established portion of the perishable products labor pool in this area. It is the only large producing area close enough to the reservation so that the Indians can make the trip to or from the reservation in one day. This whole program, of course, again is dependent upon our having enough water to raise our crops. Without water we cannot raise crops, and if we do not raise crops, of course, we have no use for labor.

The bringing into central Arizona of Colorado River water to supplement the supply of irrigation water for the presently irrigated areas which are critically in need of this water will—

(*a*) preserve an existing agricultural development;

(*b*) stabilize the livestock industry of the State;

(*c*) prevent land now being irrigated from reverting to the desert; and

(*d*) go a long way in the next few years in helping to solve the national problem of the care of the Indian tribes which are a direct responsibility of our national Government. Passage of this bill is the key to the whole problem.

That is all, Mr. Chairman.

Mr. MURDOCK. Do not run away, Mr. Jacobs; we may want to ask you some questions a little later on.

I want to call this fact to the attention of Congressman D'Ewart of Montana, who has been interested in the problem of the Navajo, emphasizing the fact that such reservation employment is the key to the Navajo situation. I wonder if members of the Indian Affairs Subcommittee would like to ask some questions right there.

Mr. MORRIS. In deference to the other witnesses' time, I shall not ask any questions now in the matter. However, I am deeply interested, as I am sure every member of the Subcommittee on Indian Affairs is, in this particular subject that you mentioned regarding employment of the Navajos. We all realize the Navajo problem presents one of the grave problems confronting our Nation at this time. I listened carefully to what you said and I am going to reread your statement in that respect and give it most careful consideration.

Mr. MURDOCK. As a committee then, perhaps we had better follow the same line. Mr. Jacobs, would you hold yourself in readiness to answer some questions a little later when we have heard some other witnesses.

I will ask Judge Udall and the others to do the same thing.

Is Mr. Victor Corbell present? I am especially glad to present Mr. Corbell as he is my nearest farm neighbor.

Mr. Corbell, you may proceed after giving your name to the reporter.

STATEMENT OF VICTOR I. CORBELL, MEMBER, BOARD OF GOVERNORS OF THE SALT RIVER VALLEY WATER USERS' ASSOCIATION, TEMPE, ARIZ.

Mr. CORBELL. Mr. Chairman and members of the committee, my name is Victor I. Corbell. I am a member of the board of governors of the Salt River Valley Water Users' Association, and have been for

the past 14 years. I am 54 years of age and have resided in the Salt River Valley, in the vicinity of Tempe, Ariz., all of my life.

I have been engaged in farming continuously for the past 30 years, and have resided on the same place, which I own and operate, for the past 30 years. In addition to my farming operation, I also operated a cotton gin for a number of years.

At the present time my family and myself own and operate 400 acres of land. All of the land is in a high state of cultivation and receives its water supply from the Salt River Valley Water Users' Association, a Federal reclamation project; one of the oldest in the United States.

The Salt River Valley Water Users' Association was organized in February 1903 at the suggestion of the then Secretary of the Interior, 1 year after the passage of the National Reclamation Act. It is a quasi public corporation, having certain powers and functions not ordinarily possessed by private corporations, such as the levying of assessments upon the lands of the shareholders of the project.

The owners of the land within the boundaries of the project subscribed to the stock of the association at the rate of one share of stock for each acre of land. The total number of shares outstanding is approximately 242,000, representing 242,000 acres of land.

The stock of the association, and the rights thereunder, are appurtenant to the land. Any conveyance of the land automatically transfers the stock of the association to which it is appurtenant to the new owner, whether expressed in the grant or not. Only natural persons, who are owners of the land, are entitled to vote, and the amount of votes any one shareholder may cast is one vote for each acre of land owned, not to exceed 160 votes.

WORKS OF THE SALT RIVER VALLEY WATER USERS' ASSOCIATION

The project works of the Salt River Valley Water Users' Association, the title of which is in the United States, or the Salt River Project Agricultural Improvement and Power District, consists of six storage dams and reservoirs, two diversion dams, one flood-control dam, eight hydroelectric plants having a generating capacity of 81,710 kilovolt-amperes, one steam generating plant of a rated capacity of 28,000 kilovolt-amperes, two diesel units of the rated capacity of 12,500 kilovolt-amperes.

It also has under lease from the United States Government a mobile steam unit of a rated capacity of 10,000 kilovolt-amperes. Since that was written, that unit has been returned to the Navy, but there is under construction and will be ready for production on June 1, a new steam generating unit of 12,500 kilovolt-amperes.

By contract it also has the use of a 16,000 kilovolt-ampere steam generating plant of the Consolidated Inspiration Copper Co., and has a contract with the United States of America for 30,000 kilovolt-ampere of power from Parker Dam in the Colorado River.

The association also has approximately 2,000 miles of transmission lines and 1,500 miles of canals and laterals. The association, through its various plants, distributes electrical energy both at wholesale and retail, and the amount of such distribution is a little over one-half of all of the public utility power in the State of Arizona.

Its electric lines extend throughout the project and also extend

throughout central Arizona. To a large extent it serves power to the greater part of the area covered by the proposed central Arizona project.

COST OF THE SALT RIVER PROJECT

The present works of the Salt River project represent a total outlay of $50,000,000. Of that amount $16,716,000 was advanced by the Federal Government, and the balance was privately financed. The association still owes the Federal Government $6,821,000. It is not in default in any of its payments. In fact, it is paid up in advance to the Federal Government for 3 years. The total project debt remaining unpaid, including the amount owing the United States, is $20,700,000. These figures are as of December 31, 1948.

Mr. MURDOCK. I might say that I frequently call attention to our prize project, and I am glad to have your accurate figures because it may be that I exaggerated some, although I do not think I could exaggerate too much.

Mr. CORBELL. Thank you.

WATER SUPPLY OF THE SALT RIVER PROJECT

The sources of water supply of the Salt River project are from the Salt and Verde Rivers, upon which there are a total of six storage reservoirs with a combined capacity of approximately 2,000,000 acre-feet, and also from approximately 204 deep wells within the project. Daily records have been kept of the flow of the Salt and Verde Rivers since January 1, 1889. Based on those records it is estimated that the amount of stored and developed water that will be available in the future for the lands of the Salt River project will not exceed 3 acre-feet per annum.

This does not include certain lands which have decreed rights, which have an additional supply of a varying degree, depending upon the year of their priority. The majority of the lands within the project are without decreed water rights of any value, and for the purpose of this statement only the water supply for those lands without decreed rights is considered.

The records of the past 20 years, which can be considered as a fair average for the entire period for which records have been kept, disclose that on an average there has been delivered to the lands of the project 2.8 acre-feet of stored and developed water per acre per annum. Nineteen percent of that water has been pump water.

During a part of that time there was no storage on the Verde River. Had there been full storage on the Verde River during all of the 20-year period, it would have increased the average amount of water available to each acre of land to approximately 3.1 acre-feet per acre per annum.

All of the water capable of being developed, both from the streams and the underground, for the Salt River project, except for some insignificant amounts on the Verde River, has already been developed. Any additional supply, therefore, has to come from the Colorado River. Three acre-feet per acre per annum is an insufficient amount of water for full production.

AVAILABILITY OF WATER SUPPLY

The history of the project has been that the amount of water available in any given year may range from a full supply down to 2 acre-feet per acre per annum, such as has been the case in the years 1947 and 1948. In only 2 years in the last 25 has a full supply been available. The inescapable conclusion is that there is more land within the project than that for which there is an adequate supply of water.

AMOUNT OF WATER NECESSARY TO GIVE LANDS OF THE ASSOCIATION ADEQUATE SUPPLY

The per acre use of water in the Salt River Valley project has increased over the past 25 years. This has been due, in part, to a change in the type of crops grown and in part on account of more intensive cultivation.

In the early days of the project about the only type of crops grown was grain and alfalfa. It is only in recent years that vegetables have been grown. Vegetables are now one of the principal crops. Acreage in citrus has greatly increased. Double crop raising is now the common practice. The land is too valuable to permit the same to lie idle.

All of this means an increased use and need for water. The amount of water necessary to give the lands of the association a fairly adequate supply is approximately 4 acre-feet per acre per year delivered at the land. This is equal to one-third more than the present average supply. Four acre-feet per acre per year is what I figure to be the average amount necessary. Some crops use less. The majority of the crops use that much or more.

MEASUREMENT OF WATER

The association, for years, and at the present time, measures the water at the source and at the delivery points. It is measured at Granite Reef Dam at the head of the canal system and at the pumps where it passes into the canal and lateral system. The total of those two measurements is the gross supply. It is also measured where it is turned into the private ditches of the landowners. The amount delivered to the landowners is approximately two-thirds of the gross supply. The rest is represented by evaporation, canal, and lateral losses, and to some extent in overdeliveries.

To supply the association with 242,000 acre-feet of additional water at the land would require approximately 363,000 acre-feet at Granite Reef Dam, or approximately 400,000 acre-feet where the same is diverted from the Colorado River, if additional water is obtained from that source.

SALT BALANCE

All western streams contain dissolved solids and salts. Irrigation, evaporation and plant growth absorb very little of the harmful salt, and the remaining water that flows into the underground contains a very large proportion of salt. Unless a sufficient quantity is allowed to drain from the project by what is generally referred to as return flow, the underground water will, in time, become unfit for bene-

ficial use for irrigation purposes. Some small parts of the Salt River project already have that character of underground flow. Overdevelopment of the underground water to the extent that there is no longer an outflow, will cause such waters to become in time unfit for beneficial use.

Extensive pumping in the Salt River Valley has, in some places, caused the underground water to reverse its flow and there are now in some sections no outflow waters draining into either the Salt or Gila Rivers.

In order to maintain the salt balance in the underground water it is necessary that additional quantities of water be allowed to go into the underground supply so that the outflow water will carry from the project substantially the same amount of salt each year as that entering the project. This can be only accomplished in one of two manners.

First, to greatly curtail pumping and allow the underground water to rise. Second, to bring additional quantities of gravity water into the area. To greatly curtail pumping means the abandonment of large tracts of land, which leaves the second alternative, namely, bringing additional water into the area, as the only practical solution.

CHARACTER AND VALUE OF THE CROPS AND INDUSTRIES IN THE SALT RIVER PROJECT

The gross value of crops grown in the Salt River project for the year 1948 was $33,080,000, or $147.26 per acre. In some ways it can be considered as more than that, for the crop report does not take into consideration the profit made by dairymen or in the feeding of livestock, only the value of the feed is considered.

Not enough wheat is grown to supply the local demand. Barley and alfalfa are grown for feed only. Insufficient butter and eggs are produced to supply the local markets. Attached to this statement is the crop report of the Salt River project for the year 1948, which shows in detail the various crops grown on the project. Not all of the crops grown are listed on the crop report, as many are classified in groups.

There is a direct relation between the value of the crops grown and the amount of water available. Land of itself has little or no value in the State of Arizona in the Central Valley. It is only the application of water that brings about any value to the land, and the amount that you can grow is not dependent upon the number of acres, but upon the number of acre-feet of water that you have available.

CENTRAL ARIZONA PROJECT

The Salt River Valley project lies in the approximate center of the Central Valley in Arizona. In the Central Valley there is something over 700,000 acres of land in cultivation. Roughly one-third of it comprises the Salt River project. The balance includes such projects as the Roosevelt irrigation district, Roosevelt water-conservation district, Maricopa County municipal water district No. 1, Buckeye irrigation district, Arlington irrigation district, Gillespie land and irrigation district, San Carlos project, the Safford Valley, and a large amount of land that is served with pump water extending from the neighborhood

of Eloy, Ariz., in a northwesterly direction through the Casa Grande Valley and the Salt River Valley to a point some 25 miles northwest of Phoenix. Roughly, that is the land embraced in the proposed central Arizona project.

All of the land in question is, practically without exception, extremely fertile, and has for the past several years been producing bountiful crops. Cities, towns, schools, roads, and other things that go with agricultural economy have been built within the area based upon the production of the land in question.

It is safe to say that the population in the area involved is in the neighborhood of 400,000 people. The amount of water being pumped in the area to serve these lands, independent of the gravity supply, probably exceeds 2,000,000 acre-feet per annum. The recharge of this underground water probably does not exceed 750,000 acre-feet per annum. The result has been a progressive lowering of the underground water plane. Sooner or later a considerable part of the land must go out of cultivation unless a supplemental supply of water is obtained to replenish the underground supply and at the same time furnish a supplemental supply to those land receiving gravity water.

IN GENERAL

All the agricultural land throughout central Arizona is highly productive wherever water is available, and there is no reason why, with an adequate supply of water, all of the land in the entire area would not be able to produce crops having an acre value as great as that of the Salt River project. The crops that are grown on the land are only a small part of the productive wealth of the area. Official records disclose that during the year 1947, 51,967 cars of fruit, vegetables, and melons were shipped from Arizona, by far the greater part of which came from the Salt River Valley and the adjacent area embraced within the Central Valley project.

The amount of freight paid to the railroads for shipping those fruits and vegetables was approximately $20,000,000. The picking and packing costs involved an expenditure of nearly as much. The amount of money spent in growing the crops would be a like amount.

Thousands of carloads of lumber are necessary to make crates in which the fruits and vegetables are shipped. Thousands upon thousands of tons of ice are manufactured to cool the cars in transit.

You have an expenditure, in a single year in the fruit and vegetable industry in Arizona, in the growing, harvesting, packing, and shipping of same, of an amount that is 50 percent in excess of the total cost of the works of the Salt River project.

I have only pointed out one of the industries, but you will find the same thing going on in other agricultural lines, though probably on a lesser scale.

You cannot always look at an irrigation project on the basis of whether the land values will be equal to or greater than the costs of the work of the project after it is built. The wealth incident to such a project is many times the value of the land within the project.

The millions of dollars' worth of products which are shipped from central Arizona each year are practically all noncompetitive with crops grown in other parts of the United States. The money received from those crops is largely spent in the Middle West and the East.

I had occasion the other day to examine the personal property in our home and on our farm. All of the machinery and fencing were produced and manufactured in the East and Middle West. All of the furniture had been manufactured in the States east of the Mississippi River. All the clothing, bedding, linens, and the like had on them the stamp of an eastern manufacturer. The automobiles came from Detroit. Even the food had an eastern and middle-western origin. The hams came from Chicago, the flour from Minneapolis. About the only things in the cupboard and refrigerator that I could find that were grown or raised in the State of Arizona were the fruit, fresh meats, and vegetables.

Unless a supplemental water supply is brought into the area, a large part of the land must go out of cultivation. Whenever that happens, the allied industries of necessity will have to wither and die. People in such communities try to hang on. They are unable to pay their taxes or to support the community. In fact, the community has to support them.

It means the raising of taxes, the closing of schools, empty stores and houses, and everything else that goes with a decadent condition. The only things that increase under such conditions are poverty and crime. If that happens, which must happen—namely, to permit a large part of the cultivated area to revert to desert in central Arizona—the loss to the United States Government each year in taxes would, in my opinion, be more than sufficient to service the debt on the cost of the central Arizona project.

This country of ours is growing. We have to find places for the people to live. The average holdings in our project are relative small. The number of ownerships in our project has increased from approximately 4,000 at the time of its organization in 1902 to over 14,000 at the present time, with no increase in the number of acres.

The gross value of the returns from the land has increased even more than that in that period, and I look for further increases in the future, and it is my honest and sincere belief that this project should be authorized.

If anyone had told me as a young man that today approximately $50,000,000 would be invested in works of the Salt River project, I would not have believed it. The original Government expenditure on this project was approximately $10,000,000, and many farmers at that time thought it was more than the land could afford to pay. The other $40,000,000 were spent in works built later, that were never thought of when the project was originally conceived. Only one storage dam was originally contemplated and now there are six; and the power system of the association has been extended beyond the anticipation of anyone at the time the project was originally built.

The cost of the central Arizona project is too great for any one man or group of men to undertake privately. That was true of the Salt River project when they commenced building it over 40 years ago. But, if you will take the long-range picture for the years that the Salt River project has been in existence, there are many more reasons, as of today, why the central Arizona project should be built than there were reasons in 1903 for commencing to build the Salt River project.

We hope the members of this committee will see their way clear to recommend the passage of the act to Congress, and that if any of them

have any doubt in their minds as to the wisdom of the bill, that they come out to Arizona and pay the Salt River Valley a visit, and the Salt River Valley Water Users' Association will be only too glad to be their host.

Mr. MURDOCK. Thank you, neighbor, for that splendid presentation. We have only a few minutes left. If Judge Udall and the other witnesses would come forward, too, perhaps we could ask a few questions. While they are coming around I would be glad to have you stress the fact that we do not, as a mining State, produce all of our own food, so it is necessary that we keep on growing competitive crops. Before Judge Udall is seated, I wish he would point out on the map the agricultural area for which he speaks, that is, the Safford area.

Mr. UDALL. Perhaps it would be better on this map, because I notice it also shows New Mexico. While I am not officially representing New Mexico, I did refer to it in the paper I submitted.

The Safford Valley is just over the line of New Mexico and there is around the Duncan and Franklin area about 8,000 acres of land. There is 32,000 acres of land in the Safford Valley in this area [indicating on map]. Then the other areas are represented down here in the green part.

Mr. MURDOCK. What is the altitude of the Safford area as compared with the central part of Arizona?

Mr. UDALL. The Safford area is 2,900 feet.

Mr. MURDOCK. Will you make it clear to us how you will benefit from water that is brought to a lesser altitude?

Mr. UDALL. If water is brought from the Colorado River over into the Salt River Basin and put into the Salt River—Granite Reef Dam, then another works will provide for a tunnel from one of the dams on the Salt River, I believe, to Stewart Mountain, and it will go through the mountain here and put it into the Gila River above Florence. Then in turn the people in Safford Valley and Duncan Valley would be permitted to retain a larger portion of the water of the Gila River to compensate for Colorado River waters received in the central area.

Mr. MURDOCK. Their water then will be exchange water rather than the literal or actual supply from the west?

Mr. UDALL. Yes, sir. That is correct.

Mr. MURDOCK. Mr. Engle has a question.

Mr. ENGLE. I wanted to ask you, Mr. Corbell, a question about the Salt River Valley project. What do you pay per acre-foot for water now, Mr. Corbell?

Mr. CORBELL. We reach an assessment the beginning of the year. This past year it was an assessment of $10 per acre, which carried two acre-feet of water with it, and excess water, if there is any, is $3.50 an acre-foot.

Mr. ENGLE. Can you afford to add on to that the water supplied under this project at $4.50 per acre-foot?

Mr. CORBELL. I think it has been upped to $4.75. Yes, sir.

Mr. ENGLE. In other words, your total per acre cost for water would get up around $14.50 or $15?

Mr. CORBELL. You mean, per acre for 3 acre-feet?

Mr. ENGLE. Yes.

Mr. CORBELL. It would be a little less than $15. It would be $13.50. If you add your fourth acre-foot, we could well afford to pay the $4.75 for that.

Mr. ENGLE. You say that, based upon present agricultural prices?

Mr. CORBELL. Of course, when agricultural costs and other costs come down, your original 3 acre-feet would be much less and you could well afford, to supplement your supply, to pay an additional amount for 1 acre-foot.

Mr. ENGLE. I observe that you have 242,000 acres and your investment was $50,000,000, which would be approximately a little over $200 an acre. You have a capital investment of $50,000,000 and you have an outstanding bonded indebtedness against that of $20,000,000. Is that right?

Mr. CORBELL. The total investment is $50,000,000, including the bonded indebtedness.

Mr. ENGLE. That is what I understood. Yes.

Mr. CORBELL. Perhaps I did not understand that.

Mr. ENGLE. I have before me the letter of February 4, 1949, written by the Bureau of the Budget to the Secretary of the Interior, and on page 4 it states as follows:

> The State of Nevada, in commenting on the economic justification of the project, computes the net irrigation contribution of costs on the acreage which will be salvaged by the project at $1,469 per acre. Consider the justification of such cost in the face of an estimated farm-land value, with irrigation, of $300 per acre.

Do you have any comment to make on that?

Mr. CORBELL. I suppose you are referring now to the total project that is involved in bringing this water in. I am not going into that. I merely state as a farmer that we can well afford to pay $4.75 for an additional acre-foot of water to be added to the allotment in the Salt River project.

Mr. ENGLE. Do you think there is real economic justification though in spending $1,469 per acre in capital investment when, according to your figures, with what you are getting now, you have only spent $200 in capital investment? The point I am making is that for $200 per acre capital investment you are getting water on that land with an average supply now of 3 acre-feet per acre.

The question I am raising is whether or not it is good business to put in $1,469 per acre in capital investment additional, into that kind of a proposition.

Mr. CORBELL. Congressman, I am not an engineer, but I have just been informed to the effect that this $14 includes the total expenditure for the construction of all the works which would go into the construction of this central project.

Mr. ENGLE. It is the net irrigation construction cost.

Mr. CORBELL. What is the gross amount of that irrigation construction cost?

Mr. ENGLE. The State of Nevada figured it up as recited in this letter of the Bureau of the Budget as $1,469 per acre. I am not saying that is correct. It may not be.

Mr. CORBELL. I do not know whether it is or not.

Mr. ENGLE. I have no right to dispute it, but assuming for the purposes of this question that is correct, and if it is correct does it

make any sense to put $1,469 per acre of capital investment into land which, when irrigated, is worth $300 per acre?

Mr. CORBELL. Of course, you have a lot to take into consideration as to just what are the benefits going to be received from that amount of money. If it is just total acreage of the farm we are talking about, that is something else, but if you are talking about power production and talking about salvaging the agricultural economy here, then I think in time it will be wisely spent. I don't know. The engineers of the Reclamation Bureau and other engineers tell me this is a feasible project and the water will cost the farmer $4.75, delivered to his farm. As a farmer I would be very happy to pay $4.75 for an additional acre-foot of water.

Mr. ENGLE. Here is what the engineers say about it, reading from the same letter of February 4, 1949 of the Bureau of the Budget, and I am quoting from page 1:

> It is the opinion of the Regional Director of the Bureau of Reclamation that the project has engineering feasibility in the sense that there are no physical obstacles which could not be overcome. He states, however, that financial feasibility of the project is more difficult to determine. Further, in his report to the Commissioner of Reclamation, he raises the question as to the adequacy of the water supply of this project. It is pointed out in the report that the project as proposed is economically infeasible under the existing reclamation law and it is, he says, a rescue project, designed to eliminate the threat of a serious disruption of the area's economy.
>
> Modification of these laws are, therefore, proposed in the report to extend the repayment period for the entire project, including power, to 78 years and use one-fifth of the interest in commercial power investment to aid in the repayment of the irrigation features.

Mr. CORBELL. I am not an engineer and I do not think I can discuss that with you but I think you have witnesses following me who will be very happy to take it up with you.

Mr. MURDOCK. But one element which you are qualified to answer is this: If the water charge is $4.75 an acre-foot, that is a reasonable figure?

Mr. CORBELL. That is a reasonable figure. More so, probably, in our situation—with the Salt River project—because it is a supplemental supply. The over-all cost is not excessive for water, even with that included.

Mr. MURDOCK. What was the average production per acre, Mr. Corbell?

Mr. CORBELL. $147 an acre.

Mr. MURDOCK. $147?

Mr. CORBELL. Yes, sir.

Mr. MURDOCK. You are talking, Mr. Corbell, to men, some of whom are from the Midwest and the East. They cannot quite understand how an acre can have or can support a $15, or $16, or $18 per acre cost for water alone. You have to regard that, do you not, in relationship to the average cash production?

Mr. CORBELL. Yes. We have a long growing season there and our land is very productive and we have high yields. Accompanying this statement is the crop report for 1948, which I think would be very interesting.

Mr. ENGLE. As I recall, that figure per acre is a 1948 figure, is it not?

Mr. CORBELL. I think that it is 1947.

Mr. ENGLE. No, it is on page 8 of your statement. Your statement refers to the 1948 figures. I have great doubts as to whether the agricultural production is going to bring those high prices.

Mr. CORBELL. I think I would agree with you there, in the future, but as I said before, our other costs will keep pace with this. If our costs come down then our cost of water comes down. Those things are all taken care of.

Mr. ENGLE. How do you get your costs down? You mean that you have to pay less for labor and things like that?

Mr. CORBELL. That's right.

Mr. ENGLE. Your capital invested——

Mr. CORBELL. That remains the same. Of course, we carried that same capital investment back in the other period, and that has not increased. The increased cost here has been on account of increased labor and materials.

Mr. ENGLE. That is all, Mr. Chairman.

Mr. MURDOCK. The hour of 12 has arrived and we must adjourn soon.

Mr. POULSON. I would like to ask a question, Mr. Chairman.

Mr. MURDOCK. Mr. Poulson.

Mr. POULSON. It is my understanding that you will have tomorrow a continuance of these witnesses who will testify as to the need. In other words, it will be more of the chamber of commerce type of statements that are along the lines of that phase of it, and not the experts who will testify on the engineering qualifications and feasibility and the costs, and things like that. Is that right?

Mr. MURDOCK. You are about right. But you have not determined on the proper definition of an expert. I have heard an expert defined as "an ignorant man a long way from home." While Mr. Corbell is a long way from home, he is really well informed and an expert in regard to everything agricultural, in getting things out of the soil.

Mr. POULSON. But he is still testifying on the need, and we are not going into the phase of trying to establish the availability of the water and the engineering aspect, and the feasibility, and those things. Those experts, if you are going to classify them as such, will not be heard tomorrow. Is that right?

Mr. MURDOCK. You are right.

Mr. POULSON. All right. I will not be here. I just wanted to know that.

Mr. MURDOCK. Now I would like to say that I have listed here Mr. K. K. Henness, county agricultural agent of Pinal County and Mr. Walter Bimson, president of the Valley National Bank, and others of that type of witness. I am sorry, gentlemen, that we do not have quite the time necessary to put some further questions to you this morning.

Mr. LEMKE. I would like to make an observation, or put a question. Mr. Chairman, I am not concerned any further about the need. I was convinced of that last year. I was fully convinced also that the engineers know how to build this dam without my help. I am still interested to know that if we build this dam you will go and get the water, and that you are entitled to it. I have not heard about that. I would be interested to know when that comes up. I cannot sit here and listen to the same old thing over and over and over again.

Next, if you are not sure you are going to have the water, then I want you to satisfy me that California needs it stored as well as you do, and that it ought to be stored, no matter who gets it.

If you do that, I can see my way clear. If you do not, then I cannot. I think I would like to hear those things discussed. I understand this reservoir is needed for California as well as you, and it does not make any difference who gets it, but let us get it and get hydroelectric power. That is one phase of it. On the other hand I would like to see that you could get the water, and I would like you to get it, but I want to see that you are entitled to it.

Mr. MURDOCK. That is a correct observation, Mr. Lemke and we are glad to have it. It was agreed we would vary from our usual custom in the Public Lands Committee of not holding hearings on Saturday and hold a session tomorrow. So, unless there is an objection from those present we will adjourn now until 10 o'clock Saturday morning.

Thank you, gentlemen, for your presentations.

(Whereupon, at 12:05 p. m., the committee adjourned.)

THE CENTRAL ARIZONA PROJECT

SATURDAY, APRIL 2, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 10 a. m. in the committee room of the House Committee on Public Lands, New House Office Building, the Honorable John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The subcommittee will come to order.

We are continuing hearings on H. R. 934 and H. R. 935.

Mr. Engle would like to ask some questions of one of the former witnesses. Is Mr. Corbell here?

Mr. Corbell, will you take the stand once more. Mr. Engle has some questions.

STATEMENT OF VICTOR I. CORBELL, MEMBER, BOARD OF GOVERNORS, THE SALT RIVER VALLEY WATER USERS' ASSOCIATION, TEMPE, ARIZ.—Resumed

Mr. ENGLE. Just one or two questions, Mr. Chairman.

Mr. Corbell, I was very much interested in the statement you filed yesterday. Am I correct in the assumption that this project, the Salt River Valley water users' project, is one of the best in Arizona?

Mr. CORBELL. Well, that is what I have heard it called. I think we think so.

Mr. ENGLE. It is pretty well understood to be one of the outstanding water associations and water districts in the State, is it not?

Mr. CORBELL. That is what I have heard.

Mr. ENGLE. I have been interested in some of the acreage ownerships in Arizona. Do you folks anticipate the application of the 160-acre limitation to any supplemental water you get?

Mr. CORBELL. The violation of the 160-acre law within the Salt River Valley water users' project is violated only in a few instances. I think that acreage today is practically nothing as far as violating the 160-acre law is concerned. There are just a few people there who own more than 160 acres.

Mr. ENGLE. From your knowledge of the situation, State-wide, can you apply supplemental water without breaking up a good many farm ownerships?

Mr. CORBELL. That question has never been raised. However, the association is working to stop the 160 law from being offended against.

Mr. ENGLE. Some of our people are trying to stop it, also.

Mr. CORBELL. I do not mean we are trying to stop the 160-acre law. The association there is trying to stop people from offending that law, to keep them from owning over 160 acres of land. As I stated, no one is allowed to vote over 160 acres in any election.

Mr. ENGLE. Where is the San Carlos project?

Mr. CORBELL. The San Carlos project is on the Gila River which lies to the south and a little east of our project.

Mr. ENGLE. As I understand this project there is an exchange of water involved, is there not?

Mr. CORBELL. That is right, sir.

Mr. ENGLE. That is, the project is set up on the basis that the Salt River Valley Water Users' Association will effect an exchange of their water for Colorado River water, is that correct?

Mr. CORBELL. I think the law is so written that the Salt River has to consent.

Mr. ENGLE. Has your association consented to that exchange?

Mr. CORBELL. They have not, but I think it can be easily worked out where you do not have to have that exchange if they do not agree to it.

Mr. ENGLE. As a matter of fact, I understand they passed a resolution against the exchange.

Mr. CORBELL. That is correct.

Mr. ENGLE. Has that resolution been rescinded?

Mr. CORBELL. No, sir.

Mr. ENGLE. Then as far as your area is concerned the project will have to be modified to that particular extent, will it not?

Mr. CORBELL. I think that will be a question, after the project is once authorized, between the landowners within the project. That is not a serious problem, however. You can see by the map here, of course, that it merely means another lift. That is not very expensive, because when it comes by an all-gravity route you take the power production away from the Stewart Mountain Dam.

Mr. ENGLE. In other words, that is an internal problem in Arizona which will have to be settled by the respective water users?

Mr. CORBELL. That is an internal problem.

Mr. ENGLE. Not affecting the engineering feasibility, at least?

Mr. CORBELL. That is correct. That is a minor detail, I would say.

Mr. ENGLE. When was the last time your water users' association was refinanced?

Mr. CORBELL. We have been refinancing bonds all along. What do you mean by refinanced?

Mr. ENGLE. I mean where your finances were rearranged with the RFC, for instance.

Mr. CORBELL. Do you mean when we went through the wringer?

Mr. ENGLE. Yes.

Mr. CORBELL. No; we never went through the wringer.

Mr. ENGLE. But you have had some financial difficulty there, have you not?

Mr. CORBELL. I would not say we have had any financial difficulty.

Mr. ENGLE. Was there not some dealing in the financial district in 1935 through the RFC?

Mr. CORBELL. We attempted to do that, but they told us we were in too good a financial position to partake of that.

Mr. ENGLE. What did you try to do at that time?

Mr. CORBELL. Tried to do just like all the rest of these people, to buy our bonds in at a much-reduced rate, which we could not do.

Mr. ENGLE. Did you request a loan for that purpose?

Mr. CORBELL. We requested it, but it was denied on account of that.

Mr. ENGLE. I understand the RFC put the appraised value on your land at that time as $150 per acre; is that right?

Mr. CORBELL. I could not answer that, sir. I do not know.

Mr. ENGLE. What do you consider the appraised value of this acreage?

Mr. CORBELL. Today?

Mr. ENGLE. Yes.

Mr. CORBELL. I do not think you could buy any land in the Sale River project—good land, and most of it is of that character—for less than $400 an acre.

Mr. ENGLE. The purpose of this transaction, as I understand it, with the RFC in 1935 was not because you were a distressed district?

Mr. CORBELL. That is right.

Mr. ENGLE. It was because you wanted to buy our your bonds at an advantageous rate, shall we say?

Mr. CORBELL. That is right, sir.

Mr. ENGLE. The RFC refused you a loan for that purpose?

Mr. CORBELL. Because we could not refinance it as low as they required. We could not possibly buy our bonds back anywhere near the price that the RFC requested before we could come under that particular piece of legislation.

Mr. ENGLE. If farm prices should go back to what they were in the early or middle 1930's, would you have trouble carrying your present bonded indebtedness and your maintenance and operation cost?

Mr. CORBELL. You are speaking now, I suppose, of the very lowest time in 1933 and 1934 and in there?

Mr. ENGLE. Approximately that time; yes.

Mr. CORBELL. Well, it would be a little difficult. However, during that time we never defaulted on principal or interest.

Mr. ENGLE. That is all. Thank you very much.

Mr. WELCH. Are your bonds term or call bonds?

Mr. CORBELL. We have both kinds, sir. We have call bonds and we have term bonds.

Mr. MURDOCK. Before you leave, Mr. Corbell, may I ask how current is the association with its obligations to the Government?

Mr. CORBELL. Well, our obligation to the Government has been paid up, I think, to the year 1951. In advance.

Mr. MURDOCK. In other words, you are several years ahead?

Mr. CORBELL. Yes, sir.

Mr. MURDOCK. You are not only current but you are ahead?

Mr. CORBELL. That is right.

Mr. MURDOCK. Does the association get any interest from Uncle Sam on the money paid in advance of the due date?

Mr. CORBELL. Yes, sir. We received a discount, I think, of 4 percent, by paying in advance.

Mr. MURDOCK. The association is not only solvent, but it is in a good financial condition, you would say?

Mr. CORBELL. Yes, sir.

Mr. MURDOCK. Thank you very kindly, Mr. Corbell.

Mr. CORBELL. All right, sir.

Mr. MURDOCK. Mr. Corbell, I would like to ask you another question or two.

In regard to the acreage over the limit, you were not quite sure as to the percentage, you might say, which was over the 160-acre limitation. I have had occasion to make some inquiry about that, and I find that it is almost negligible.

Mr. CORBELL. That is right. I do not think it will run over 1 or 2 percent.

Mr. MURDOCK. I think that was about the information which I received from another source, so I think that must be correct.

Mr. CORBELL. In the water accounts in the association there are 242,000 acres, and some 14,000 owners, which makes an average of about 18 acres to a farm.

Mr. MURDOCK. We have been speaking of that as a violation of law. Is that a necessary or unavoidable violation?

Mr. CORBELL. It is not a necessary violation; no.

Mr. MURDOCK. At least, we have been trying to live up to the 160-acre limitation, have we not, right along?

Mr. CORBELL. That is correct.

Mr. MURDOCK. I had a relative who went into our valley in an early day, and who received a lot of land, but he disposed of his land so that he came within the limitation. I know that from personal knowledge.

What is the average ownership of land in the Salt River Valley Association?

Mr. CORBELL. It will run around 18 acres to the farm.

Mr. MURDOCK. I wish the committee would take careful note of that fact: An average of 18 acres. That sounds a little strange, of course, to easterners who are thinking of the 160-acre unit as written into the reclamation law.

How do you account for the fact that the average is so low?

Mr. CORBELL. Well, there are many, many subdivisions, where they have small citrus tracts and some farms like poultry farms where they make a living, and probably have a job doing something else during a portion of the year.

Mr. MURDOCK. Another thing I wish the committee would take pretty careful note of is that only just recently I had an inquiry from a man in New Jersey who wanted to go out to Phoenix and establish a poultry farm, as he said. I gave him all the information I could. That is only one which comes to mind right now. I have many such inquiries.

You find quite a development of that kind there in that valley, do you not?

Mr. CORBELL. Yes. The valley is very highly developed. That is, the Salt River project, this 240,000 acres which we are speaking of, is highly developed.

Mr. ENGLE. When you speak of the percentage, do you speak of the percentage of users or the percentage of the area?

Mr. CORBELL. Do you mean in acreage, in this violation of the 160-acre law?

Mr. ENGLE. No.

Mr. CORBELL. I am speaking of the area.

Mr. ENGLE. You spoke of such a small percentage of the number of users who were over the 160-acre limitation, and I take it you are talking about the number of users as distinguished from the acreage. What percentage of your acreage is involved?

Mr. CORBELL. I was using the figure on the acreage. I think you could count the number of people in violation of the 160-acre law in the Salt River project on the fingers of your hand.

Mr. MURDOCK. For the record, I want to make myself clear. I believe in the 160-acre limitation. I think it was a wise provision of the law of 1902 and I am in favor of keeping it, possibly with some modifications under extreme circumstances.

As I understand it, Mr. Corbell—and I received my information from another source and not from an official of the association—it is unavoidable in certain cases, without working undue hardship. Is it not true that in case of inheritances and that sort of transfer that there are transfers made, and you could not strictly enforce that law 100 percent?

Mr. CORBELL. Of course, he has a reasonable time to dispose of that property. Every effort is being made for that purpose, to get it cleared up.

Mr. MURDOCK. Thank you kindly for your appearance.

Mr. CORBELL. Thank you, sir.

Mr. MURDOCK. We have with us this morning an agricultural agent from one of the counties most interested in this development. Mr. Henness, will you take the stand, please.

STATEMENT OF K. K. HENNESS, COUNTY AGRICULTURAL AGENT, CASA GRANDE, PINAL COUNTY, ARIZ.

Mr. HENNESS. Congressman Murdock, without many of the committee present, will it be all right to move this easel up here?

Mr. MURDOCK. Yes, sir.

Mr. HENNESS. My name is K. K. Henness, county agricultural agent, with the University of Arizona. I have been county agricultural agent in Pinal County for 21 years. I grew up on an irrigated farm near Tempe, Maricopa County, Ariz., and have owned and lived on a farm near Casa Grande since 1936.

I am here to testify regarding water supplies for our lands and to give my estimate as to the future of farming in our county.

Many of you are familiar with irrigation in the West. You know that level desert land suited for agriculture means nothing without water. Water is the measuring stick of our production. Under our high temperatures and long growing season we need at least 4 acre-feet of water per year. Our entire farming and business economy is based upon the amount of water we have, either from gravity or river sources, or from underground storage which may be pumped.

The ideal situation in irrigated farming is to have a water supply which over the years is sufficient to annually provide the amount of water required for maximum crop growth. In the Southwest, where waters and soils carry salts, the supply must be sufficient to permit heavy irrigation to drive salt concentrations down. No irrigated agriculture is permanent without sufficient water to prevent harmful accumulations of alkali salts.

If a water supply is such that this amount can be delivered, let us say, for 3 years, and then perhaps only one-third of the required amount can be provided in the next 3 years, you have an unstable agriculture. You have an agriculture in which farmers are unable to plan and rotate their crops and diversify and build up their soils with legumes and do all those things that people in our work encourage in every county in America. This is the picture in the San Carlos project, which represents 100,000 acres of the irrigated land in our county, one-half white-owned, and one-half Indian-owned. I will talk about this project first, and later develop the situation that exists on the pump lands of our county.

I may well say here that in this year of unusually heavy storms in the West that run-off has been such that our project officials have alloted two acre-feet per acre; about one-half our requirements. Additional storms or flow from melting snows may for the first year since 1942 provide enough water for the irrigation of all lands in our project. We had hoped that with these great storms our reservoir might catch enough water for perhaps 3 years' supply, but it has not done so. Next year may very well be one when we have only one-fourth enough water.

In June of 1947 I had occasion to make a rather detailed investigation into our water situation. In the course of this, a number of photographs were taken which I think will illustrate the situation our farmers were in at that time. Let me say that in 1948 the situation was about the same, perhaps more aggravated. These photographs show vividly what a water shortage means in a land of desert with a year-long growing season and the high evaporation that accompanies our summer temperatures.

My first photograph is of the Frank Williams farm, near Casa Grande. It shows Mr. Williams' irrigation ditch, and part of a 40-acre field of land designated for water under the San Carlos project. Each acre of this land is capable of producing, with ample water, at least five tons of alfalfa hay in a season, plus winter pasture, or 300 pounds of beef if grazed, or a bale to a bale and a half of cotton. The growth that you see isn't a crop; it is rayless goldenrod, a desert plant poisonous to livestock, a shrub which the desert uses to reclaim its own. This field has not been farmed since 1943. When this photograph was taken only 40 acres of the 160 were farmed, all available water being used on 40 acres of alfalfa. The 1947 allotment was 0.85 acre-foot per acre, with 4 acre-feet being required. The 1948 allotment was 1 acre-foot. Taxes and water assessments are paid on 160 acres and 40 can be farmed. And, gentlemen of the committee, in my business I have a hard job when I endeavor to talk to Mr. Williams of the need for the growing of legumes and crop rotation. He has the problem of trying to grow a crop that will bring him enough cash to pay his taxes and water assessments, his interest and his living.

May I pass these pictures around as we go along?

Mr. MURDOCK. Yes, just pass them around to the members of the committee, Mr. Henness.

Mr. HENNESS. I have several other photographs which illustrate what a farmer in an area where there is not enough water is up against. Here are two taken of my neighbor's farm. The first shows land that has been uncultivated for 4 years. In the background you can see the

farmstead, which includes a $20,000 home and other improvements. Without water they are backed by little. The second shows part of another 160 acres, idle for 3 years. You can see the old cotton stalks left from that crop of 3 years before.

And here is another photograph. It shows part of the Weaver farm, 80 acres. Six years ago the owner gave up and sold this farm, which had been in his family for over 30 years. He moved to Oregon to take a job driving a delivery truck. The people who bought this farm own adjoining land and have diverted its water to that acreage.

Here is another photograph of an alfalfa field on the Kochsmeier farm. It produced one crop of hay, the first cutting. At the time this photograph was taken it should have been heavy with the fourth cutting. These photographs were taken June 13, I think. Instead, you see large burnt spots, and some thin growth on spots which happened to have a little more submoisture.

The next two photographs were taken on the Overfield farm, one of the early developed places in our county. The first shows an alfalfa field that was not watered for 2 years and in which most plants are dead. The second shows an alfalfa field to which, for those 2 years, was diverted all the water allotted the entire farm. It cost money to plant and then lose that alfalfa.

Now, let us take a look at the irrigation structures that serve these lands when there is water.

When these photographs were taken in June of 1947, Coolidge Reservoir was practically empty. The situation in 1948 was no different. Here is a photograph of the Gila River just above our Ashurt-Hayden diversion dam. Were storage water available when this photograph was taken, 1,000 to 1,200 second-feet of water would be flowing in this river which is a dry sandy bed. The photographer turned around and took a photograph of the diversion structure and gates. That is not water you see, it is dry sand and silt.

And here is another photograph taken about one-eighth mile down the canal, looking toward the diversion dam. This canal is the sole artery that carries life-giving water to the 100,000 acres of the San Carlos project. It is, as you can see, dry. No additional water can be expected until late in July or early August, when summer rains on the San Pedro River usually give some flash run-off, of which none can be stored.

One measure of conditions during a drought is the effort farmers make to help themselves. Here is the concrete-lined Pima lateral, the sole source of gravity water for the 50,000 acres of land owned by the Pima Indians. It is also dry. Here is another showing a project-owned pump pumping into this lateral. This pump provides, I would estimate, about 3 acre-feet of water each 24 hours. It is doing its best.

Here is another photograph taken further down the main canal. You can see the remains of a sandbag dam built in an effort to divert a small head of water, hardly enough to more than wet the bottom of this canal, into a turnout so it would irrigate a suffering crop.

Next is a project-owned pump pumping into a canal. In order to save evaporation and seepage, a dirt dam has been built just above the spot where the water enters the canal.

And here is a canal plugged with canvas in an effort to divert water to a dirt tank where cattle can be watered.

That is the last photograph, gentlemen. I hope these photographs have not bored you. I have used them to try and give you a visual picture of what the situation was on the San Carlos project on the 25th day of June 1947. The situation was no different in June of 1948. The situation will be better in 1949, for we now have in storage almost one-half our 1949 requirements. If additional run-off develops, the year 1949 will mark the first year since 1942 that there has been enough water for lands of the San Carlos project.

Now I want to talk to you about another estimated 200,000 acres of land in our county. This is irrigated land watered exclusively by pump. These lands have no gravity water right. They are watered by privately owned pumping plants, each representing an average investment, under present conditions, of from $10,000 to $20,000. These lands draw their water supply from underground storage, which, according to carefully kept records of the Geological Survey, is being taken out much faster than the recharge to the underground basin.

In 1931, 17 years ago, there were 69,446 acres of land in cultivation in Pinal County, most of which was in the San Carlos project. Today the total figure approximates 300,000. In 17 years our agriculture has expanded over four times. This figure of 300,000 acres represents cleared and leveled land that has been farmed, but is not a total of land farmed in any one year.

This expansion was brought about by men and women who saw rich land which needed water, and who were willing to do the hard work and make the investment necessary to develop a water supply, clear, level, and prepare the land for irrigation.

As the depth of water increases, the expense of pumping increases, the volume produced decreases, and less land can be farmed. Other witnesses will provide information on this subject.

With this expansion of agriculture has come expansion of business and growth of towns. Twenty years ago Coolidge was a small cluster of buildings around the intersection of the railroad and our main county highway. Today it is an incorporated town of around 5,000 people.

Mr. MURDOCK. Pardon me. Did not Coolidge, Ariz., at one time have a record of being the fastest-growing town in America?

Mr. HENNESS. I do not doubt that. That was said and it probably was true.

Mr. MURDOCK. You were giving the statistics on Coolidge, were you not?

Mr. HENNESS. That is right.

Mr. MURDOCK. Coolidge did have that reputation at one time?

Mr. HENNESS. I think that is right.

Mr. MURDOCK. The statistics of the census bore it out. Go ahead.

Mr. HENNESS. Eloy was only a siding on the railroad, where one pioneer farmer shipped a few cars of lettuce each winter. Today it has a population of over 3,500. I have the 1946 freight loadings for Eloy, and carlots coming in—1,552 carloads of farm produce were shipped out by rail, 1,036 of which were winter vegetables. Probably an equal volume of crops were hauled by truck. We have no record of these. Five hundred and fourteen cars of feed and supplies and manufactured goods were shipped into Eloy in the same year. Much

more was trucked in. All this business has decreased during the past 2 years, due principally to lack of water.

Such a volume of business to be sustained and increased must be based, under our conditions, upon an adequate and dependable water supply. What does the future hold?

If I am to judge the future, I must forecast separately for the San Carlos project, which receives gravity water, and the pump lands, which do not. I would say that on project lands we may have years with ample water when run-off is good, and other years of shortage such as we have experienced from 1943 to 1948. I am not a weather prophet, but that is the record. Under such conditions we can never have a permanent and satisfactory agriculture. Our farmers can never adopt those farming practices, the value of which they know so well, and which make for a successful and continuing agriculture.

And now for the pump lands. With a declining water table the future offers less water at greater expense, added investment in horsepower equipment for pumping, deepening of wells, abandonment of tens of thousands of acres to the desert, practical exhaustion of the underground water supply except in the more favored areas of shallow lift.

Some of the photographs I have exhibited show that the desert is even now, in this period of high farm prices, moving back to reclaim its own. There will be more of this, in my judgment, in the years to come. Already many good farm families have left, and more will go. Total county agricultural output will drop and incomes will in turn decline. With this will come a blighting of the investments made in the several towns of our valley by businessmen and those whose living depends upon agriculture, and by our farmers. Winter vegetable harvest and other work that now furnishes a livelihood for some 7,000 or 8,000 migrant workers, and which may, with adequate water, furnish work for 10,000 or more, will furnish fewer jobs.

I consider that our county at the present is producing less than one-half of what it could produce, were sufficient supplemental water available to firm the present supply. The future situation that I have described can be avoided through the provision of those structures that will make available additional water to firm the present supply, coupled with the wise use of our present water resources.

Thank you.

Mr. MURDOCK. If the committee will indulge me, I would like to ask a few questions first, and I would like to make some comments.

First, I would like to say that Pinal County is not in my congressional district and I am not trying to curry favor with any of these men outside my district to gain their votes or anything of that sort.

Mr. Henness, I came to Arizona in 1914. I used to ride from Tempe to Tucson, going down to Maricopa on the old Arizona Eastern, and from Maricopa to Tucson on the Southern Pacific. That was in 1914 and 1915. You knew the country at that time?

Mr. HENNESS. Yes, sir.

Mr. MURDOCK. As I looked out of the car window on those trips, across a level plain, the soil looked fertile, and I just wondered, "When will this be an agricultural empire?" Then I said to myself, "I guess it can never be."

That was in 1914 and 1915, and along through those years.

What a transformation has since occurred! It has been partly brought about by your efforts, as well as those of your neighbors. That has become an agricultural empire with all the production that you have just enumerated in your statistics.

Now you have reached the limit. It is about to decline.

I wanted to ask you about this, after my comment: If we can get 1,200,000 acre-feet of Colorado River water, part of which is to be put in this same area, will that be a sufficient supplemental supply, together with your variable rainfall, to do the job, do you think, and to bring back and revivify the acres you have already cultivated for a half dozen years or so?

Mr. HENNESS. We think it will. That assumes, of course, that we have been in a dry period.

Let me explain by saying that the background of facts on the building of the San Carlos irrigation and drainage structures—the lands that get water from Coolidge Dam—the background information indicated a water supply by gravity for 80,000 acres. It was estimated that pumping, reuse of water, would take care of another 20,000 acres, and the project was set up for 100,000 acres. Those records go back some 50 years.

I believe I am correct in saying that last year the flow of the Gila River was the lowest in some 50 years. There were years of heavy flow. You were here in 1914. If you will recall, it rained along about that time. I believe the chart shows that in 1 year, had the Coolidge Reservoir been built at that time, it would have received enough water to fill the reservoir, which would have been about 1,200,000 acre-feet, which is now a 3- or 4-year supply, and in addition it would have run over.

Assuming that the last 50 years have been an average, I think that this supply of water will take care of the situation in our county.

Mr. MURDOCK. I believe you have made it clear, but I wanted to emphasize for the benefit of the committee, that this land about which you have been speaking is a combination project.

The San Carlos project land is owned 50 percent by the Pima Indians and the rest by the white neighbors.

Mr. HENNESS. That is correct, sir.

May I step to the map a moment?

Mr. MURDOCK. Yes.

Mr. HENNESS. I have been talking about Pinal County, roughly about that area [indicating] before the ruler.

The San Carlos project is in the vicinity of Florence, Coolidge, and Casa Grande, the white-owned part.

These lands shown in green down here [indicating] are the lands owned by the Pima Indians. They have 50,000 acres. We have 50,000 acres.

Mr. ENGLE. Will you point out the Salt River Valley water users' project?

Mr. HENNESS. Yes, sir. I would say it is this area above that ruler [indicating] extending down the river. This [indicating] is the lower part of it here. You have Gila Bend, Gillespie Dam. Here is Phoenix and here is Tempe.

Mr. MURDOCK. That brings me to another observation.

This may seem to be improper, but I want to get a clear idea before the committee.

I was at the dedication of the Coolidge Dam on March 4, 1930, when ex-President Calvin Coolidge came to the dam and dedicated it.

I often say to my Republican friends that ex-President Coolidge made the second best speech made there that day. That is greeted with an inquiry.

I mean, although Will Rogers was present, that the best speech made there that day was made by a full-blood Pima Indian, and the splendid dedicatory address made by ex-President Coolidge was a splendid address, but I have always felt that it was the second best address, in view of the address made by the Pima Indian.

This Pima Indian said: "Our area 100 years ago was a garden spot. We had learned to cultivate this land and had become prosperous under the teachings of Father Kino"—the Jesuit who came into that region many, many years before—"so that when the United States Army crossed that area in the days of the Mexican War they found the Pima villages, constituting an oasis in the midst of the desert."

"But," said the Pima, "the white farmers came in on the upper Gila," meaning in Graham County and up there, "and they took the water out of the river, and the river went dry."

"Now," said this Pima who made the best speech that day, "we Indians did not expect the great white father in Washington to take the water away from the farmers in the upper river," such as Graham County.

"We did not ask for that," he said, "but we did ask for relief."

He then gave tribute to the church people who had worked as missionaries among them, and to the Government, including President Coolidge himself, who signed the bill that made the building of the dam possible, and the building of that dam was intended to give the Pima Indians, an agricultural Indian who "knows not the color of the white man's blood," that which had been taken away from them by the farmers above.

I think that is a story that needs to be impressed.

Now, as the witness has just said, had that dam been built a year or two earlier, one season's flood would have filled the reservoir, but it was finished and dedicated in 1930.

The reservoir has never been completely filled, has it?

Mr. HENNESS. No, sir. I think about 825,000, out of a capacity of 1,200,000, is the maximum.

Mr. MURDOCK. Your neighbor, Carl Anderson, has come here several times, as some of the members of this committee know. Last time he came asking for permission, which had to be obtained, to sink wells.

That project, rich as it is, is almost entirely dependent today upon pump water and has been for the last 2 or 3 years, is that not the case?

Mr. HENNESS. Yes, sir; that is true.

Mr. MURDOCK. Gentlemen, that is just one corner of the total area.

Is it not true that the Diesel stand-by plant north of Coolidge has been enlarged recently?

Mr. HENNESS. I could not say, sir. I do not think it is too recently. They have three engines there, I believe. I am not too well acquainted with that.

Mr. MURDOCK. Well, I happen to know because the item went through in an appropriation bill.

Mr. HENNESS. You would know. I should know. I live down there; but I just do not pay much attention to that.

Mr. ENGLE. May I ask a question?

Mr. MURDOCK. Yes, Mr. Engle.

Mr. ENGLE. Mr. Henness, these pictures which you passed around were illustrative of the area which had been a producing farming area, productive farming lands, but which no longer are, is that right?

Mr. HENNESS. They were no longer productive. When you say "no longer are," I do not know exactly. This last winter I mentioned we had a better run-off, and a lot of those lands are now being worked.

The first picture I showed you, for example, where the desert brush had moved in and taken over, was being irrigated the day that I left Casa Grande for a crop in this year.

Mr. ENGLE. When were these lands brought into production on the average? As much as 17 or 20 years ago?

Mr. HENNESS. Those lands shown in those photographs were practically all first subjugated in 1929.

Mr. ENGLE. There was water there once for those lands, was there not?

Mr. HENNESS. Yes; the first 3 or 4 years of our San Carlos project—I would say about 3 years—there was plenty of water. I remember in 1934 we ran out of water in June, I think.

Then there were other years in which the water supply was pretty good or very poor. Some part of that 160, for example, in the first paragraph I showed you, some part of that has been farmed every year since 1929.

Mr. ENGLE. What happened to your water supply? Is the water less, or do you have more people using it?

Mr. HENNESS. We have exactly the same acreage, 100,000 acres. It simply has not rained to provide enough water.

Mr. ENGLE. In other words, if you have another wet cycle you will probably have enough water?

Mr. HENNESS. We never have, but it would help some.

I would say this, Congressman: Over a period of years since that project was completed the water delivered has averaged probably around 2 acre-feet per acre per year, which is somewhere about half the supply necessary.

Mr. ENGLE. But there have been a lot of people down there getting into production, have there not, in the war years?

Mr. HENNESS. Not in the San Carlos project, sir. You see, these water rights are appurtenant to the land.

Mr. ENGLE. Yes; but I am speaking of outside.

Mr. HENNESS. Outside, on the pumping, there has been an increase; that is right.

Mr. ENGLE. Which would affect your total water supply one way or another?

Mr. HENNESS. It would not affect the supply of gravity water. That is the water from the river. It would have its effect on the underground water.

Mr. ENGLE. As the chairman indicated, you have been almost wholly dependent upon pumping?

Mr. HENNESS. That is true.

Mr. ENGLE. I have some figures before me which indicate that in the

area outside of the San Carlos project, in the Eloy and Maricopa areas, since 1939, there has been acquired from the State of Arizona by private parties, as indicated by the certificates issued by the State land office in Phoenix, a total of 164,937 acres, which presumably went into some kind of use.

Going into use, of course, it would be a further drain on your water supply. If not your surface supply, it would be a drain on your underground supply.

Mr. HENNESS. It is common practice in our area. The State-owned lands which are dedicated to the support of our public institutions are such that if a man wants to rent or buy these lands and develop them he does it. That sounds to me, however, like a transfer or transfers, which might very well include lands which were not devoted to agriculture, but which might be included in cow ranches for grazing.

Mr. ENGLE. That is, of course, possible, because I notice that 141,000 of the 164,000 acres are in ownerships of more than 160 acres. There are 28 family ownerships which are larger than 1,000 acres, the largest one being 6,800 acres.

What I am wondering is whether or not you have a new farm ownership in the area, not in the project but outside of the project, which has gone into this farming business during the war and during the high prices.

Mr. HENNESS. Yes, we do have. I would not attempt to say we did not. I would say definitely that there has been expansion during the war years. That expansion, however, was done by people who asked no help from anybody. They bought the land and drilled their wells and put those lands under cultivation in many cases under very difficult circumstances, due to the shortage of steel and casing and shortage of equipment and things of that sort.

Mr. ENGLE. They will be going out of business, a lot of them, when these farm prices go down, will they not?

Mr. HENNESS. I think it is possible that some of the poorer lands will go out of production. That is true of every pump district. You have in California some districts that are largely pump districts.

Those districts have a habit of expanding during periods of high prices and contracting during periods of low prices.

It is something like our dust bowl, which a lot of people worried about some years ago, and during the war when we needed wheat I understand that about 40 percent of our wheat was produced in that so-called dust bowl area.

Mr. ENGLE. Have you applied the 160-acre limitation in your county?

Mr. HENNESS. I think it is on the project; yes, sir.

Mr. ENGLE. What about this area outside the project?

Mr. HENNESS. The area outside the project is not included in any reclamation project. So far as I know, they have never received any Government money and the matter has never come up.

Mr. ENGLE. Under this proposed project there would be some readjustment necessary, would there not?

Mr. HENNESS. I do not know. There enters there a question, Congressman. This is a supplemental source of water. The question that comes up would be whether the Government, in providing part of the water supply, would want to lay down certain rules relative to the

limitation of acreage. I do not know what the answer would be there.

Mr. ENGLE. That is all, Mr. Chairman.

Mr. MURDOCK. Mr. Morris, do you have any questions?

Mr. MORRIS. I will reserve my questions at this time, Mr. Chairman.

Mr. MURDOCK. Mr. D'Ewart.

Mr. D'EWART. I would like to ask you just a few brief questions with regard to your cost of farming, and the type of contracts you have.

First, what does it cost to subdue this land? What is the leveling cost, per acre, just roughly?

Mr. HENNESS. Now or some years ago?

Mr. D'EWART. Now.

Mr. HENNESS. I would say that now on the average our average level land that does not require too much leveling would cost around $100 an acre by the time you have your land ripped and leveled and fenced, but have put in your deep well and pumping plant.

Mr. D'EWART. On top of that you have the cost of the buildings?

Mr. HENNESS. That is true.

Mr. D'EWART. And the cost of the machinery and equipment?

Mr. HENNESS. That is right.

Mr. D'EWART. In other words, it takes a pretty-good-sized investment. Whoever goes in there takes quite a loss when the water is shut off.

Mr. HENNESS. That is true. The Congressman asked me about the 160-acre limitation. In these pump lands we find it most economical to develop one well for 320 acres. It spreads the cost of that investment over a greater number of acres. By growing both winter and summer crops, we are able to utilize all or most of that land.

That is more or less the standard practice, one well for a half section.

Mr. D'EWART. What does your power cost for that pumping?

Mr. HENNESS. It is different rates. The rates change practically every year. Last year we had a shortage of power.

Coming from a lay witness, and not from an engineer, let us say that it varied from around 1⅛ cents per kilowatt to approximately 2 cents per kilowatt.

Mr. D'EWART. 12½ mills to 20 mills per kilowatt?

Mr. HENNESS. Yes, sir.

Mr. D'EWART. That is a pretty high rate.

Mr. HENNESS. We think it is quite high.

Mr. D'EWART. We would think it was high up in our country. We are, in fact, having difficulty with a 9½ mill rate in Montana.

Mr. HENNESS. We are fortunate in this respect: That one and soon another large gas main going to California passes right through the middle of a lot of this land. Many farmers in this period of shortage of electricity have moved their electric equipment aside and have run lines and put in natural-gas-burning engines.

Mr. D'EWART. That would undoubtedly come quite a bit below your 20-mill rate, and even below the 12½-mill rate.

Mr. HENNESS. Comparing the gas bill with the electric bill, I would say the gas bill would be about 30 percent. Of course, the wear and tear on an engine is, I think, much greater than that on the electric motors and transformers.

Mr. D'EWART. These hot-head Diesels operate pretty well?

Mr. HENNESS. Well, they do. I have noticed that the heavier and

slower speed the engine the more material they put into them, and the longer they run. When you sacrifice weight and get speed, sometimes they do not finish the first season.

Mr. D'EWART. I have one more line of questioning. This is a reclamation project?

Mr. HENNESS. This San Carlos project? It is an Indian-service project.

Mr. D'EWART. An Indian-service project?

Mr. HENNESS. Yes, sir. Not the Reclamation Service.

Mr. D'EWART. I see. I was going to ask: What is the status of your repayment contracts? Are the repayments current?

Mr. HENNESS. Yes.

Mr. D'EWART. Can you keep up your repayments?

Mr. HENNESS. I think our payments are current. I believe there was some legislation that provided that payments would vary according to the amount of water in storage on the first of the year, so the payments have been rather small because we have not had much water. We have just had very little water. Last year and the year before we started our season for 100,000 acres with, let us say, 25,000 or 30,000 feet of stored water, which is not very much.

Mr. D'EWART. I imagine you had a 40-year repayment period?

Mr. HENNESS. I think that is true.

Mr. D'EWART. That is what most Indian-service contracts are.

Mr. HENNESS. Yes.

Mr. D'EWART. It is your impression that they have not gone into default?

Mr. HENNESS. I do not think they have been in default, but we have not paid very much.

Mr. D'EWART. I think that is a pretty good record, considering the difficulty you have been laboring under.

Thank you very much.

Mr. MURDOCK. Mr. Marshall is one of our men who is interested in this problem, in Minnesota.

Mr. MARSHALL. Mr. Chairman, I have one or two questions that I would like to ask in order to clear up my own thinking.

In carrying on your culture practices, Mr. Henness, are you making it a practice to conserve your water as well as the land?

Mr. HENNESS. Oh, yes; every farmer has to do that.

Mr. MARSHALL. If your water supply gets short, as you picture it, do you have any other available source under which the rate could be stepped up?

Mr. HENNESS. No.

Mr. MARSHALL. Maybe your situation does not have any effect on the evaporation?

Mr. HENNESS. We simply say if we need, for instance, 100 acre-feet of water for 25 acres and we find we only have 25 feet of water, we use it on a portion of the land until it is used up; we get all we can and then wait for some more.

With reference to the conservation of water, I will say this: That in the last several years, through the development of greater interest in the conservation of water, many, many miles of ditches have been lined with concrete. The farmers have just gone along the ditches with trucks dumping concrete making miles of ditches in a very short

time. It is very costly, but many farmers have put in such ditches so they will not have seepage losses. That is the biggest loss we have, especially on sandy soil.

Mr. MARSHALL. The seepage loss?

Mr. HENNESS. Yes. And we think of soil conservation—and, of course, all of us are interested in soil conservation—we think really more about water conservation, because water is the limiting factor. Our soils are not bad to erode especially; our farm lands are pretty level.

Mr. MARSHALL. In the matter of conservation of water, has it made any difference in the kind of crops you develop; that is, have you been able to shift from one to another as the water becomes scarcer?

Mr. HENNESS. Yes. In the San Carlos project, which receives gravity water from the river, the farmers have been inclined to shift. We cannot always get the water when we want it. They may make an allotment of 85 one-hundredths acre-feet, as they did one year. But we cannot get it when we want it; and, if you are growing summer crops such a cotton or grain sorghums, those crops may burn up because you may not have water, cannot get the water on the land; so farmers on the project have tended to shift to alfalfa and grain, especially barley and winter grain, which, if you do not irrigate a barley crop, for instance, today it will be all right 10 days hence, particularly in winter. You cannot do that with cotton.

In some of the pump-land area they have grown a great deal of cotton, which has taken a supply of water, and as the supply decreased they simply have adjusted their acreage to take care of that, although we have some pump farmers who are beginning to rotate as between cotton and winter grains.

Mr. MARSHALL. I presume that most of your vegetable crops would come from the area where you do have a supply of water.

Mr. HENNESS. Our vegetable crops are mostly grown in one area. They start harvesting fairly early in the fall with carrots; they have broccoli and mustard; and then they have early potatoes in the month of June. We have grown about 3,000 acres of vegetables and potatoes.

Mr. MARSHALL. Am I correct in the assumption that your rotation in crops, your shift to alfalfa, is because it is a more drought-resistant crop than some of the other crops might be?

Mr. HENNESS. That is correct, but that is in the project area.

Mr. MARSHALL. We are talking here in terms of people, and you were talking about the increase of your population.

Mr. HENNESS. Yes.

Mr. MARSHALL. That would have quite a direct bearing on the amount of water you would have available; would it not?

Mr. HENNESS. I think it would be no more for people than it would be with the land, because with the shortage of water supply the people would not be there. The people depend upon the water, and they just disappear just like the crop acreage goes out.

Mr. MARSHALL. But you are going to take care of the people before you do the agricultural crops.

Mr. HENNESS. I do not know that I understand your question.

Mr. MARSHALL. When you come to the time when there is a shortage of water and when the crops need water, I am thinking of what you would have to do to take care of the people who use the water.

Mr. HENNESS. Yes. It would be obvious that that would be true. But they can get water from the San Carlos project to water their trees and lawns and do a lot of those things. It does not take too much water to take care of them, even though the water situation may be a little serious for the farms.

Mr. MARSHALL. Do you feel that there ought to be more restriction placed upon the farmer as to the kind of crops they grow in order to conserve the water?

Mr. HENNESS. No; I think the farmer will handle his water like he does his bank account. He places his money in the bank and knows it is in storage. He knows he has so much water in the reservoir in storage, and that water supply is like his bank statement.

I will say this: That they do not allow the farmer to waste the water. They are looking after that; there is a man who is watching that matter very closely, going from gate to gate, and if he finds water is being wasted, running out on the road, he will simply shut the gate and padlock it until the farmer makes arrangements to see that the water is not wasted. That has been done many times.

Mr. MARSHALL. That is all, Mr. Chairman, thank you.

Mr. MURDOCK. May I add this comment, or rather an observation, Mr. Marshall; that in the middle of this area—in fact, just a half mile north of Coolidge, in the Casa Grande area—are four units that were there when the white man came there in 1540, and they had been built many years before that. They had been built by people who cultivated this very land perhaps a thousand years ago, but those men are gone, are they not, speaking of the people on the Coolidge and the Casa Grande and that immediate area. They watch their water supply because they know what it means to them.

Of course, this was their main stronghold in prehistoric days. They had no implements or materials such as we have now. They had no blasting power; they had no iron or machinery to do the work.

Mr. HENNESS. May I say, Congressman Murdock, that someone has said that maybe it would be better to give the land back to the Indians; and, without water, one of these days, we may have to move out. Of course, we do joke about that, but it might happen.

Mr. LEMKE. Let me ask you one or two questions. You referred to leveling the land and that it actually cost more today then when they had to do it with smaller equipment.

Mr. HENNESS. Yes. You see now they are using the D–7 and the D–8 Caterpillar, and they cost. In the old days, they used hand methods. These Caterpillars run on a contract price, about $12 an hour, which is quite expensive.

Mr. LEMKE. I was wondering if they did not move much more ground, and do so much more work there in a given time, and if you would not break about even with what they did with the smaller machinery, even though the wages and everything else were more?

Mr. HENNESS. Yes; that is true, but yet it would not cost as much to develop the land, 40 or 50 years ago, when they did not have that kind of expense.

Mr. LEMKE. I might say that they were like the farmers then, who did not think their time was worth anything. They just kept on working anyway and did it their own way.

Mr. HENNESS. That is right; they would clear maybe an acre or two a year. My father cleared land at Buckeye in 1898 and hauled drinking water to the farm.

Mr. LEMKE. In talking to a farmer in West Virginia, and advocating the cost of production, I asked him how much he was estimating for his own labor, and he said, "Nothing; I get board and lodging." I asked him how much he was paying his wife to feed a man who was not worth anything. He said, "She is getting board and lodging, and the same is true of the children, and perhaps they were fairly content."

Just another question: What is the effect of the cold weather on fresh vegetables in your State?

Mr. HENNESS. We have some carrots where the tops were pretty badly hit. We had some cauliflower when the freeze came. The heads turned a little brown, which makes them not too merchantable.

I think there was quite a little damage to citrus. We have a little citrus in one or two counties, and there is a lot of citrus fruit beyond, over in the Salt River Valley.

Mr. MURDOCK. Mr. Aspinall, do you have any questions?

Mr. ASPINALL. No.

Mr. MURDOCK. We thank you very much for your statement, Mr. Henness.

Mr. HENNESS. Thank you.

STATEMENT OF WALTER BIMSON, PRESIDENT, VALLEY NATIONAL BANK, PHOENIX, ARIZ.

Mr. MURDOCK. We are glad to have with us at this time and will be pleased to hear Mr. Walter Bimson, who is president of the Valley National Bank, Phoenix, Ariz.

I would like to call the attention of the committee to the fact that Mr. Bimson has done more, I think, for the State of Arizona possibly than any other one man I know, in the financial realm; he has received Nation-wide recognition for that effort. I just want to say that by way of introducing him.

Mr. LEMKE. I am glad you said "in the financial realm", because I think the present chairman has done a great job in calling attention to Arizona.

Mr. MURDOCK. Let me thank you, Mr. Lemke, for that statement. We will be glad to hear you, Mr. Bimson.

Mr. BIMSON. Thank you, Mr. Chairman.

My name is Walter Bimson, Phoenix, Ariz.

I am president of the Valley National Bank of Phoenix, which has 28 banking offices located in 11 of the State's 14 counties. Our deposit customers number over 150,000, and our borrowing customers number about 100,000. All told, we serve well over a quarter of a million people through the various departments of the bank.

Needless to say, our bank and its customers are tremendously and vitally interested in the water problem of Arizona, because water is the one indispensable ingredient necessary for survival.

As a businessman, I would like to discuss some of the nontechnical and general aspects of the situation.

Frankly, it is difficult for me to understand why there is any controversy at all. The Congress of the United States has already allocated the water among the respective applicants, who in turn have legally agreed to the distribution made. The impression is becoming very strong in my mind that this so-called controversy has been invented, and is being perpetuated, by a small group of California politicians, lawyers, and engineers who have a vested interest in not getting it settled.

Certainly we have no quarrel with California as a whole, nor even with southern California as a whole. It is utter nonsense to contend that the future destiny of Los Angeles or San Diego, or any other important California city, hinges upon the water which has been allocated to Arizona.

I would like to illustrate that by the fact—which may surprise some of you—that last year, according to the report of the metropolitan water district, the city of Los Angeles used only 72,000 acre-feet of water from the Colorado River. That is at the peak of their tremendous growth, and yet Los Angeles in that year used only 72,000 acre-feet of water. That much water was used by the metropolitan water district, and the city of San Diego used only 41,000 acre-feet.

A million acre-feet of water will support an urban population of 5,000,000 people, which is more than the present combined population of Los Angeles and San Diego Counties. As to future population growth, who can say whether Arizona may not need additional water for municipal purposes just as urgently as California? Whether California uses her water supply for agriculture or city purposes is her problem—not ours.

It seems very apparent to me that our quarrel, then, is not with the cities of California but with the agricultural section known as Imperial Valley; and that, in turn, any quarrel which Los Angeles and other cities may have is not with us but with this same Imperial Valley.

As I see the situation, Imperial Valley hopes not only to deprive Arizona of its water but to monopolize most of the water allocated to California. As far as Arizona is concerned, this is a completely unwarranted and inequitable objective.

Imperial County is endeavoring to obtain this water for future use. Arizona needs the water now.

Imperial County proposes to use the water for opening up new acreage, much of it of questionable value according to the soil reports that have come to my attention. Arizona proposes to use its water entirely for the purpose of stabilizing our present acreage.

In view of these facts, let us consider briefly the comparative importance of Imperial Valley and central Arizona.

Imperial County, Calif., has a population of about 50,000 according to recent census reports. Central Arizona, comprising roughly Maricopa and Pinal Counties, has a population of about 350,000, or seven times as much.

Central Arizona, it is true, is not exclusively agricultural but its economy is primarily an outgrowth of irrigation development. At the present time, irrigated agriculture is by all odds the most important sustaining force.

Central Arizona contains approximately 50 percent of Arizona's

entire population. Retail sales in this area last year totaled nearly $400,000,000 and it is estimated that the citizens of this area contributed about $90,000,000 in Federal taxes.

For the 10-year period ending June 30, 1948, it is estimated that Federal tax contributions from central Arizona amounted to about $500,000,000.

In other words, gentlemen, we have here a vigorous, productive, dynamic economy which is not speculative or theoretical in nature but one that is both self-sustaining and contributing its share already to the national economy.

In contrast, what do we see in Imperial Valley?

We see a small group of selfish promoters attempting to deprive us and others of water, purely for the purpose of building up rights for future use.

Arizona is faced with an actual loss of acreage and production and wealth, if we do not obtain the water to which we are entitled. California's position is based on a nebulous, indefinite, potential use for additional water, if they can get it, some time in the distant future.

The relative importance of the Phoenix area in the scheme of things is set forth in the following table showing our 1948 bank-debit volume, compared with the 10 cities which stood immediately above and below us in this respect. Bank debits, as you know, are an excellent yardstick of business volume and activity.

I will not take the committee's time to read this table, but it gives the names of many important cities throughout the Nation where the area is comparable to Phoenix.

(The table referred to follows:)

Clearing house city:	*1948 bank debits*
San Antonio, Tex	$2,946,884,000
Miami, Fla	2,938,377,000
Charlotte, N. C	2,855,742,000
San Diego, Calif	2,817,406,000
Dayton, Ohio	2,781,388,000
Akron, Ohio	2,768,610,000
Syracuse, N. Y	2,717,319,000
Salt Lake City, Utah	2,678,947,000
Wichita, Kans	2,667,865,000
South Bend, Ind	2,425,060,000
Phoenix, Ariz	2,330,442,000
New Haven, Conn	2,317,159,000
Norfolk, Va	2,190,355,000
Grand Rapids, Mich	2,132,166,000
Peoria, Ill	2,054,946,000
Trenton, N. J	2,018,695,000
Springfield, Mass	2,001,323,000
Long Beach, Calif	1,931,500,000
Spokane, Wash	1,893,543,000
Youngstown, Ohio	1,861,285,000
Bridgeport, Conn	1,775,911,000

Mr. BIMSON. There is another inexcusable element in this controversy.

Even as we sit here debating who shall get somewhere between 1,000,000 and 2,000,000 acre-feet of water, approximately 9,000,000 acre-feet of water annually is flowing, unused and unproductive, into the Gulf of Lower California. In addition, I understand that more than 1,000,000 acre-feet annually of the water already being diverted

by California is flowing unused into the Salton Sea. In other words, year after year, as we discuss and argue who shall get this water, something like 10,000,000 acre-feet per annum is being wasted and lost to the economy of the Southwest and the United States.

To a simple but practical businessman, this is one of those things that "passeth all understanding." Just picture what Arizona, with its fertile soil and favorable climate, could do with 10,000,000 acre-feet of water.

Our present crop production, which was valued at about $150,000,000 in 1948, was accomplished despite the handicap of having a mere 1,408,000 acre-feet of surface water available as computed by the United States Bureau of Reclamation in its report on the central Arizona project, December 1947.

It strikes me as extremely short-sighted on the part of California to interfere with the continued development of Arizona. We are their nearest and potentially their greatest outside market. A large proportion of our imports is purchased directly from California or is brokered through California commission firms. Economically speaking, central Arizona is far more important to the merchants and manufacturers of southern California than is Imperial Valley.

Neither California nor any other area need feel that we will ever provide serious competition for them, either in agriculture or manufacturing. Approximately one-third of our agricultural output is now consumed locally, either by our own people or by our livestock. Our retail food consumption alone is more than equal to our total agricultural production, in dollar value.

Furthermore, our climate permits the growing of vegetable and feed crops during the winter months when these products are scarce and most of the agricultural land in the United States is out of production.

Arizona cannot look forward to any appreciable degree of industrialization because of its geographical isolation, high tranportation costs, shortage of water and power, and so forth. Such manufacturing as we have is primarily a byproduct of agriculture. Outside of copper smelting and the Reynolds aluminum plant in Phoenix, most of our manufacturing consist of meat packing, canning, dehydration, quick-freeze, the preparation of fertilizers and animal feed, and similar activities contingent upon or derived from agriculture. A further expansion of this type of industry is logical and desirable.

At least 40 percent of the people gainfully employed in central Arizona are directly dependent upon agriculture. Direct employment accounts for 20 to 30 percent, depending upon the season, and an additional 15 percent to 20 percent arises from supplementary activities such as packing, processing, brokerage, distribution, and transportation, or from business or service enterprises that cater to our agricultural population.

When we consider that only 1 percent of Arizona's land area has been placed under irrigation we marvel at the fact that so little has been able to produce so much. Equivalent to only 1 acre per capita, this would appear to be the minimum requirement for a nonindustrial economy supporting 750,000 people. According to the Secretary of Agriculture, it takes 3 acres per person to supply a liberal food diet.

Since our productive capacity is limited, both in agriculture and industry, Arizona constantly labors under the handicap of an adverse trade balance. In recent years, our imports have been approximately double our exports in dollar value. In short, we buy twice as much from other States as we sell to them.

As our population increases, this unfavorable balance of trade seems likely to become progressively worse, unless we can increase our basic production or utilize more profitably the production which we have.

We make no apologies for endeavoring to become more prosperous and self-sustaining.

To maintain our present level of agricultural production, we must have more water. This will assure the continuation of our present principal source of income. Based upon a stable supply of water, we shall then have a sound foundation for the expansion of these industries which depend upon agriculture for their raw materials.

With an assured level of agricultural production, and with the further expansion of agricultural processing industries, we may then raise the standard of living of our own people and contribute even more substantially to the support of the Nation.

Our agricultural lands are, in the main, provided with water through the instrumentality of either reclamation projects or irrigation districts. Most of the projects and districts have been financed by loans from the Government. These projects and the Government loans upon them will be further protected by the passage of this bill.

In asking for its passage, we are doing so as businessmen presenting a sound business proposal. An investment in Arizona is a sound investment.

With our record of high productivity, we do not believe that any like investment anywhere can produce an equally large economic return to the Nation.

Mr. MURDOCK. Mr. Bimson, I did not have the least idea what would be in your testimony this morning, but I would like for it to have been just exactly what you said. Is it not true that Phoenix has long been known as the garden spot of the Southwest?

Mr. BIMSON. Yes; I think our chamber of commerce has called it that many times, very eloquently.

Mr. LEMKE. A self-serving declaration.

Mr. MURDOCK. Mr. Bimson, I am going to monopolize the time for just a moment. You hit the nail squarely on the head, and I call my colleagues of the committee to bear this in mind all the way through the hearings, and I want to emphasize this point, that we have little real controversy between the State of Arizona and the State of California, because the State of California has really very little at stake or interest in the amount of water in this bill. I am going to bring that out when I become a witness in this case, as I expect to be. Nor is this a controversy between the State of Arizona and the city of Los Angeles or the metropolitan water district, and that is the thing I want to emphasize a little further on.

I think the gentleman who is our witness is exactly right when he says the officials of the Imperial irrigation district are trying to get water which does not belong to California and does not belong to them to use for their own selfish purpose and in so using it take it out-

side the United States. This is a matter which I think must be fully explored as these hearings proceed and I am glad to have Mr. Bimson touch on it. After all your statement is just the beginning of the evidence we will have presented in the hearing. I want to bring that to the attention of the committee so all will be put on due notice that that is the thing that must be stressed and is the point that will be stressed. We must find out the real reason for the opposition to this bill.

Mr. ENGLE. Will the gentleman yield?

Mr. MURDOCK. Yes.

Mr. ENGLE. I was going to say, Mr. Chairman, assuming for the purpose of argument that California is selfish, and that most of the people in the Imperial Valley are selfish in their effort to get this water, nevertheless, if under the law these people are entitled to the water should they not have it?

I would be glad to face that issue . I would say, Mr. Bimson, that I think you are rather hard on us. Do you attack with equal vigor the position of Nevada on this proposition?

Mr. BIMSON. No; I have no particular interest in Nevada in the project. I have said what I said to the Los Angeles Chamber of Commerce, incidentally, so I do not mind telling them what I have said here before your committee.

Mr. ENGLE. I was interested in your statement, and I think the statement you made is true, that there is a lot of water now going to waste in the Gulf of California, and it is something, as you say, that passeth understanding, but then again a lot of the people in the upper basin are entitled to the benefits which you mentioned, of some 7,500,000 acre-feet.

Mr. BIMSON. We have never questioned that.

Mr. ENGLE. Neither have we, and they are using approximately one-third. Now if you are going out to build up an agricultural economy, on a basis such as you indicate, in order to utilize the water we cannot complain if at a later date they come in and take out that water and leave those projects high and dry. It is their water whether now used or not.

The same thing is true in respect to Mexico under the Mexican treaty. They have a right to their portion of the water, and if they do not exercise it it is their fault and not ours.

Mr. BIMSON. Is that a question, Mr. Engle, may I ask?

Mr. ENGLE. Yes.

Mr. BIMSON. May I say I am not an engineer and I do not know too much about it, but it seems to me that from our point of view, and from the point of view of good business, if we can just get California to admit she would live by the agreements she signed with the United States and other parties, to limit her use to 4,400,000 acre-feet, plus one-half of the surplus, then this whole question of whether there is water enough would be settled and settled quickly and easily.

Mr. ENGLE. And you state that frankly it is—

difficult for me to understand why there is any controversy at all. The Congress of the United States has already allocated the water among the respective applicants, who in turn have legally agreed to the distribution made.

How can you argue that point, in view of the fact that Arizona went

to the Supreme Court seeking adjudication, on a declaratory basis; the right which at that time Arizona had surrendered?

Mr. BIMSON. Will you permit one of the later witnesses, who is a lawyer, to answer that question? It is above my head; I will grant you that, but I am sure the question will be answered fairly by a witness who is more expert in those matters.

Mr. ENGLE. That is perfectly all right, Mr. Bimson; I will be glad to ask it later.

Mr. MURDOCK. Mr. Bimson, you and I are not lawyers—I presume you are not a lawyer?

Mr. BIMSON. That is correct.

Mr. MURDOCK. And I am not a lawyer. But at least we know what the figure 4,400,000 acre-feet means, and we know that California agreed to that figure by an irrevocable compact, by the act of her legislature.

Mr. ENGLE. The figure 4,500,000——

Mr. MURDOCK. 4,400,000.

Mr. ENGLE. I beg your pardon; the 4,400,000 acre-feet means 4,400,000, and not 4,400,000 minus evaporation losses which might have been chargeable to Lake Mead. But when the law says 4,400,000, we think it means 4,400,000 acre-feet.

California has never disputed her obligation to stay within the limit of the act which we imposed upon ourselves; it is a State act, incidentally, not a Federal act, which gives life and vigor to that contract. In asking us to comply with that contract you are not willing that the contract be interpreted to tell what the 4,400,000 acre-feet means. As long as we are in disagreement on its meaning, we ask that that great body, which sits on the other side of the Capitol decide the issue, and I cannot think of any more democratic way of having it decided.

Mr. MURDOCK. I cannot agree with you, that Congress must ask the Supreme Court what 4,400,000 acre-feet is, but perhaps the witness would like to say something in response to your statement.

Mr. BIMSON. No, I think I had rather not; it was not a question, but was more of a statement.

Mr. ENGLE. Yes; a rhetorical statement, perhaps.

Mr. MURDOCK. Mr. Morris, do you have any questions?

Mr. MORRIS. There are many questions that I want to ask before a decision is made, but I do not want to take so much time now.

I definitely do want to find out if anything can possible be done about this waste water that is going into the Gulf of California. There ought to be some way figured out to utilize it.

Of course I realize the treaty with Mexico has to be lived up to; we cannot afford not to stay with the treaty.

However, if Mexico does not intend to use that water, we might approach Mexico with some proposal to mutually revise the treaty; it may be that we could get somewhere in trying to get Mexico to relinquish that water because I do not like to see the water wasted. I do want to find out whether there is water going to waste, especially since water is the lifeblood of the West.

Mr. MURDOCK. You are exactly right, and may I ask you once more to inquire carefully into the statement made by the witness, that more than a million acre-feet of water are being wasted annually into the Salton Sea, which is in California.

Mr. MORRIS. I have heard that there is such a waste. If that is occurring and there is some reason I think we ought to know why.

Mr. BIMSON. I think the answer to that is simply again—and I am not a technician—but as you know, it is being used to build up a use of water in order to establish a right to it. As a businessman I think the answer is that California is dumping the million acre-feet into Salton Sea just to prove a use for that much additional water. However, we will provide that information to you later in the hearings.

Mr. ENGLE. At least, she has a contract right to the water; she has a contract right to her part of 7,500,000 acre-feet, and they cannot establish an agricultural basic use for that water if they do not use it.

We have a treaty with Mexico with reference to the Colorado River. We have provided for the States in the upper basin, 7,500,000 acre-feet, according to the contract, and we cannot set up or establish an agricultural base for that——

Mr. MORRIS (interposing). Why are you not using that water now?

Mr. ENGLE. They cannot start to use it until they get an agricultural base.

Mr. MORRIS. I am just trying to find out why they are not using the water that has been allocated to them.

Mr. ENGLE. They have not had a chance. The gentleman from Colorado will bear me out; we were informed just the other day about the contract made in the upper basin, and until they had the contract they could not proceed. Now they have a legal basis on which they can proceed on the planning and construtcion of projects.

Before they built the Boulder Dam, and before we passed the Boulder Canyon Act, they had to have a contract with respect to the use of the water of the Colorado as to the utilization of the water, and with respect to any other dams that are going to be constructed. You have got to establish a right to this water, so we entered into a compact which provided for 7,500,000 acre-feet to the States in the upper basin, and 7,500,000 acre-feet to the lower basin, and when that was worked out we got the Boulder Canyon Act.

Mr. MURDOCK. This is a matter needing further explanation. Do you have any questions, Mr. Aspinall.

Mr. ASPINALL. I would like to ask two questions at this time. Do I understand that the gentleman from California, Mr. Engle, admits that there are some 10,000,000 acre-feet of water being dumped into the Gulf of California at the present time?

Mr. ENGLE. No; I wouldn't admit that. I say, of course, that there is some water going down into the Gulf; I do not know just what it is. The figure is available; I think it is somewhere around 4 to 4.5 million feet.

Mr. ASPINALL. That was one question I wanted to get straight in my own mind.

The other question is this: In your testimony, Mr. Bimson, you did not mean to imply, that the mere fact that the Imperial project was wasting, or dumping a million acre-feet into the Salton Sea, establishes any rights so far as beneficial use of water is concerned?

Mr. BIMSON. No. Again I am speaking as a businessman and not as a lawyer, because I cannot do that. I was merely implying that I think California is trying to establish as much need for water as possible, and it would be logical, I think, to assume one of the reasons

she is permitting the water to waste into Salton Sea is because she wishes to establish a need; whether a legal establishment or not I cannot say.

Mr. ASPINALL. You were not passing on the legality of it?

Mr. BIMSON. That is right.

Mr. ASPINALL. You do not have any exact figures, I understand now as to the amount being dumped into Salton Sea and the Gulf of California?

Mr. BIMSON. Yes; I think the Reclamation figures indicate that around 800,000 to 1,000,000 feet into the Salton Sea and 9,000,000 acres into the Gulf of California. That is where I get my 10,000,000, by adding the 1,000,000 that goes into Salton Sea and the 9,000,000 that goes into the Gulf of California. Those are approximate figures, but the Reclamation Bureau can give you the figures.

Mr. ASPINALL. Mr. Chairman, for Morris' information, these figures should be exact figures in answering your question, and before we conclude the hearings you should be able to get those figures.

Mr. MORRIS. Yes; my thought on that point is that we should have them, and it may be some time before the upper basin or the lower basin can set facilities to use all this water, and I would like information on that.

In the meantime it may become necessary for the Congress again to express its opinion on this, because of the legal implications involved in many things. There may be still further evidence that we have not yet explored. Water from other sources may be available. We might be able to spend a reasonable amount of money, not necessarily involving this particular project, and find other sources of water. I think it is very reasonable to assume that we will be able to take the salt out of water in the ocean. I think we might be able to get water for California, through scientific development.

Mr. ENGLE. Will the gentleman yield?

Mr. MORRIS. If this problem can be cleared up, it may be three or four years before the facilities can be set up so the lower basin can use this water, and in the meantime this can save Arizona and California——

Mr. MURDOCK [interposing]. Will the gentleman yield to me?

Mr. MORRIS. Yes.

Mr. MURDOCK. We are not here asking that we save a little water from waste and say use it for 3 or 4 years. This is similar to a bill that we had up the other day, when this committee reported out a bill for the development of the American River in California, to build the Folsom Dam as a part of the Central Valley project, which would keep so much water in storage, instead of flowing into the San Francisco Bay, as the gentleman from the great Bay area pointed out. Now we are just letting water flow through the Colorado and be wasted, and we want to minimize that if we possibly can. The same situation applies in the lower Colorado River area.

Mr. ENGLE. Here is something that may help the gentleman in his thinking concerning what happened on the Colorado River; and I want to read from a letter from the Bureau of the Budget under date of February 4, 1949, addressed to the Secretary of Interior, in which he reports first on the project, incidentally, and here is what the Budget says:

The State of Arizona says, that under the Colorado River compact, other agreements, and California's self-limitation act, Arizona has allocated to its use 3,670,000 acre-feet of water per year. It states that it is now using from the main stream of the Colorado and its tributaries in Arizona a grand total of 1,408,000 acre-feet of water per year, thus leaving 2,262,000 acre-feet for additional consumption which cannot be lawfully used elsewhere than in Arizona.

It must be remembered that Arizona is using, according to their contention, 1,408,000 acre-feet and that 2,262,000 acre-feet, which they claim is available for this project, and which we are not claiming, and which is not now being used, is further water which is flowing down the river and is being wasted. Continuing with the letter:

It estimates the consumptive use for the central Arizona project at 1,077,000 acre-feet, which together with the other planned uses will still leave in the main stream, according to the State's estimate, a balance of 619,000 acre-feet apportioned to Arizona for future use and for reservoir losses. Arizona bases its case for diversion of water from the Colorado River upon these figures and proposes to use such water as a supplemental supply for lands now inadequately irrigated. It states further that the irrigation of lands in Central Arizona has been expanded beyond the water supply of Central Arizona and that this is resulting in an exhaustion of their underground supply with insufficient surface stream flow to maintain production in the lands now irrigated. To avoid the danger to the entire economy of the State, it considers it essential that the central Arizona project be expedited.

The point I want to make is that the losses which are occurring, by water being dumped into the ocean include water belonging to the State of California and the State of Arizona. Arizona has only been using of her allotment 1,408,000 acres of water, of 3,670,000 acre-feet to which she is entitled. The rest of it is going to waste.

Mr. WELCH. I do not know how it can be remedied at this time, but the fact remains that Mexico is receiving 1,500,000 acre-feet of water from the Colorado River, that is firm water, and more than she received before the construction of Hoover Dam and Lake Mead. It is a bad treaty, so far as the United States is concerned, and it should never have been entered into.

Mr. MORRIS. I think you will agree, that even though it is a bad treaty, we must live up to it.

Mr. WELCH. We have to.

Mr. MORRIS. We have to, but that does not preclude an effort being made to change the treaty. There might be some effort made, whereby Mexico might be willing to relinquish use of some of that water.

Mr. ENGLE. I think the record ought to show that California opposed the treaty, and Arizona supported it.

Mr. ASPINALL. Is it your understanding, Mr. Welch, that the provisions of the treaty make it necessary for them to have 1,500,000 acre-feet?

Mr. WELCH. Yes. That is firm water.

Mr. ASPINALL. And even though it is being dumped into the Gulf of California still we do not have any right to object?

Mr. MORRIS. It is their water.

Mr. ASPINALL. I understand so.

Mr. MORRIS. We could not object, I understand, under the present treaty.

Mr. LEMKE. It seems to me the question we want to get at is this one relating to the construction of the contract.

Now I want to ask you a question: You referred 9,000,000 acre-feet

flowing into the Gulf of California. Does that mean water over and above the total obligation to Mexico?

Mr. BIMSON. Yes; I think that would be so.

Mr. LEMKE. I have not read the compact carefully recently, but they are interested in the continued use of that 9,000,000 acre-feet. Do you know if they have use for it?

Mr. BIMSON. You are speaking now of the Basin States?

Mr. LEMKE. Yes. They are equally interested under the compact?

Mr. BIMSON. They are equally interested; yes.

Mr. LEMKE. There is something in the compact which permits them to get their share of this water, whatever it is?

Mr. BIMSON. That is right.

Mr. LEMKE. You do not maintain that Arizona has any right to interfere with the 4,400,000 acre-feet of water going to California? I think she got the best of the bargain; that is my own conclusion.

Mr. BIMSON. We have not.

Mr. LEMKE. You and I agree you are bound?

Mr. BIMSON. We are bound under a compact.

Mr. LEMKE. And she can do with that water what she wishes, but you are opposed to water going to waste?

Mr. BIMSON. That is correct.

Mr. LEMKE. And you do not object to additional water she might be entitled to out of the 9,000,000 acre-feet; their share under the compact?

Mr. BIMSON. No; they are getting between 4 and 4.5 million; and they get in addition a percentage of the excess; one-half goes to California.

Mr. LEMKE. They got the best of the bargain there, I think.

Mr. BIMSON. We have not made any objection that I know of.

Mr. LEMKE. Whether a lawyer or a banker you know you have no right to object to what you have agreed to.

Mr. BIMSON. That is right.

Mr. LEMKE. But you maintain there is plenty of water still going to waste to take care of the other four States?

Mr. BIMSON. That is my position.

Mr. LEMKE. And to take care of this project?

Mr. BIMSON. That is my opinion.

Mr. LEMKE. I think there is an important question to be decided here.

Mr. BIMSON. Yes.

Mr. LEMKE. It is not a question about the need of it; it is not a question about the States wanting it, but you do not want it to waste; you do not want to see it go into the Salton Sea and to the Gulf of California?

Mr. BIMSON. That is right.

Mr. LEMKE. That seems to be the question before us.

Mr. MARSHALL. I have one little question that just came to my mind in connection with the point Mr. Morris brought out: In connection with this salt-water suggestion, it is my understanding that one of the problems is that involving the danger of not getting enough water to meet the requirements of the population in San Diego and Los Angeles. Now suppose that some ways and means were found under which it is practical to take salt water and make it usable, would that make any difference in this water problem?

Mr. MORRIS. No.

Mr. MURDOCK. Mr. Marshall, Senator O'Mahoney has introduced a bill to establish a pilot plant to see if sea water can be made available for human use. Not only he, but some of our colleagues in the House, especially one of our colleagues from California has introduced such a bill. I think it is highly meritorious. I can recall that a subcommittee of this committee, some years ago getting into the organization bill authorization to establish a pilot plant costing something like $30,000,000 to find out if they could extract liquid fuels from shale and low-grade coal. Now, that is important, and if there is an economical way of converting salt water into human use, in my judgment, it is just as important as extracting fuel oil from shale and low-grade coal.

Mr. MARSHALL. Suppose such a thing is found—and there ought to be further experimentation to find if it is practical to do that—what effect would that have on a compact such as we are now discussing, and what effect would that have on the treaty we have with Mexico now?

Mr. MURDOCK. It would have no effect, in my judgment, except to ease the condition.

I want my colleagues from California to understand that I am interested in the cities of California, just as Mr. Bimson has said: The cities of Los Angeles and San Diego should have an assured supply of water. They are not jeopardized by this bill and it is absolutely unfair for anybody to try, by implication or otherwise, to say that we are trying to take away from the cities of Los Angeles and San Diego an assured supply of water, to dry up the faucets in the kitchens of their homes, as has been attempted through displays spread out before us, with maps of Los Angeles. That is unfair, and that is not the proper thing to do. This deception, or attempt at deception must be exposed.

I said to Mr. Howard, from Los Angeles, that there is no jeopardy to the city of Los Angeles water supply, of 1,100,000 acre-feet. They have provision to carry a water supply to meet the needs of a population of 7,000,000, that amounts to more than a billion gallons of water daily, and that is ample, of course, for a city the size of New York. So we are not jeopardizing that. Now, that 1,100,000 feet can easily be taken from the 4,400,000 acre-feet.

Mr. BIMSON. Very easily.

Mr. MURDOCK. That is a simple mathematical problem. There are some queer mathematics involved in this matter. I doubt whether they would stand up under close scrutiny.

At least we can be sure of this: From 4,400,000 acre-feet you can subtract 1,100,000 acre-feet and have a remainder.

What is the situation with respect to Los Angeles and San Diego? California herself has set up a list of priorities for San Diego, and San Diego is last on the list, and Los Angeles is next to last, or was until the two were joined.

Now, if the sovereign State of California agrees that water for human consumption is the most important use let them take that 1,000,000 acre-feet now claimed by the Imperial Irrigation District, being dumped into the Salton Sea, and let them use it for municipal purposes. California can do that. It does not take a Supreme Court decision to do that.

Is that the gist of your feeling also, Mr. Bimson?

Mr. BIMSON. That is right.

Mr. LEMKE. May I say something to the Chairman?

Mr. MURDOCK. Yes.

Mr. LEMKE. The question has been brought up as to whether that 4,400,000 acre-feet, when given to them at Lake Mead, should be after evaporation. If California is going to be allowed evaporation, the other States have to be allowed evaporation. All they have is 7,500,000 acre-feet to begin with.

Mr. MURDOCK. Let me ask you this, Mr. Lemke, as a lawyer: Do we not find some faulty surveys in our rectangular system of land survey? Do not our meridians draw together toward the pole, so that a 40-acre tract of land may be less than 40 acres? Do we not sometimes write a deed conveying land as "40 acres, more or less"?

Mr. LEMKE. That is in every deed.

Mr. MURDOCK. That is in every deed. Why do we say "40 acres, more or less"? It is apt to be less because of the geographical features and factors.

When we say we are entitled to 2,800,000 acre-feet, that is like the 40 acres in a deed. We know it is going to be some less than that. There are certain minor deductions.

We say that when California is to get 4,400,000 acre-feet, it is like the 40 acres, more or less, that is, gross, not net.

Mr. LEMKE. The same deduction will be made from that as will be made from the 2,000,000.

Mr. MURDOCK. That is exactly the case.

Have you any further questions of Mr. Bimson, Mr. Aspinall?

Mr. ASPINALL. Mr. Chairman, the last three or four witnesses have given statements to show a decrease in the economy of Arizona, or a possible decrease. I would suggest that we have a statement of the bank clearances for the last 10 years, or bank deposits, which might be very helpful to the committee.

Mr. BIMSON. On the bank deposits?

Mr. ASPINALL. Just to show what your economy is and has been.

Mr. BIMSON. With the increasing growth in population in the State of Arizona, of course, we have had a great increase in business activity and in bank deposits. Last year, for example, the total deposits of all the banks in Arizona were about $440,000,000.

Wait just a minute and I will get them exactly. There were $413,000,000 total deposits in all Arizona banks at the end of 1947. There were about $420,000,000 at the end of 1948.

Five years ago, at the end of 1943, there were $229,000,000.

Ten years ago there were $88,000,000. That goes back to 1938.

You have had an increase in the 10-year period from $88,000,000 to $420,000,000 in deposits.

Mr. ASPINALL. Perhaps there is no relationship. In other words, the State has been continually growing in spite of the lessening of the economy because of water conditions?

Mr. BIMSON. That is right. For instance, the high prices of agricultural products during the last two or three dry years has, I think, more than offset the loss which has occurred in the total agricultural unit production.

Mr. ASPINALL. That is all.

Mr. LEMKE. May I just ask a question?

After all, those are just pencil transactions because you, of course, know that you have about $28,000,000,000 in circulation now where a little while ago you had less than $6,000,000,000.

Mr. BIMSON. That is right.

Mr. LEMKE. Your purchasing power of the dollar is only about 30 cents.

Mr. BIMSON. Yes.

Mr. LEMKE. I am not trying to criticize your statement.

Mr. BIMSON. I should have amplified that. You are entirely correct about that. That relates to bank deposits in all States, of course. I was merely pointing out that one reason has been our very rapid growth in population.

Mr. LEMKE. I can tell you of a little bank in my district which was hard pressed for $12,000 a few years ago, and it has $12,000,000 on deposit today.

Mr. BIMSON. That has been characteristic of the country.

Mr. WELCH. Mr. Chairman, before Mr. Bimson leaves the stand, a question has been raised with reference to the possibility of condensing sea water.

To sweeten or condense sea water requires fuel. California produces no coal. Therefore, it would require an enormous use of oil. May I state to the committee that from the best possible authority California's known oil reserves will not last over 10 years. That is the other horn of the dilemma.

Mr. MURDOCK. That is the other horn, Mr. Welch, and I know you are deeply interested in that. However, let me say that certain scientific men have said that atomic energy can most easily be applied to the conversion of sea water, if evaporation is the process. It is not known but that there may be chemical processes cheaper than the evaporation process.

Mr. WELCH. We will hope so.

Mr. LEMKE. I wonder if you intend to take the whole ocean for Arizona.

Mr. MURDOCK. No, Mr. Lemke. We simply want what is due us from the Colorado River. Remember that the Colorado River flows through our State for 300 miles and along the borders of our State for another 300 miles, and that the Colorado River is more than 300 miles distant from Los Angeles and that Los Angeles is right near the sea. Those are geographical facts I wanted you to have.

Mr. ASPINALL. Off the record.

(Discussion off the record.)

Mr. MURDOCK. We thank you, Mr. Bimson, for your entering into this important and interesting phase of the matter.

Mr. BIMSON. Thank you, sir.

Mr. MURDOCK. The time has slipped away, but we do have one more witness we should hear for a short period of time.

Mr. Galland, may we have a very brief statement from you at this time?

STATEMENT OF L. G. GALLAND, VICE PRESIDENT OF THE VALLEY NATIONAL BANK, PHOENIX, ARIZ.

Mr. GALLAND. This is very brief, about 5 minutes.

Mr. MURDOCK. You take your time. We will be glad to hear you for more than 5 minutes.

Mr. GALLAND. Thank you.

For more than a decade prior to my becoming associated with the Valley National Bank in the spring of 1948, I was secretary-treasurer of the Phoenix National Farm Loan Association and secretary-treasurer of the Arizona Farmers Production Credit Association in a joint office located in Phoenix, Ariz.

As secretary-treasurer of the Phoenix National Farm Loan Association, I serviced long-term farm mortgages in central Arizona for the Federal Land Bank of Berkeley, Calif. As secretary-treasurer of the Arizona Farmers Production Credit Association, I made short-term crop and livestock loans throughout Arizona, discounting this paper with the Federal Intermediate Credit Bank of Berkeley. These two associations have served the district ever since they were authorized to do so by the United States Congress—the farm loan association since 1917 and the production credit association since 1933.

The loan experience of these two companies is very definitely tied in with the financial stability of the area which they serve. A large majority of all of the loans made by each association has been on lands and agriculture and allied livestock of the Salt River project, which comprises 242,000 acres of irrigated land located in Maricopa County, Ariz.

Since 1917 a total of 2,685 farm loans have been made by the National Farm Loan Association for a total of $14,293,300. Our borrowers have weathered two depressions since we started to do business in this district. There have been very few foreclosures. The net result of these repossessions, instead of resulting in a loss to the association and the Federal Land Bank, as is usually the case, is that our real-estate account showed a profit of $61,000. This is the only association in the eleventh Federal land bank district which has shown a profit in its real-estate account.

The loan activity of the Arizona Farmers Production Credit Association did not begin until early in 1934 when agriculture was showing a slight sign of recovery from the depression which began in 1930. Consequently, the loan record of this association is not as true a barometer of the financial stability of the district as that shown in the loan history of the Phoenix National Farm Loan Association, which weathered two depressions without a loss.

I am sure you will be interested to know that our short-term credit association has made 8,337 loans for a total of over $41,883,676. Present losses in bad loans amount to $8,967, and on some of these collections are still being made.

A break-down of the loans of these two farm credit agencies shows an average farm real-estate loan per customer of $5,000 and an average short-term loan per customer of $5,100. As you will see, these loans were in the main made to small-farm operators on 40-, 80-, and 160-acre units. These farmers are the backbone of our Nation, and

their success is indicative of the stability of the area which these associations served.

The loan experience of the Valley National Bank has logically been on a much larger unit scale and total volume but the net results have been almost identical. Practically the only charge-offs were due to substantial price declines, not crop failures.

The farmers in our district are not superagriculturists. I was born and raised on a dairy farm in Wisconsin and for a number of years after receiving my degree from the university handled middlewestern farm loans for a Chicago bank. I find the farmers of central Arizona good average farmers. A large share of the unusually satisfactory results of our financing program should be credited to soil and climate. Every crop indigenous to the temperate and semitropical zones can be grown successfully in central Arizona. In fact, our rediscounts with the Federal Intermediate Credit Bank of Berkeley have shown the greatest diversity of crops of any loan company discounting through the Berkeley office. Our only handicap is a serious shortage of irrigation water which has materially affected our maximum crop production a number of times in the history of this area. Only last year, 1948, the farmers in the Salt River project were limited to 2 acre-feet of reservoir water, which resulted in a loss of at least one-third of their maximum crop potential. In dollars this meant a minimum of $20 per acre loss in staple crops, such as alfalfa.

An adequate irrigation water supply will make central Arizona outstanding in the agriculture of America.

Mr. MURDOCK. A few of our Members had to leave, as they stated to me, but, Mr. Galland, I am going to see to it that every one of them has a copy of this before it is put in print.

Mr. GALLAND. Thank you.

Mr. MURDOCK. I appreciate it as showing a business basis for the situation as it now exists; and indicating, also, the possibility of great damage when the situation becomes changed.

Mr. GALLAND. That is right.

Mr. MURDOCK. Have you any questions?

Mr. LEMKE. I have just one question, if the witness can answer: Do you know how many acre-feet of water this project would take if completed?

Mr. GALLAND. How many acre-feet of water?

Mr. LEMKE. Yes, sir; for this particular project.

Mr. GALLAND. This Salt River project?

On an average, if they had one additional acre-foot of water per acre per year it would stabilize their irrigation system to practically an ideal degree. One acre-foot of water would be possibly 242,000 acre-feet.

Mr. LEMKE. What would be the total you would need?

Mr. GALLAND. For this particular project, the Salt River project, they have 242,000 acres. My contention is that the 750,000 acres of land irrigated in central Arizona, if it received an average of 1 to 1½ acre-feet per year additional water would firm up the entire project.

Mr. LEMKE. Your conclusion is that there is plenty of water to do that and to give California all she is entitled to?

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Mr. GALLAND. All she is entitled to under the Boulder Canyon Act and the compact.

Mr. LEMKE. Thank you.

Mr. MURDOCK. Mr. Marshall.

Mr. MARSHALL. I have just one question which bothers me a little. In your work you advise farmers quite often as to what they may do in their agricultural enterprises, I am sure. They, no doubt, come to you as they do to the men in your capacity of my area, and ask about the prospects.

Mr. GALLAND. I get a great deal of that.

Mr. MARSHALL. I noticed when you were talking about crops in your statement that you talked about a number of crops which can be grown in that area.

Mr. GALLAND. That is right.

Mr. MARSHALL. There were some of those crops, like citrus fruits and dates, crops like that, which take some years of investment.

Mr. GALLAND. Surely.

Mr. MARSHALL. At the present time can you advise your farmers to plant those crops, with the water conditions you have?

Mr. GALLAND. Not unless we had assurance of a better water supply.

Mr. MARSHALL. You feel you could if this water were firmed up?

Mr. GALLAND. Absolutely.

Mr. MARSHALL. Thank you.

Mr. MURDOCK. We thank you very kindly for that statement, Mr. Galland.

Mr. GALLAND. Thank you, sir.

Mr. MURDOCK. I want to thank the committee for being willing to come on Saturday morning, a thing which we do not ordinarily do. In fact, we have had a practice against doing it, but as a special favor to these witnesses who have come long distances we have done so.

The committee will stand adjourned until 10 o'clock Monday morning.

(Thereupon, at 12:20 p. m., Saturday, April 2, 1949, an adjournment was taken until 10 a. m. Monday, April 4, 1949.)

THE CENTRAL ARIZONA PROJECT

MONDAY, APRIL 4, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 10 a. m. in the committee room of the House Committee on Public Lands, New House Office Building, the Honorable John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The subcommittee will please come to order.

This is a continuation of the hearings on H. R. 934 and H. R. 935.

As previously stated, there are five subcommittees of the Committee on Public Lands. This is the Subcommittee on Irrigation and Reclamation. It is rather difficult for us to have the use of the committee room as long and as often as we would like to have it. Sometimes, to expedite matters and take care of witnesses from distant points, it is necessary to have two or even three subcommittee meetings going on in our limited space.

Gentlemen are here from Alaska attending another subcommittee meeting in an adjoining room, and that accounts, in part, for the absence of some of our committee members at this moment.

We have with us at this time Mr. Knapp, a resident of Tucson, Ariz., I believe, and a water authority and student of Colorado River matters.

Mr. Knapp, we would be glad to hear you at this time.

STATEMENT OF CLEON T. KNAPP, ATTORNEY, TUCSON, ARIZ.

Mr. KNAPP. Mr. Chairman and members of the committee, I do not know whether it is permissible to disagree with the chairman, but I have never claimed to be a water authority and I do not represent the State of Arizona or anyone. I have been invited to appear and make some observations on H. R. 934.

My name is Cleon T. Knapp, of Tucson, Ariz. I have practiced law in Arizona for over 35 years and I am here at the invitation of the Arizona Interstate Stream Commission, and the Central Arizona Project Association, to discuss certain legal aspects of H. R. 934, which proposes to divert main stream water of the Colorado River into central Arizona. My remarks will be directed to the water phases involved in the proposed project and in particular to the respective rights of Arizona and California in and to the waters of the Colorado River. Before exploring the areas of contentions made by the respective States, reference might be made to the instruments and laws,

sometimes referred to as the "Law of the River," and also to Arizona's objective.

At this point I would like to state that I believe it was Mr. Lemke, and perhaps one or two other members of the committee the other day who referred to their desire to hear something with reference to the availability of water; and what I shall discuss is the legal availability of water.

Following me there will be engineers who will, of course, discuss the actual availability. I thought that Mr. Engle of California made a very good statement to the committee at the beginning of these hearings, in which he outlined the contentions between California and Arizona. I propose to touch upon those very contentions that Mr. Engle pointed out.

First is as to the law of the river.

A. Colorado River compact (Santa Fe compact): Negotiated at Santa Fe, N. Mex., in 1922, by Wyoming, Colorado, Utah, New Mexico, Arizona, Nevada, and California. The four first named are known as the "Upper Basin States"; the last three as the "Lower Basin States."

B. Boulder Canyon Project Act: Passed by Congress in 1928 (45 Stat. 1057). (This act required California to pass the California Limitation Act.)

C. California Limitation Act: Passed in 1929 by California Legislature. (By this act California renounces any claim to waters of the Colorado River, except the 4,400,000 acre-feet of III (a) water (main stream), plus not more than one-half of the excess and surplus water unapportioned by the compact.)

D. The California system of priorities.

E. The United States-California Contracts: Made in accordance with California system of priorities.

F. The United States-Arizona Contract.

G. The United States-Mexican Treaty.

H. Upper Colorado River Basin compact: Negotiated October 11, 1948, by Arizona, Colorado, New Mexico, Utah, and Wyoming.

Now, as to the Arizona objective. Arizona in relying on its right to use III (a) (main stream) water has pending before Congress, H. R. 934 and H. R. 935, seeking authorization of construction of a project to divert main-stream water into central Arizona. It is not intended to use such water to irrigate new lands, but only to meet the supply of irrigation needs of lands now in cultivation, a portion of which will have to go out of cultivation unless this project is developed.

What is the Colorado River compact, sometimes called the Santa Fe compact?

For 10 years after Arizona was admitted to statehood there was considerable discussion concerning development of the river, but no definite action was taken until the year 1922, when at the famous meeting in Santa Fe, N. Mex., the Colorado River compact was negotiated. It is significant to observe, in connection with the negotiations which led to the final drafting of the compact, that:

A. The commissioners representing the various States comprising the compact commission early in their negotiations found that they did not have sufficient data from which allocations could be made of definite amounts of water to each of the seven States involved, and

when it was found impossible to make the allocations upon this basis, it was agreed to make an apportionment of the waters of the Colorado upper basin, and 7,500,000 acre-feet annually to the lower basin.

B. When the division point between the upper and lower basins was agreed upon, to wit: Lee Ferry, the virgin flow of the river at that point was proposed to be apportioned 7,500,000 acre-feet to the upper basin, and 7,500,000 acre-feet annually to thelower basin.

C. The commissioner representing Arizona, W. S. Norviel, raised the question as to what disposition was to be made of waters of the Gila River and its tributaries in Arizona, and after considerable discussion, it was decided that an additional million acre-feet should be apportioned to the lower basin, ostensibly for the purpose of taking care of uses already being made of the Gila River in Arizona.

The pertinent parts of the compact as finally adopted are contained in article III, under which article the waters of the river are divided.

Article III. Paragraph (a): By this paragraph the waters of the river are divided at Lee Ferry and 7,500,000 acre-feet per annum are apportioned in perpetuity to each the upper and lower basins.

Paragraph (b): This paragraph provides:

In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

That is the important paragraph to which I shall address my remarks for several minutes.

Paragraph (c): This paragraph recognizes the right of Mexico to the use of waters from the system and provides that such rights shall be satisfied, first, out of the surplus over and above the quantity specified in paragraphs (a) and (b); then, if such surplus proves insufficient, that the deficiency shall be borne equally by the upper and the lower basins.

Paragraph (d): This paragraph provides that the States of the upper basin shall not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for a period of 10 years.

Mr. MILLER. I have one question, Mr. Chairman, at this point; if the witness please.

I want to get clear in my mind the relation of the 7,500,000 acre-feet over a period of 10 years. Might that mean that in some years they would get 6,000,000 acre-feet and perhaps the next year 9,000,000 acre-feet, which would be an average of 7,500,000 acre-feet? Does it have to be 7,500,000 acre-feet for each year, or might some years fall below 7,500,000 acre-feet?

Mr. KNAPP. Yes.

Mr. MILLER. So that the 10-year average would be 7,500,000 acre-feet; or 75,000,000 acre-feet for the 10 years; is that right?

Mr. KNAPP. Yes. Paragraph (d) will answer fully:

The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in a continuing progressive series, beginning with the 1st day of October next succeeding the ratification of the compact.

Mr. MILLER. Then you would say it would be possible to have 6,000,000 acre-feet one year and 9,000,000 acre-feet the next year and still meet the terms of the agreement or compact?

Mr. KNAPP. If that full amount were met.

Mr. MURDOCK. Mr. Knapp, after this answer, would you prefer to have a continuous connected presentation?

Mr. KNAPP. I think it would be helpful for the committee, and I know it would help me. I think many of the questions you might propound I will have answered. I have tried to anticipate them, and I think it would save time as I go along.

Mr. MURDOCK. Very well.

Mr. KNAPP. Paragraph (e): This paragraph provides that the States of the upper basin shall not withhold and the States of the lower basin shall not require the delivery of water which cannot reasonably be applied to domestic and agricultural uses.

Paragraph (f): This paragraph provides for further equitable apportionment of the water of the system unapportioned by paragraphs (a), (b), and (c); such apportionment to be made after October 1, 1963, and only when either basin shall have reached its total beneficial consumptive use of water as set out in paragraphs (a) and (b).

That is the division of the surplus waters of the river.

Paragraph (g): This paragraph sets up the machinery by which this further apportionment may be made.

Contentions: Now what are the principal points of disagreement between Arizona and California? They can be narrowed to three, namely:

First: Why did the compact commission increase the beneficial consumptive use by 1,000,000 acre-feet per annum to the lower basin, as provided in article III (b) of the compact?

Arizona contends the said 1,000,000 acre-feet was apportioned for the sole benefit of Arizona and in recognition of uses and established rights by Arizona over a period of years in the waters of the Gila and its tributaries.

California contends the waters of the Gila should be considered "surplus" waters, and to part of which California would have a right when surplus waters are divided after 1963.

Second: What construction and interpretation should be placed upon the words "beneficial consumptive use" as used in the compact?

Third: What is the legal effect of the California Limitation Act, which was enacted by its legislature in 1929, by which it limited itself to 4,400,000 acre-feet per annum of main stream water, and not more than one-half of the excess and surplus water.

Now, then, we take up contention one: Gila River, 1,000,000 acre-feet.

Aside from the record, what California is trying to do is to have that 1,000,000 feet tabbed as surplus water, because she would then get, when that surplus is divided, one-half or 500,000 acre-feet. That is what we now are talking about. She is either entitled to it, if it is surplus, or she is not, if it is not surplus, and it belongs to Arizona.

The record is clear and unanswerable regarding the first point of contention, namely, the 1,000,000 acre-feet. It is apportioned water in recognition solely of Arizona's uses and rights in the Gila River, and not surplus water, as California contends.

Hon. Thomas E. Campbell, as Governor of Arizona, attended the Santa Fe conference in November 1922. His testimony, given before the Arizona Colorado River Commission in 1933, appears in hearings

before the Committee on Public Lands, United States Senate, Eightieth Congress, on S. 1175, pages 224–226 (hereinafter referred to as hearings S. 1175), and is in part, as follows:

Q. Was there any agreement between the Arizona representative and the representatives of the other lower basin States as to setting aside to Arizona the water described in paragraph III (b) of the proposed compact?

A. Yes. There was a definite understanding that after the seven-State compact was ratified, so far as the three States in the lower basin were concerned, they would enter into a compact in which it would be agreed that all of the water of the Gila River would go to Arizona.

Q. Who were present at the discussions which resulted in that understanding?

A. Mr. McClure, of California; Mr. Scrugham and Mr. Squires, of Nevada; and Mr. Norviel and myself, of Arizona.

Q. Did these discussions take place before the execution of the compact on November 24, 1922?

A. That understanding was arrived at before the compact was ratified and signed.

Q. For what purpose was the water of the Gila River to go to the State of Arizona?

A. For the benefit of Arizona and for use in irrigation.

Q. At the time the discussions were had with reference to putting this paragraph III (b) into the compact, did all of the delegates to the conference know that Arizona had objected to the compact without such a provision?

A. Absolutely; they all knew that was the fact; it was the lock upon which we had stuck for a couple of days, and discussions were had by all of the delegates and commissioners—I assume these discussions would appear in a transcript of the minutes; the fact was well-known and discussed by everybody present. Without that provision of III (b), by which Arizona was awarded an extra million acre-feet of water for the inclusion of the water of the Gila River, the compact would never have been signed by Arizona.

Q. Then after the arrangement was made for the inclusion of paragraph III (b) in the compact, it met with the approval of Arizona, and Mr. Norviel signed the compact for Arizona?

A. He did.

Mr. W. S. Norviel, as Arizona water commissioner, was a member of the Santa Fe Compact Commission. Likewise his testimony appears on pages 228–229 of said hearings, S. 1175, and is in part as follows:

Q. What discussion was had relating to the said paragraph (b) of article III and its meaning and purpose?

A. It had steadfastly refused to agree to the original draft that merely included the Gila River and after several days of discussion and argument, during which the conference refused to exclude the Gila and I refused to accept the draft which included the Gila, a compromise was reached in the form of article III (b) which provided the extra million acre-feet to compensate Arizona for the inclusion of the Gila River in the Colorado River system. It was fully understood by all that this million acre-feet was for the sole and exclusive use of Arizona, although the language used provided for its use by the lower basin. I have explained why such wording was used.

Q. Was the answer that you have given of the meaning and purpose discussed at the full meeting of all the delegates at this conference, including California and Nevada?

A. Yes. All of the delegates, including California and Nevada, understood and agreed that this additional water was for Arizona's use.

Q. Will you state if you made any statement to the Colorado River Commission with reference to the definition given to the Colorado River system and the Colorado River Basin, and the meaning of paragraph (b), article III?

A. Yes. I did make a statement. I asked the conference if it was the understanding of the Commission that the million acre-feet of water set out in article III (b) was for the sole and exclusive use of Arizona, and stated that if that was the understanding, I would sign the compact, if it was not the understanding, I would refuse to sign. The unanimous reply was that this million acre-feet

was for Arizona alone. With that understanding, I signed the compact for Arizona.

Q. Were these statements which you made stated to the open conference?

A. All delegates and representatives were present. We were having a final meeting preparatory to the signing of the compact.

Q. What response did delegates from the other States, including California and Nevada, make it regard to your statements?

A. They agreed in the understanding which I have just stated. Mr. McClure, of California, stated to me and to the conference that he, as the California representative at the conference, agreed to the understanding that this water of article III (b) was for the exclusive use of Arizona.

Q. At that time, what, if anything, was said in reference to the tri-State agreement between the representatives of California and Nevade and Arizona and Mr. Hoover?

A. It was several times suggested that there should be no difficulty for the three lower States to agree to a division of the waters allocated to the lower basin.

Q. Were these statements, with reference to a tri-State agreement, made prior to the time the compact was actually signed?

A. Yes; and Mr. Squires made some statements afterward. Mr. McClure, Mr. Scrugham, and Mr. Squires expressed their willingness to enter into such a compact. It seemed very feasible.

Q. Did each and every one signing the Colorado River compact know of the discussion with reference to the supplemental tri-State compact to be executed by California, Nevada, and Arizona?

A. Yes. It had been discussed in the open conference and Mr. Hoover made several suggestions regarding such a tri-State compact.

Q. Was there every any statement made by anyone at the conference that the waters of the Gila River were to go to anybody except the State of Arizona?

A. None whatever.

Q. Was any claim ever made at that time that any other State had any interest in the waters of the Gila River?

A. No.

Q. Was there an universal agreement by each and every one of the delegates that the Gila River belonged to the State of Arizona?

A. That was the agreement upon which I consented to sign the compact for Arizona.

Q. In addition to the waters of the Gila River, was Arizona to participate in the division of the waters in the main stream of the Colorado River?

A. Yes. Arizona was to share in the main stream waters.

Q. Were these matters discussed at the time of the conference?

A. Yes. To the extent that Arizona, Nevada, and California were to all share in the main stream waters and Arizona was to have the exclusive use of the waters of the Gila.

Q. Did you make any statement that if the Colorado River had any different meaning from what you have testified, you would not sign the compact?

A. I stated that I would absolutely refuse to sign the compact if it had any other meaning.

Q. Did the representatives of the other States and the chairman agree to your statement?

A. Yes. All, including California and Nevada, agreed.

Governor Campbell and Mr. Norviel are dead. Both were men of high honor and integrity. I might add that I attended the meetings in Santa Fe, though not the executive sessions of the Commission, and I know that those men spoke the truth.

All of the compact negotiations at Santa Fe were presided over by Herbert Hoover, of California, then Secretary of Commerce, who had been designated as the Federal representative. Apparently Mr. Hoover had been deeply impressed by the gallant fight made by Mr. Norviel, because on November 26, 1922, two days after the Santa Fe compact was signed, he wrote the following:

MY DEAR NORVIEL: This is just by way of registering again my feelings of admiration for the best fighter on the Commission. Arizona should erect a monument to you and entitle it "One Million Acre-Feet."

Then, to remove any question whether the 1,000,000 acre-feet is apportioned water, as Arizona contends, or excess or surplus water, as California contends, Herbert Hoover, in reporting the proceedings to the Speaker of the House of Representatives (Doc. 605, 67th Cong., 4th sess.), stated:

Due consideration is given to the needs of each basin, and there is apportioned to each seven and one-half million acre-feet annually from the flow of the Colorado River in perpetuity, and the lower basin an additional million acre-feet of annual flow, giving it a total of eight and one-half million acre-feet annually in perpetuity.

Now, stepping aside from my prepared statement, I wish to refer to a response which Herbert Hoover gave to a letter written him by Senator Hayden, which further confirms that this, in Herbert Hoover's opinion, was not surplus water, as California contends, but apportioned.

Herbert Hoover, in response to an inquiry from Senator Hayden, makes it definitely clear that the 1,000,000 acre-feet provided for in III (b) is apportioned water when in reply he said—I refer here to Senate Joint Resolution 145, page 220:

I do not think there is any change in the basis of division as the result of the difference in language in articles III (a) and III (b). The two mean the same.

Now the language in article III (a) says:

There is hereby apportioned from the Colorado River system in perpetuity—

If, in the opinion of Herbert Hoover, article III (b) means the same, it means that that was likewise apportioned to the lower basin.

It surely is clear from the foregoing that it was the intent of the compact commission and the understanding of Herbert Hoover that the 1,000,000 acre-feet apportioned to the lower basin by III (b) of the compact was solely for the benefit of Arizona.

Now, what construction did Congress place on III (b)? Congress enacted the Boulder Canyon Project Act, effective December 21, 1928, which resulted in the construction of Boulder Dam (Hoover Dam) and the creation of Lake Mead. Section 4 (a) of said act provides that:

The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State. * * *

It will be noted that Congress apportions 7,500,000 acre-feet annually to Arizona, California, and Nevada out of the main stream (III (a), of which 2,800,000 is apportioned to Arizona), plus one-half of excess or surplus waters, and in addition thereto the "exclusive beneficial consumptive use of the Gila River and its tributaries," for which the 1,000,000 acre-feet was apportioned by III (b) all as shown by the Campbell, Norveil, Hoover proof.

How did the Department of the Interior construe the compact and the Boulder Canyon Project Act with respect to the Gila, and the 1,000,000 acre-feet?

Ray Lyman Wilbur, of California, Secretary of the Interior, on February 7, 1933, promulgated regulations to cover a proposed water delivery contract between the United States and Arizona. Attached to such regulations was exhibit A, the form of contract, which provided for the delivery of water to Arizona at points of diversion on the Colorado River so much available water as may be necessary to enable the beneficial consumptive use in Arizona of not to exceed 2,800,000 acre-feet annually by all diversions effected from the Colorado River and its tributaries below Lee Ferry "but in addition to all uses from waters of the Gila River and its tributaries. * * *"

Again, there is a recognition that the Gila water uses were solely for Arizona in addition to the apportionment from the Colorado itself. Contracts actually entered into with the three lower basin States were different in form, but provide that each is subject to the provisions of the Colorado River compact.

The contract between the United States and Arizona is dated February 9, 1944, and provides that—

> the United States shall deliver and Arizona * * * will accept under this contract each calendar year from storage in Lake Mead * * * so much water as may be necessary for the beneficial consumptive use * * * in Arizona of a maximum of 2,800,000 acre-feet.

But of particular significance is paragraph 7 (e). This paragraph provides in part that—

> this contract is for permanent service, subject to the conditions stated in subdivision (c) of this article, but as to the one-half of the waters of the Colorado River system unapportioned by paragraphs (a), (b), and (c) of article III of the Colorado River compact, such water is subject to further equitable apportionment at any time after October 1, 1963. * * *

It will be noted that the Department of the Interior by using the words "unapportioned by paragraph (b)" clearly recognizes that the waters (1,000,000 acre-feet) allotted under paragraph (b) are apportioned waters and not surplus waters. It follows that California, therefore, has no right in or to the 1,000,000 acre-feet.

Judge Clifford H. Stone, of Colorado, director of the Colorado Water Conservation Board, commissioner for Colorado on the Upper Colorado River Basin Compact Commission, an outstanding lawyer and student of Colorado River problems, testified in the hearings, S. 1175, page 513 and following. Judge Stone may testify before this committee, but I was impressed with his previous testimony, and not coming from either Arizona or California, he might properly be classified as an impartial observer. I take the liberty of quoting a few lines. Judge Stone stated:

> 1. Is the water covered by paragraph (b) of article III of the Colorado River compact excess or surplus waters unapportioned by the compact, and has California, by the terms of the Limitation Act, renounced any claim to the 1,000,000 acre-feet by which the lower basin may increase its beneficial consumptive use?
>
> It is my position that the 1,000,000 acre-feet of water, covered by paragraph (b) of article III of the Colorado River compact, is apportioned water to the lower basin. It is not excess or surplus water unapportioned by the compact.

Still quoting Judge Stone:

> Paragraph (b), article III, reads:
>
> "In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum."

This paragraph follows paragraph (a), which provides:

"There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist."

Article III contains a paragraph (f) which, since the compact was approved by the Congress in 1928, has been commonly understood as the only provision of the compact defining excess or surplus waters of the Colorado River system, unapportioned by other provisions of article III.

Judge Stone says:

This paragraph is important, and I shall discuss it extensively. It reads:

"Further equitable apportionment of the beneficial uses of the waters of the Colorado River system—"

and I wish the committee would note these reports—

"* * * unapportioned by paragraphs (a), (b), and (c) may be made in the manner provided in paragraph (g) at any time after October 1, 1963, if and when either basin shall have reached its total beneficial consumptive use as set out in paragraphs (a) and (b)."

Then Judge Stone at length presents an unanswerable argument, refuting the California contention that III (b) (1,000,000 acre-feet) is surplus water in which it has an interest under the compact, and he further states:

It is my position that the language of the Colorado River compact, respecting apportioned water and that which is unapportioned, is so clear and unambiguous that there is no necessity of going beyond the language of the instrument itself to understand its terms, conditions, and provisions, which were ratified by the legislatures of the signatory States.

And then Judge Stone refers to a decision of the United States Supreme Court, which effectively answers the question. I quote:

The Supreme Court of the United States supports the contention which we here make. In *Arizona* v. *California* (292 U. S. 341), the Court did not sustain Arizona's claim that the 1,000,000 acre-feet covered by III (b) water was specifically apportioned to Arizona alone. However, this same case held that III (b) water was apportioned to the lower basin. It also held that there is no ambiguity in article III (b) of the compact. It, accordingly overreuled the contention which California now makes that III (b) water is unapportioned.

End of the statement by Judge Stone.

Arizona respectfully submits that the foregoing records show conclusively that—

(*a*) The compact commission, in adding III (b) 1,000,000 acre-feet to the compact, did so for the sole benefit of Arizona, and in recognition of uses and established rights in the waters of the Gila and its tributaries in Arizona.

(*b*) The said million acre-feet of water is apportioned water and not excess or surplus water in which California has any legal right or interest.

(*c*) Arizona has a legal right to 2,800,000 acre-feet annually from main stream waters of the Colorado, plus one-half interest in any surplus water that may be divided after October 1, 1963, plus the waters of the Gila to the extent of 1,000,000 acre-feet annually.

At this point I would like to make the conclusion that we started out talking about 500,000 acre-feet. If it is surplus, California at some time would get that amount, when the surplus water is divided. If it is not surplus water and it is properly labeled "apportioned water" as I think the record clearly shows, California has no interest in it and the 500,000 acre-feet of water can be set up on the credit side of

Arizona's ledger, and considered as water legally available, as was asked about by the committee earlier.

I merely wanted to say to Mr. Engle, if I might, at the beginning you set up the points of contention between California and Arizona. I think you set them up very clearly and accurately, and I am following those contentions and setting up the rights which Arizona contends she has.

Now we come to contention two, beneficial consumptive use. I wish to refer to the theory of it.

What is the meaning of the words "beneficial consumptive use" as used in the Santa Fe compact? Remember that the division of the water of the Colorado River made by the compact commission was based on the virgin flow of the river, not on all of the water that fell in the basin and that was lost by evaporation, seepage, or transpiration before it reached the main stream.

Permit me, again, to step aside from my prepared statement to say that there is a difference here between California's contention and Arizona's contention of approximately 1,200,000 acre-feet.

Following the method that California claims should be followed in determining beneficial consumptive use as against Arizona's contention that it should be by depletion at the mouth of the stream, there is a difference between the two of 1,200,000 acre-feet.

Now, then, if that could be held to be surplus water, just as in the case of the 1,000,000 acre-feet, sometime California, when surplus waters are divided, would be benefited to the extent of 600,000 acre-feet.

What we are arguing about now is 600,000 acre-feet.

The flow of the main stream at Lee Ferry just below the Arizona-Utah line was the deciding factor in the division between the upper and lower basin States. Remember also, that the Gila River flows into the Colorado River just above the Mexican boundary and below any diversion point on that river. That none of the waters of the Gila River can be or were ever used in California. That the use of Gila River water is that made by Arizona and is principally in its development of the central portion of the State. A number of storage dams have been built on the Gila River and its tributaries in Arizona, and practically all of the waters of that river are now and have been for many years past put to beneficial use. By the construction of these storage dams, water is used that would otherwise be lost by evaporation, seepage, and transpiration. This is salvaged water and never would have reached the main stream of the Colorado.

Arizona contends that in the use of Gila River water, it should be charged with the amount only that it depletes the main stream of the Gila, where that stream joins the Colorado. This interpretation is joined in by all the upper basin States. Consumptive use according to the dictionary means the act of consuming—of destruction. There is no practical way to measure beneficial consumptive use of water of any flowing stream except by the resulting depletion of that stream. A diverter of water does not consumptively use all of the water diverted, but is entitled to credit for all return flow reaching the stream which may be at some distance below the points of use. Therefore, it would follow that depletion of the flow of the stream should be related to the next control point below the point of use, which in the case of the Colorado River will be Lee Ferry for the upper basin,

and the compact so provides, at State lines as between States, and at the international boundary, with reference to water delivered to Mexico.

In reviewing the negotiations and considering the language of the Colorado River compact, all of the river contracts, the upper basin compact, the Boulder Canyon Project Act, and the California Limitation Act, it seems to me that it is clear that the States as States are also entitled to credit for return flows reaching their boundaries, and that the upper basin States are entitled to credit for any return flow that reaches Lee Ferry, that being the control point; that, therefore, each State of the upper basin is entitled to have its beneficial consumptive use measured by the resulting depletion of the main stream at Lee Ferry. The depletion of the Gila by Arizona can now be measured at Dome, a measuring station on the Gila just above its confluence with the Colorado River.

Depletion is the clearly established yardstick by which to measure the beneficial consumptive uses of the Gila, as will appear from the following documents, laws and decisions:

Santa Fe compact, article III (d).

The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series beginning with the first day of October next succeeding the ratification of this compact.

Boulder Canyon Project Act, section 4.

This act, referring to the 4,400,000 acre-feet allotted to California, provides—

* * * that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California. * * *

That means depletion.

California Water Limitation Act, section 1. California adopts the Boulder Canyon Project Act and—

agrees irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming as an express covenant and in consideration of the passage of the said Boulder Canyon Project Act that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California. * * *

That means depletion.

Upper Colorado River Basin compact.

Executed October 11, 1948, and now ratified by all the upper basin States.

I might say that is the compact which Congress gave its consent to just a few days ago.

This compact establishes the rule for determining—

the quantity of the consumptive use of water * * *

Article VI provides:

The Commission shall determine the quantity of the consumptive use of water, which use is apportioned by article III hereof, for the upper basin and for each State of the upper basin by the inflow-outflow method in terms of man-made depletions of the virgin flow at Lee Ferry, unless the commission, by unanimous action, shall adopt a different method of determination.

The Supreme Court of the United States in the case of *Colorado* v.

Kansas, 320 U. S. 383; 88 L. ed. 116, adopts the same rule with respect to depletion. The question before the Supreme Court was the apportionment of water as between States. The waters of the Arkansas were involved and Kansas complained of increased diversions and uses in Colorado, but failed to show a depletion of the flow at the State line. The Court said:

> On its face this record would seem to indicate a large increase of consumptive use by Colorado. * * * When first turned in, the water is rapidly absorbed by the subsoil with consequent high consumption. By continued irrigation the subsoil becomes saturated, the water table rises, and water, in increasing quantities, flows back to the stream. Ultimately consumption falls well below diversion. The returned water again may be diverted and again supply return flows. Since the decision in the earlier case, studies of return flows have been made which indicate a steady reduction in the quantity of water consumed per acre of irrigated land.

The Court stated—

> * * * that, during the period, the river gains due to return flow have increased, the consumptive use of water has declined, and relatively the stream flows have improved.

Judge Stone discusses "Beneficial consumptive use," in the hearings on S. 1175, pages 519–520. I quote:

> It is contended by witnesses for California before this committee that beneficial consumptive use of water of the Gila River in Arizona is not measured by depletion of the virgin flow of the river at its confluence with the Colorado River, but is equal to the various increments of consumptive use at the points of use. If this principle is valid, it could be contended by California that it applied to the upper basin.

And Judge Stone said:

> It will be noted that in specifying the measure of beneficial consumptive use of the water apportioned by the compact to the upper basin, depletion at Lee Ferry was used. It cannot be assumed that a measure of beneficial consumptive use would be used for the upper basin differently from that for a large tributary of a river, such as the Gila. The use of the phrase, we believe, would be applied consistently throughout the compact.

And Judge Stone continues:

> This conception of the reason for the use of the term "beneficial consumptive use" by the Colorado River compact, coupled with resort in the compact to "depletion" by article III as the measure of beneficial consumptive use in the upper basin, demonstrates that it is unjustified, unreasonable, and not in accordance with the compact to measure beneficial consumptive use of the Gila River in any manner other than by depletion at its mouth.

End of the quote from Judge Stone.

Inasmuch as depletion (man-made) is the recognized yardstick just how much does Arizona deplete the Gila River? The Bureau of Reclamation estimates such depletion to be 1,135,000 acre-feet per year. (See p. R. 25, item 4, near top of page, "Central Arizona project report of December, 1947.) This consumptive use by Arizona is 135,000 acre-feet in excess of the 1,000,000 acre-feet apportioned to the lower basin by III (b) (Gila water) of the Santa Fe compact, and such 135,000 acre-feet should be deducted from the 2,800,000 acre-feet apportioned to Arizona out of III (a) water (main stream) pursuant to the Boulder Canyon Project Act, and the United States-Arizona agreement.

The question of evaporation loss and reservoirs is not mentioned in any way in the compact or in the various related instruments.

Reservoirs are built for the benefit and protection of the people in the area, flood control, to impound water to generate electric energy, to regulate the river, and for irrigation purposes. For instance, the Boulder Canyon Dam does all of these things. It serves as flood control for the Imperial district. It furnishes a source of cheap electric energy for southern California, and it, of course, regulates the river so that water is available for irrigation when the natural flow of the river is low. The upper basin States have recognized that in order to meet their obligation to the lower basin States and deliver 75,000,000 acre-feet of water during a 10-year period, reservoirs will have to be constructed in the upper basin, and the upper basin States agree that when these reservoirs are built, the evaporation losses will have to be borne by them. Beyond question, there will be other dams built in the lower basin, probably Bridge Canyon and Glenn Canyon. These dams will serve as silt-control, flood-control measures, but principally power development, and all of the lower basin area will benefit by this regulation. Arizona takes the position that when water is stored in on-stream reservoirs or off-stream reservoirs, that equity requires that all parties benefiting from such storage of water should bear ratably evaporation losses caused by such storage.

When I had finished contention two, which is the statement of theory, I decided that it would be appropriate to take the California text of just what they want to do, and by some practical illustrations and very few figures show that their theory of measuring by consumptive use is not proper, that Arizona's system of measuring by depletion is proper, and I also want to show by figures of the Bureau of Reclamation that California has made an error in computation of 1,700,000 acre-feet, which accounts for the difference between the two States of the available water under this contention two which I was just discussing.

We are now still talking and fighting about approximately 600,000 acre-feet of water in this issue.

The one issue which California stresses most is the issue of consumptive use versus depletion.

Mr. MURDOCK. Are you reading from the supplemental statement now?

Mr. KNAPP. Yes.

Mr. ENGLE. Mr. Chairman, may I interrupt at this point to say that I have to go to another committee. I would like to reserve the right to make a brief comment when I get back, and I will try to get back, with regard to Mr. Knapp's testimony, which is very interesting. If he is available, perhaps I may ask some questions. Would that be agreeable?

Mr. MURDOCK. That would be agreeable.

Mr. ENGLE. Thank you very much.

Mr. MURDOCK. Off the record.

(Discussion off the record.)

Mr. POULSON. I, also, want to go before this other committee, which, incidentally, pertains to this very same subject. I believe in that particular committee your Arizona advocates are attempting to slow the hearings down. In other words, they are not appearing and have not presented their testimony as yet, so I am going over to protest on that.

Mr. KNAPP. Do you want me to proceed, Mr. Chairman?

Mr. POULSON. Will Mr. Knapp be back at a later time?

Mr. MURDOCK. It is my understanding that Mr. Knapp will be here for due questioning.

Off the record.

(Discussion off the record.)

Mr. MURDOCK. Will you please proceed, Mr. Knapp?

Mr. KNAPP. California states the issue in Senate Joint Resolution 145, page 19, as follows:

> The first issue is whether the uses on the Gila River system chargeable to the lower basin and to Arizona shall be measured by the actual beneficial consumptive use of such waters, as California contends, or only by the amount by which its use would have depleted the flow of the Gila into the Colorado River. The difference in result between California's "consumptive use" theory and Arizona's present "depletion" theory is about 1,100,000 acre-feet.

That is approximately the figure I gave at the beginning.

The words "consumptive use" as used in the Colorado River compact, Boulder Canyon Project Act, and California Limitation Act is defined by the use of the following words "diversions less returns to the river." When you analyze that definition of consumptive use it means the same thing as the actual depletion. For example, if 100 acre-feet of water was diverted and placed upon land of which 50 acre-feet seeped or flowed back into the Gila River, it is clear that the amount of consumptive use as well as the amount which the Gila River would be depleted is the same, or 50 acre-feet. This is in agreement with the report of Mr. Delph Carpenter, of Colorado, which is referred to in the presentation by California, Senate Joint Resolution 145, page 22, when Mr. Carpenter's report stated:

> The term "beneficial consumptive use" is to be distinguished from the amounts diverted from the river. It means the amount of water consumed and lost to the river during use of water diverted. Generally speaking it is the difference between the aggregate diverted and the aggregate return flow. It is the net loss occurring during beneficial use.

And Mr. Carpenter's report further stated:

> The measure of the apportionment is the amount of water lost to the river. The beneficial consumptive use refers to the amount of water exhausted or lost to the stream in the process of making all beneficial uses. As recently defined by Director Davis of the United States Reclamation Service, it is the "diversion minus the return flow" (Congressional Record, January 31, 1923, p. 2815).

When analyzed there is, in reality, no difference between consumptive use and depletion as used by the compact framers and Congress for the purpose of determining the amount of water used. The only real question which is involved in the controversy between consumptive use and depletion is how and the place where the amount of consumptive use or depletion shall be measured. The compact framers made it clear in the Colorado River compact that depletion as between the upper and lower basins would be measured at the nearest border line dividing the two basis, to wit, Lee Ferry, and the United States Supreme Court in the case of *Colorado* v. *Kansas* (320 U. S. 383; 88 L. ed. 116), made it clear that the State line should be the determining point as between States, and the treaty between the United States and Mexico placed the point at the international boundary, so it should be clear that the point or place of determining the consumptive use or depletion of water of the Gila River in Arizona should be at the nearest

point to the Arizona-California State line, which would be at Dome just above the confluence of the Gila with the Colorado.

One should have a clear picture of what constitutes the Colorado River Basin as referred to in the compact. It consists of 204,000 square miles of which 103,000 square miles lie in Arizona and only 4,000 square miles in California. A look at the map will show the large number of tributaries, both small and large, which have built up the Colorado River, beginning up in Wyoming, Colorado, Utah, New Mexico, Arizona, and even Nevada. California is the only one of the seven basin States that contributes no water to the Colorado River. Nature ordained it that way. So when we talk about the consumptive use or depletion of the Colorado River we are referring, also, to the consumptive use and depletion of the tributaries that flow into it, such as the Gila River whose waters are used entirely within Arizona. Nature, again by a strange twist, ordained that no State other than Arizona may use the waters of the Gila River except an insignificant use at the point of its origin in New Mexico, as the Gila River flows into the Colorado River just above the Gulf of California in Mexico and below any point where its waters would have been or ever will be used in California.

During the negotiating of the Colorado River compact frequent reference was made to the "reconstruction" of the Colorado River. Secretary Hoover mentioned it several times and what the commissioners were trying to determine was the virgin or natural flow. The commissioners recognized that that must be the starting point in order to properly determine consumptive use or depletion. The reason is clear because it would be very unfair to any of the basin States to otherwise penalize a State because of the construction of storage dams. Such storage dams conserve and salvage floodwaters that would otherwise be lost and, as to the Gila, would waste into the Gulf of California. So the measure of consumptive use or depletion is based upon the natural condition of the river as it existed before the construction of any such storage or salvage dams.

Therefore, the first question to be answered is, What was the virgin or natural flow of the Gila River at its confluence with the Colorado River?

I believe that we can be agreed that the Bureau of Reclamation has proven its efficiency and accuracy over the many years, and has contributed materially toward the development of the West. That Bureau has made exhaustive studies of the Gila River and the uses of its waters. Where could we better turn to determine the natural or virgin flow of the Gila? I refer you to the Bureau's comprehensive and exhaustive report on the Colorado River of March 1946, pages 284–285. There appears a table for the years 1897 to 1943, inclusive. The Bureau summarizes in these words:

> For the purpose of this study the average virgin flow at the mouth of the Gila River has been rounded to 1,270,000 acre-feet annually.

Now, how much do Arizona's uses (man-made) deplete that natural or virgin flow of 1,270,000 acre-feet? Again, the Bureau answers the question. See Report on Central Arizona Project of December 1947, page R–25. The Bureau states the amount of depletion to be 1,135,000 acre-feet. That is the amount that Arizona is willing to

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be charged with. It is 135,000 acre-feet in excess of the 1,000,000 acre-feet apportioned by the Santa Fe compact by article III (b) in recognition of Arizona's uses of the Gila. Arizona is willing to have that excess of 135,000 acre-feet deducted from the 2,800,000 acre-feet allotted to Arizona by Congress by the Boulder Canyon Project Act.

California contends that Arizona should be charged with a greater amount of water than the depletion of 1,135,000 acre-feet as determined by the Bureau of Reclamation. And here is the crux of the whole controversy over the waters of the Gila River, involved in this contention 2. How much more water does California claim that Arizona should be charged with over and above the said 1,135,000 acre-feet? California states as follows:

> In the comments of the State of Colorado, hereinbefore referred to, the figure of 2,279,000 acre-feet is used as the inflow to the Phoenix area, all of which is beneficially consumed. Rounding the figure to 2,300,000 acre-feet, the difference between the depletion theory advanced by Arizona and the compact measure of beneficial consumptive use amounts to approximately 1,000,000 acre-feet.

(See hearings, S. 1175, p. 326, 80th Cong.)

We are now arguing about 1,000,000 acre-feet—I think California first contended it was 1,100,000 acre-feet—and, again, I direct your attention to the fact that we are talking about the amount of depletion through consumptive uses of the virgin or natural flow of the Gila River at the mouth. California bases here claim upon the figure of 2,279,000 acre-feet, which is obtained from the Bureau of Reclamation (Report the Colorado River, March 1946, pp. 284–285). Column 4 of the table on those pages shows "total natural inflow to Phoenix area, 2,279,000 acre-feet," but California fails to refer to or account for the natural loss of water between the Phoenix area, and the mouth of the Gila. Columns 5 and 7 of said table show those natural losses (not man-made) as follows:

	Acre-feet
Column 5. Natural loss in Phoenix area	527,000
Column 7. Natural loss from Gillespie Dam to Gila River at mouth	480,000
Total loss	1,007,000

To which I referred at the beginning of the discussion. Such water would never have reached the Colorado; the losses were not man made; and certainly were not beneficially consumptively used. They were losses due to evaporation, seepage, transpiration, et cetera, and certainly not chargeable to Arizona. California is, therefore, definitely wrong when it claims that the 2,279,000 acre-feet of inflow to the Phoenix area "is beneficially consumed," as 1,007,000 is lost. So, there lies the difference between California and Arizona over the consumptive use and depletion of the Gila. It accounts for and wholly wipes out the imaginary 1,000,000 acre-feet which California attempted to build up as surplus water that she might benefit. But, even more important, it destroys her argument that Arizona's present uses do not leave sufficient water necessary for the development of the Central Arizona project.

The figures of the Bureau above quoted, prove themselves. We still refer to the virgin or natural flow, as follows:

	Acre-feet
California's figures: Inflow to Phoenix area	2,279,000
Bureau's figures: Losses to Gila mouth	1,007,000
Natural flow at Gila mouth	1,272,000

which is the amount of acre-feet of virgin flow water as determined by the Bureau. The argument or controversy regarding the Gila waters is really one between California and the Bureau of Reclamation. Arizona has confidence in the accuracy and reliability of the studies and figures of the Bureau.

California, again, falls into error, when she contends that Arizona should be charged with all water "diverted, used and reused," in measuring consumptive use. This is in conflict with the position taken by all of the upper basin States, as well as Arizona. It contradicts the statement of Delph Carpenter, of Colorado, one of the compact commissioners, and quoted and relied upon by California, when he defined beneficial consumptive use to be "the net loss occurring through beneficial use." There are thousands and thousands of consumptive uses along the Colorado, its tributaries, including the Gila, and most of them are relatively small. To repeat an example, a user may divert for use 500 acre-feet, of which 200 acre-feet seeps, drains, or flows back into the river, which results in a consumptive use of 300 acre-feet. But the 200 acre-feet which gets back into the river, or becomes a part of the underground water supply available for pumping, is picked up by another user, and part of the original water goes through the same and repeated processes and much is lost and never used. In other words, the water is reused and reused or lost, and California contends that the upper basin States and Arizona should be charged with all the reuses. But engineering science has found no way to accurately measure or even approximate the consumptive use and reuses in each instance of diversion. This was recognized by the compact framers and the basic reason for using depletion of the virgin or natural flow as the yardstick to measure and determine the total chargeable consumptive uses. Depletion of the Gila is properly determined at Dome, the nearest measuring station to the Arizona-California line.

California also contends that—

> the idea that the only measure is the depletion of the flow of the river arises out of the idea that salvaged water put to beneficial use is not chargeable as beneficial consumptive use under the Colorado River compact and we believe it is chargeable.

That is California speaking. (S. 1175, p. 327.)

Salvaged water results from construction of dams and reservoirs which are constructed to conserve and save the virgin or natural flow of waters, which, through floods or otherwise, in the case of the Gila, would be wasted into the Gulf of California. We have shown that in determining the consumptive uses as evidenced by depletion that we are measuring the virgin or natural flow, in its state of nature, and not waters salvaged and saved in reservoirs, and which would have wasted into the Gulf. Otherwise a State would be penalized for conserving water.

This was what Herbert Hoover had in mind when, during the Santa Fe compact meetings, he called for the "reconstruction" of the Colorado and its tributaries, so that the Commission would have

before it the natural state, or virgin flow, from which to determine consumptive uses, depletion, and apportionment, and not from salvaged waters.

And here again California, in her attempt to build up contentious points with the hope of extracting water from others that are legally entitled to it, finds herself arrayed against all the upper-basin States and Arizona. Mr. R. J. Tipton, a consulting engineer from Denver, Colo., expresses very clearly the position of the upper basin when he stated:

> When man entered the picture, built his ditches, and started to apply water to the land artificially, the consumption of river water by those lands may not have caused much more depletion of the stream than was taking place under virgin conditions. He was merely putting to beneficial use some of the water that was being dissipated by nature in the virgin state. The effect of man's activities in this case on valley-consumptive use and basin-consumptive use would be the extent to which he increased the depletion of the outflow from the valley and the outflow from the basin.
>
> The salvage of water in the upper basin by these processes after ultimate development has been made may be a substantial item. Testimony already before the committee indicates the item in the Gila River Basin amounts to some million acre-feet per annum. If California's theory were accepted, she would ask that all the small incremental items of consumptive use in the upper basin which occur on the farms and on the projects be added up and that this be considered the beneficial consumptive use that was apportioned to the upper basin under article III (a) of the Colorado River compact. By such process she would be charging the upper basin with natural losses which the upper basin will have salvaged. This salvaged water never did reach the lower basin and never could have reached the lower basin in the state of nature. Nevertheless California maintains that the equivalent of such salvage water shall flow past Lee Ferry in order to increase the amount of surplus or unapportioned water in the Colorado River Basin.

Thus, California, alone, of all the States, claims salvaged water is chargeable when put to beneficial use.

One is forced to admire the ability and ingenuity of the California representatives in their desperate attempt to build up plausible arguments. I intend that as a compliment because California is ably represented. The climax is probably reached when California, again the only one of all the States, asserts that she should not be charged with reservoir or river losses, due to evaporation, seepage, and so forth. The large loss is evaporation of Lake Mead, which is estimated somewhere between 600,000 and 900,000 acre-feet annually. Remember that the upper basin States have fulfilled their contract when they deliver at Lee Ferry 7,500,000 acre-feet of III (a) water for use in the lower basin. It then flows into Lake Mead, and Congress has apportioned the III (a) water as follows: To California, not to exceed 4,400,000 acre-feet; to Arizona, 2,800,000 acre-feet; to Nevada, 300,000 acre-feet.

Arizona and the United States, through Ickes, Secretary of the Interior, entered into a water contract February 9, 1944, under which Arizona's share of water is "subject to such reduction on account of evaporation, reservoir and river losses, as may be required to render this contract in conformity with said compact and said act" (referring to Santa Fe Compact and Boulder Canyon Act, sec. 7 (d)). Please note that the foregoing quoted words show that such losses are chargeable in conformity with the compact and act. If the compact and act applies in that respect to Arizona's water, it must also apply to California's water.

But it is interesting to note that California is not guaranteed a full 4,400,000 acre-feet of water, as many assume to be the case. Congress,

in the Boulder Canyon Project Act, provided in section 4 (a) that water diverted for use in California "shall not exceed" 4,400,000 acre-feet. Congress undoubtedly had in mind that there would be evaporation, reservoir and river losses.

There is irony in the situation. The sun which California has so extensively and successfully advertised, and which has been the great contributing factor in the growth and development of that Southwest empire, now presumes to evaporate a part of that 4,400,000 acre-feet. What is so sacred about California's water that the processes of nature should withhold its forces and attack and evaporate only those waters of the other six basin States? And California, with characteristic generosity, apparently would have Arizona not only assume its losses of about 300,000 acre-feet but also assume the loss resulting to California's water. The question answers itself.

The foregoing is a summary of the essential points relating to beneficial use, depletion, evaporation, river losses, and salvaged waters.

I submit to the committee that we have shown that the 600,000 or more acre-feet should not go to California but should go to Arizona by reason of the yardstick of depletion as against the system as proposed by California.

Now, as to contention 3, the California Water Limitation Act.

The above-named act was enacted by the California Legislature and became effective August 14, 1929. It was enacted pursuant to the mandate set forth in section 4 of the Boulder Canyon Project Act enacted by Congress and effective December 21, 1928, and copies the language of the congressional act. The pertinent part thereof is as follows:

> * * * The State of California, as of the date of such proclamation, agrees irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming as an express covenant and in consideration of the passage of the said Boulder Canyon Project Act that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of said Boulder Canyon Project Act, and all water necessary for the supply of any rights which may now exist, shall not exceed 4,400,000 acre-feet of the water apportioned to the lower basin States by paragraph (a) of article III of the said Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

The California act is extremely important, as it expressly limits California to 4,400,000 acre-feet per annum of consumptive use out of the 7,500,000 acre-feet apportioned to the lower basin by III (a) of the compact. But such limitation also is subject to "all water necessary for the supply of any rights which may now exist." One of such existing rights is set forth in section 4 (a) of the Boulder Canyon Project Act, which provides "That the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State." And it was the recognition of Arizona's rights to the Gila that caused the compact commission to add III (b) providing for an additional apportionment to the lower basin of 1,000,000 acre-feet.

California is now attempting to establish uses to surplus waters, under what is known as the California System of Priorities. Those

self-asserted priorities now total 5,362,000 acre-feet, or 962,000 in excess of the 4,400,000 acre-feet to which it limited itself by law.

California entered into contracts in 1932 with the United States for water, but such contracts expressly provided that they are subject "to the availability thereof for use in California under the Colorado River compact and the Boulder Canyon Project Act." And the California Water Limitation Act provides that the amount of 4,400,000 includes "all uses under contracts made under the provisions of said Boulder Canyon Project Act." It is doubtful that California will seriously contend that it can assert any claim to any water in excess of 4,400,000 acre-feet, except to any surplus water to be apportioned after October 1, 1963.

Next is the Mexican treaty. The treaty between the United States and Mexico signed February 3, 1944, provides for an annual delivery to Mexico of 1,500,000 acre-feet, subject to certain conditions, and is not pertinent to the points hereinbefore made.

The conclusion: The central Arizona project is pending before the Congress. Hearings have been held, many witnesses have testified, and a very complete record has been made.

The record shows and the Bureau of Reclamation has found that the project is feasible and that water is available from the Colorado out of the share thereof to which Arizona is legally entitled. The project does not propose to bring additional lands into cultivation, but is necessary to prevent lands now under cultivation from returning to the desert.

Arizona has a legal right to 2,800,000 acre-feet from the Colorado, plus waters from the Gila to the extent of 1,000,000 acre-feet (III (b)), plus one-half of the surplus waters, subject to apportionment, after October 1, 1963.

Adding up your legal availability: Under contention one, III (b) water, there is 500,000; under contention two, 600,000; under evaporation loss, which California clearly could not charge against Arizona, 450,000. That would add up to a much larger total than is required to meet the needs of the central Arizona project.

Mr. Walter Bimson Saturday pointed out that each year something like 8,000,000 acre-feet is flowing into the Gulf of California, surplus water.

As a matter of fact, that surplus water will be flowing into the Gulf of California 50 years from now, and maybe a century from now; at least until the upper basin, by construction of dams and reservoirs, can reap a total use of that water so that no surplus flows down to the lower basin and into the Gulf.

We are talking here about a situation that will be really pertinent a half century from now, because for many years surplus waters will continue to flow into the Gulf.

I thank you gentlemen for your courtesy.

Mr. MURDOCK. Judge Knapp, I am not a lawyer, and for that reason I am not able to follow the close reasoning of your logical statement as well as some of my colleagues here who are lawyers can follow it. It was a good statement.

We have now, about half an hour which may safely be used for questioning. I had thought we would begin with the newer members.

Mr. Marshall, do you have some questions to ask?

Mr. MARSHALL. I have only one, I think, at this time.

I am a little bit confused as to Nevada's position in this difference of opinion between Arizona and California. I notice that they have, as a lower basin State, 300,000 acre-feet. What is Nevada's position?

Mr. KNAPP. Nevada, essentially, of course, is not really interested in the water problem which is before this committee. Their primary interest lies in power, and the very small amount of water that they get, recognizing the fact that Nevada is not in a position to utilize and use much water, is not too much of a problem in connection with this. So far as legal rights are concerned, Nevada, of course, has all the legal rights, whatever they may be, of California and Arizona.

Mr. MARSHALL. There is not any attempt on the part of anybody to break agreements formally entered into, as far as this compact is concerned? It is a matter of a difference of opinion or understanding as to what some of the terms of that original compact were, is that right?

Mr. KNAPP. Yes; I think that may be true.

You speak about Nevada. I do not know the attitude of California with reference to Nevada, and the evaporation losses, or whether she would want to transfer some of her burden of evaporation loss to Nevada, as well as to Arizona. They can answer that when they appear.

Mr. MARSHALL. It is not so much a problem of diverting the water for irrigation purposes as it is for the interference with water that might be used for power purposes. That does not enter into the picture so much, does it?

Mr. KNAPP. The diversion of water into Nevada, I would naturally assume, would be above Boulder Dam, in a very small amount. Of course, it is the water that goes through Boulder Dam that generates the power that Nevada is interested in.

Mr. MARSHALL. Thank you.

Mr. MURDOCK. Senator McFarland, who was here during most of the hearings, had to leave.

My colleague, Congressman Patten is here, but he presumably is debarred as I am.

If the committee will permit, I will go now to Judge Bosone, who is a lawyer.

Mrs. BOSONE. Mr. Chairman, I regret to say that unfortunately I was unable to attend the hearings last week and, of course, I have not had an opportunity to even read H. R. 934. I gather, however, from Mr. Knapp's statement, that Arizona's case is resting upon the facts and the interpretation of those facts from the very history of the compact, dating to 1932, and also on the physical conditions in Arizona?

Mr. KNAPP. I think that is true.

Mrs. BOSONE. You are resting your case upon those facts?

Mr. KNAPP. I think that would be correct.

Mrs. BOSONE. That is clear to me, but I have not heard the other side. I will be very much interested in those hearings which I missed last week, and the statement of Congressman Engle.

Mr. MURDOCK. Mr. Poulson?

Mr. POULSON. Mr. Knapp came here with a reputation of being one

of the best lawyers in the Southwest, and he has ably demonstrated that reputation with which he came here. I think he has ably presented his interpretation and the interpretation of other people from Arizona as to what they think is the interpretation of the compact.

However, as a lawyer, is it not true that you will admit that lawsuits are based upon the conflicting interpretation of documents?

Mr. KNAPP. That is right.

Mr. POULSON. As a lawyer, you accept the principle that another lawyer may disagree with you. I am not speaking as a lawyer.

Mr. KNAPP. That frequently happens.

Mr. POULSON. Of course, is it not the province of the courts to reconcile the differences between attorneys on interpretation?

Mr. KNAPP. That is right.

Mr. POULSON. On the dispute between two States, that interpretation or that decision generally rests within the Supreme Court, is that not true?

Mr. KNAPP. The United States Supreme Court; yes.

Mr. POULSON. Now, Mr. Knapp, I am not going to try to question you on these legal interpretations. I think that Jurge Bosone very ably stated the case and that we must hear from both sides.

Certainly, on the California side we will have our attorneys present our interpretation of the compact and of the other cases which have hinged upon this interpretation.

I would like to say this: The Department of the Interior recognizes that there is a dispute.

Mr. KNAPP. I think everyone recognizes, Mr. Poulson, that there is a difference of opinion and a dispute between the two States.

Mr. POULSON. Would it be in line, Mr. Chairman, inasmuch as I personally am not able to go into this, to make an offer of the proper questions to his statement—which has been a very lengthy and comprehensive statement, for I think he has covered about everything that could be stated from his standpoint—at a later time for my colleague Mr. Engle and me to have a chance to propound some questions for Mr. Knapp?

We realize that he has come a long ways, and we do not want to delay the hearing to that extent, but I think he has demonstrated the fact that he is one of the able advocates from the legal standpoint, and, therefore, I think we should direct our questions to Mr. Knapp. We would like to have a chance to do so.

Mr. MURDOCK. I think we can arrange that. We will do our best to arrange it.

Mr. KNAPP. May I interrupt, Mr. Chairman, to say something?

Mr. MURDOCK. Yes, Mr. Knapp.

Mr. KNAPP. I have been here nearly 10 days. I came with the expectation of remaining 1 or 2 days. I have to get home. It was my intention, when I completed with the presentation today, to go down, get on the train, and depart.

I do not want to run away under fire. I was hoping that whatever questions any of you members of the committee wished to ask me could be asked now.

Mr. POULSON. Well, you probably realize that our representatives and legal staff will be answering your contentions in that respect.

Off the record.

(Discussion off the record.)

Mr. MURDOCK. Mr. Baring?

Mr. BARING. Mr. Chairman, in answer to Mr. Marshall's question, wherein Nevada entered into this picture, I would like to insert an observation right here:

As proposed in this bill, a million and a quarter acre-feet would ultimately bypass Boulder and Davis Dams, reducing the power Nevada is entitled to at such projects. More important, Bridge Canyon power itself would be loaded with over $300,000,000 of subsidy to an Arizona irrigation project. When the Boulder Canyon Project Act was debated, Nevada insisted that power at Boulder Dam should not have to pay for any part of the All-American Canal. The power users of Nevada are entitled to have the same principle apply to Bridge Canyon.

I just insert that as an observation at this time.

Mr. MURDOCK. Mr. D'Ewart.

Mr. D'EWART. I think Mr. Knapp has made a very able presentation here this morning.

I would like to suggest to the other members of the committee that in connection with Mr. Knapp's remarks they read the presentation which was made by Senator McFarland the other day, which I think will help very materially in understanding the presentation made this morning.

It will be well worth your time to read Senator McFarland's statement. It is long, but it is likely to help you in understanding this problem.

I have one question. The original compact, as I remember it, allotted you 1,000,000 acre-feet out of the Gila River. The determination by the Bureau of Reclamation that there was 1,270,000 acre-feet in the Gila River changed the amount. Is it your contention that that 270,000 acre-feet should be allotted to Arizona, or is it your contention that that should be considered as excess water under the compact?

Mr. KNAPP. I think your figure of 1,270,000 acre-feet was the average anual flow of the Gila over a period of years. I do not think that is the figure that would be taken into consideration to determine the excess of use by Arizona over that 1,000,000 acre-feet.

I think the figure that you would want would be the figure of depletion, which is 1,135,000 acre-feet. As I have stated in my remarks, that is excess over the 1,000,000 given to us, and we are perfectly willing to have that deducted.

Mr. D'EWART. That is contrary to the argument made by Senator McFarland. His argument said he believed that should be included in the allotted waters in the Gila River to Arizona. That is why I brought the point up.

Mr. KNAPP. When you get lawyers tossing figures around, maybe we become a little confused, although I think we are probably agreed in principle.

Mr. MURDOCK. Mr. Bentsen?

Mr. BENTSEN. I would like to make an off-the-record observation.

(Discussion off the record.)

Mr. MURDOCK. Mr. Barrett?

Mr. BARRETT. Mr. Knapp, I followed you very closely, and I think you made a very splendid presentation of the Arizona position.

There are a few little items that are ambiguous to me.

On page 7 of your original statement you list some questions and answers by Governor Campbell of Arizona.

Next to the bottom of the page I notice that the Governor states, and I quote:

> I assume these discussions would appear in the transcript of the minutes.

What I would like to know is this: Is there such a transcript?

Mr. KNAPP. I do not know that I can answer that with absolute accuracy, but I have been informed that they never have been able to locate the full and complete minutes. They did locate some of them.

There is such a transcript of the minutes in existence because there would have to be in order to get this testimony. Of course, this is not the only testimony of witnesses.

Mr. BARRETT. This is not that testimony. This testimony was before a Senate committee, as I understand it.

Mr. KNAPP. I see what you mean. Pardon me.

Mr. BARRETT. I am not speaking about the testimony before the Senate committee.

Mr. KNAPP. My part of the answer in which I refer to the inability to locate all the minutes of the Santa Fe compact meeting is correct. I do not believe they have been able to locate all of them.

Mr. BARRETT. Are there any minutes available that substantiate your position?

Mr. KNAPP. I do not know.

Mr. BARRETT. As a result of the compact of 1922 in Santa Fe certainly the commissioners made reports to their various States. Are those reports available and do they substantiate your position?

Mr. KNAPP. I have never seen them and I cannot answer that question, though perhaps someone else who follows me can.

Mr. BARRETT. If you will turn over to page 12 of your original statement, I note there that in construing the statement of that section of the act you say:

> It will be noted that Congress apportions 7,500,000 acre-feet annually to Arizona, California, and Nevada out of the main stream (III) (a), of which 2,800,000 is apportioned to Arizona), plus one-half of excess or surplus waters, and in addition thereto the "exclusive beneficial consumptive use of the Gila River and its tributaries—"

However, in reading the act, subsection 3, it does not refer to it as an addition. I wonder why that was not spelled out there at that time.

Mr. KNAPP. I am looking at section 4 (a) of the act. I do not believe I can answer your question. I think it is correctly copied from the act.

Mr. BARRETT. It seems to me that it is very unfortunate that many of these disputed points were not covered and spelled out in plain language. I am inclined to believe that certainly the waters under III (b) were apportioned. Why did they not say that they were apportioned to the State of Arizona instead of to the lower basin? That is the thing that has been bothering me a little bit.

Mr. KNAPP. Well, I can only speak outside of the record. There was a feeling, I think, at the time that if they picked out one river of the entire Colorado River system, like Gila, and named it, they would

fall into the difficulty of the members of the Commission wanting some others to be specially referred to.

I think, also, that had the Santa Fe Commission for one moment thought that the lower basin would have difficulty in arriving at an agreement that they would have given us something much more clear, and a better guide for action today.

Mr. BARRETT. Can you tell me if an exhaustive search has been made by your State to find some documentary evidence at the time of the minutes of the Santa Fe meeting, and the discussions and reports of the various States; and that you are unable to get them; and that we are now required to rely entirely upon statements of commissioners and representatives who were present and who testified from memory as to what took place?

Mr. KNAPP. I think that question can be answered by Mr. Charles Carson, who is the attorney for the State of Arizona and Interstate Stream Commission.

You understand, I do not represent the State of Arizona, nor any group. I was invited to come here. In fact, I was asked to help out. My service is purely voluntary.

I have not ever had occasion to look for the records to which you refer. I am sure Mr. Carson can answer your question.

Mr. MURDOCK. I personally know a search has been made for the transcript of the Santa Fe meeting without success.

Mr. BARRETT. Just one other question. On page 7 of your supplemental statement I notice you refer to a natural loss of the Gillespie Dam.

If I followed you closely, California contends that there is some 2,279,000 acre-feet inflow of water that they want to charge to Arizona. You contend that the Gila River is depleted at the State line, Dome, about 135,000 acre-feet over the 1,000,000?

Mr. KNAPP. That is correct.

Mr. BARRETT. That is your portion under the compact. What is this Gillespie Dam situation? What does that amount to? I do not quite understand it.

Mr. KNAPP. I am not an engineer The engineers can answer those questions as to those natural losses much better than I can. All I did was to take those figures and those words from the report of the Bureau of Reclamation which appears in the——

Mr. BARRETT. What is the Gillespie Dam?

Mr. KNAPP. The Gillespie Dam is a dam that is some distance below Phoenix for the purpose of diversion and accumulating water. I presume the Bureau, instead of saying that the loss between the Phoenix area and the Colorado River is 1,700,000 broke it into those two areas, because the Gillespie Dam was in between.

The engineers who will follow me will have to answer that question.

Mr. BARRETT. Thank you very much.

Mr. MURDOCK. Mr. Regan?

Mr. REGAN. No questions, Mr. Chairman.

Mr. MURDOCK. Mr. Lemke?

Mr. LEMKE. I have one or two questions.

First I want to compliment you for your able presentation of this case.

Mr. KNAPP. Thank you, sir.

Mr. LEMKE. I would suggest, if anything, that you spent a little too much time on the problem of consumptive use. I think common sense would tell us what that is.

The question I want to ask you first is on page 4 (b).

In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by one million acre-feet per annum.

There is nothing there that says Arizona is entitled to that. The Supreme Court, on page 16, says that it belongs to the three of them. Do I understand you right there?

Mr. KNAPP. Belongs to whom?

Mr. LEMKE. To the three States.

Mr. KNAPP. To the lower basin; yes.

Mr. LEMKE. To the lower basin. You claim it all belongs to Arizona, all of the waters in the Gila River. In the face of that decision and in the face of the rule that you cannot use outside evidence to add to or take from an existing contract, unless it is ambiguous, would you say that that first paragraph (b) is ambiguous and, therefore, you can take outside evidence? To me Hoover's letter, which is very conclusive in my mind, if it is permissible, is outside evidence. If it is ambiguous you can do that. As a lawyer would you say it is ambiguous?

Mr. KNAPP. I was just considering that particular phase of it. Apparently it is ambiguous because the question has arisen as to just exactly what was meant. The paragraph (b) could have been more clear if it had said, "There is hereby apportioned 1,000,000 acre-feet."

Mr. LEMKE. They should have said, "to Arizona" to have made it clear.

Mr. KNAPP. Yes, but there again, in answer to the Congressman's question, it is my understanding that they did not want to bring in any one river by reference. They could have said, and I believe they would have said——

Mr. LEMKE. As a lawyer, would you say under those conditions it is admissible evidence because you did not do it but you should have done it, but you did not do it for some other reason?

Mr. KNAPP. I was not arguing with this committee as to the legal phase of it so much as to develop the actual fact that it was the intent of the Santa Fe Compact Commission that that 1,000,000 acre-feet was in recognition of the uses of the waters of the Gila.

Now, you could not have given those waters to California because Arizona is the only State that could use the waters of the Gila River, the only State that ever has.

Of course, the compact followed by the Boulder Canyon Project Act made it clear that California was not participating directly in that 1,000,000 acre-feet because California is limited to not to exceed 4,400,000 acre-feet from the main-stream waters. They just let her take her proportion out of the main-stream waters.

Mr. LEMKE. Yet you have the decision of the Supreme Court that it belongs to all three.

Mr. KNAPP. But the physical factor, of course, is that while that may be true the only State that could make any use of it was Arizona.

Mr. LEMKE. Let me ask you a further question: If the Supreme Court continues in that position, can this Congress do anything else?

If that is the compact and that was understood, and it belongs to the three States equally, can we do anything else?

Mr. KNAPP. Of course, I do not know that the matter is going to the Supreme Court at all, or what their decision would be, Mr. Lemke, so I do not know to what extent the Congress would be bound.

Mr. LEMKE. I would say it may be entirely different from this court, from what it was in the former court.

Mr. KNAPP. That may be.

Mr. LEMKE. Let me ask you this: Why should Arizona attempt to delay? It seems to me that if I were in your position, with your brief, I certainly would want to get into that court as quickly as the law would let me.

Mr. KNAPP. On the question of delay——

Mr. LEMKE. I am taking for granted that is what you are doing, because it has been suggested here so often that Arizona was trying to prevent that case from coming into court.

Mr. KNAPP. I think that Arizona's viewpoint is that California is the one who is delaying, trying to create a delay. These water cases, even between a couple of States, like Kansas and Colorado, extend over periods of 25 years, 11 years, 15 years, and so forth.

Just how long it would take to unravel a case where seven of the States are involved is rather staggering.

I think a gentleman the other day asked, "Has not Arizona done anything?"

Arizona, of course, has been in the Supreme Court three times, in 1930, 1934, and 1936, under various cases, but never successfully.

The upper basin, as a matter of fact, as well as Arizona, is merely raising the question before Congress as to whether or not this resolution which California has introduced to put this case in the Supreme Court is such that Congress can enlarge the jurisdiction of the Supreme Court in any way. The Supreme Court itself has insisted upon a justiciable controversy existing before it would take jurisdiction between two States. The question is whether there is a justiciable controversy existing now, because they would have to allege and show an immediate injury or a definitely threatened injury or damage.

Right at the present time California's 4,400,000 acre-feet are not endangered. They are only using 3,300,000, and they are pouring 1,000,000 acre-feet, we say, into the Salton Sea, and a lot of water is going into the gulf.

There is a question under the decision of the Supreme Court whether they would take jurisdiction unless, perhaps, Congress passed this Central Arizona Project Act, which might be held to constitute a threatened damage.

Mr. LEMKE. May I ask another question right there? In your supplementary brief you say you are willing to concede one-million-some-hundred-thousand acre-feet to California on the Gila River. I understand you are not willing to do that, but say it all belongs to Arizona.

Mr. KNAPP. You may have misunderstood me, Mr. Lemke.

Mr. LEMKE. Just for the sake of that argument, you were willing to concede it?

Mr. KNAPP. What I was contending was that under the beneficial consumptive-use argument we would accept the Bureau's figures of

depletion amounting to 1,135,000. California said we should be charged with 2,300,000.

Mr. LEMKE. Your argument was to that point alone, then?

Mr. KNAPP. Yes, sir.

Mr. LEMKE. That is all, Mr. Chairman.

Mr. MURDOCK. Mr. Regan, do you have a question?

Mr. REGAN. Yes; following Mr. Lemke's discussion of this Gila River, which I previously thought I had pretty well straightened out. That was why I did not ask any questions.

The Gila River is strictly an Arizona stream, so far as the lower basin is concerned? There is not any part of the 7,500,000 acre-feet of water that comes by Lee Ferry that is from the Gila, in that apportionment of 4,400,000, 300,000, and 2,800,000 acre-feet?

Mr. KNAPP. You are correct.

Mr. REGAN. The waters of the Gila River are no part of that allocation of water?

Mr. KNAPP. You are correct.

Mr. REGAN. The reason it is in the compact is the fact that it does ultimately flow into the Colorado River?

Mr. KNAPP. Yes.

Mr. REGAN. It is below a point where California could receive any beneficial use of the water of the Gila River?

Mr. KNAPP. That is correct.

Mr. REGAN. Outside of the fact that it is a part of the basin, it really should not be a part of the controversy, other than the fact that we owe a certain amount of water to Mexico in the treaty; is that right?

Mr. KNAPP. That is right.

Mr. REGAN. So, instead of using 1,000,000 acre-feet of water of the Gila, you are using 1,135,000 acre-feet. While California could have no beneficial use of that 135,000 acre-feet, you are willing to be charged with that because it is water that belongs to the Gulf of California which might go under the Mexican Treaty; is that right?

Mr. KNAPP. That is a correct statement.

Mr. REGAN. Thank you, Judge.

Mr. MURDOCK. Mr. Morris?

Mr. MORRIS. Where does the Gila River begin? Where does it end? What territory does it traverse?

Mr. KNAPP. It has its origin up in New Mexico, just a short distance over the Arizona-New Mexico State line. It flows down through Arizona and enters the Colorado River just a little distance above Yuma and a short distance above the Gulf of California.

Mr. MORRIS. In other words, it flows only in two States, is that correct—New Mexico and Arizona?

Mr. KNAPP. Yes. It is very little in New Mexico. I think it would be fair to say it has its origin there, but there is very little water coming into Arizona.

Mr. MORRIS. It flows through no other States at all, except those two?

Mr. KNAPP. You are correct.

Mr. MORRIS. New Mexico and Arizona?

Mr. KNAPP. You are correct.

Mr. MORRIS. It is almost entirely all in Arizona?

Mr. KNAPP. That would be correct.

Mr. MORRIS. There is a little in New Mexico. It heads in New Mexico up in the mountains, I assume?

Mr. KNAPP. That is correct.

Mr. MORRIS. It starts as a very small stream and gets larger as it goes down?

Mr. KNAPP. Yes, sir.

Mr. MORRIS. I have this other question: You say in your concluding paragraph, which is short and which I will read:

> Arizona has a legal right to 2,800,000 acre-feet from the Colorado, plus waters from the Gila to the extent of 1,000,000 acre-feet, plus one-half of the surplus waters, subject to apportionment, after October 1, 1963.

Now, if that be true—will that definitely, in your judgment, make the central Arizona project entirely feasible from every standpoint?

Mr. KNAPP. Without hesitation, I would say "Yes"; but I am not an engineer, and a legal opinion would perhaps not be helpful. In making that answer definitely and positively "Yes," I base it upon the fact that we are entitled to the water that we have been talking about this morning.

With those amounts, there would be an excess, and easily plenty of water.

Mr. MORRIS. I have this third question, and then I will conclude: Do you consider a resolving of this 1,000,000 acre-feet question between you and California to be the main question to be solved between the two States?

Mr. KNAPP. It is difficult to say whether it would be the main question. The first question is whether the 1,000,000 acre-feet in recognition of the Gila River is surplus or apportioned water.

Mr. MORRIS. Yes; that is the question. If that question is resolved in favor of Arizona, we will say——

Mr. KNAPP. I think that is one of the main questions. I think, without any doubt, that the record shows conclusively that it is apportioned water.

Mr. MORRIS. To Arizona?

Mr. KNAPP. Yes.

Mr. MORRIS. I followed you carefully on that. I am not saying you are right or wrong about it, of course.

I wont to compliment you upon your very splendid presentation.

What I was trying to get clear in my own mind were the chief contentions. I did not know whether you considered that particular phase to be the chief contention, or whether you thought some other matter would be the chief contention between the two States.

Mr. KNAPP. I think that the other ones are of equal importance, of course.

Mr. MORRIS. I see. Thank you very much.

Mr. MURDOCK. Governor Miles?

Mr. MILES. Mr. Chairman, as you stated a while ago, I am not a lawyer and engineer. Sometimes it is difficult for me to follow the testimony with any degree of understanding.

Mr. Knapp, I want to say to you that I feel that your clear and practical and understandable language, which you presented to this committee, almost made it understandable for me.

Mr. KNAPP. Thank you, sir.

Mr. MILES. In view of that fact, and in view of the fact that you,

as I understand the testimony, attended the compact in Santa Fe, I want to ask you this question: Outside of providing a place to hold the hearings, what other benefit did New Mexico derive from that compact?

Mr. KNAPP. Well, you place me in a rather difficult position. We enjoyed our stay up there very much. It was a beautiful setting in which to consider this important problem, and I have always enjoyed going back there.

Mr. MILES. With more direct reference to the Gila River water, I remember that we have been in the court in New Mexico on this water. My first official act, after I was sworn in as Governor of New Mexico, was to send an officer down there to knock the lock out of the headwaters and let them flow out over that drought-stricken area of the Verde Valley in New Mexico. We were in contempt of court; and after paying a $300,000 fine we were still in court, and I am afraid still in contempt.

Mr. KNAPP. I think that was in the United States district court in Tucson, Governor.

Mr. MURDOCK. May I add just one serious thought.

You thought so well of Santa Fe, N. Mex., from the hearings in 1922, that all those who participated went back for the next big move there in October of 1948; did they not?

Mr. KNAPP. That is right.

Mr. MURDOCK. So that they might conclude their deliberations on the Upper-Basin compact in the same historic setting.

Mr. MILES. Mr. Chairman, I will say this: If we could reverse that and receive a little more benefit from the water, we will let some other place hold the hearings.

Mr. MURDOCK. That is quite understandable, Governor.

Let the committee recall that we have an important bill on the floor of the House. I will not detain the committee longer.

Thank you, Mr. Knapp.

We shall adjourn until 10 o'clock tomorrow morning.

(Thereupon, at 12:15 p. m. Monday, April 4, 1949, an adjournment was taken until 10 a. m. Tuesday, April 5, 1949.)

THE CENTRAL ARIZONA PROJECT

TUESDAY, APRIL 5, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 10 a. m., in the committee room of the House Committee on Public Lands, New House Office Building, the Honorable John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The subcommittee will please come to order.

We will proceed with our hearings on H. R. 934 and H. R. 935.

We have this morning two witnesses from the Indian reservation interested in the legislation.

We will be glad now to hear from David A. Johnson first.

STATEMENT OF DAVID A. JOHNSON, SR., BAPCHULE, ARIZ.

Mr. JOHNSON. Mr. Chairman and gentlemen of the committee, my name is David A. Johnson, Sr. I am a full-blooded Pima Indian, born on the Gila River Indian Reservation in southern Arizona, as was my father and his father, and so on back through many generations. I do not know how long my people have lived on the lands we now occupy, but our legends tell us that we were there many centuries before the white man came.

I am the chairman of our tribal council, also chairman of our Indian irrigation committee, and I have been selected to appear before this committee as a representative of the Pima Tribe to tell you of their need of more water.

The Pima Reservation was set aside by act of Congress in 1859, and through subsequent acts increased to approximately, 372,000 acres. There are 50,000 acres included in the Indian portion of the San Carlos project, of which 10,000 acres still are undeveloped. There is another 10,000 acres of land outside the San Carlos project, being irrigated from pumps and waste water from the Salt River project. The supply, however, is insufficient and high in salt content.

The first census was taken in 1858 and gave the number of our tribe as being 4,635. The present number is about 5,365. There are approximately 1,170 farm units in the Indian part of the San Carlos project varying in size from 10 to 80 acres. The larger acreage is possible only by leasing among ourselves, as we are allotted only 10 acres of irrigable land.

There are no large holdings on our reservation, but total amount of

farm products and livestock produced on the project in 1947 had a cash value of $677,598. In 1948 it was only $511,551. This reduction was because of the continued falling off of our water supply.

In view of the allotment of only 10 acres, many farms are still operated as subsistence farms; but, by leasing among ourselves, some of the Indians try to farm enough land to adopt the white man's civilization and farm on a commercial basis.

According to archeologists, our irrigation project is the oldest in America. They show that some of our lands have been under irrigation for nearly 14 centuries.

Before the Christian era, our race of people living along the Gila River was called Ho-Ho-Kam, which translated into your language means "disappeared," "gone," "departed." About 600 A. D., the Ho-Ho-Kam had progressed in their primitive civilization when they had learned to divert water from the Gila River onto desert land and produced crops of corn, squash, and beans. Some of these old canals which they built have been excavated, and it was found that some were as much as 10 feet deep and 20 feet wide. These canals were dug with stone tools and the earth carried out in large baskets, because at that time there were no axes, shovels, or horses as we have today.

Along about 1690 the great Father Eusebio Francisco Kino, a Spanish priest from Mexico, began to build his chain of missions, "visitas" in our country. Our State was given the name of Pimeria Alta which included San Xavier (Tucson). Father Kino found a small flow of water and cultivated fields which the Indians called Ari-zon-ac or Ahl-zon-ac, meaning "The Place of Small Water"—in other words, a small spring. Our Arizona has probably established its name since. My ancestors, as Father Kino described them, were "peaceful farmers," subsisting themselves by means of irrigated agriculture. They had rehabilitated some of the canals of our old Ho-Ho-Kam and built others of their own and were able adequately to live and subsist as long as there was water flowing in the Gila River.

Before Father Kino's death in 1711, he helped the Indians by supplying them with livestock and farm seeds. For a period of more than 100 years very few white men came into the Pima country. Our country was under Spanish control during this period but passed to Mexican control. Not until 1846 did we have any contact with the Federal Government, and some time later John Walker was the first Indian agent stationed at Tucson. In that year of 1846, Captain Kearney, at the outbreak of the Mexican war, led an expedition into our country. Our Indian ancestors were able to furnish Captain Kearney and his soldiers food, and feed for their horses.

The first continental stage line was definitely established across the Southwest near the thirty-second parallel and was the wagon route to California. It passed through our villages because we gave not only food but protection to immigrants who came our way.

During the Civil War we sold thousands of bushels of wheat to the Union Army, wheat from seed which Father Kino had brought to us more than a century before. Not only was this assistance given from our Indian ancestors, but our people also formed the first Company C, Arizona Volunteers in our State to wear the uniform of the American Army.

It was a pity to note in the history of a deserving people after the Civil War that many white people began to settle above, or east of us, and practiced our way of farming by diverting water from the Gila stream. Severe hardships from malnutrition and many deaths occurred because of shortage of water with which to irrigate our lands. Suffering lasted more than 40 years. Finally, outside work was looked for and gleanings were made at harvest time in the fields of neighboring white people. Firewood was cut and sold for a livelihood.

Some time after 1900, when both the Gila River Dam at San Carlos and the Salt River Dam at Roosevelt were being discussed, my people believed that our desperate condition would be relieved from one or other of the dams that were to be constructed. This was not the case, however, and the selection of Roosevelt rather than the San Carlos location left us without water for another twenty-odd years.

Finally, in 1928, the Coolidge Dam was built to impound 1,200,000 acre-feet, or so it was intended. But for the last several years the run-off has been far below—or nothing. The storage was very low in 1947, and in 1948 there was nothing.

Our present supplementary water supply is underground water pumped from irrigation wells on our reservation. It is our only source. When the people to the south and east of us pump and pump it diminishes our underground water supply and if it fails, we, no doubt, will be in the same condition as the Ho-Ho-Kam.

We want this Government to make this right by supplying us extra water from the Colorado River. Our lands are our only resources and without water we cannot live. We have no other means, no black gold, no wood gold—our wood is gone—no industries, but green gold if there is water.

We are still farmers like Father Kino found us more than three centuries ago. We are joining with the Central Arizona Project Association in presenting our plea for building this gigantic venture because we believe our future would be assured. We believe this project is a dependable source from which water can be obtained and from which Arizona's irrigated lands will benefit.

We believe, also, that in endorsing this proposal to bring Colorado River water to the Indians, the white man will enjoy the satisfaction of knowing he is making amends to the Indians by replacing to them the waters of the Gila River which the Indians have always divided with the white people.

Mr. MURDOCK. Mr. Chairman, we are glad to have that statement. This is a remarkable story that you have sketched only in minor part.

I often say to my colleagues, in discussing the dedication of the Coolidge Dam on March 4, 1930, that ex-President Calvin Coolidge made a remarkable address but I regard it as the second best made there that day, the best having been made by a full-blood Pima Indian.

Mr. JOHNSON. Yes, sir.

Mr. MURDOCK. Congressman Welch, have you any questions?

Mr. WELCH. No, Mr. Chairman.

Mr. MURDOCK. Congressman Engle?

Mr. ENGLE. No questions.

Mr. MURDOCK. Mr. Lemke?

Mr. LEMKE. I have just one or two questions.

I am certainly grateful to the witness for having given us such a

brief and splendid history. Most statements are too long and we forget about them. You apparently know how to express your thoughts so that we can remember.

I would like to know how many people are in your tribe, approximately.

Mr. JOHNSON. A little better than 5,000, approximately.

Mr. LEMKE. Better than 5,000?

Mr. JOHNSON. The reason it is so close, in the 90 years' time, is because there were so many deaths among our people on account of malnutrition, on account of insufficient subsistence to sustain them through life.

Mr. LEMKE. Have you sufficient lands, provided you can get water, so that you may have sufficient nutrition for all your people?

Mr. JOHNSON. We have sufficient land if we can get the water for it; yes.

Mr. LEMKE. How large a farm do you think each Indian family should have to make a decent living? I do not mean subsistence. I am tired of that word. "Sub" is the latin for "below." That is below existence. I want you to make a decent living, and bring up your children as the rest of us do, if we are able.

Mr. JOHNSON. I think 80 acres would make a fair and comfortable living for any individual on our reservation. As we have now, we only have 10 acres of land.

Mr. LEMKE. You think 80 acres would be sufficient?

Mr. JOHNSON. Just about. It will give us a good living on 80 acres.

Mr. LEMKE. Can the land all be irrigated, or can enough of it be irrigated if you receive the water?

Mr. JOHNSON. Yes. I would say offhand we might develop something like 60,000 acres besides what I have given here this morning.

Mr. LEMKE. That is all, Mr. Chairman.

Mr. MURDOCK. Mr. Morris?

Mr. MORRIS. No questions, thank you.

Mr. MURDOCK. Mr. D'Ewart?

Mr. D'EWART. This is the San Carlos Reservation, for which we had the county agent appearing the other day?

Mr. MURDOCK. Yes, sir.

Mr. D'EWART. How many of these tracts are farmed by Indians and how many are farmed by white men?

Mr. JOHNSON. In our reservation?

Mr. D'EWART. Yes. The tracts in your reservation.

Mr. JOHNSON. There are over 1,700 farm units on our reservation. That is, individual farmers. It ranges from 10 to 80 acres.

Mr. D'EWART. Are those all farmed by Indians?

Mr. JOHNSON. Yes.

Mr. D'EWART. Then these tracts that the county agent spoke of the other day are largely farmed by white men, is that true, Mr. Chairman?

Mr. MURDOCK. Half of the land under the Coolidge Dam belongs to white men, and the other half belongs to the Indians. Of course, 50,000 acres would be farmed as owned by white men.

Mr. D'EWART. Inside the Indian reservation?

Mr. JOHNSON. No; this is in joint works with the white people. The white people farm 50,000 acres under the San Carlos project. There is supposed to be 50,000 acres of Indian land farmed.

Mr. D'EWART. The gentleman told us the other day that this was on an Indian irrigation project. Is that true, whether it is inside the reservation or out?

Mr. MURDOCK. That is right. The Coolidge Dam was built by the Indian Service and the entire project is under the Indian Office.

Mr. D'EWART. Whether it is in the reservation or out? I believe that is not true anywhere else.

Mr. MURDOCK. If I am wrong on that we will be corrected by the gentlemen in the audience, or by the chairman himself, who could correct me if I am wrong.

Mr. D'EWART. Thank you.

Mr. MURDOCK. Judge Bosone.

Mrs. BOSONE. We could almost skip the need of the water, could we not? We realize, being from the West, that Arizona needs the water and California needs the water. Could we not just go from there on? It seems to me that we can agree there is this tremendous need for water. We can start from there.

Mr. MURDOCK. Mr. Poulson?

Mr. POULSON. No questions.

Mr. MURDOCK. Mr. Marshall?

Mr. MARSHALL. I have been a little curious about one thing. You have some years when you have more water in the river than other years. Does that run in pretty regular variance of time?

Mr. JOHNSON. No; we have some water whenever we have rains and floodwaters come in at different times of the season, different times of the year.

Mr. MARSHALL. The flow in your river from one year to the next remains pretty much the same, is that right?

Mr. JOHNSON. There is no flow now on the river.

Mr. MARSHALL. It is dry now?

Mr. JOHNSON. It has been dry in 1947 and 1948. Recently here, 3 months ago, we have had a little rain, so that we have stored a little water now. It only lasts through the year, and that is about all. If we do not have any more rain we do not get any more water.

Mr. MARSHALL. Does the Gila River go dry every year?

Mr. JOHNSON. Practically every year.

Mr. MARSHALL. Practically every year?

Mr. JOHNSON. Yes.

Mr. MARSHALL. So far as you know and so far as you can recall, you receive about the same amount of water in the river from one year to the next?

Mr. JOHNSON. No; it varies. Some waters come in that we cannot control, by means of this floodwater. We have not been able to control these floodwaters, and it runs only a short time. Then it runs down to the Gila.

Mr. MARSHALL. Thank you.

Mr. MURDOCK. Mr. Aspinall?

Mr. ASPINALL. I have no questions.

Mr. MURDOCK. Governor Miles?

Mr. MILES. No questions.

Mr. D'EWART. Mr. Chairman, may I ask one or two questions?

Mr. MURDOCK. Yes, Mr. D'Ewart.

Mr. D'EWART. I want to ask a few questions about the Indian water rights. I gather from the testimony before the committee that the

Indian water rights of this reservation come out of the amount of water allotted to the lower basin.

Mr. MURDOCK. I am afraid the chairman would not be quite able to answer that, because this is on the Gila River.

Mr. D'EWART. Yes.

Mr. MURDOCK. It gets into a pretty complicated matter.

Mr. D'EWART. I understand your point.

Mr. ENGLE. I would like to answer the question by referring to article III (a) of the compact, which says:

> There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

The chairman has just testified that the Indian uses existed on the Gila River long prior to the time the white man arrived.

In other words, the 7,500,000 acre-feet of water which is apportioned to the lower basin was apportioned specifically to include and take care of all waters necessary to supply any rights "which may now exist," which was in 1922.

At that time I think it can and will be demonstrated that all of the water on the Gila was in use.

Mr. D'EWART. Granting for the moment that these Indian rights come out of the amount allotted to the lower basin, whether it is on the Gila River or not, do not these Indian rights predate the rights of California, Arizona, or Nevada?

Mr. MURDOCK. I think there is no question about that, Mr. D'Ewart. These men or their ancestors were here 1,000 years ago.

Mr. D'EWART. In other words, this Indian right is ahead of any white man's right whatsoever?

Mr. JOHNSON. We have full right on the Gila River. We have a memorial right on that river.

Mr. D'EWART. Were the rights recognized in the treaty setting up this reservation?

Mr. MURDOCK. I cannot answer that.

Mr. D'EWART. We ran into a somewhat similar situation up on the Navajo Reservation, and there is a question as to the recognition of rights. I wondered where this Indian right fitted into the over-all picture. I do not know whether anybody has gone into that aspect of the situation or not.

Mr. LEMKE. Mr. Chairman, as I understand it, it is recognized in the compact.

Mr. ENGLE. It is recognized in section III (a) as one of the vested rights.

Mr. LEMKE. So we do not have to look any further. They have a right under that compact.

Mr. ENGLE. That is right; and everybody recognizes it.

Mr. MURDOCK. There is another provision of the compact which also recognizes the rights.

Mr. MILES. That would apply to the Gila water in New Mexico, as well as in Arizona, would it not?

Mr. MURDOCK. I think you are correct.

Mr. Regan?

Mr. REGAN. I would like to ask Mr. Engle to clear me up on something that I seem to continue to be confused on.

We talk about 7,500,000 acre-feet of water per year passing Lee Ferry as the water to be divided among the States of Nevada, California, and Arizona. Then you have the formula for that division.

Where does the Gila River water come in under that 7,500,000 acre-feet of water?

Mr. ENGLE. I am glad you mentioned that. The Gila River water is included in the 7,500,000 acre-feet of water; and I think this point should be made very, very clear. That is that when the basin compact was written there was not a division of the water in the stream; there was a division of the water between the two basins.

Let me read to you what the Colorado River compact says. In article II (a) it defines the terms:

The term "Colorado River system" means that portion of the Colorado River and its tributaries within the United States of America.

I repeat—

The term "Colorado River system" means that portion of the Colorado River and its tributaries—

of which the Gila is one.

Then article III (a) reads as follows:

There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin—

they are not talking about the apportionment of the stream, but they are talking about the apportionment to the basin—

respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

The 7,500,000 acre-feet is the water which is allocated to the lower basin and on the Colorado River system. It was a division of system waters.

Since the "Colorado River system" means "that portion of the Colorado River and its tributaries within the United States of America" it includes the Gila.

Mr. REGAN. But the upper basin of Colorado States furnish Lee Ferry with 75,000,000 acre-feet of water over a 10-year period, or an average of 7,500,000 each year.

Mr. ENGLE. That is the minimum; that is not the maximum.

Mr. REGAN. That is the minimum?

Mr. ENGLE. A 10-year average of 7,500,000 acre-feet has to flow past that point.

Mr. REGAN. That is to be divided between the States. The Gila waters should be involved. Where do they come in?

Mr. ENGLE. The Gila River is part of the lower basin; 7,500,000 acre-feet of water is entitled to be used in the lower basin.

Mr. REGAN. That would be in addition to the 7,500,000 acre-feet?

Mr. ENGLE. No. That is the 7,500,000 acre-feet which is entitled to be used in the lower basin. It includes all the water, just the same as in the upper basin, and all the waters are included, including the water which comes there from tributaries. It is not a division of main flow water.

Mr. ASPINALL. Will the gentleman from California yield?

Mr. ENGLE. Yes.

Mr. ASPINALL. What is meant by the III (b) water, that extra 1,000,000 acre-feet?

Mr. ENGLE. The III (b) water gives the lower basin the right to increase its beneficial consumptive use by 1,000,000 acre-feet.

Mr. ASPINALL. From what?

Mr. ENGLE. Over and above the 7,500,000 acre-feet which is allotted in section III (a) to the lower basin.

Mr. ASPINALL. Where is the water to come from?

Mr. ENGLE. The water is to come from the stream system.

The reason that was written in was because they wanted to protect against the future commitment which this country might make to the State of Mexico.

Let me read you a statement from the brief filed by Arizona in the case of *Arizona* v. *California* which was filed in 1930.

The attorney for the State of Arizona in that litigation was Dean Acheson, who is now the Secretary of State, and he discusses in his brief on behalf of Arizona the significance of III (a) and III (b) water.

Let me read it to you, because it is completely in conflict with the position taken by Arizona in this hearing, and is completely in conflict with the statement made by Mr. Knapp yesterday before this committee in his statement.

Here is what Mr. Acheson said, and I think he is a pretty good lawyer. At that time he was speaking for Arizona and not speaking for California.

Mr. ASPINALL. Just a minute, Mr. Engle, before you read that. You would not suggest that the lawyer for Arizona would perhaps be more competent to state what was in the mind of Arizona at the time the compact was made than perhaps the Commissioner, Mr. Norviel, would you?

Mr. ENGLE. I would say this: When the attorney for Arizona joins with the attorney general of the State of Arizona and places a construction as a legal matter in a brief filed before the Supreme Court on what the compact said, it at least ought to have some bearing on what Arizona thinks about it. It would certainly attach some significance to a situation in which Arizona has completely reversed itself.

Let me read this to you, quoting from Mr. Acheson's brief:

> Under the compact, then, the only water of which the rights to exclusive beneficial use in perpetuity may be acquired in the lower basin is the water apportioned to that basin. Such apportionment is limited to 7,500,000 acre-feet of water per annum by article III (a). The Colorado brief—

This is Acheson speaking, referring to the Colorado brief—

> Page 40, contends that paragraph (b) of article III—

that is the 1,000,000 acre-feet—

> Operates to increase this apportionment to 8,500,000 for the lower basin. This, we submit, is not the case. If it had been intended to apportion the larger amount, the compact could easily have said so.

What Acheson is saying here is that if they intended to apportion an extra 1,000,000 acre-feet in order to make that extra 1,000,000 acre-feet apportioned water they would have said so in III (a). They would have said: "It is 8,500,000 acre-feet apportioned to the

lower basin and 7,500,000 acre-feet apportioned to the upper basin."

However, what they said in paragraph (a) is: "We apportion 7,500,000 acre-feet to each basin."

Then in III (b) they said that the lower basin could increase its consumptive use by 1,000,000 acre-feet. So Mr. Acheson said it was perfectly obvious from reasoning from exclusion that they did not so intend.

He says:

If it had been intended to apportion the larger amount, the compact could easily have said so. The difference in language between paragraphs (a) and (b) is plain, and the difference in meaning is clear.

Incidentally, that is what the Supreme Court said.

Paragraph (b) does not apportion in perpetuity as does paragraph (a), any beneficial use of water. It is very careful not to do this. It is to be read with paragraph (c) and relates solely to the method of sharing between the basins any future Mexican burden which this Government might recognize. This burden is to be satisfied first out of "surplus" waters, and surplus waters are defined, not as surplus over quantities "apportioned," but as surplus over quantities "specified in paragraphs (a) and (b)." Any deficiency remaining is to be borne equally by the two basins.

In other words, 7,500,000 acre-feet apiece means 15,000,000 acre-feet, and plus 1,000,000 acre-feet is 16,000,000 acre-feet.

The Mexican Treaty is to be satisfied out of the waters in the Colorado River over and above 16,000,000 acre-feet.

Thus the lower basin, which without paragraph (b) might use water in excess of its apportionment without acquiring any exclusive right in perpetuity thereto, is enabled to retain such uses to the extent of 1,000,000 acre-feet per annum against the first incidence of the Mexican burden. Thereafter it is entitled to require the upper basin to share from its apportionment equally in the satisfaction of any deficiency. In other words, all that paragraphs (b) and (c) accomplish is to require the upper basin to reduce its apportionment in favor of Mexico before the lower basin is required to do so, the lower basin being entitled to contribute first, to the extent of 1,000,000 acre-feet, water which it may have used but to which it has no exclusive right in perpetuity—that is, water not apportioned to it. The water apportioned is that to which exclusive beneficial use in perpetuity is given in paragraph (a), less any deductions which may have to be recognized as provided in paragraphs (b) and (c).

To boil that down to an illustration, let us assume that the total water in the Colorado River is 17,000,000 acre-feet. The III (a) water is 7,500,000 acre-feet apiece. That is 15,000,000, plus the III (b) water, which makes it 16,000,000.

Now, if the total water in the river is 17,000,000 acre-feet and Mexico is entitled to 1,500,000 acre-feet, somebody is going to have to come forward with another 500,000 acre-feet of water. Where is it coming from?

Two hundred and fifty thousand acre-feet of that water is coming out of the upper basin's 7,500,000 acre-feet, and 250,000 acre-feet of that water is coming out of the lower basin's 8,500,000 acre-feet of water. That is what those paragraphs do, and that is precisely what Mr. Acheson, representing the State of Arizona, joined with their attorney general, contended back in 1930.

We contend it is good law and that it is gospel.

Now, Mr. Chairman, I did not have an opportunity yesterday——

Mr. MURDOCK. I wish you would hold that up until we have disposed of these two witnesses, if you please, Mr. Engle.

Mr. Barrett, have you any questions to ask the present witness?

Mr. BARRETT. I would like to inquire if the present witness takes the position that the State of Arizona is entitled to the 1,000,000 acre-feet of water under III (b) and that it is his position that the part of the water apportioned to Arizona under III (b), according to its own contention, belongs to his tribe.

Mr. JOHNSON. Yes. I would say that Arizona should be entitled to this water from the Colorado.

Now, I do not understand the compact and I am not familiar with it. However, it seems to include the Gila River.

To cut it short, I will say that when this division of water from the Colorado should be extended it would have to be pumped, and an aqueduct would be made in order to irrigate these lands that are in southern and central Arizona, and all of the waters of the Gila flow to the west. You would have to lift the water to run it up further in order to irrigate these lands. The confluence of the Salt River and the Gila River is below Phoenix, and it flows down to the Colorado from there, below us. If you include this water in the Gila River you are including the entire length of it, clear into New Mexico, as I understand it.

Mr. BARRETT. Is there a controversy between your tribe and the State of Arizona?

Mr. JOHNSON. There is no controversy.

Mr. BARRETT. Over the waters of the Gila River?

Mr. JOHNSON. There is no controversy on this Colorado River.

Mr. POULSON. Will my colleague yield?

As I understood Mr. Johnson to say—he can correct me if I am wrong—they were not receiving all the water on the Gila River that they needed. Is that right?

Mr. JOHNSON. That is right.

Mr. POULSON. If Arizona's contention—our chairman, Mr. Murdock, stated that was the fact—is that the Indian rights are prior to the white man's rights, either on the upper or the lower basin, either with reference to California or Arizona, then why does Arizona not recognize and practice that which they profess to believe in, if the Indians have prior rights? Why is Arizona not giving you the prior rights at this time on the Gila River, since she professes that you have prior rights?

Maybe our chairman can answer that.

Mr. MURDOCK. I am certainly unaware that the State of Arizona has deprived the Pima Indians of any use of water. Their project was built by the Indian Service.

Mr. POULSON. Mr. Johnson, I think, stated they could use more water and that they are not receiving sufficient water.

Mr. JOHNSON. As I said a few minutes ago in my statement, this Government has built several dams on the Gila and Salt Rivers. It is not sufficient for our lands to be irrigated from these. Of course, we know that mistakes are made in many instances.

Take Gillespie Dam, for instance. It is below us. What waters are captured in the Gillespie Dam are from this water that flows down that we cannot control. We cannot get any water out of the Gillespie Dam because it will not run uphill.

The second dam that was built was on the Salt River, the Roosevelt

Dam. We also cannot get any water from that because it will not run uphill.

Mr. POULSON. I appreciate that. However, on the Coolidge Dam did you not say a minute ago that the white men were irrigating about 50,000 acres?

Mr. JOHNSON. Yes, but it is insufficient to irrigate our lands.

Mr. POULSON. Yes, but if the white men did not use that water then you could have it, could you not?

Mr. JOHNSON. What did you say?

Mr. POULSON. If the white men did not use the water to irrigate that 50,000 acres you could use that water?

Mr. JOHNSON. Yes.

Mr. POULSON. Then they are taking away from you the water which belongs to you by priority?

Mr. JOHNSON. Yes, sir.

Mr. PATTEN. The water would not have been there if they had not built the dam.

Mr. POULSON. That is all right; but the Government did it. If Arizona professes that the Indian has the first right, she is not practicing what she preaches.

Mr. MURDOCK. I might make this comment: That is a rather strained construction.

The Coolidge Dam was built both for the benefit of the Pima Indians and their white neighbors.

Let us go back to the act of Congress which created the dam, and to President Calvin Coolidge, who signed the bill into law. That was part of the great speech that was made by a masterful Pima Indian on March 4, 1930. He said, just as the chairman of the tribal council has said today: "We did not ask the Great White Father in Washington to take away the water from Graham County and Greenlee County, but we did ask for relief, and the dam is here to catch the flood waters and give us that relief."

The dam was built by the Federal Government for the benefit of the Indians and their white neighbors. That is true, is it not?

Mr. JOHNSON. That is right.

Mr. MURDOCK. However, the lack of water has been the lack of rainfall and collection of water above Coolidge Dam. Both whites and Indians have suffered from that lack. It is the lack of water which you would like to have supplied by water from the Colorado River, to which you have an undoubted right.

Mr. JOHNSON. Yes, sir.

Mr. MURDOCK. We thank you, Mr. Chairman.

Mr. POULSON. Mr. Chairman, the white men still irrigate 50,000 acres out of that water.

Mr. BARRETT. Mr. Chairman, might I ask one question here?

Mr. MURDOCK. Yes.

Mr. BARRETT. Do I understand the contention of the State of Arizona is that the 1,000,000 acre-feet of water that is allocated under III (b) is that amount of water out of the Gila River? That is, in addition to Arizona's share of the water apportioned under III (a)? Also, that the State of Arizona, in turn, recognizes the rights of the Indians to the priority to that particular water on the Gila River?

Mr. MURDOCK. May I ask you to hold that until the attorney for

Arizona can be before us? Charles Carson, Arizona's attorney, is a sick man right now. However, it is hardly a question to put to the chairman of the Pima Tribal Council. It is an involved question. Is that satisfactory?

Mr. BARRETT. That is satisfactory, except that I was putting the question to you, Mr. Chairman. I would like to know what we are discussing here.

I cannot quite follow this controversy here without having the contentions of Arizona and California clearly in my mind.

I certainly did not follow Mr. Engle a moment ago when he contended that the upper basin States were obligated to supply water going to Mexico under the treaty, practically in entirety.

Mr. ENGLE. I did not say that.

Mr. BARRETT. Well, as I understood your contention you said that the waters allocated under III (b) were allocated to the lower basin to meet the requirements to Mexico under the treaty, is that right?

Mr. ENGLE. No. I said this: That the lower basin is entitled to take its contribution to the Mexican treaty water out of that 1,000,000 acre-feet of water, whereas the upper basin has to take its contribution, when it is made, out of the 7,500,000 acre-feet of III (a) water.

I put it this way: If there were 1,000,000 acre-feet short, or 500,000 acre-feet short, down at the line, which had to go into Mexico to meet the 1,500,000 acre-feet, that the upper basin would have to take half of that or 250,000 acre-feet out of their 7,500,000 acre-feet, whereas the lower basin States would take it out of the 8,500,000 acre-feet. In other words, they could take their part out of that top 1,000,000 acre-feet.

Mr. BARRETT. What about the surplus water?

Mr. ENGLE. The water for the Mexican treaty has to be supplied out of the surplus water, but the surplus water is divided as to waters which are surplus over and above the waters referred to in III (a) and III (b).

Mr. BARRETT. That is right. That would be a total of 16,000,000 acre-feet.

Mr. ENGLE. That would be a total of 16,000,000 acre-feet. If you had 17,000,000 acre-feet of water in the river you would be 500,000 acre-feet short of the amount necessary. Then that is where everybody has to start cutting back.

Mr. BARRETT. What about this 1,000,000 acre-feet? According to your own contention, if you say that was given to the lower basin States for the purpose of supplying the water to Mexico——

Mr. ENGLE. I did not say that.

Mr. BARRETT. What did you say?

Mr. ENGLE. I positively did not say that. I said that the lower basin States were entitled to increase their beneficial consumptive use by 1,000,000 acre-feet over the amount of 7,500,000 acre-feet given them under III (a), but the effect of it is to give them the right to take that water out of the III (b) water before they have to go into their III (a) water. The III (a) water is the water which is granted in perpetuity to each basin.

Mr. BARRETT. What I cannot understand is why the compact did not say in so many words that the lower basin was entitled to 8,500,000

acre-feet instead of saying in III (a) that they are entitled to only 7,500,000 acre-feet.

Mr. ENGLE. Because they were not apportioning in perpetuity the additional 1,000,000 acre-feet of water. That is the reason. They were making it first subject to the Mexican treaty.

In other words, Mr. Barrett, what happened was that the lower basin, by virtue of the III (b) provision got a bulge on the upper basin to the extent of 1,000,000 acre-feet of water when it came to satisfying the requirements of the Mexican treaty. That is what Mr. Acheson plainly says in his brief.

Mr. BARRETT. Why did Mr. Hoover, immediately after the compact was arrived at, address a note to Mr. Norviel and say:

> This is just by way of registering again my feelings of admiration for the best fighter on the Commission. Arizona should erect a monument to you and entitle it "One Million Acre-Feet."

What did he have in mind?

Mr. ENGLE. He was paying tribute to the Arizona negotiator for the fact that the Arizona negotiator had put on a vigorous fight for an extra 1,000,000 acre-feet of water which went to the lower basin; and the Supreme Court so held. Nobody takes that away from the Arizona negotiator.

Mr. BARRETT. Why should Arizona erect a monument to somebody who is getting water for California? That is what I would like to know.

Mr. ENGLE. He got it for the basin.

On Mr. Knapp's statement yesterday, page 15, he says as follows, quoting Judge Stone:

> In *Arizona* v. *California*, the Court did not sustain Arizona's claim that the million acre-feet covered by III (b) water was specifically apportioned to Arizona alone.

In other words, the Supreme Court has definitely answered that question.

Mr. BARRETT. All that means is that the Supreme Court did not decide that particular question.

Mr. ENGLE. The Supreme Court said it was apportioned to the basin. You may say that the language was dicta, but Arizona can receive no comfort from it.

Mr. BARRETT. That is all I have to say.

Mr. MURDOCK. These are interesting matters and must be thrashed out, preferably, in executive session when we have heard all the evidence.

We thank you, Chairman Johnson, for a very splendid statement.

Mr. JOHNSON. Thank you, sir.

Mr. MURDOCK. We will now have time to hear the statement of your colleague.

I will ask Mr. Alfred Jackson to come forward.

Mr. ENGLE. Mr. Chairman, I desire to be recognized at this time in pursuance of the commitment made by the Chair yesterday.

Mr. MURDOCK. The Chair cannot recognize the gentleman at this time. We have two witnesses here we want to hear in consecutive fashion and dispose of.

Mr. ENGLE. Mr. Chairman, I make a point of order; no quorum is present. I object to further proceedings on that ground.

I do not like to proceed in this way, Mr. Chairman, but yesterday I made it very plain that I wanted to make a statement in answer to Mr. Knapp. The Chair said that that would be agreeable and I do not propose to be shunted off here continuously. I do not think it is fair to call these witnesses and have them testify at length. In that instance it was practically 2 hours. Then the witness goes out of town without our having an opportunity to ask questions.

I insist upon my point of order that no quorum is present.

Mr. MURDOCK. Apparently no quorum is present.

The committee stands adjourned until 10 o'clock tomorrow morning.

(Whereupon, at 10:55 a. m., Tuesday, April 5, 1949, an adjournment was taken until 10 a. m., Wednesday, April 6, 1949.)

THE CENTRAL ARIZONA PROJECT

WEDNESDAY, APRIL 6, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 10 a. m., in the committee room of the House Committee on Public Lands, New House Office Building, Hon. Toby Morris (acting chairman of the subcommittee), presiding.

Mr. MORRIS. The subcommittee will now come to order.

I might make this announcement: That the chairman of the subcommittee, Mr. Murdock, is now at the White House with other parties attending a ceremony, and will be detained for a little while at the White House. He asked me in order to conserve time to act as chairman during his absence and to proceed until he can get back. He expects to get back very shortly, probably by 10:30 or 11 o'clock.

In the meantime, we will proceed with the testimony and the statements in order not to lose time.

According to Mr. Murdock's direction, I now call for Mr. Jackson, who I understand has a statement to present to the subcommittee.

Mr. Jackson, will you give your full name, your representative capacity, if any, to the reporter, please.

STATEMENT OF ALFRED JACKSON, GILA RIVER INDIAN RESERVATION, ARIZ.

Mr. JACKSON. Mr. Chairman and members of the committee, my name is Alfred Jackson and I am a member of the Pima Indian Tribe of Arizona. I was born in the village of Sacaton and have lived on the reservation all my life. I attended school in Tucson and later went to Phoenix Indian School, from where I graduated in 1915. Since leaving school I have taken an active part in the social, religious, and economic life of our little community. I might add that our family has, for many generations, been interested in the improvement and development of our people and their reservation. My colleague, Mr. Johnson, has given you the history and background of our irrigation project and I, in turn, will tell you something about our social and economic life; the way we live, the kind of homes we build, the crops we grow, and other facts about our people.

I might say that we have been the connecting link between the prehistoric man of the stone age and the white man who has come into our country and created what we call the machine age. Our people

did not make stone implements. Our ancient farmers planted their crop with the aid of a sharpened stick with which they opened the soil, and after dropping in the seed they tamped the earth about it with their feet. Their women and children guarded the growing crop against destruction from birds and wild animals and the men themselves defended their harvest with their war clubs against marauding bands that came to steal it from them.

They grew corn, beans, squash, and cotton. Their native corn was not like that grown in the Iowa Corn Belt. It grew only a few feet in height, and the small ears with their irregular rows of small round kernels seldom yielded more than 10 bushels per acre.

For several centuries we have grown a little bean that we call teppery. Some are white, some are brown, and even today they are still a favorite with our people an we grow a lot of them for our personal use.

Often when the summer rains were short our corn did not mature, but the quicker-growing bean provided our only source of food.

Our pumpkin-like squash was cut in strips and dried and stored for winter use very much as I understand the early white farmers did a century ago.

From our native cotton we wove material for our breechcloth and other clothing for our women and children.

When our fields did not produce the simple necessities of life for us because of lack of rain, we turned to the desert for our subsistence. We gathered the fruits of different cactus plants and dried them and stored them away. We gathered the beans from the mesquite tree, the Palo Verde, the catclaw, and other seeds and berries that grew along the desert washes.

The early Spanish padres brought in horses, cattle, wheat, and other farm crops that we found would grow on our lands. Wheat soon became the most important item in our diet. We did not have any flour mills, but we ground the whole kernels on a flat stone which we called a metate, and from this coarse flour and a little grit we made a thin cake which we cooked on coals and was called tortilla. Also, we placed some live coals in an earthen pot and sprinkled wheat over these coals and parched it, then ground it into fine meal which we called pinole. We mixed this into a thin uncooked gruel which we drank, and it gave us great strength. When our warriors went out to battle, a little bag of pinole tied to their belts took the place of the field kitchen in a modern army.

With the coming of American farmers into our country, all these things changed. They brought in many other crops, and today we are growing alfalfa, barley, sudan grass, sorghum grains, wheat, cotton, along with many vegetables and fruits, the same as any white farmer in our area may grow.

Last year we sold 59,340 bushels of wheat; 148,117 bushels of barley; 134,143 bushels of sorghum grains. This latter grain has taken the place of corn in the Southwest since it yields much more per acre than corn.

We no longer grow the short-fibered wild cotton that our forefathers grew, but the Department of Agriculture has developed a variety of cotton at the Sacaton Experimental Station that is known as

Pima long-staple cotton and is used all over the world. We have 3,705 acres of hegari, 4,566 acres of barley, and 320 acres of cotton for harvest this year, and it will require all of our allotment of water to mature these crops. For the past two seasons it has only been possible for us to operate about 30 percent of our land, but increased water permits a slightly increased acreage this year.

Our homes are built from native materials we find close at hand. We use adobe, ribs from the giant cactus, mesquite, and cottonwood poles from along the river; and we thatch our roofs with a thick mat of arrowweeds that grow in the bottom land, and over this thatch we lay a heavy layer of earth that not only keeps out the rain but some of the heat from our Arizona sun. Our houses are quite different from the beautiful homes I have seen in Washington, but for us they are home and we are comfortable and happy in them. I will not say we are content, for we are not. We want a house like our white neighbor has. We want an electric refrigerator and a radio and modern farm machinery like he has. We are thrifty and we want to work and earn these things. Our climate is good and our lands are fertile, but we have one great need and that is water, and unless you have felt the thirst of the desert as we have, it is hard to realize how great that need it.

We realize that our lands represent only an insignificant part of the wealth of southern Arizona, but to us they represent all that we have. They are our last heritage. The large commercial farms, the citrus groves, the date orchards, and the vast fields of winter vegetables that the white men have represent an immense commercial investment; while our lands mean our subsistence, our only way of making a living. We appreciate the interest of our white neighbors and the opportunity they have given us in presenting our case to you, for we want our children to share along with theirs in the benefits and the advantages that the central Arizona project will bring to both.

Mr. MORRIS. We thank you for your statement, Mr. Jackson, and will give it due consideration.

Mr. LEMKE. Mr. Chairman, may I make a comment?

Mr. MORRIS. Mr. Lemke?

Mr. LEMKE. Do you raise wheat and barley without irrigation?

Mr. JACKSON. With irrigation.

Mr. LEMKE. I want to congratulate you, and again congratulate Mr. Johnson, for giving us great masterpieces. I think some of the white people who expect hand-outs without working ought to go to your tribe and be civilized into modern life.

Mr. CRAWFORD. Mr. Chairman?

Mr. MORRIS. Mr. Crawford.

Mr. CRAWFORD. Mr. Jackson, do you people have any modern machinery with which to handle these crops you are now growing?

Mr. JACKSON. We have some; yes, sir.

Mr. CRAWFORD. How do you acquire that? Do you buy it from the local implement dealers?

Mr. JACKSON. Yes; mostly.

Mr. CRAWFORD. Is that machinery pretty high in price down there?

Mr. JACKSON. Pretty high; yes.

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Mr. CRAWFORD. What are some of the tools that you use?

Mr. JACKSON. Well, we have some ordinary tools. Some of the boys that are taking up farming under the GI bill of rights have managed to acquire their own machinery such as Caterpillars and plows.

Mr. CRAWFORD. You have some Caterpillar tractors?

Mr. JACKSON. Yes; tractors.

Mr. CRAWFORD. Farm-all tractors?

Mr. JACKSON. Yes.

Mr. CRAWFORD. Mowing machines?

Mr. JACKSON. Yes.

Mr. CRAWFORD. Automatic hay balers?

Mr. JACKSON. No.

Mr. CRAWFORD. Do you do that?

Mr. JACKSON. No.

Mr. CRAWFORD. That gets into a pretty big operation, with that type of machine.

Mr. JACKSON. Yes, sir.

Mr. CRAWFORD. What do you use for fertilizer down there? Do you have to fertilize?

Mr. JACKSON. We only use stubble, I guess, and plow it under.

Mr. CRAWFORD. You do not use commercial fertilizer?

Mr. JACKSON. No.

Mr. CRAWFORD. You rotate your crops to take care of that?

Mr. JACKSON. Yes.

Mr. CRAWFORD. That helps the production of the soil?

Mr. JACKSON. That is right.

Mr. MORRIS. Do any other members of the committee desire to ask the witness any questions?

If not, you may leave the witness stand, Mr. Jackson. We appreciate very much your contribution, and will give it careful consideration.

Mr. JACKSON. Thank you.

Mr. MORRIS. I believe Mr. Moeur said that he had a statement he wanted to file with the committee. Is that right?

STATEMENT OF J. H. MOEUR, SPECIAL ATTORNEY FOR THE ARIZONA INTERSTATE STREAMS COMMISSION

Mr. MOEUR. Not exactly, Mr. Chairman. My name is J. H. Moeur, special attorney for the Interstate Stream Commission of Arizona.

I wanted to offer for the record a number of statements of different witnesses, without reading those statements.

Mr. MORRIS. All right.

Mr. MOEUR. First is the statement of Barry M. Goldwater, a member of the Arizona Interstate Stream Commission.

Mr. MORRIS. The statements will be received, filed, and will become a part of the record.

Mr. MOEUR. Mr. Goldwater's statement is somewhat of a historical picture of the river. He is one of the few men who has been down the river in a boat several times.

(The document is as follows:)

STATEMENT OF BARRY M. GOLDWATER, MEMBER OF THE ARIZONA INTERSTATE STREAM COMMISSION

By name is Barry Goldwater; my home is Phoenix, Ariz., and my occupation is merchant. Being a native of Arizona, it is only natural that I have grown up with a full realization of the need for and the value of water to our economy. Now I am neither an engineer nor a lawyer, and I have but slight acquaintance with the actual work the farmer does in irrigating his land, but because of my interest in water as a necessity to our economy, I long ago undertook a hobby-like study of our waters and where they came from.

This study, naturally, has been limited to what a layman could find out and understand and at this time I would like to present to you a brief outline of the basin from a layman's standpoint in the knowledge that it will make more understandable to you the subsequent technical discussions regarding the Colorado River and its basin. I suppose I should further qualify myself by telling you that this interest in the Colorado and its basin is not new to my family by any means, because 88 years ago my grandfather settled on the river's muddy banks and began a business that is still in operation. For many years this river provided our business with transportation that was so vital to our endeavors in the field of merchandising and freighting. During the years I have, from time to time, made several boat trips down its waters until today I can look back on periods of boating that have taken me down the Green River from Green River, Utah, to the Colorado and down that stream to Hoover Dam and on down below that to the city of Yuma. I have included a trip down the San Juan and to augment what I could not see by boat, I have thoroughly explored the entire basin by many trips in an airplane up and down its beautiful and interesting expanse. These things I mention, merely to establish in your minds that I have seen the things I am going to tell you about the basin. As I told you before, I saw them through the eyes of a layman and that is just the way I want to describe them to you today.

To begin with, you must realize the immensity of this basin and the river that drains it. Sitting back here, that is hard to do, but look at this map. It shows you the United States, and here, dominating the inland West, is the Colorado River Basin. The basin comprises 244,000 square miles, all in the United States except 2,000 in Old Mexico. The Salton Sea Basin has another 7,800 square miles and is sometimes thought of as being a part of the Colorado River Basin, but as it does not drain into the Colorado, it can't be called a part of the main basin. From Wyoming to Mexico the basin is 900 miles long and varies in width from 300 miles up here to 500 miles down here in the lower basin. To the northeast, its boundaries are the Rocky Mountains and to the west the mighty Wasatch Range in Utah marks its size. Way down at the bottom end of the lower basin the San Jacinto Mountains form a southwestern border for the basin. In this area we find elevations from 200 feet below sea level to over 13,000 feet above sea level, and vegetation commensurate with those extremes of altitudes. Climate varies from the dry hot air of the deserts to the cold crisp air of the mountains. Temperatures go from 50 degrees below zero to 125 degrees above zero. Rainfall will be as low as 2½ inches down in the desert to over 50 inches a year in the high reaches of the Rockies. No similar area on earth can present such a variation in so many factors affecting human life as can this Colorado River Basin, and no comparable area can boast of a natural resource as powerful and undeveloped as this river to sustain and promote human life. Its 1,400-mile length has its head nestled in the clear lakes and glaciers of the Rockies and its feet in the warm waters of the Gulf of Lower California.

Compared to the age of the river and the basin, this argument about the use of its waters began only a fraction of a second ago. In this basin we find the oldest rocks known to man, over 800,000,000 years old and the river itself has been wandering along in some shape or other for untold millions of years. In this area up here where we find the headwaters of the Colorado and the Green in the same chain of mountains, the Rockies, we find an area of giant mountains of granite, lava, and sharply folded sedimentary rocks. Here is an area of undescribable beauty. Mountains that rear their heads into the sky, down whose sides tumble pure, cold streams of water teeming with trout. Mountains whose perpetual snows and glaciers provide the bulk of the water the river system carries. Mountains whose sides have been torn away by the streams to provide the rich earth of the valleys below. Mountains whose forests and mines mean much to the economy of Wyoming and Colorado.

As we come down into the central part of this basin we begin to find rocks of a different geologic origin. During the many millions of years that this basin has existed, there have been several oceans that have covered this area or parts of this area. Through these seas would protrude high mountains, and against these mountains strong winds would blow just as they do today. These winds would carry away minute particles of these mountains in the form of sand and then the sand would settle into the sea and fall to the bottom. There, the tremendous pressures would compress these sands into layers of sandstones. When the oceans receded, we would find vast areas of sandstones colored from soft pastels to vivid reds. Now this river which at first was a sluggish thing, maybe 30 miles wide, started to work on these rocks. A gradual elevating of the lands more and more confined the river to a smaller channel and increased its cutting effect. Today in this area we find, without doubt, the least explored, wildest part of the United States. An area of thousands of square miles cut by canyons hundreds of feet deep and varying in width from 3 or 4 feet to many miles. An area into which few white men have traveled because of the lack of roads or incentive. This is the country of the Navajo, the Ute, and the Hopi. An area of awe-inspiring formations of sandstones that has, as its potential, the greatest tourist attractions in this country.

Then we will go on down to the lower part of this basin. This is the country of Nevada, eastern California, and Arizona, the lower basin. Here we find broad, flat valleys separated by low ranges of mountains. The valleys are filled with immense deposits of alluvial gravel and are fertile beyond man's fondest hopes. These are the valleys that need but the touch of water to become immediately and profitably productive. Here, too, are vast deserts. Some, like down in this area [points] are unending stretches of delta sand, barren of even the smallest plant. Others are really not deserts like you would think a desert should look. Over here in Arizona some of these valleys I told you about are called deserts, but they are covered with a dense and interesting growth of cacti and small brush and trees, and present anything but a picture of the desert. This area over here, which is called the Imperial Valley, has on its eastern edge one of these vast sand deserts. In fact, if it is the one you see in the movies when the Foreign Legion takes after the bad sheik. This Imperial Valley was formed by the Colorado, and its formation was so interesting that I must tell you about it.

The Gulf of Lower California at one time extended far up the present river, probably to above Needles. The river, in the forming of its delta, gradually built a channel around this arm of the sea, and while this body of water was fed for a time from the river, finally that source cut itself off and the water eventually evaporated, leaving a large, deep valley whose floor was quite fertile, but nearly 200 feet below sea level. As a result of attempts to irrigate this valley with Colorado River water, the channel was so altered that when the disastrous floods of 1905 and 1906 came down the Gila and the Colorado they started to pour themselves into the Imperial Valley. That flood of water was finally stopped, but not until the Salton Sea was formed.

On down below here the delta of the river starts, and today, as a result of the building of dams up above, we find clear blue water flowing out to the sea where a silt-laden stream once pushed itself mile after mile down the valleys of Arizona and California to form an intricate delta pattern. This action is not taking place any more because of these dams and the removal of the silt. Instead of a delta as such, the river now flows to the Gulf through a well-defined channel. The land in this area is in Mexico, and, like the bottom lands in other parts of the basin, is very fertile.

In this past discussion I have tried to cover briefly a description of the geography, geologic history, and the scenery of this basin. Those things took place so many millions of years ago that we can hardly even comprehend such vast time, but the written history of this stream and this basin is an interesting one, and an understanding of it will facilitate your consideration of its problems.

As the result of an exploration made by Cabeza de Vaca, which went from somewhere near the delta of the Mississippi to Mexico City and lasted from 1528 to 1536, and which brought to the latter city tall tales about fabulously rich cities to the north, the exploration of the Southwest began. Cortes, who was the head man in Mexico then, and who was no man to turn down the chance of easy gold, started sending parties out in 1539. It was one of these explorers, Ulloa, who first saw the mouth of the Colorado. He was trying to determine if Baja California was a peninsula or an island. On coming near the mouth of the river he witnessed the giant tidal bore that exists there twice a day and decided to end

his investigations there. In the following year, 1540, the greatest conquest of all started. That was the Coronado Expedition, which went in two parts, one by sea, under command of Alarcon, and the other by land, under Coronado himself. Alarcon sailed some 80 leagues up the river, according to his diary, which put him some distance past the present city of Yuma. That, we can say, then, was the discovery of this river. But even when white man discovered it he found that the Indian had been using its waters for protection and farming for many years before. Man has lived from, and on, this river for over 20,000 years.

We are further indebted to the Coronado expedition for the discovery of the Grand Canyon in 1542 when one of his lieutenants, Cardenas, was led there by the Moqui, or as we now know them, the Hopi. The Coronado expedition made deep explorations into the lands to the east and north but returned to Mexico City empty handed as far as riches went. They returned without material riches, but they gave to the world the richness of the knowledge that these lands that now form our basin existed. In the next 250 years, many Spanish explorations came into the basin area, some came looking for gold or silver while others came to spread the work of God. These men, explorers, merchants, and padres alike depended on the river and its tributaries for transportation and sustenance and we find many references in old Spanish chronicles to the Colorado River or the Gila. This old river has carried over five different names in its life and it was not until the last 200 years that Colorado began to emerge as its name—Colorado, red color.

In the early 1800's men began to work the river and its tributaries for beaver, and we find in that period many Americans beginning to explore this basin for its mineral, agricultural, and other natural wealths. In 1869 the first complete study and exploration was started on the river system by Maj. John Wesley Powell, a one-armed Civil War veteran who, in May of that year, set out from Green River, Wyo., in 4 boats with 10 men to drift down these rivers of mystery. I have not gone into the river with much detail up to here for I wanted a vehicle on which to carry you, and now that I have it with Major Powell's party, let's go downstream.

The Green River rises in the Wind River Mountains of southwestern Wyoming, emerging from a glacier and small lake over 13,000 feet above sea level. It flows over through the corner of Colorado through the Dinosaur National Monument, then into Utah. It has been in the mountain country up to here, but when it gets into Utah a bit, it runs into the first of the sandstones I mentioned. Here, with the exception of a few places, the river becomes confined in canyons for the rest of its trip to Lake Mead. Where one of these canyons end and another starts, the Green River enters the Colorado. I mentioned the Green first because, until 1922, the Colorado was considered as being formed by the junction of the Green and the Grand here at the head of Cataract Canyon. In 1922 the Legislature of Colorado changed the name of the Grand to the Colorado, so if you are asked today where that river rises, you must say in Grand Lake on the western slopes of the Rockies, about 100 air-miles northwest of Denver. This newly named Colorado flows down through deep, rugged canyons, through wooded lands, and over flat green meadows to meet with the Green River here at this point. At the southern end of this canyon we find Dark Canyon Dam site. Below here the river is joined by the Dirty Devil River whose name has been changed to Fremont to honor Gen. John Fremont, who has listed among his many honors that of being Governor of Arizona. Below there we find the river entering its most beautiful canyon, Glen Canyon. It stays in this canyon for nearly 200 miles, and during its course through here is joined by the Escalante River, which drains the vast Escalante Desert, and the San Juan River, which rises over in Colorado, runs through New Mexico, and flows across the southern part of Utah—the last 90 miles through a wondrous canyon system of its own. This river brings down much of the red silt from the Navajo country that gives the river its name of "Red." Near the mouth of Glen Canyon we come upon another important dam site which, when built, will back water up through the entire course of Glen Canyon. The water through here flows very placidly and one finds no rapids. Throughout this canyon one is confronted with historic spots marking the advent of the Spaniard and of the American. It is truly one of the most interesting stretches of the river as it winds its way through this wide and shallow red sandstone-walled canyon.

Below Lee Ferry, which marks the end of Glen Canyon and the start of Marble Canyon, and also the boundary between the upper basin and the lower basin, the river plunges into the greatest of its canyon cutting efforts. Marble Canyon

actually is a part of the Grand Canyon, but as there is a definite line of demarcation at the place where the Little Colorado comes in, we treat it as a separate canyon. For 64 miles the river cuts into the flat plateau to a depth of, at one place, nearly 4,000 feet. The canyon is extremely narrow, never more than a mile or so in width. Here the river drops nearly 600 feet, or about 10 feet to the mile, thus creating many rapids. As we go along I will point out the various dam sites that have been surveyed. They are so numerous that I will only name the more important ones. It is interesting to note, though, that 17 out of the 28 dam sites in the lower basin are in Arizona and that the remaining border on this State.

At the end of Marble Canyon the Little Colorado, rising in eastern Arizona. comes into the big river and here, too, the Grand Canyon officially starts. For 230 miles this canyon, cut a mile deep, and at places 11 miles wide, twists and turns through the Kaibab Plateau and the little-known area of northwestern Arizona. We pass here Bridge Canyon Dam site which is of paramount importance to us in Arizona. Here is to be located the giant dam that will funish power to lift the water from Lake Havasu into the central Arizona project aqueduct, and thereby furnish badly needed supplemental water for present irrigated lands in central Arizona. This dam will also furnish power to run our expanding industries in Arizona.

Immediately below here, the river ends its wild plunge from the mountains of Wyoming and Colorado as it backs up behind the mass of Hoover Dam, forming Lake Mead. Near the headwaters of Lake Mead we come upon graphic evidence of the silt problem this powerful river presents us with. I have not emphasized silt before, awaiting our arrival at this place to tell you about it. This river, as it cuts through the sandstones and the granites and other rocks that make up its bed, and as its tributaries bring in their loads of erosion material, accumulates enough silt to fill 10,000 boxcars in a single day. This carrying power of the river has built the large delta of the river and, as I pointed out before, has been responsible for the creation of the Imperial Valley. This silt problem is recognized as the remaining large problem of the river. Its floods are largely controlled by the dams already built, but additional silt regulation must be provided for. The construction of Bridge Canyon Dam will prevent the further silting up of Lake Mead, but in order to more fully control the silt on the entire river, the bill before you contemplates the building for silt control of a dam on the San Juan River and another on the Little Colorado River. If the dam is built at Glen Canyon, it might not be necessary to build the dam on the San Juan. In addition to this, soil-conservation methods have been instituted on the Navajo and Hopi Reservations which, if carried through, will aid materially in removing the threat of this danger that, if allowed to go unchecked, will impair the efficiency of the planned and existing projects in the years to come. The Colorado River below Hoover Dam runs into another great project that will soon be giving to the people of the Southwest its small portion of the tremendous unused resources of the river. This is Davis Dam. Below Davis Dam the river is well out into the valley and desert country and before it even has a chance to get going good again, it backs into Havasu Lake, formed by Parker Dam. This lake furnishes Los Angeles with a water supply that will more than take care of any anticipated growth in the years ahead. It will also furnish the central Arizona project with water. Here the tributary river, called the Bill Williams, comes in from Arizona. This stream drains the western part of Arizona.

A small diversion dam immedately below Parker Dam diverts water onto the Colorado Indian lands that will figure prominently in the coming rehabilitation of the Navajo and Hopi Indians. As we go on down this river, we pass the city of Blythe, Calif., in the center of a fertile and well developed irrigation project. On down below here, and just above the city of Yuma, Ariz., the river is diverted by the Imperial Dam into the giant All-American Canal which irrigates the entire Imperial Valley and supplies so much water that it cannot all be used and is wasting into the Salton Sea to such an extent that it is inundating farms and even buildings. On the east of this dam, water is diverted to irrigate the new project on the Yuma Mesa. From this dam to the sea is a matter of seventy-odd miles where the river flows almost entirely through Mexico. The Gila River, one of the Colorado's largest tributaries, enters the main stream just below Imperial and Laguna Dams. This river is a sizable system in its own right, rising over in New Mexico and flowing through Arizona where it adds to its waters those of the San Pedro, the Santa Cruz, and the Salt River.

I know, from my own observation, that central Arizona needs water from the

Colorado River for a supplemental supply to irrigate lands now under cultivation, not to bring in new land, but to keep land now under cultivation from going back to the desert. Other witnesses will present in more detail the urgent need for this water and the availability thereof.

Mr. MOEUR. The next statement is that of Mr. J. A. Roberts, a farmer. None of these men are here. That is the reason I am offering their statements.

Mr. MORRIS. Yes.

Mr. MOEUR. Mr. Roberts' statement deals particularly with the San Carlos project with which he is associated. He is a farmer who lives there.

(The document is as follows:)

STATEMENT OF J. A. ROBERTS, FARMER OF COOLIDGE, ARIZ., BEFORE HOUSE SUBCOMMITTEE ON PUBLIC LANDS

Mr. Chairman and members of the committees:

My name is J. A. Roberts. I appear here in behalf of the central Arizona project as proposed under H. R. 934, and in an effort to explain to the committee the urgent need for the importation of Colorado River water into the central Arizona area, and to explain in particular the needs of my immediate locality for an additional or supplemental water supply.

I represent and speak, not only for the general economy and interests of our valleys but, for hundreds of the smaller farmers and working people who, partly because of the very circumstances we are considering, are unable to spare either the time or the money to appear here.

I am a farmer living on and operating a farm which I own near Coolidge, Ariz. I am a member of the Arizona Interstate Stream Commission, a body created by our State legislature, charged, among other duties, with that of formulating plans and development programs for the control and use of the waters of our interstate streams. As the operator of a cotton gin, I am in position to maintain close contact with farmers in our area and I believe I know their farm problems. The area in which I live is called the Casa Grande Valley and is located entirely within Pinal County, Ariz. This county has an area of some 5,350 square miles and is larger than two or three of our smaller Atlantic seaboard States.

I went to Arizona from my native State of South Carolina, some 20 years ago. I have seen thousands of acres of the dry barren desert cleared, leveled, and brought to a high state of production. I have seen towns and cities built and a prosperous and substantial civilization established as a result of irrigation there. This has all been possible through the use of water which was available in our rivers and in the underground reservoirs which were found to exist under a portion of the central Arizona valleys.

We are now finding that, to some extent, our available gravity supply from the rivers has been overestimated and, perhaps more important, that the underground supply is not proving sufficient to maintain our present development. We are already seeing some abandonment because of failing water supply. Some of our farmers who were in a position to do so have already moved out. We are convinced that abandonment of both farm and urban development, and of the civilization dependent upon it, will be an ever-increasing result unless the required supplemental water can be secured. Because the Colorado River is the only remaining source from which this additional water can be had, we are desperately in earnest in our appeal for Federal assistance as provided in this bill. We do not ask this as a gift or subsidy, but ask that it be approved as a justified and worthwhile investment—one which which will more than repay its cost.

The Casa Grande Valley is part of a broad river plain formed by deep alluvial deposits from the Gila River and its two large tributaries, the Salt River and the Santa Cruz River. This broad valley lies south of and adjacent to the Salt River Valley in which is located the Reclamation Bureau's Salt River project. Its irrigated portion is about midway between the cities of Phoenix and Tucson. There are now in excess of 200,000 acres in cultivation in this Casa Grande Valley. This acreage amounts to about 7½ percent of the county's total area. We have no expectation of irrigating any additional acreage and are making no effort to do so.

The irrigated lands in our area are divided into two general classes. First, we have those lands with gravity water rights, these being entitled to take water from the Gila River by established legal rights. Such rights are appurtenant to these particular lands and cannot be traded or transferred at will. The waters of the Gila River are impounded behind the Coolidge Dam which is located about 60 miles east of the valley area. These waters, to the extent available, are used during each irrigation season for release down the stream and for diversion to the lands having these rights. These are the lands included in what is known as the San Carlos Federal irrigation project, and to which I may refer simply as "the San Carlos project." Lands in this class are known as "gravity lands" because their water supply comes by gravity flow through the canals and laterals of the project system.

Our other class of lands is that which obtains its water solely from underground sources through pumping. The area of these lands has been increasing rapidly during the past few years, and the area now irrigated solely by pumping is in excess of that by diversions from stream flow.

GRAVITY LANDS

Irrigation with waters of the Gila River in my area dates back many years. The Pima Indians have lived in our county along the banks of the Gila from time immemorial and have always been an agricultral people. They, as well as we who have arrived in more recent years, are dependent on the water supply. These Pimas have their own reservation just below and adjoining the area settled by the whites and are entirely dependent on the supply of irrigation water which may be available through this San Carlos project.

Irrigation by the whites in Pinal County commenced sometime between 1860 and 1870, being confined at first to small tracts along and near the Gila. These served an important place in the furnishing and feeding of both man and beast during those pioneer days when travel was by stage coach and mule team. Without them, travel through this area would have been impossible during a large part of each year because of lack of food for the people and grain and hay for their teams. As the years went on and population increased, more and more canals were constructed and more land cleared. One canal was built about the year 1895 which took water from the Gila at a point above Florence, at the head of our valley, and extended about 40 miles to a point west of Casa Grande. A system of laterals from this main canal delivered water along the way to about 6,200 acres then owned and farmed by those pioneers.

In those early times, without modern methods and equipment, it was neecssary to rely on brush and fill dams to raise the water and divert it to the canals. These were insecure and unsatisfactory. The dams would be put in and repaired while there was little or no water in the river. Then, when the rains came, often the floods would be so heavy that the dams would be taken out by them. Repairs could not be made until the flow subsided, and then perhaps it would be too late to secure much of the water. At the time of my arrival there, because of this lack of security, many of the settlers had become discouraged and moved out. A new group, with new enthusiasm and optimism, was moving in. Owners and entrymen on around 100,000 acres in the Casa Grande Valley formed a mutual association and pledged themselves to meet assessments, either in labor or in cash, and start construction. Before they became convinced that the undertaking was too large to finance in that manner, about $140,000 had been expended in the construction of a main canal. This is the identical canal later taken over and completed by the United States Indian Service in their construction of the San Carlos project.

The project is composed of 50,000 acres of irrigable land in the ownership of non-Indian farmers and 50,000 acres under existing canals in Indian ownership within the Gila River Indian Reservation. The project extends along the valley of the Gila River for a distance of approximately 40 miles, the northwest portion being adjacent to the lands of the Salt River project a few miles south of Chandler, Ariz. This San Carlos project was initiated by the Interior Department through the Indian Irrigation Service, primarily as a means of reestablishing an irrigation water supply for the Pima Indians who had been irrigating from the Gila River from time immemorial. With the advent of the white men who settled along the river above them, the supply of the Pimas had been depleted, and this was in some measure restored through the construction of the project. Since that construction and the initial storage of water behind the

Coolidge Dam, the water-supply problem of the area below the dam, on the lands of both Indians and whites, has been altered somewhat due to the rapid expansion of other agricultural areas higher up the river above the dam and also in the areas immediately surrounding the project acreage. It has been found that demands on the Gila River above Coolidge Dam are greater than were estimated some 30 years ago when construction of this San Carlos project was under study. The pump irrigated area in the valley surrounding and adjoining the project has been growing to such an extent that the so-called pump lands now reach to the very boundaries of the project area, and because of this pumping, the gravity lands within the project have suffered, along with other lands in the general lowering of the underground water table.

It is generally accepted that lands in this locality and climate require a minimum of 4 acre-feet per year to yield efficient production. A lesser water supply results in less yield of important crops, or in the growing of the less desirable crops, and in the abandonment of crop rotation practices which are important in maintaining economic production. With proper water supply, we are able to not only produce better yields of the more essential crops, but are able to follow rotation and soil building practices which will maintain the condition and fertility of the land for future years and for the future generations who, we hope, will follow us there. Based on the 4 feet for each acre, the lands under the San Carlos project require a total of 400,000 acre-feet each year.

Because of the serious lack of sufficient water available through the gravity system since the construction of this project, an effort has been made to make up the deficiency by pumping from the underground into its canals and laterals, thus supplementing and adding to the gravity supply. During recent years the amount pumped by the project has exceeded the amount available from its stream and reservoir supply. Even with this pumped water included, the total which could be delivered to project lands has been considerably less than a normal supply. It still has been necessary to abandon a large part of each farmer's acreage. In this connection it must be remembered that we cannot expect this supplemental pumped supply to remain always available because of the steadily lowering underground water table. Many of the project wells have failed seriously and some have failed completely. A program of deepening is now under way whereby an effort is being made to get this supply from the greater depths.

In the neighborhood where my farm is, water stood in the wells at 30 to 50 feet from the surface a few years ago. Now we find it at 80 and 100 feet in the same wells. In some localities water is now being pumped from more than twice that depth.

Distribution of water for use on gravity lands is under direction of the project and each acre is allotted an equal share in the stored and pumped waters available. The administrative organization responsible for the operation and maintenance of irrigation works and general administration of the affairs of the 50,000 acres of lands owned by non-Indian farmers, is called the San Carlos Irrigation and Drainage District. I have served as a member of the District Board of Directors continuously since the year 1938. The care of the irrigation works and the administration of matters affecting the 50,000 acres of Indian owned lands on the project is under the direction of the Secretary of the Interior acting through the Office of Indian Affairs.

Returning now to the amount of water available for use on gravity lands each year, I desire to make the point that the farmers on gravity lands are primarily concerned with the amount of flood run-off from the upper watershed of the Gila River which enters San Carlos Reservoir behind Coolidge Dam and becomes stored there for release to and use upon their lands below. To the extent that winter snows and early spring rains combine to produce stored water during the months of December to March inclusive, the farmer in the valley below is assured of a controlled supply for his crops during the period following the winter months which produced the run-off and the stored supply. The heaviest run-off since the completion of the Coolidge Dam occurred during the winter of 1940–41 and the resulting stored supply carried the gravity lands for a 3-year period. However, in years of extremely low flow, where these occur in sequence such as has been experienced during the years 1944 to 1948, gravity lands enter the year with inadequate stored supply and must then depend largely on water from pumped sources. Since the pumped supply cannot be depended upon to furnish more than 20 to 30 percent of an adequate amount, an almost empty reservoir behind Coolidge Dam such as has obtained during the past 3 years, forces the gravity land farmer to restrict his farming operations

to that portion of his acreage which can be served by pumps. He cannot spread the short supply thinly over all his land because by such means, no single acre would yield any crop. With 25 percent of a year's supply available, such as we have had on the project during the past few years, he must farm but 25 percent of his farm area. The balance of his farm must be retired until all or a portion of it may be farmed in some future year as water from the stream may be captured in storage.

Showing this variable and uncertain supply of water for gravity lands, there is tabulated here the apportionment made available for each acre of land in the San Carlos project for the years 1938 to 1948, inclusive:

Total yearly allotment of stored and pumped water for San Carlos project, Arizona, as related to normal requirement of 4.00 acre-feet

Year	Total acre-feet per acre	Deficiency	Year	Total acre-feet per acre	Deficiency
1938	1.55	2.45	1944	3.35	0.65
1939	1.25	2.75	1945	2.05	1.95
1940	1.40	2.60	1946	1.00	3.00
1941	3.60	.40	1947	1.00	3.00
1942	4.20	.00	1948	.80	3.20
1943	4.00	.00			

It should be noted that the above table includes water available from both gravity supply and from pumps. Of the above amounts, pumps produce 0.60 to 0.70 acre-foot for each acre. For example, during the years 196 and 1947, 1 acre-foot was allotted to each acre of land and of this amount, about 0.60 acre-foot or 60 percent was supplied by pumps.

A study of this tabulation establishes clearly the uncertain supply received by gravity lands in the valley. Since a yearly application of 4 to 4.5 acre-feet of water to each acre is necessary for the raising of diversified crops, the table also shows the extent of shortage being suffered by farmers under present conditions.

PUMP LANDS

I have previously referred to a large acreage which receives its water solely from underground sources through pumping. As distinguished from the gravity lands, I shall refer to this large area as pump lands.

Except for small isolated cases, pump lands lie generally in a large compact area on the flood plain of the Santa Cruz River near the confluence of that stream with the Gila River. These lands are contiguous to the gravity lands of the San Carlos project and lie generally to the south and west of the project. Several thousands of acres of pump lands are interspersed with project lands in such manner that problems affecting one class of land, become common to the interests of all.

This community of interest extends to the vital problem now facing all agriculture in Pinal County and other parts of central Arizona and resolves itself into the question of how we are to find supplemental water.

Previous to pumping development, the ground water basin was similar to an underground lake, the water surface of which showed little change because no withdrawals occurred.

Development of lands by pumping started about 1920 and continued steadily. About 1940 it became apparent that the safe yield of the basin was being overdrawn. With the beginning of the recent war period the bringing in of new land continued at an increased rate and with the intensive crop program practiced during the past 7 years, the yearly draft on ground water has increased to such an extent that water requirements for the area now under cultivation are drawn from reserves in ground-water supply the draft being greatly in excess of the amount recharged into the ground-water reservoir.

This great area of highly developed land embraces approximately 150,000 acres. Frost occurs but rarely and the growing season extends throughout the entire year. I know of no large agricultural area which surpasses the great body of pump lands in south central Pinal County, in productivity of soil, diversity of crops and general economic value per acre, if given adequate water for irrigation.

In the years just past, when water has been generally available at economical depths, the lands have yielded exceedingly high production.

The owners of pump lands have organized their various areas into electrical districts and have bonded their lands for the construction of lines and equipment for the conveyance of electrical energy used in pumping. These organizations have proven successful and electric transmission lines now extend into all portions of the area. Approximately $2,000,000 is invested in electric distribution lines serving some 450 pumping plants. These pumping plants have motors of 50 to 150 horsepower each and produce from 1,500 to 3,000 gallons per minute from the individual wells.

CONCLUSION

A conservative estimate of the value of the developed lands, the constructed irrigation works, and the investment in homes and business districts in the towns and cities related to and dependent on the agricultural production would be $50,000,000. This total would represent farm land and improvements—$18,000,000, San Carlos project cost, $12,000,000; electrical district power lines, $2,000,000; industrial plants outside of cities and towns, $500,000; city property, $11,000,000; public utilities, $1,000,000; telephone and telegraph, $500,000; and railroads $5,000,000. I have not included here the valuation on mining properties in the northern part of the county or of the towns of Superior or Ray which are not directly related to the agricultural area.

In order to protect and preserve this development and the territory which it sustains there must be found means of supplementing and stabilizing the water supply to such an extent as will make available the water needed for irrigation. I shall not venture to say just what the existing shortage, including the overdraft on ground water, amounts to each year. It is my understanding that it has been computed at from 400,000 to 500,000 acre-feet for all of the lands now under irrigation in Pinal County alone. Whatever the figure might prove to be, it is the measure of supplemental water necessary to be brought into the area if future use is to be placed in balance with the supply. This is a portion of the water we hope to transport from the great Colorado River for use in Arizona as proposed by the bill now before your committee.

I have attempted to show the condition which must be remedied if agriculture is to survive on the San Carlos project and on this adjacent area of pump-irrigated land, and if this large and productive area is to continue to bear its important contribution to the economy of the State and Nation.

I cannot quote statistics to prove the economic values involved in maintaining the present agricultural status of our area. These will doubtless be presented by others qualified to do so. However, I am satisfied that the values involved in the preservation of highly developed agriculture on the 100,000 acres comprising lands of the San Carlos project and the additional 150,000 acres of pumped lands, a total of 250,000 acres, are tremendous. I know that the yearly contribution of these lands to the economy of the State and Nation is substantial and cannot be permitted to become lost. The welfare of some 32,000 residents of Pinal County, together with the interests of additional thousands in other portions of Arizona, is at stake.

In the past, Arizona agriculture has provided opportunity for thousands of sharecroppers, tenant farmers, and farm laborers who were forced to leave the farming areas of other States because of adverse circumstances. These, and many other thousands of persons, have settled in the farming areas in central Arizona and now constitute a large portion of the population of the State. If the bulk of the farm lands in central Arizona must go out of cultivation because the present inadequate water supply is not supplemented, what is to become of the thousands of inhabitants dependent upon the successful farming of such lands is far more than merely an Arizona problem. If such persons can no longer gain the means of livelihood in this farming area, they must move on elsewhere. The reestablishing homes and gainful occupations for them will fall on other States whose farming areas are already overburdened. The cost of providing relief for those made destitute will, no doubt, substantially increase the expenditure of State and National Governments for such purposes. This problem is obviously of such vital importance as to warrant attention and assistance by the representatives of our National Government.

There is but one source to which Arizona can look for this all-important supplemental water supply—the Colorado River. Our proper share of the waters of the Colorado will stabilize our agriculture. Unless we do obtain this water

and construct the works called for in H. R. 934 now before the committee, the economy of our entire State will suffer to a disastrous degree.

Mr. MOEUR. The next is a statement of Dean Stanley, of Phoenix, Ariz., a vegetable grower. I particularly direct the committee's attention to the fact that Mr. Stanley's statement deals with the beet seed industry, which a former witness commented on.

(The document is as follows:)

STATEMENT OF DEAN STANLEY, PHOENIX, ARIZ.

My name is Dean Stanley. I reside at 1315 West Palm Lane in Phoenix, Ariz. I have lived in Phoenix for the past 29 years. For more than 20 years past I have owned and operated irrigated farms in the Salt River Valley of central Arizona.

My lands have been rotated with the diversification of crops which can be grown in the area with particular emphasis upon such crops as the economy of the country needed. I have always endeavored to make the greatest use of available water supplies, and to maintain my soils in the highest state of fertility.

At the present time, more than one half of my farm lands are growing alfalfa and barley grain crops, all of which are used for fattening of livestock. Other crops grown on my farms, include fresh vegetables for shipment to most of the Nation's consuming markets during the winter and spring months, when similar vegetables cannot be produced in most of the other States.

These fresh vegetables are an essential part of the American food supply and a mainstay in upholding our standard of living. They are the only low cost source of the vitamins and mineral salts so necessary in maintaining the national health standard during the winter months.

The production of winter vegetable crops is an integrated, time-tested, long established industry. The central Arizona valleys, by reason of certain soil and climatic factors, fit into the schedule of winter and spring vegetable production, and are an essential cog in the machinery of steady, plentiful supplies demanded by the consumers of the Nation.

During the recent years, while we have maintained our vegetable acreage, so necessary to the Nation's agricultural economy, it has been done only with great effort, and partly at the expense of moving our production area away from the long-established irrigated district in the Salt River Valley. Much of our vegetable acreage has shifted to adjacent areas served by pumps. The extent of this shift provides a striking illustration of the lengths to which growers have been driven in the effort to maintain their production in the face of the long-continued water shortage.

In 1938 all the vegetables in central Arizona were grown with gravity water from the Roosevelt storage system. However, during the years of drought and water shortage, growers have been moving, gradually but steadily, to districts where underground water was obtainable. By 1948 27 percent of the producing acreage had shifted away from the main area of production to adjacent pumping areas. The following figures, furnished by the Arizona Fruit and Vegetable Inspection Service, illustrate how far the trend had moved by the year 1948—a trend that will have to continue as long as underground water is available, and there is a shortage of gravity water.

Percent central Arizona vegetables grown in pump areas

	1938	1948		1938	1948
	Percent	*Percent*		*Percent*	*Percent*
Broccoli	None	36.0	Cauliflower	None	41.0
Cabbage	do	37.0	Lettuce	do	22.0
Cantaloups	do	21.0			
Carrots	do	56.0	Weighted average	do	27.0

The facts and figures in attached exhibits, which I have compiled from official records of the United States Department of Agriculture, prove the importance of Arizona fresh vegetable production. They also show our part in filling the national demand, without interfering or unduly competing with other production districts.

Exhibit A shows a total of 29,543 carloads of fresh vegetables—exclusive of potatoes and onions—were produced and shipped from central Arizona during the year 1945. Comparison of central Arizona carlot shipments, with totals for the United States, are shown for different varieties of vegetables shipped during each month of 1945. This comparison shows that we supplied from 32 percent to 77 percent of the country's needs of our principal vegetable varieties during the periods of time when our production was greatest.

Exhibit B shows that our fresh vegetables were unloaded and consumed in 45 States, and 306 markets of the United States. Actual unloadings are also shown for those markets for which USDA figures were available. Total shipments and distribution of Arizona vegetables have been substantially the same during each of the last 5 years.

Another crop, which I produce each year on my central Arizona lands, makes it possible for farmers in various other States to grow millions of acres of one of the country's most important crops. This is sugar beet seed, the production of which, I, personally, pioneered back in 1935. Since that time, central Arizona has produced 78,431,874 pounds of sugar beet seed, and we have been the leading producers of this seed every year since 1936.

Since January 1, 1941, after which it was impossible to import sugar beet seed from Europe, central Arizona has produced 53,434,450 pounds. Last year in 1948, we produced 12,584,220 pounds, or nearly enough seed to meet the annual requirements of the entire sugar beet industry of the Nation,

We grow and supply practically all of the seed from which sugar beets are produced in the States of Colorado, Wyoming, Montana, Idaho, Kansas, Iowa, Minnesota, Indiana, Ohio and Michigan. We also ship our seed to California, Utah, Nebraska and most of the beet sugar producing areas of the United States and Canada. A large quantity of our seed has been exported to the European countries, since the end of the war.

In the production of sugar beet seed, a considerable amount of water is required, from 4 to 5 acre-feet, in order to produce a satisfactory crop. Since we have available, and are allotted only 2 acre-feet of water for the year 1949, in the Salt River project, it is necessary to abandon crop production of approximately one and one-half acres for each acre of sugar beet seed being produced.

Central Arizona has the soil and climatic conditions particularly well adapted to the production of sugar beet seed. Experimental crops have been grown in many other areas, but no other section of the United States has yet been found which can approach central Arizona in the number of pounds or the quality and vitality of seed produced on our farms.

The sugar consumers of the entire country—and that means all of us—and our great sugar beet industry would be placed in a very precarious position, if we farmers in central Arizona are forced to discontinue the production of sugar beet seed, because of insufficient water.

Central Arizona must have a supplemental water supply for lands that are now under cultivation. No one can dispute this fact. The only source from which this supplemental water can be obtained is the Colorado River and in order to get Colorado River water into central Arizona, we must have the approval and assistance of the United States Government. If we get that approval and assistance, a present existing civilization can be saved. If we do not get it, then the existence of that civilization is in jeopardy and the agricultural economy of central Arizona must, at least in part, fail. This failture will directly affect other agricultural communities now dependent upon Arizona for the securing of sugar beet seed and will in no small measure affect the national economy. The approval of this committee and the ultimate passage of this legislation will save us.

EXHIBIT A

Monthly carlot production of fresh vegetables (exclusive of potatoes and onions) United States and central Arizona, 1945 [1]

UNITED STATES

Commodity	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Asparagus		3	234	654	76	14						
Beans	486	615	885	1,054	1,468	416	126	83	71	447	1,272	548
Beets	157	153	279	240	179	34	23	135	157	242	424	189
Broccoli	254	254	280	131	99	4	15	38	49	64	183	149
Cabbage	3,354	3,703	3,822	5,031	3,967	1,679	545	1,035	1,773	3,044	2,291	2,591
Cantaloupes					55	4,860	6,522	3,366	1,871	102		
Carrots	2,318	2,642	3,079	3,070	3,481	2,792	1,605	1,235	1,435	2,178	2,187	1,881
Cauliflower	997	1,502	1,164	758	669	304	86	501	574	520	922	1,071
Celery	2,727	2,693	3,095	2,474	2,804	1,264	585	853	1,147	1,881	3,281	2,806
Cucumbers	8		71	566	1,267	733	537	173	226	243	269	22
Eggplant	10	1	8	37	91	120	18			7	22	12
Escarole	205	249	238	231	85	13					134	266
Lettuce	7,945	5,576	5,302	7,686	6,281	4,667	4,649	5,160	4,626	5,627	3,989	6,963
Mixed-vegetables	6,005	5,709	5,632	4,177	2,986	2,294	1,986	2,622	2,276	2,695	3,852	4,820
Peppers	101	175	335	239	543	413	242	26	37	167	530	186
Spinach	1,524	1,255	818	205	58	96	199	141	89	39	433	725
Tomatoes	414	1,185	1,774	3,513	7,683	5,941	3,046	1,244	4,126	3,417	1,779	1,046
Turnips	70	35	18	20	31	27	32	36	60	103	94	67
Honeydews						379	2,185	1,768	1,548	451	26	
Total	26,575	25,750	27,034	30,086	31,823	26,050	22,401	18,416	20,065	21,227	21,688	23,342

CENTRAL ARIZONA

Broccoli	47	110	62	5							3	12
Cabbage	183	63	33	2	11						16	45
Cantaloupes						43	2,650	9				
Percent central Arizona of total United States							40.63					
Carrots	539	583	247	294	1,435	1,091	41				145	306
Percent central Arizona of total United States					41.22	39.07					6.63	16.26
Cauliflower	546	97		2							2	29
Percent central Arizona of total United States	54.76											
Celery	2	80	70	25								
Escarole												
Honeydews							718	713				
Percent central Arizona of total United States							32.86	40.32				
Lettuce	1,716	1,369	4,130	3,034	8						1,312	4,260
Percent central Arizona of total United States			77.89	39.47							32.89	61.18
Mixed vegetables	822	416	655	396	28	24				1	289	815
Tomatoes						2	7					
Total	3,855	2,718	5,197	3,758	1,482	1,160	3,416	722		1	1,767	5,467
Percent central Arizona of total	14.5	10.6	19.2	12.5	4.7	4.5	15.2	3.9			8.1	23.4

[1] Data furnished by Production and Marketing Administration, USDA.

EXHIBIT B

Carlot unloads of fresh vegetables, 1945, Arizona [1]

Cities	Lettuce	Carrots	Cauliflower	Broccoli	Cabbage	Celery	Chicory	Cantaloupes	Honeydews	Mixed vegetables
Atlanta	65	7						2	4	11
Baltimore	259	103	17	11		1		43	20	78
Boston	463	342	44	24	5			124	65	43
Chicago	1,005	375	71	23	64	9	28	393	107	292
Cincinnati	281	91	12		7	1		111	20	54
Cleveland	364	151	20	5	10	2	1	152	63	87
Detroit	495	219	19	5	20	9	1	163	54	146
Kansas City	301	72	14		10	4		105	14	22
Minnesota	51	8	1			1		16		9
New York	1,289	855	168	137	22	11		321	306	265
Oklahoma City	119	17	4		4	2		27	2	5
Philadelphia	669	295	74	18	5	35	7	150	66	114
Pittsburgh	491	131	25	9	10	6		150	56	52
St. Louis	417	78	30		8			123	25	60
Washington, D. C	167	65	26	1	1			57	30	14
Total	6,436	2,809	525	233	166	81	37	1,937	832	1,252

[1] Production and Marketing Administration, USDA.

The Arizona Fruit and Vegetable Standardization Service, Phoenix, Ariz.—Carlot distribution, State of Arizona[1]

Alabama:
- Birmingham
- Mobile
- Montgomery

Arizona:
- Phoenix
- Tucson

Arkansas:
- Fort Smith
- Little Rock
- Texarkana

California:
- Colton
- Fresno
- Long Beach
- Los Angeles
- Modesto
- Oakland
- Sacramento
- San Diego
- San Bernardino
- San Francisco
- San Jose
- Stockton

Colorado:
- Bunnell
- Colorado Springs
- Denver
- Grand Junction
- Pando
- Pueblo

Connecticut:
- Bridgeport
- Hartford
- New Haven
- Norwich
- Waterford
- Waterbury

District of Columbia:
- Washington

Florida:
- Jacksonville
- Miami
- Orlando
- Tampa

Georgia:
- Atlanta
- Macon
- Savannah
- Thomasville
- Walthourville

Idaho:
- Boise
- Idaho Falls
- Pocatello
- Twin Falls

Indiana:
- Evansville
- Fort Wayne
- Gary
- Indianapolis
- Kokomo
- Logansport

Indiana—Continued
- Muncie
- South Bend
- Terre Haute

Illinois:
- Bloomington
- Cairo
- Carbondale
- Champaign
- Chicago
- Danville
- Decatur
- Dixon
- Eldorado
- Galesburg
- Peoria
- Quincy
- Rock Island
- Rutherford
- Staunton
- Springfield
- Tablegrove

Iowa:
- Burlington
- Cedar Rapids
- Creston
- Davenport
- Des Moines
- Dubuque
- Estherville
- Lamoni
- Mason City
- Sioux City
- Waterloo

Kentucky:
- Harlan
- Lexington
- Louisville
- Paducah
- West Frankfort

Kansas:
- Coffeyville
- Concordia
- Fort Dodge
- Hutchinson
- Liberal
- Manhatten
- Pittsburgh
- Salina
- Topeka
- Wellington
- Wichita
- Winfield
- Winona

Louisiana:
- Alexandria
- Baton Rouge
- Bringhurst
- Lafayette
- Lake Charles
- Monroe
- New Orleans
- Shreveport

Maine:
- Bangor
- Portland

Maryland:
- Baltimore
- Hagerstown

Massachusetts:
- Boston
- Bridgeport
- Melrose Junction
- Somerville
- Springfield

Michigan:
- Battle Creek
- Detroit
- Flint
- Grand Rapids
- Ironwood
- Ishpeming
- Jackson
- Saginaw

Minnesota:
- Albert Lea
- Brainerd
- Duluth
- Marshall
- Mankato
- Minneapolis
- Moorehead
- Rochester
- St. Cloud
- St. Paul

Mississippi:
- Gatesville
- Lynchburg
- Laurel

Missouri:
- Joplin
- Kansas City
- Liberty
- McElhaney
- Monett
- Springfield
- St. Joseph
- St. Louis

Montana:
- Billings
- Butte
- Great Falls
- Missoula

Nebraska:
- Grand Island
- Hastings
- Lincoln
- Omaha

New Jersey:
- Jersey City
- Morristown
- Newark
- South Kearney
- Waverly

[1] Data obtained through U. S. D. A. 1944 Production and Marketing Reports.

New Mexico:
- Albuquerque
- Belen
- Clovis
- Roswell
- Santa Fe

New York:
- Albany
- Binghamton
- Buffalo
- Geneva
- Harlem River
- Jamestown
- Maspeth
- Menands
- New York
- Niagara Falls
- Rochester
- Schenectady
- Syracuse
- Utica

North Carolina:
- Ashville
- Charlotte
- Durham
- Goldsboro
- Hendersonville
- Jackson
- Raleigh
- Rocky Mount
- Salisbury
- Winston-Salem

North Dakota:
- Bismarck
- Fargo
- Monot

Ohio:
- Akron
- Bellefontaine
- Canton
- Cincinnati
- Cleveland
- Columbus
- Dayton
- Mansfield
- Massillon
- Middleton
- Springfield
- Toledo
- Xenia
- Youngstown
- Zahesville

Oklahoma:
- Chickasha
- Enid
- Hobart
- Lawton

Oklahoma—Continued
- McAlister
- Oklahoma City
- Ponca City
- Muskogee
- Shawnee
- Tulsa
- Waynoka

Oregon:
- Bend
- Portland
- Salem

Pennsylvania:
- Altoona
- Cresson
- Enola
- Erie
- Harrisburg
- Johnstown
- Leighton
- Middletown
- Newcastle
- Philadelphia
- Pittsburgh
- Scranton
- Uniontown
- Wilkes Barre
- Williamsport

Rhode Island:
- Olneyville
- Pawtucket
- Providence

South Dakota:
- Aberdeen
- Sioux Falls

South Carolina:
- Columbia
- Greenville
- Spartanburg

Tennessee:
- Briston
- Chattanooga
- Kingsport
- Knoxville
- Memphis
- Nashville

Texas:
- Abilene
- Amarillo
- Austin
- Beaumont
- Brownsville
- Brownwood
- Corpus Christi
- Cisco
- Dallas
- El Paso

Texas—Continued
- Fort Worth
- Harlingen
- Houston
- Longview
- Lubbock
- McAllen
- San Angelo
- San Antonio
- Stamford
- Sweetwater
- Tyler
- Waco
- Wichita Falls

Utah:
- Ogden
- Salt Lake City

Vermont:
- Rutland

Virginia:
- Leesville
- New River
- Norfolk
- Portsmouth
- Pulaski
- Richmond
- Roanoke
- Virginia Beach

Washington:
- Bellingham
- Seattle
- Spokane
- Tacoma
- Walla Walla
- Wenatchee

West Virginia:
- Bluefield
- Charleston
- Huntington
- Mabscott
- Wheeling

Wisconsin:
- Appleton
- Eau Claire
- Fond du Lac
- Green Bay
- Madison
- Milwaukee
- Manitowac
- Racine
- Stevens Point
- Wausaw

Wyoming:
- Casper
- Cheyenne

Others:
- Canada

Mr. MOEUR. The next statement is of C. H. McKellips, a citrus grower of Mesa, Ariz. This deals with the citrus question, giving some data as to the amount of citrus grown and the necessity for water.

(The document is as follows:)

STATEMENT OF C. H. MCKELLIPS, CITRUS GROWER, MESA, ARIZ.

My name is Chauncey H. McKellips, and I live in Phoenix, Ariz. I came to Phoenix, in the Salt River Valley, in 1920, and for the last 20 years my business

has been farming, particularly the growing of citrus. Having developed during that time over 1,000 acres of citrus on raw desert land, I still own and operate about one-half of the original plantings.

I am here as a representative of the Roosevelt water conservation district, which consists of about 30,000 acres, is divided into approximately 400 farms with a farm population of over 2,000; also to tell you of the precarious position the growers of over 2,000 acres of citrus in the Salt River Valley find themselves today.

First I want to tell you about the Roosevelt conservation district with which I am most familiar, having been a member of the board of directors for over 17 years. The Roosevelt water conservation district is situated immediately east of the Salt River Valley Water Users Association project in the eastern part of Maricopa County, approximately 20 mile east of Phoenix, Ariz. The district is about 19 miles long from north to south and varies in width 2 to 6 miles. Our water supply is derived from two sources: First, its right to 5.6 percent of all the water diverted at Granite Reef Dam by the Salt River Valley Water Users Association and the balance is derived from 65 district-owned irrigation wells located along the main canal and throughout the district. All pumps are electrically powered. River water received from the association is lifted 54 feet into the district main canal for distribution through a system of laterals and sublaterals to the district's lands.

All the district power to operate our main pumping plant and the additional 65 wells is purchased from the association. The Salt River Valley watershed, in which our district is located, is subject to wet and dry cycles. During the present dry cycle this district, along with other irrigated districts in the valley, has exhausted its stored water reservoir and drawn heavily on underground water resources.

The underground water table in the entire Salt River Valley has gradually been receding in recent years due to the continued heavy pumping and lack of rainfall on the watersheds. The water table in the Roosevelt water conservation district averaged 180 feet in 1947 and the average water table last year was about 200 feet. The lack of rain and snow in the watershed and consequent reduction in river water to the district has necessitated heavier pumping from the wells and higher power costs. Pumping 1 acre-foot of river water takes approximately 80 kilowatt-hours as compared with an average of 330 kilowatt-hours for pumping 1 acre-foot from the district wells.

The power production of the association has been insufficient to meet the demands of its contracts for several years past. This has greatly handicapped our district. In the year 1947 the district received power cuts totaling 13 days, thereby reducing deliveries by 6,000 acre-feet. During part of last year we were restricted to 72 percent of our power load. Also, in addition to the power and water shortage, the cost of power has been increased from an average of 7½ mills in 1947 to approximately 9½ mills for 1948. With this extra cost of power, along with practically all of our water being pumped from our own wells, the district was compelled to charge $6 per acre-foot for water as against a charge of $3.60 per acre-foot in 1947, or approximately double.

This excessive charge of $6 per acre-foot for water caused by the drought and power shortage is heading every one of our farmers into serious difficulties. There is only one answer, and that is we must have a supplementary supply of water from the Colorado River or eventually go out of business.

In 1943 our water use was as follows:

	Acre-feet
Stored water from the reservoirs	54,070
From the district wells	100,822
Total	154,892

of which 121,253 acre-feet was delivered to 30,000 acres, or 4 acre-feet per acre.

Since 1943 our water supply has gone down steadily so in the year 1948 only 19,983 acre-feet was received from the reservoir and 107,782 acre-feet from the district wells, which meant only 96,000 acre-feet total was delivered to 34,350 acres of land in cultivation last year, or only 2.7 acre-feet per acre. For full production we must have 5 acre-feet per acre for approximately 75 percent of our district lands and 5 acre-feet per acre for the balance for such crops as citrus fruits, alfalfa, and specialized crops.

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The following census for the crop year 1947–48 shows a diversification of farming in the Roosevelt water conservation district and what this district of only 30,000 acres in production added to the national income that year:

Roosevelt Water Conservation District census, crop year, 1947–48

Kind of crop	Acreage	Unit	Yield total	Total value
Alfalfa grain	1,450	Ton	2,175	$34,800.00
Alfalfa (after grain)	12,778	do	51,112	1,124,464.00
Barley	3,356	Bushel	255,727.2	250,612.66
Oats	154	do	10,164	10,164.00
Wheat	76	do	2,597.6	4,545.80
Hegari and maize	5,277	do	263,850	440,629.50
Hay and forage	103	Ton	206	2,844.00
Vegetables	500	Acre [1]		175,000.00
Oranges	1,779	Pound	19,587,400	685,559.00
Grapefruit	1,498	do	37,035,000	166,657.50
Cotton	1,184	Bale	1,184	201,280.00
Miscellaneous	131			
Flax	1,099	Bushel	27,475	192,325.00
Pasture	316	Acre		6,320.00
Total	29,793			3,295,200.96

[1] Estimated.

I now want to tell you about the citrus industry of the Salt River Valley and what it means to the economy of the State. The citrus industry here consists mostly of oranges and grapefruit, with some lemons. We have been growing citrus in the Salt River Valley for the past 40 years and represent investments of approximately $25,000,000 and the livelihood of approximately 2,000 families on a total of about 23,000 acres of land.

No group of people is harder hit than the citrus growers, for with the average water supply barely two acre-feet per acre per year for central Arizona, he can barely keep his trees alive, much less produce a crop. A citrus grower must have not less than four acre-feet of water per acre per year and should have five to insure a fair return on his large investment. An annual gross income averaging $12,000,000 is simply going to pot if the supplementary water from the Colorado River is not forthcoming, and it must be available not too far in the future. There is simply no way that the citrus industry can survive with the present inadequate water supply, and it would not only be an Arizona catastrophe, but to a certain extent would affect our national economy.

Railroads alone would lose approximately $5,000,000 per year revenue, besides many other industries such as the fertilizer industry, the lumber industry, etc., would feel the effect of this loss of revenue which the citrus industry produces. This condition cannot continue indefinitely and the economy of central Arizona be preserved. I also want to impress on you the fact the central Arizona project, which we must have, is a 100 percent supplementary supply of water for a district second to none in production per acre and value in the whole United States. This is not to bring in new land, but to protect and preserve the economy of the whole State of Arizona.

Another agricultural industry that is now in its infancy is also worthy of comment, and that is the date industry. I have gathered some data concerned that particular industry which I desire to present to the committee.

There is, at this time, planted to dates in Arizona, approximately 550 acres. This is an expensive development involving a long-term investment in producing property and a heavy investment in specialized processing, packing and selling operations.

Dates contain a high food value. An acre of dates produces three times the calories produced by an acre of wheat. The labor pay rolls in connection with the operation and maintenance of the date groves are many times greater than most other agricultural productions in the same area. Arizona produces a fine quality of dates; in fact, one of the finest known in the world. The United States Government has been intensely interested in this development and has maintained experimental stations in Arizona and California.

A good yield of 7,000 pounds per acre means that central Arizona has a potential annual production of almost 8,000,000 pounds of marketable dates. This is equal to 2,000,000 pounds of natural fruit sugar. Approximately half of the total

planting in this area has not yet reached maturity. The current production of groves now in existence should be close to 2,000,000 pounds per year and when all the groves have reached maturity, the potential production of 8,000,000 pounds per year above mentioned should be reached. Actually, the normal production now is closer to 1,250,000 pounds per year. This discrepancy of more than 500,000 pounds per year of present production is occasioned to some extent by inefficient grove management and inefficient fertilizing, but largely to insufficient irrigation. We are not getting enough water for our groves, and since date palms are able to store up a considerable quantity of water through short drought periods, the consequence of a shortage may not yet be fully apparent.

It is evident, however, that due to shortage of water, our young palms are not enjoying normal growth and our bearing palms are seriously deficient not only in quantity of production, but also in quality.

Dates require a lot of water. The minimum amount for normal production should be between 4 and 5 acre-feet per acre, and more than that amount can be beneficially used, particularly where the soil is sandy. Most of the developed acreage in dates in central Arizona is within the Salt River Valley Water Users Association project. Land under that project, for the last 2 years, has been allotted less than 2 acre-feet of water per acre per year. Some of the acreage in dates receive supplemental irrigation water from private wells, but only to a limited extent. Many owners of date orchards do not have the necessary finances to put down private wells and the future prospect for well water is further dimmed by the consistent lowering of the underground water table in this area, due to the excessive pumping. It has been estimated that, by doubling his present allotment of water, a date grower could increase his production by as much as 80 percent.

However, the need for supplemental water for this industry is not merely one for increased production, but it is a case of actual survival, horticulturally and financially. This industry and the citrus industry are two that cannot survive without supplemental water for the groves and orchards now in existence.

Mr. MOEUR. The next statement is of R. J. Hight, of Tempe, Ariz., who is vice president of the Salt River Valley Water Users' Association, and a farmer.

(The document is as follows:)

STATEMENT OF R. J. HIGHT, TEMPE, ARIZ.

Mr. Chairman, and members of the committee, my name is R. J. Hight. I live in Tempe, Ariz. I am vice president of the Salt River Valley Water Users' Association. I have owned and operated farms in Arizona, principally in Maricopa County, for 34 years. I have recently acquired an interest in a cattle ranch in the northern part of the State in what is known as the Payson country. My farming operations have been chiefly confined to the livestock branch, that is, dairying and raising and feeding cattle for the market.

I want to present to you some of the ways the proposed legislation will affect agriculture in the State of Arizona.

Arizona is a big State. In fact, it is the fifth largest State in the Union, with a total area of over 73,000,000 acres. A large portion of the State, on account of insufficient rainfall and lack of water for irrigation, is not suited for agriculture. Some of this is wasteland, some producing grass for grazing of livestock, and in the higher elevations where rainfall is more plentiful, some timber and a very limited amount of so-called dry farming; that is, farming without the aid of irrigation. Over 80 percent of the State is owned and administered by Federal agencies. Actually, in the entire State, there are only 775,000 acres of irrigated land. This includes some small developments in various parts of the State, but the principal portion lies in Yuma, Maricopa, Pinal, and Graham Counties.

In speaking of the central Arizona area, we refer to the area under irrigation in Maricopa, Pinal, Graham, and Greenlee Counties, which comprise about 670,00 acres. This agricultural area is the backbone of the whole State. It is the principal industry of the State. The economy of the State depends largely upon the success of the farmers of this area. They support the business of the State, the schools, pay the taxes, and build the roads. The land included in this area is extremely fertile in character and, with ample water for irrigation, produces crops of great value.

The Arizona FB Federation, which is affiliated with the American FB Federation, of course, extends to all farming areas as well as representing the livestock interests of the State. With such a coverage, we are representing growers and livestock men in every county of the State. The Arizona FB Federation is a federation of county units. At the present time; this organization represents over 2,000 farm families and, naturally, is in close touch with the man who is on the land.

The proposed legislation, which contemplates bringing supplemental water into Arizona, is most important to the over-all economy of the State, which includes business and industry, as well as agriculture. If agriculture fails, businessmen likewise must fail. If agriculture fails to pay its taxes, the State, county and local governmental agencies cannot meet their obligations. The entire business of the State is paralyzed, people will be thrown out of work and on relief. This is not a pleasing picture, but it is the actual situation. It is of primary importance that this agricultural development be maintained and stabilized.

Because of geographical features of the State, during the summer months, under normal conditions, there is generally considerable forage for livestock in the higher elevations. During the winter months, however, it is necessary to move this livestock to the lower valleys for sufficient feed. This livestock is, to a large extent, fed in central Arizona, hence the livestock folks who operate on Federal land are vitally interested in this legislation.

Previous witnesses have presented to you the necessity for supplemental water supply. It so happens that we have developed more land in central Arizona than we can till with the available water, either surface or underground, and all interior water that is available has been fully developed. Unless we get supplemental water for this land now under cultivation, it is a foregone conclusion that a part of it will revert to the desert and that, gentlemen, is a very painful process.

I know from my own experience what it means to farm in central Arizona with a short water supply. My wife and I now own something in the neighborhood of 320 acres, located in the Salt River Valley Water User's project. I have a son-in-law associated with me in my farming operations and we have, under lease, some additional acreage, some located within the boundaries of the Salt River Valley Water User's project, and some outside the project. On this land we are farming, we are raising almost entirely grain and feed for livestock. In fact, this year all the acreage we are farming is planted in that crop except for a very small acreage which is planted to flax, with which we are more or less experimenting at this time. We sell some grain and hay, but we feed a large part of what we raise to livestock.

This year the allotment of water under the Salt River Valley Water User's Association was two acre-feet per acre, and you cannot successfully farm in that locality on that amount of water. We need at least four acre-feet per acre to do a decent job of farming and, for alfalfa, we could use five to six acre-feet per acre, to get the best results.

The situation we are faced with now means that approximately one-half of our land is laying idle and our expenses are not decreasing any way near by half. As a matter of fact, we have an investment in equipment to farm our entire acreage and, of course, we pay taxes and water assessments on the entire acreage and on the land that we rent, we pay rent on the entire acreage, so the result is that our actual expenses have decreased little, if any, but our returns are cut approximately in half. We cannot continue indefinitely with this situation. The Salt River Valley Water User's Association is one of the best projects in the State, and other farmers are in a worse shape than we are in. Our very economic existence is at stake. We need this water and we need it badly. We need it to supplement the supply of water we now have for land that is now under cultivation. We need it for our own protection and we need it in order that we may continue to supply badly needed foodstuffs for the Nation and the world at large.

There is no place to get the water except from the Colorado River. We cannot continue to produce food and fiber on the limited amount of water that is now available. We are faced with a very serious problem. I would like to make this point clear, that we are not asking for this supplemental water to develop new lands, but merely to supplement the supply used on the already developed acreage.

The detailed testimony of experts will clearly demonstrate the economic feasibility of this central Arizona project. We are not asking for a gift—we are merely

asking the United States Government to make an investment that will protect the existing investments and economy of this area. It is expected that this investment will be repaid to the Government by water and power that will be developed.

It goes without saying, that such an investment will result in stabilizing the existing economy of our region. By so stabilizing the economy of the State, we will be able to continue to produce foodstuffs and do our share in stabilizing the economy of the United States.

Mr. MOEUR. The next is the statement of Nat M. Dysart, vice president and manager of the Arizona Milk Producers, Phoenix, Ariz., and the statement deals with the milk industry, or dairy industry.

(The document is as follows:)

STATEMENT OF NAT M. DYSART, VICE PRESIDENT AND MANAGER ARIZONA MILK PRODUCERS, PHOENIX, ARIZ., BEFORE HOUSE COMMITTEE ON PUBLIC LANDS

My name is Nat M. Dysart. I have owned and operated farms near Phoenix for something more than 40 years last past. During most of that time I have operated a dairy in connection with other farming operations.

In 1913 I moved on to, and started the development of, a tract of 640 acres of desert land about 22 miles northwest of Phoenix in the Agua Fria River Basin. My brother was interested with me in this development. Since then I have sold a part of my original land and I now own, and live on, 320 acres of the original 640.

On that 320 acres I have, in the past, operated a dairy. On that ranch I have a small area in citrus, I have leased a part to vegetable growers and on the balance I am raising grain crops, grain, alfalfa, etc., and livestock.

The water supply for the irrigation of this farm is obtained by pumping from wells. In 1913, until about 1926, ample supplies of water could be obtained with a pump lift not exceeding 90 feet. Since 1926 the underground water table has been receding and the lift now required to secure this water is approximatly 162 feet. Pumping costs are, of course, proportional to the depth from which water is lifted and with the water level continuing to recede it follows that in a matter of a few years this operation will become uneconomical due to prohibitive pumping costs or, perhaps, complete exhaustion of the underground water supply.

During the time I carried on dairy operations, employment was furnished to some 5 or 6 people. Since a part of the land is being farmed for vegetables this number is greatly increased. The farm represents an investment in excess of $75,000. A 14-room school has been built on a part of this farm. Over 500 pupils attend this school. These pupils come from the surrounding farm area, the lands of which situated similar to my own with respect to water supply. The school property represents an investment of probably $80,000 and gives employment to about 20 people.

Since 1942 I have been vice president and manager of the Arizona Milk Producers, a cooperative marketing association representing, now, about 750 dairy farmers who, last year, marketed milk and butter fat with a farm value in excess of $2,000,000, and that value is steadily increasing. Arizona is a deficit area in milk production. The total population of Arizona now is in excess of 700,000 people and in the State there are only about 45,000 dairy cows, or 1 cow for each 15 people, compared to a ratio of 1 to 5 or 6 nationally. Because of the geographic situation no fluid milk is imported into the State, so the local production must be relied upon to supply fluid milk and cream and this supplies more than one-half of the State's production. The other half is used, in a large part, for the making of ice cream, soft cheese and butter, and other dairy products. This production is not sufficient to meet the demand of the residents of the State. This is particularly true with reference to the butter production. Most of the State's requirements of evaporated and condensed milk, cheese, and butter must be met from sources outside the State. The State's dairy industry is, therefore, in no way competitive with milk production in other parts of the country. On the contrary, the State has forged a good market for surplus dairy supplies from other States.

At least three-fourths of the dairy farming in the State is carried on in the irrigated valleys of central Arizona and most of the dairies operated in nonirrigated areas are entirely dependent on forage and grain feeds grown in the irrigated areas. Successful dairy operation is particularly dependent upon ade-

quate and continual supplies of irrigation water. While acreages planted to crops such as grain, vegetables or cotton may, to some degree, be adjusted in accordance with available water supplies, the dairy farmer cannot adjust his operations. If a dairy farmer is equipped to handle 30 cows, and water shortage forces the operator to dispose of 10 or 15 of them, the whole operation has become uneconomical and the dairyman cannot readily replace cows when normal water supplies return. Dairy farming and the establishments engaged in the distribution of milk and milk products, give steady and remunerative employment to a great many people. The industry is a heavy user of supplies and equipment. The dairy industry is one of the most sound of farming operations. When the prices of other crops fall below the cost of production, the farmer with a few cows can always sell his milk and at least feed his family and keep his farm going. A small dairy has saved more than one farm on lots of occasions.

Dairy farms and processing plants are substantial users of electric power. Power is used for the pumping of water, refrigeration purposes, operation of milking machines, and other similar purposes. The farm value of dairy products produced in the State last year was in excess of $8,000,000, with a manufactured value in excess of $12,000,000. The industry lends stability and strength to the economy of the State, and makes more certain the ability of the water users to meet any obligation assumed for the purpose of bringing in supplemental water to central Arizona.

For the irrigation of our land in Arizona, we need a minimum of 4 acre-feet per acre per year. Our present supply is far below that mark. This year, under Salt River Valley water user's project, it was 2 acre-feet per acre for the year. Those firms that depend entirely on pumping, such as mining, have been curtailed in the use of power for pumping irrigation water. This curtailment, at one time, was 2 days per week.

Our underground water supply is being rapidly depleted. If we are to continue, we must have supplemental water, and the only place that we can get that water is from the Colorado River. It is for that reason that the dairy farmers of central Arizona join with the other farmers and interested businessmen in support of the legislation now pending before your committee. We know that it is absolutely necessary for the continued success of our business that we get this water in central Arizona.

We, therefore, urge that H. R. 934 be given favorable consideration by your committee.

Mr. MOEUR. The next is a statement of Mr. R. H. McElhaney of Wellton, Ariz.

Is Mr. McElhaney here? He is in town. It is a general statement. Mr. McElhaney is from the Wellton district.

(The document is as follows:)

STATEMENT OF R. H. MCELHANEY, WELLTON, ARIZ.

My name is R. H. McElhaney, and I am a farm owner and operator living near Wellton, Ariz. I am president of the Gila Valley power district; vice chairman of the Arizona Interstate Stream Commission; vice president of the Yuma County Farmers Marketing Association; a member of the land examining board of the Bureau of Reclamation for settlement of veterans on publicly owned land developed by the Bureau of Reclamation in Yuma County, Ariz.; a member of the board of directors of the Gila Project Association; and president of the Wellton Mohawk Valley Kiwanis Club.

The early construction of the central Arizona project to bring main stream Colorado River water to the lands of central Arizona which are now short of irrigation water is of the utmost importance to the entire State of Arizona. The entire economy of Arizona is so closely tied together, that anything that affects the economy of any major portion of our State affects the economy of the whole State.

As has been clearly shown by previous witnesses, a very considerable portion of the irrigated agriculture in Maricopa, Pinal, and Graham Counties in Arizona that has been in a high state of cultivation is not now being farmed, or is seriously handicapped by a shortage of water supply, with a consequent reduction in crop production. This loss of farm income, of course, affects the taxpaying ability of the people concerned and this loss of tax revenue seriously affects our

State income and also causes a loss of revenue to the Federal Government as well. Our State highway construction and maintenance programs as well as our entire State school system are adversely affected by any loss of State tax revenues. Many other functions of the State are likewise adversely affected by any loss of tax income.

Our mining, forest, and vast livestock industries are very closely tied in with our irrigated agriculture. Arizona is not now, and probably never will be, self-sustaining from an agricultural production standpoint. Our mine and forest workers need the farm products these acres of land now idle, or only partially productive, could produce if a sufficient supply of water was available. They need these products now, and will need them in everincreasing quantities as time goes on.

Hay, grain, and pasture grown on our irrigated land supplies cattle and sheep men with feed necessary to finish their animals for market and supplies sheep flocks with a place to winter away from the high elevations of the State where their summer ranges are located. All ewes are brought from these high summer ranges to the lower valleys for lambing. Central Arizona provides an ideal place for lambs to be born. The warm winters and low rainfall, together with an abundance of green feed, make it possible to lamb large flocks with small loss and the lambs can then be finished and shipped direct to market. All sheep are sheared before being returned to their summer pastures. The ability of our valleys to supply finishing and winter feed for livestock is one of the most important factors in successful production of beef and mutton in Arizona and any reduction of irrigated agriculture anywhere in the State adversely affects these very important industries.

During the last war, several hundred thousand men did all, or a part, of their military training in Arizona. Now thousands of them are returning to Arizona to establish their homes. As evidence of this desire to own a home and farm in Arizona, more than 1,500 veterans applied for the 82 developed farm units made available by the Bureau of Reclamation in Yuma County, Ariz., this year. Some veterans now own homes and farms that are being affected by the water shortage in central Arizona. Many thousands more will come to this State to make their homes when Arizona gets her just share of Colorado River water.

National defense is also directly connected with early and complete development of Arizona's Colorado River water. Should the world become involved in another world war, without doubt, there would be widespread dispersal of population and industry, now somewhat concentrated in coastal areas, and therefore more vulnerable to attack than these same populations and industries would be if they were located farther inland and spread over much wider areas. Arizona offers an ideal place for many industries and large populations to be as safely located as anywhere in our Nation. The well-being and economic stability of these people and enterprise would be vitally affected if an improper disposition was made of the waters of the Colorado River. It would seem prudent, therefore, from a military standpoint, to make use of as much Colorado River water in Arizona as possible.

My connection with the passage by the Eightieth Congress of Public Law No. 272 which sets up the Wellton Mohawk division of the Gila Federal reclamation project has given me an opportunity to come in contact with many people over the entire State and I can state with assurance that the State is united in its desire to have the central Arizona project completed at the earliest possible date. Failure to receive authority to construct this vitally needed project will so affect the econmy of the entire State that its progress will be retarded far beyond any future which any of us here now can foresee.

May I thank you, gentlemen, for your consideration.

Mr. MOEUR. Those are all the statements, Mr. Chairman.

Mr. MORRIS. Thank you very much, Mr. Moeur.

Mr. MOEUR. I may have a statement that I want to make later on, but now I do not care to make a statement.

Mr. MORRIS. Very well.

According to the schedule which Mr. Murdock asked me to follow as a temporary chairman during his absence, I understand at this time we will call on Mr. Engle of California, one of our colleagues, for a statement.

Mr. Engle, are you ready to make your statement at this time?

Mr. ENGLE. Mr. Chairman, I have a statement which I would like to make, but I would like to make it to a quorum of the committee. I think it is implicit in any agreement made with respect to the statement that it shall be made to a quorum of the committee. I am not raising the point now that the quorum is not present, although I reserve the right to do so.

Mr. MORRIS. I think you are entitled to make your statement in the manner suggested, so we will call on someone else at this time.

Mr. Wingfield, I understand that you have a statement. We would be glad to hear from you at this time.

Please give your name and the representative capacity, if any, in which you appear, for the benefit of the record and the committee.

STATEMENT OF K. S. WINGFIELD, ENGINEERING CONSULTANT TO THE ARIZONA POWER AUTHORITY

Mr. WINGFIELD. My name is K. S. Wingfield. I am a graduate in electrical and mechanical engineering and I have had better than 25 years' experience in the electric power field. During the course of my experience, I have had occasion to make numerous surveys and economic studies of power generation, both steam and hydro, together with market analyses, rate studies and investigations of proposed transmission line interconnections. For the past 8 years I have conducted a consulting engineering business with headquarters at Washington, D. C. During the last 4 years of that period I have been acting as constultant on electric power matters for several of the irrigation and the electric districts in central Arizona, as well as for the Arizona power authority, although for the past year the work of the power authority has required almost my full time. Just prior to undertaking these assignments in Arizona, I took leave of absence from my consulting engineering firm and was chief of the Branch of Marketing and Operations of the Power Division of the Department of the Interior for a period of 18 months. While in such capacity, I became familiar with the operations of the Bureau of Reclamation and the program of development for the Colorado River Basin.

The development of the Colorado River in the lower basin has always contemplated the sale of a considerable block of electricity in southern California. This has been true because, until recent years, southern California constituted the principal nearby market. This has also been true because electricity generated at Bridge Canyon and other Colorado River developments will probably represent to southern California markets the cheapest sources for large blocks of electric power, if considered over the long term. However, the rapid growth in the use of power in Arizona and its outlook for large demands for power in the future have decreased the importance of the southern California market to the development of the Colorado River.

In analyzing power markets, power sources, and probable costs, many factors must be considered, assumptions must be made, and future conditions anticipated or predicted. These elements of opinion make

it impossible to reduce such analyses to exact mathematical comparison. However, it would appear that the probable outlook for higher costs of power generation in both Arizona and southern California indicates a market demand for all available energy that can be delivered from the Bridge Canyon hydroelectric power plant.

The Bureau of Reclamation's December 1947, report on the central Arizona project states that the Bridge Canyon power plant should be able to deliver annually to load centers an average of 2,679,000,000 kilowatt-hours of firm power. This represents energy available over and above that required by the project for water pumping and is the average over a 78-year period of repayment. The Bureau further states in its report that such power should be delivered at the load centers at charges estimated at 4.82 mills per kilowatt-hour. Should the 78-year period of repayment not be established, the Bureau estimates that Bridge Canyon power could be delivered at the load centers for not to exceed 6.22 mills per kilowatt-hour.

I have made no study of these estimates of the Bureau, but have only attempted, in the following statement, to present estimates of the probable costs of generation in the Phoenix and Los Angeles areas of power that might be used in lieu of Bridge Canyon power. Following which, estimates were presented that show the effect on the market for Bridge Canyon power, as a result of the constantly increasing demands within Arizona itself.

Steam-electric generation has been assumed to represent the best criterion of market price for replacement for hydro-electric energy developed at multipurpose projects having a long-term useful life such as hypdroelectric power generated at Bridge Canyon. In a report which the Federal Power Commission is preparing entitled "Colorado River Power Market Survey—Lower Basin" the following statement is made:

> The natural gas reserves are being rapidly depleted and a pipe line is now being laid to bring gas from the Texas and New Mexico fields to southern California. All natural gas used in Arizona at the present time is obtained from fields in New Mexico. In the past natural gas, as well as oil, has been used for fuel in steam-electric generating plants in the area, natural gas being used during months when the demand for gas was "off peak." Due to the diminishing gas supply in the region and the increased use for domestic and industrial purposes, which has necessitated transporting additional gas into the region, it cannot be considered as a dependable source of fuel for steam-electric plants in the future. In view of these facts, the costs of steam-electric generating plants shown in this study are based on oil-burning equipment.

In estimating the probable cost of steam-electric generation for comparison with the range of estimated costs of Bridge Canyon power delivered, the principal cost factor will be the price of fuel at Los Angeles, or at Phoenix. As the long term outlook for continued output of natural gas is stated by the Federal Power Commission to be not dependable, cost estimates are submitted below based on the present prices of oil at $2 per barrel for tank car delivery at Los Angeles and $3.45 per barrel for tank car delivery at Phoenix. Also, large steam-electric generating plants designed to burn oil initially should be changeable to coal for the longer term. Indications are that coal would be higher than oil on an equivalent heat unit basis, as it would have to be shipped into either California or Arizona from fields outside of either State.

Under the present outlook for cost of labor and materials, a large steam-electric generating plant consisting of 50,000 kilowatt units, using 1,250 pounds per square inch steam pressure, with boilers and building designed for oil as fuel but changeable to coal, condensing water without cooling towers, simple architecture and finish, and not including transformers, switching or transmission, could probably not be constructed for an average cost of less than $130 per kilowatt of capacity.

This investment would be subject to fixed charges of interest, amortization or depreciation, taxes, insurance and administration. As interest rates and taxes (or tax equivalents) would vary as between private and municipal financing, fixed charges have been estimated on the basis of 5 percent interest for private financing and 3 percent interest for municipal. After giving effect to the useful life of various portions of the plant, the weighted average annual rates for interest and amortization have been estimated at 6.47 and 4.99 percent respectively. Adding the estimated rates for the other items included in fixed charges results in the following:

The fixed-charge rates under private financing at 5 percent interest and municipal financing at 3 percent interest are respectively:

Interest and amortization, 6.47 and 4.99 percent.

Local taxes, 1.5 percent, with no local taxes under the municipal financing.

Contributions in lieu of taxes, none under the private financing with 2.5 percent under the municipal financing.

Federal income-tax equivalent, which is relating the income taxes to a fixed charge, is 1.64 percent under private financing. I might say that was based on an average charge of 32 percent annually.

Insurance and administration is 0.5 percent in either case, making a total fixed charge rate of 10.11 percent for private financing and 7.99 percent for municipal financing.

Assuming operation of the steam plant at 5,000 hours annual use, burning oil for fuel having 6,200,000 B. t. u. per barrel with a plant efficiency of 11,000 B. t. u. per kilowatt-hour produced, the annual at-site cost of steam-electric power is estimated as follows:

For a plant at Los Angeles, the private and municipal cost.

This is the annual cost.

The fixed charges per kilowatt are $13.15 for private and $10.38 for municipal, with no charges on the kilowatt-hour cost.

For fuel oil, assuming a plant use of 9,000,000 B. t. u., it would run $2.91 per kilowatt for private and 3.55 mills per kilowatt-hour; and $2.91 for municipal per kilowatt and 3.55 mills per kilowatt-hour.

For supervision, engineering, labor, water, supplies, and maintenance, it would run $3.30 per kilowatt for private, with 0.2 mills per kilowatt-hour; and $3.30 per kilowatt for municipal, with 0.22 mills per kilowatt-hour.

These result in a total of $19.36 per kilowatt and 3.75 mills per kilowatt-hour for private; and $16.89 per kilowatt for municipal and 3.77 mills per kilowatt-hour; which, when converted to kilowatt-hours on 5,000 hours use, would result in a total energy cost for private of 7.62 mills, and for municipal of 7.15 mills.

Fixed charge rates	Private financing, 5-percent interest	Municipal financing, 3-percent interest
	Percent	*Percent*
Interest and amortization	6.47	4.99
Local taxes	1.50	
Contributions in lieu of taxes		2.50
Federal income-tax equivalent	1.64	
Insurance and administration	.50	.50
Total fixed charge rates	10.11	7.99

Assuming operation of the steam plant at 5,000 hours annual use, burning oil for fuel having 6,200,000 B. t. u. per barrel with a plant efficiency of 11,000 B. t. u. per kilowatt-hour produced, the annual at-site cost of steam-electric power is estimated as follows:

Plant at Los Angeles

Annual costs	Private		Municipal	
	Per kilowatt in dollars	Per kilowatt-hour in mills	Per kilowatt in dollars	Per kilowatt-hour in mills
Fixed charges	13.15	0	10.38	0
Fuel oil (plant use 9.0 million B. t. u.)	2.91	3.55	2.91	3.55
Supervision, engineering, labor, water, supplies, and maintenance	3.30	.20	3.30	.22
Total	19.36	3.75	16.89	3.77
Kilowatt costs converted to cost per kilowatt-hour at 5,000 hours' use		3.87		3.38
Total energy cost		7.62		7.15

The increased cost of fuel oil delivered at Phoenix would increase the estimate for the annual at-site cost of steam-electric power at Phoenix to 10.59 mills per kilowatt-hour with private financing and 10.10 mills per kilowatt-hour with municipal financing. The Federal Power Commission, in its power market survey referred to above, estimates that production from comparable plants in the southern California area and in the central Arizona area would cost 7.40 mills per kilowatt-hour and 8.23 mills per kilowatt-hour, respectively. Any of these estimates are well above the probable cost of Bridge Canyon power of 4.82 mills per kilowatt-hour, as estimated by the Bureau of Reclamation. They also exceed the maximum cost of 6.22 mills per kilowatt-hour estimated by the Bureau for Bridge Canyon power under the requirements of the existing reclamation law.

Thus, it would seem reasonable to assume that both the southern California and the Arizona markets have at-site costs of generation over the long term, which will result in each market absorbing, to the extent possible, the Bridge Canyon power made available to it. As the Arizona market is the nearest large market and as the Bridge Canyon project lies wholly within that State, it also seems reasonable that Bridge Canyon power will be delivered to the Arizona market to the extent of that market's capacity to absorb it. The balance, if any, would be delivered to southern California, or such other markets as may be available.

The electrical producers, distributors, and consumers in the State

of Arizona are united in their desire that the Bridge Canyon project be completed at the earliest date, including the transmission lines needed to make the power available to the market centers. These producers, distributors, and consumers embrace both public and private interests, both industry and agriculture, both urban and rural populations. They are all in agreement that Arizona's welfare depends upon the rapid and continued development of the Colorado River as a source of both power and water. Within the past 10 years Arizona has had repeated power shortages, often requiring rationing of power. Some of these shortages have resulted in losses to agriculture and industry running into millions of dollars. Arizona has never had sufficient electric power.

The Arizona Power Authority is a public corporation and agency of the State of Arizona charged with administering and making avilable to the citizens and residents of that State electric power and energy generated at public works on the Colorado River. These developments along the river have already been undertaken by the Federal Government with Hoover and Parker Dams already completed and Davis Dam under construction. The Federal Government now owns all of the major transmission lines within Arizona and has started building extensions and supplemental lines to that system. For the Arizona Power Authority, or any other agency, to attempt construction of works along the Colorado River, or major transmission lines within Arizona, would introduce duplication of facilities and consequent conflicts would delay their completion, which has been heretofore avoided. If Arizona is to avoid power shortages in the future, Bridge Canyon and other developments along the Colorado River, together with the necessary transmission lines, must be completed as early as possible.

Attached is a chart showing the results of a State-wide power market survey recently completed by the Arizona Power Authority. This shows that the consumption of electricity within Arizona during 1940 and 1941 was about 1,050,000,000 kilowatt-hours. In those years no power was available to Arizona from the Colorado River developments, except a small amount purchased through the metropolitan water district of southern California. During those 2 years power was so short that it had to be rationed in certain areas. Then in 1942 the use of electricity in the State rose to nearly 1,500,000,000 kilowatt-hours. This was made possible by the availability of power which resulted from the large run-off in the Salt River drainage basin filling the reservoirs along that river.

Beginning with 1943, power was delivered at Arizona load centers by the Bureau of Reclamation following completion of Parker Dam. With availability of power, the use in Arizona rose to nearly 1,800,000,000 kilowatt-hours for that year. Then, through 1946, consumption in the State remained slightly over 1,800,000,000 kilowatt-hours annually due to wartime conditions. During this period declining production from the Salt River power plants, and from the generating plants of the mines and mills, was offset by heavy wartime operations at Hoover with consequent increased production at Parker, together with some purchases of energy from California.

During 1947 and 1948 the demands for power in Arizona increased sharply, with the 1948 consumption nearly reaching 2,700,000,000

kilowatt-hours. This large increase was provided for by the use of practically every generating unit in Arizona which could be operated and kept on the line, and by purchasing energy from California to the extent existing facilities would permit its delivery. Due to shortages of electrical equipment and the long time required for delivery of such facilities, it was impossible to meet such rapid growth by installation of additional generators. One new generator of 30,000 kilowatt capacity did go into service at Phoenix about the middle of 1948. Despite all efforts to meet the demands for power in those 2 years, however, power had to be rationed and such rationing is continuing into the present year.

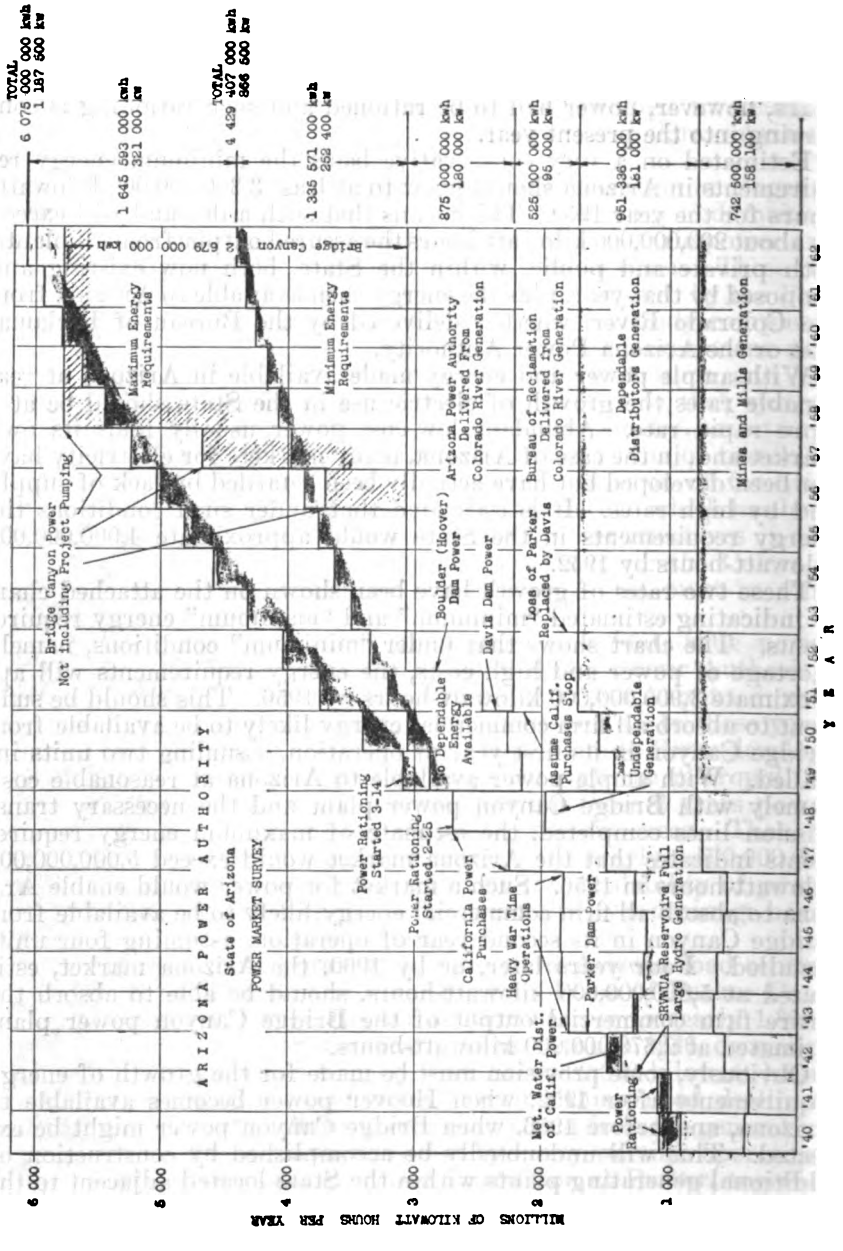
Estimated on a very conservative basis the minimum energy requirements in Arizona should grow to at least 3,300,000,000 kilowatt-hours for the year 1952. This means that such a demand will exceed by about 200,000,000 kilowatt-hours the assured output from all plants, both private and public, within the State, both now existing and proposed by that year, plus the energy then available to Arizona from the Colorado River, whether delivered by the Bureau of Reclamation or the Arizona Power Authority.

With ample power and energy made available in Arizona at reasonable rates the growth of electric use in the State should be at a more rapid rate. Abundant low-cost power usually finds its own market and, in the case of Arizona, many markets for electricity have not been developed but have actually been retarded by lack of supply and by high rates. It is estimated that under such conditions the energy requirements in the State would approximate 4,000,000,000 kilowatt-hours by 1952.

These two rates of growth have been shown on the attached chart as indicating estimated "minimum" and "maximum" energy requirements. The chart shows that under "minimum" conditions, namely shortage of power and high costs, the energy requirements will approximate 3,900,000,000 kilowatt-hours by 1956. This should be sufficient to absorb all firm commercial energy likely to be available from Bridge Canyon in its first year of operation, assuming two units installed. With ample power available to Arizona at reasonable cost, namely with Bridge Canyon power plant and the necessary transmission lines completed, the estimate of maximum energy requirements indicates that the Arizona market would exceed 5,000,000,000 kilowatt-hours in 1956. Such a market for power would enable Arizona to absorb all firm commercial energy likely to be available from Bridge Canyon in its second year of operation, assuming four units installed. Four years later, or by 1960, the Arizona market, estimated at 5,800,000,000 kilowatt-hours, should be able to absorb the entire firm commercial output of the Bridge Canyon power plant estimated at 2,679,000,000 kilowatt-hours.

Obviously, some provision must be made for the growth of energy requirements after 1952, when Hoover power becomes available to Arizona, and before 1956, when Bridge Canyon power might be expected. This will undoubtedly be accomplished by construction of additional generating plants within the State located adjacent to the market centers. Such plants are needed, along with the hydroelectric developments on the Colorado River, to assure Arizona of adequate power reserves and proper protection and regulation for the network

of transmission lines interconnecting the generating plants and the market centers. The Arizona Power Authority, in conjunction with other distributors and users in the State, proposes to see that such need is met and looks to the Federal Government to continue its development of the Colorado River to meet the needs of the area.



Mr. MURDOCK. Mr. Wingfield, I regret to say a sad occurrence has happened, and we must discontinue with your testimony.

We thank you for this presentation, and appreciate your courtesy.

Mr. WINGFIELD. Yes, sir.

Mr. MURDOCK. In view of the fact that you have been away from your task for some time, the record will speak for itself; and we will not call you back for questioning, although we do need more information on this very important subject.

We thank you for the presentation.

Mr. WINGFIELD. Thank you, sir.

Mr. D'EWART. Mr. Chairman, I understand that Mr. Wingfield is a resident of Washington. Would it be possible, if we desire, perhaps to have him return some day? This is a very interesting study that he has presented on power costs. While I do not want to hold him here, I think if at some future time he would be willing to come up, we would like to examine him on this presentation.

Mr. MURDOCK. Is that possible, Mr. Wingfield?

Mr. WINGFIELD. I would be perfectly willing, Mr. D'Ewart, but right now I am, as I stated in the first part of my statement, devoting all my time to the Arizona Power Authority. While my home is here in Washington I am staying out there at the moment 100 percent of the time. I would hate to come to Washington to make that statement.

Mr. D'EWART. I see. Well, we will try, if you do that, to make it convenient, and we will try not to do it unless it is necessary. It may well be that there will be other engineers.

Mr. WINGFIELD. If I could arrange to come, I would be glad to do so, but it would have to be with that understanding, sir.

Mr. D'EWART. This is a very interesting study. I think it is something that the committee should go into.

Mr. MURDOCK. Yes. We do need it for our consideration. Thank you again, Mr. Wingfield.

Mr. WINGFIELD. Thank you, sir.

Mr. MURDOCK. I wish now to turn the gavel over to Chairman Peterson, who has a very sad announcement to make at this time.

Mr. PETERSON. Gentlemen, it is my sad duty to announce the death of our distinguished chairman, who has been so helpful and kind, and who has served on this committee longer than any other man here. He died this morning. He had a rather difficult time recently, and we are indeed sad to hear the news.

We will clear the room, gentlemen, and we will have a short executive committee meeting.

Mr. MURDOCK. The Subcommittee on Irrigation and Reclamation will stand adjourned to meet at the call of the chairman.

(Thereupon, at 10:40 a. m., an adjournment was taken to meet at the call of the chairman.)

THE CENTRAL ARIZONA PROJECT

SATURDAY, APRIL 9, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met at 10 o'clock a. m., Hon. John R. Murdock (chairman) presiding.

Mr. MURDOCK. The committee will please be in order. As I have said before, I dislike to call a meeting of a committee or a subcommittee on Saturday morning. It is not our custom. But we have had some delays and we are about to take a recess over the Easter holidays and I thought we ought to try to round up matters somewhat today.

This committee will not have another session prior to next Thursday, when we take our recess, so that when we adjourn today, we will adjourn until after the Easter period.

There have been a good many witnesses here from Arizona for whom we did not find time. We have accepted their statements for the record and they have gone their way.

We have this morning Mr. Moritz from Boulder City, who also must get away.

It has been suggested by my colleagues that, in view of the fact that the funeral of our former chairman, Congressman Somers, is to be in New York City today at 10:30, it would not be appropriate for us to continue our committee hearings this morning after that time. I have that feeling myself. So that if we can dispose of the committee business in a somewhat satisfactory manner in the next 25 minutes, I think we ought to adjourn the committee at 10:30. Without objection, the committee will adjourn at 10:30 this morning.

The chair hears no objection and it is so ordered.

For the record, let me announce the program of the committee tentatively, as I see it. As the author of the bill I have asked the proponents to produce their witnesses and many have been produced and heard. There will be opposition witnesses, as well as opposition on the committee, and for that reason we are arranging, in fairness, that an equal amount of time at least be given those opposing witnesses. However, that will have to be arranged after the Easter period.

Some of the gentlemen who are witnesses here from California have expressed the desire to get away and want to be assured that there will be no committee meetings during the Easter period. There will be no meetings of this subcommittee during the recess, as previously stated, but there will be hearings of other subcommittees of the Public Lands Committee. I have just been talking with Congressman Morris of Oklahoma, chairman of the Subcommittee on Indian Affairs. There will be meetings of the Indian Affairs Subcommittee and pos-

sibly still others, but there will not be meetings of the Subcommittee on Irrigation and Reclamation, our subcommittee.

Some days ago, Congressman Engle expressed a desire to give answer to Mr. Knapp, one of the Arizona witnesses, and has come prepared to do so. Can you do it in 20 minutes, Mr. Engle?

Mr. ENGLE. Yes. The extent of my presentation was never intended to be long. It has not grown with the passage of time.

I have a statement which I have passed around to each of the members and I have also handed out a copy of Mr. Knapp's statement, so that the members can follow the comments which I make, in which I refer to Mr. Knapp's statement.

Mr. MURDOCK. If the gentleman will bear with me for a moment, I would like to ask permission to have inserted in the record certain statements from the Senate Hearings on S. 1175, first session of the Eightieth Congress; the testimony of Charles A. Carson, who is here in Washington, but is ill, and that of two other witnesses. Without objection, those will be inserted in the record.

(There was no objection.)

(The matter referred to is to be found in pp. 481 to 548, inclusive, of Hearings Before a Subcommittee of the Committee on Public Lands, United States Senate, 80th Cong. 1st sess., on S. 1175.)

(The statements are as follows:)

STATEMENT OF CHARLES A. CARSON, SPECIAL ATTORNEY FOR THE STATE OF ARIZONA ON COLORADO RIVER MATTERS

Senator MILLIKIN. Mr. Carson, will you state your full name, your residence, and your business.

Mr. CARSON. My name is Charles A. Carson. I live in Phoenix, Ariz. I am a practicing attorney and am special attorney for the State of Arizona on Colorado River matters.

The original statement that I made before the House committee last year, I understand, is incorporated in the record and will be printed as a part of the record.

Senator MILLIKIN. That is correct.

Mr. CARSON. So I want now to rebut some arguments here made by spokesmen for California interests.

The spokesmen for California interests argue three questions which I desire to briefly answer.

1. It is argued that the 1,000,000 acre-feet of water mentioned in article III (b) of the Colorado River compact is not apportioned to the lower basin.

I submit that the compact itself shows it is apportioned water; that the evidence in this record, including the testimony of Mr. Meeker, the statements of Mr. Carpenter, Mr. Hoover, Mr. Norviel, Mr. Lewis, and Governor Campbell, clearly disclose that the negotiators of the compact so regarded it and that the Members of Congress so regarded it when they approved the compact; and that the Supreme Court of the United States has held it to be apportioned water (*Arizona* v. *California*, 292 U. S., p. 341).

The particular ground of the decision to which I desire to call attention is the sixth ground of the decision reported on page 358.

Senator MILLIKIN. You will come to a further consideration of *Arizona* v. *California*?

Mr. CARSON. No. I can stop right now.

Senator MILLIKIN. I do not wish to interrupt. I just wanted to take a look at the record. But I do not need to do it right now. Go right ahead with the way you intend to state your case.

Mr. CARSON. I was trying to shorten it as much as possible.

2. It is argued that beneficial consumptive use is not measured by depletion of the Colorado River.

I submit that the negotiators of the compact were dealing solely with water flowing in a surface stream and that there is no way to measure beneficial con-

sumptive use of water flowing in a surface stream except by the resulting depletion.

I further submit that article III (d) of the compact shows that the negotiators of the compact used depletion as the measure of consumptive use.

I further submit that the Boulder Canyon Project Act, the California Limitation Act, and the Arizona contract measure consumptive uses by the resulting depletion of the Colorado River.

The Arizona contract is in this record.

3. It is argued that reservoir evaporation losses are chargeable solely to Arizona; that California bears no part of them.

I submit that when water is stored in on-stream reservoirs or off-stream reservoirs, it is in equity diverted from the stream, and I further submit that equity requires that all parties benefiting from storage of water should bear ratably evaporation losses caused by such storage.

I further submit that section 8 of the contract between the United States and and the metropolitan water district of southern California is as follows:

"SEC. 8. So far as the rights of the allottees named above are concerned, the Metropolitan Water District of Southern California and/or the City of Los Angeles shall have the exclusive right to withdraw and divert into its aqueduct any water in Boulder Canyon Reservoir accumulated to the individual credit of said district and/or said city (not exceeding at any one time 4,750,000 acre-feet in the aggregate) by reason of reduced diversions by said district and/or said city: *Provided*, That accumulations shall be subject to such conditions as to accumulation, retention, release, and withdrawal as the Secretary of the Interior may from time to time prescribe in his discretion, and his determination thereof shall be final: *Provided further*, That the United States of America reserves the right to make similar arrangements with users in other States without distinction in priority, and to determine the correlative relations between said district and/or said city and such users resulting therefrom."

I would like by reference to have incorporated in the record of this hearing the contract between the United States and the Metropolitan Water District of Southern California, pages 209 to 306, inclusive, of the Hoover Dam Contracts by Wilbur & Ely.

Senator MILLIKIN. It will be incorporated in an appendix to the transcript.

Mr. CARSON. It is, therefore, clear that both the Metropolitan Water District and the Secretary of the Interior anticipated ratable sharing of such evaporation losses.

I further submit that by regulation dated February 7, 1933, the Secretary of the Interior, Mr. Ray Lyman Wilbur, offered to Arizona the contract for water set out in exhibit A of such regulation. The Hoover Contracts, by Wilbur & Ely, pages 373 to 378, which I desire incorporated in this record.

Senator MILLIKIN. They will be incorporated in an appendix to the transcript.

Mr. CARSON. Mr. Wilbur was at that time Secretary of the Interior and Mr. Ely was an assistant to the Secretary. That offer clearly shows that the Department of the Interior recognized that Arizona was entitled to 2,800,000 acre-feet of main-stream water in addition to the use of all water of the Gila River and its tributaries with which recognition every argument here made by California spokesmen is in direct conflict.

In order to make this matter clear, I desire to set forth here a bare outline of the legal basis of Arizona's right to water of the Colorado River.

The Colorado River compact ratified by the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming apportions 8,500,000 acre-feet of water per annum in perpetuity to the lower basin from the Colorado River system.

The lower basin comprises parts of California, Nevada, Utah, New Mexico, and practically all of Arizona.

California, as required by the Congress in the Boulder Canyon Project Act, by act of the California Legislature, has irrevocably and unconditionally limited herself to 4,400,000 acre-feet of the 8,500,000 acre-feet apportioned to the lower basin.

Nevada has a contract with the United States for 300,000 acre-feet.

The Bureau of Reclamation estimates that the ultimate possible uses in the portions of New Mexico and Utah which are in the lower basin will not exceed 131,000 acre-feet.

Arizona recognizes the rights of her sister States and does not attempt or intend to use any water to which any of them are entitled as herein outlined.

All of these figures deal only with apportioned water for the reason that any

surplus which is over and above the apportioned water is, under the compact, subject to further apportionment after 1963.

There is thus left approximately 3,700,000 acre-feet of apportioned Colorado River water which cannot lawfully be used anywhere except in Arizona.

Arizona uses approximately 1,100,000 acre-feet from the Gila River and its tributaries and is entitled to use approximately 2,600,000 acre-feet of apportioned water from the main stream of the Colorado River, which water can lawfully be used in Arizona and nowhere else.

Arizona has a contract with the United States for delivery of sufficient water from storage in Lake Mead to enable the consumptive use in Arizona of 2,800,000 acre-feet subject to its availability under the Colorado River compact and the Boulder Canyon Project Act.

Approximately 2,600,000 acre-feet is available under the compact and the act and cannot lawfully be used anywhere except in Arizona.

In amplification, I call the attention of the committee to my testimony given last year before the Irrigation and Reclamation Committee of the House of Representatives on H. R. 5434, which is already a part of the record of this hearing.

I desire particularly to call the attention of the committee to the quotations of the applicable compact provisions, statutory provisions, contract provisions, and the letter of Mr. Hoover and the picture of Mr. Hoover and the statements of Mr. Norvell, Governor Campbell, and Mr. Lewis which are there set out. And I think there can be no doubt of the intent of the negotiators of the compact nor the effect of the express language of the compact, which needs no interpretation, or of the provisions of the Boulder Canyon Project Act, which seem to me to be clear.

And when Congress required that California adopt its self-limitation statute, it did so in order to assure that there would be available for use in Arizona this 2,800,000 acre-feet of main-stream water plus all the water of the Gila River, as indicated by the succeeding paragraph in section 4 of the Boulder Canyon Project Act which, read with the California Limitation Act, established beyond peradventure of a doubt that that was the then intent of Congress.

Arizona has been in this situation. We desired more water than was permitted to us under the compact. Finally the compact was ratified. Congress passed the Boulder Canyon Project Act and we could get no relief and no water unless we ratified the compact and came into the proposition under the terms that Congress and the compact had provided. And when we did that we considered that the questions of the right of use of water in Arizona were settled.

Now, I submit to this committee that they are settled now provided only this, that California respect her own Limitation Act. These attempted changes in interpretation from the long-considered, accepted meaning of these terms, it seems to me, result only from the desire of California to escape its Limitation Act.

Now, there has been some mention here made of correspondence between Governor Warren of California and Governor Osborn of Arizona. I want to submit for this record copies of the letters of Governor Warren and the answers thereto of Governor Osborn, which express clearly, I believe, the official stand taken by the State of Arizona.

The first letter is from Governor Warren addressed to Governor Osborn and Governor Pittman, dated March 3, 1947. In that letter I desire to call to the attention of the committee that no statement is made of what claims California asserts or the basis of such claims, nor what controversies exist nor anything of the kind.

And then, answering that letter, under date of March 12, the letter of Gov. Sidney P. Osborn to Gov. Earl Warren in which Governor Osborn set forth clearly and succinctly the basis of the Arizona claim and of what we claim, and invited Governor Warren or any other governors of the basin to come over and talk it over. No further action was taken by Governor Warren to follow it up until, under date of May 16, 1947, he addressed another letter to Governor Osborn stating that it seemed to him a suit was necessary, but again setting forth no basis for any claim of California to water nor the amount of such claim.

And Governor Osborn's reply to that letter, dated May 23, 1947.

Senator MILLIKIN. What was the gist of the Governor's reply?

Mr. CARSON. The gist of the Governor's reply is that in his letter of March 12 he had set forth the basis of the Arizona claim and the foundation upon which it rests, and it contains these two paragraphs, that, I think, I should read:

"I am sure if you will review my letters and the compact, statutes, contracts, and reports therein mentioned, you will recognize that the only thing required for cooperation between our great States in developing the use of the water of the Colorado River to which they are respectively entitled for their mutual benefit and for the benefit of the Southwest and the Nation, is for your great State to respect the agreements your State has already made.

"I request that you again review my letters and if in your opinion there is any error in the facts, reasoning, or conclusions stated in my letters, I will appreciate your advising me concerning the same."

Senator DOWNEY. Mr. Chairman.

Mr. CARSON. Just a moment, Senator.

Mr. Chairman, may these be incorporated in the record in the order of dates?

Senator MILLIKIN. At this point in the order of dates, at this point in the transcript.

Senator Downey.

Senator DOWNEY. I was going to suggest that, to complete the record at that point, the letter of Governor Pittman replying to Governor Warren be also inserted.

Senator MILLIKIN. Isn't that among them?

Mr. CARSON. No. It isn't there because Governor Osborn didn't receive a copy of that letter from Governor Pittman at the time it was mailed to Governor Warren. I think later Governor Warren sent him a copy, but I do not have it there.

Senator MILLIKIN. Do you wish to have it included as a part of your showing?

Mr. CARSON. No.

Senator MILLIKIN. Well, then, include it please at the direction of the Chair.

Senator DOWNEY. At this point in the record?

Senator MILLIKIN. At this point please.

(The letter to Governor Warren from Governor Pittman follows:)

STATE OF CALIFORNIA,
GOVERNOR'S OFFICE,
Sacramento, March 3, 1947.

Hon. SIDNEY R. OSBORN,
Governor of Arizona, Phoenix, Ariz.
Hon. VAIL N. PITTMAN,
Governor of Nevada, Carson City, Nev.

MY DEAR GOVERNORS: We have just completed our review of the comprehensive plan for the Colorado River system as presented by the Bureau of Reclamation, and I am more than ever impressed by the staggering size and complexity of the proposal.

It is quite apparent, and it is admitted in the comprehensive plan, that the 134 projects inventoried will, if constructed, use more water than is available in the river system. This fact will undoubtedly emphasize the differences of opinion concerning the water to be made available to each State. It is therefore of the utmost importance to the lower-basin States that we reconcile our differences as soon as possible.

The negotiations of the past have failed to bring about agreement between Arizona and California but I am of the opinion that there must be some fair basis upon which their respective rights can be determined. The only methods that occur to me are (1) negotiation of a compact, (2) arbitration, and (3) judicial determination.

I would therefore like to suggest that we three Governors of the affected States endeavor first to enter into a compact which will resolve our differences and finally determine our respective rights.

In the event you believe for any reason that this cannot be done, I suggest that we submit all our differences to arbitration, agreeing to be bound by the results thereof.

If this is not feasible, I propose that we join in requesting Congress to authorize a suit to determine our rights in the Supreme Court of the United States, which suit could, if agreeable to the States, be submitted on an agreed statement of facts.

I believe that either method could produce the desired results. If you agree with me, I suggest that the three of us meet at some time and place mutually agreeable for the purpose of further exploring the subject. If we can place our three States in position to maintain a common front in urging the speedy and

orderly development of the Colorado River system, we will have rendered a great service to our people.

Hoping that I may have your reaction to this proposal and with best wishes, I am,

Sincerely,

EARL WARREN, *Governor.*

EXECUTIVE OFFICE, STATEHOUSE,
Phoenix, Ariz., March 12, 1947.

Hon. EARL WARREN,
Governor, State of California,
Sacramento, Calif.

MY DEAR GOVERNOR WARREN: I have your letter of March 3, addressed to Governor Vail Pittman and myself, concerning the Report of the Bureau of Reclamation on the Development of the Water Resources of the Colorado River Basin.

I presume from your letter that you have completed and sent to the Bureau your comments on the above-mentioned report. I, too, have furnished the Bureau with my comments and am enclosing a copy to you herewith. It will be appreciated if you will furnish me with a copy of your report.

Ever since I have been Governor of Arizona I have endeavored to cooperate with all other States in the Colorado River Basin in all matters of common interest. Arizona has at all times been represented on the Committee of Fourteen and Sixteen, whose name has now been changed to the Colorado River Basin States Committee. Arizona is now represented on the Colorado River Basin States Committee, which committee as presently constituted and as heretofore constituted, has been very helpful in all matters affecting the interests of the respective States in the Colorado River. Arizona is now cooperating in plans for the utilization of Colorado River water in the respective States within the allocation of water available to them.

I will be pleased to meet with you, or with you and Governor Pittman, or with the governors of other interested States, to discuss all matters of common interest to our respective States.

All seven of the Colorado River Basin States—Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming—five of which States are still represented on the Colorado River Basin States Committee, are parties to the Colorado River compact which apportions the water of the Colorado River system as between the upper basin and the lower basin and to Mexico. The compact contains provisions which make utilization of water over and above the apportionment made by the compact of interest to all of the States of the basin.

Portions of Utah and New Mexico are in the lower basin and are entitled to share in the apportionment made to the lower basin and in the use of any available water which is unapportioned by the Colorado River compact.

California, in consideration of the passage by the Congress of the Boulder Canyon Project Act and as a condition precedent to the taking effect of that act and the construction of Boulder Dam, Imperial Dam, and the All-American Canal, by chapter 16, California Statutes 1929, entered into a statutory agreement with the United States and for the benefit of each of the Colorado River Basin States, irrevocably and unconditionally limiting California's claim to water of the Colorado River to 4,400,000 acre-feet per annum of the apportioned water, plus not more than half of the water unapportioned by the Colorado River compact. The quantity of surplus water, that is, water unapportioned by the compact, varies from year to year and is subject to further apportionment by agreement between all of the compact States after 1963.

Arizona recognizes the right of California to use the quantity of water to which California, by the statutory agreement, is forever limited.

Arizona recognizes the right of Nevada to use 300,000 acre-feet of apportioned water per annum, plus one twenty-fifth of available unapportioned water, subject to further apportionment of the unapportioned water by agreement between the compact States after 1963.

Arizona has a contract with the United States for delivery for use in Arizona from the main stream of the Colorado River, subject to its availability for use in Arizona, under the Colorado River compact and the Boulder Canyon Project Act, of so much water as is necessary to permit the beneficial consumptive use in Arizona of main-stream water to a maximum of 2,800,000 acre-feet of the apportioned water, plus one-half of the available surplus, less such part of the one twenty-fifth thereof as Nevada may use, the quantity of which surplus, of course, varies from year to year, and which surplus is subject to further apportionment by agreement between all of the compact States after 1963.

Arizona does not claim the right to the use of any water to which California is entitled, nor the right to the use of any water to which Nevada is entitled, and I am sure that Nevada does not claim the right to the use of any water to which California is entitled, nor the right to the use of any water to which Arizona is entitled. It therefore appears that California and Nevada are now in a position to join Arizona in urging the speedy consideration and passage of S. 433 now pending in the United States Senate and H. R. 1598, its companion bill, now pending in the House of Representatives, which are authorization bills to authorize the construction of the central Arizona project, and H. R. 1597, which is an authorization bill to relocate the boundaries of the Gila project heretofore authorized.

I am certain that the passage of these bills and the construction of the works which they seek to authorize will be of great and incalculable benefit, not only to Arizona, but to California and Nevada and to the United States as a whole. They are vitally necessary to the welfare and to the economy of the whole southwest region. They do not in any way interfere with the full use in California and in Nevada of the water to which California and Nevada are respectively entitled.

If either California or Nevada are interested in the promotion and construction of projects for the utilization of water to which they are respectively entitled, I would like to know it in order that I may render such aid as seems appropriate.

It is difficult for me to understand what, if anything further, need be done to place either California or Nevada or Arizona in position to support the utilization in our respective States of our respective shares of the water of the Colorado River, which shares have already been determined by the Colorado River compact, the Boulder Canyon Project Act, the California Limitation Act, the water-delivery contracts of the California agencies, the Nevada water-delivery contracts, and the Arizona water-delivery contract.

However, I will be glad to meet and discuss with you and the governors of the other Colorado River Basin States, jointly or severally, any matters of common interest, and if at such conference or conferences it should develop that there are any substantial differences, we can consider and perhaps resolve such differences and if it should develop that anything further is necessary we can consider the proper course to pursue.

During your incumbency we in Arizona have not had the pleasure of a visit from you. We would like to see you over in our State and I will greatly appreciate it if you can arrange to come to Phoenix as soon as possible, either alone or with Governor Pittman, or with such other governors of the Basin States as you may desire to have present, in order that any matters which you may desire to further discuss can be gone into fully and thoroughly.

With all good wishes, I am

Sincerely,

SIDNEY P. OSBORN, *Governor.*

EXECUTIVE OFFICE, STATE HOUSE,
Phoenix, Ariz., May 23, 1947.

Hon. EARL WARREN,
Governor of California, Sacramento, Calif.

MY DEAR GOVERNOR WARREN: I have received your letter of May 16 and appreciate your personal good wishes.

In my letter to you of March 12 and in my letter to William E. Warne, Acting Commissioner of the Bureau of Reclamation, of November 22, 1946, a copy of which I sent to you, I clearly stated the facts and the reasoning which in my opinion lead to the inescapable conclusion that the quantities of apportioned water available for use in Arizona, California, and Nevada, respectively, from the Colorado River, are already determined.

If you do not agree with such facts and reasoning and my conclusions, it is regretable that you do not specify wherein you disagree.

On page 8 of the Views and Recommendations of the State of California on Proposed Report of the Secretary of the Interior entitled "The Colorado River" there purports to be a list of relevant statutes, decisions, and instruments affecting the Colorado River, but no mention is there made of the California Self-Limitation Act, chapter 16, California Statutes, 1929.

I discussed the California Self-Limitation Act as well as the other relevant compact, statutes, contracts, and reports in my letters, but in your letters to

me you make no exception to any statements in my letters, nor do you set forth any statement of any facts, reasoning, or conclusions as to what claim to water of the Colorado River you intend to assert for California nor the basis for such claim.

California has unconditionally and irrevocably limited herself forever to the quantity of water set out in the California Self-Limitation Act. Arizona has by contract recognized the right of California to the quantity of water set out in that act and Arizona does not intend to and will not attempt to utilize water to which California is entitled.

Arizona respects her commitments.

Any aspiration entertained in California to use water in excess of that limitation appears to be illegitimate. If California would be content with the use of the quantity of the water to which she has by solemn statutory agreement unconditionally and irrevocably limited herself forever all occasion for any feeling that any further compact, any arbitration or litigation is advisable would disappear.

I am sure if you will review my letters and the compact, statutes, contracts, and reports therein mentioned you will recognize that the only thing required for cooperation between our great States in developing the use of the waters of the Colorado to which they are respectively entitled for their mutual benefit and for the benefit of the Southwest and the Nation, is for your great State to respect the agreements your State has already made.

I request that you again review my letters and if in your opinion, there is any error in the facts, reasoning, or conclusions stated in my letters, I will appreciate your advising me concerning the same.

With all good wishes, I am

Sincerely,

SIDNEY P. OSBORN, *Governor.*

STATE OF CALIFORNIA,
GOVERNOR'S OFFICE,
Sacramento, May 16, 1947.

The Honorable SIDNEY P. OSBORN,
Governor of Arizona, Phoenix, Ariz.

DEAR GOVERNOR OSBORN: I did not bother you during the time you were ill in our State concerning my suggestions for settling the differences of opinion of Arizona and California regarding their respective rights to the use of the water of the Colorado River. However, now that you have recovered sufficiently to return to your home, I would like to discuss your letter of March 12, 1947, and the accompanying copy of your letter to William E. Warne, Acting Commissioner of the Bureau of Reclamation, dated November 22, 1946.

I gather from these two letters that you believe it is unnecessary to try to write a compact between the lower basin States or to have our respective claims arbitrated, because you consider the existing statutes, contracts, etc. have so settled the rights of Arizona, California, and Nevada in the Colorado River that there are no substantial differences between the States. It may well be that the suggestions of a compact and arbitration are not feasible at this late date, but I am of the opinion that there are such basic divergencies of interpretation of the statutes and documents mentioned above, particularly between Arizona and California, that without an authoritative determination as to which State is right, it is impossible for anyone to know what quantity of water either State is entitled to. If our States are to plan for their futures, they must know with certainty how much water is eventually to be made available to them, because everyone recognizes that there is not enough water in the river to fully serve the legitimate aspirations of both our States.

It seems to me that a suit in the Supreme Court of the United States, to which the lower basin States and the United States are parties, is essential to supply the necessary answer. This would of course require a jurisdictional act of Congress, authorizing the United States to be made a party to such suit. Governor Pittman of Nevada has expressed a similar opinion in a letter to me dated March 6, a copy of which is enclosed. I am sure that such a procedure will eventually redound to the benefit of both of our States.

With best wishes for the continued improvement of your health, I am

Sincerely,

EARL WARREN, *Governor.*

Senator MILLIKIN. Proceed, Mr. Carson.

Mr. CARSON. Mr. Chairman, in my testimony that I gave last year before the House committee, I reviewed rather thoroughly the history of this controversy,

the attempts that had been made to negotiate, the attempts that had been made to arbitrate, and the attempts that had been made by Arizona in the Supreme Court of the United States to secure an equitable apportionment of this water.

Now, California opposed that suit, moved that it be discussed. They have known clearly since 1944 of our purpose and plan and they have not again threatened a suit until after Senator McFarland and Senator Hayden began to press for the date for this hearing. So in that suit, as in any contemplated suit, there is a grave question as to whether or not the Supreme Court will take jurisdiction to adjudicate an equitable apportionment of water unless and until one State can allege that it is in danger of injury by a planned and going action of another State.

If California's spokesmen can by the threat of a suit so block Arizona and the congressional acts and the United States in the utilization of water, there will be no necessity for their suit. If this Congress goes ahead and authorizes this suit, before any money could be spent, California would have an opportunity to go into court and test the question on a firmer and sounder basis than they would have in the absence of any authorizations. What we are doing now is trying to get the authorization, and until somebody has some method of going ahead and diverting water, it is very doubtful if the Supreme Court would take jurisdiction, even in the face of the declaratory judgment statute. They have consistently refused to do so.

Senator MILLIKIN. Your theory is that the Supreme Court would require a showing of injury before taking jurisdiction?

Mr. CARSON. Take jurisdiction——

Senator MILLIKIN. A showing of injury or I assume——

Mr. CARSON. Potential injury.

Senator MILLIKIN. Threat of injury.

Mr. CARSON. Threat of injury to a going project.

So that I think now that in mentioning the possibility of a suit these California spokesmen have merely in mind the effect on this Congress, because they refused to join when we tried to sue. I think it is for the purpose of confusion and delay that that statement is here injected.

Senator MILIKIN. I am speaking now about the interpretation or construction of the compact. Is there any contention on behalf of Arizona that the compact in any way has been amended?

Mr. CARSON. No, sir.

Senator MILLIKIN. Does California contend that the compact has in any way been amended?

Senator DOWNEY. Will you repeat the question?

I prefer to have Mr. Shaw answer.

Senator MILLIKIN. I am passing questions of interpreting the compact or construing the compact, assuming but not conceding that there is ambiguity in it. Is there any contention that the compact by any subsequent procedures of any kind, subsequent instruments, subsequent doings or acts or in any other manner has been amended?

Mr. SHAW. It has been amended in one particular, in effect. By the terms of article IV of the compact, navigation was subordinated to other uses, that is, domestic, irrigation, and power. By the terms of section 6 of the project act, navigation was made superior to the other uses. But article IV of the compact itself permitted Congress to do that very thing, so that there has been no great violence, you might say, done to the terms of the compact since it was framed.

Senator MILLIKIN. That was a practical solution in order to make it possible to have a law, was it not?

Mr. SHAW. Yes, sir.

Senator MILLIKIN. Thank you.

Mr. Carson, what is the citation of this Arizona-California case?

Mr. CARSON. 292, page 358; the sixth ground, stated on page 358. The paragraph begins "Sixth."

Senator MILLIKIN. When did Arizona approve the compact?

Mr. CARSON. In February 1944.

Senator MCFARLAND. I was about to ask one question, Mr. Chairman.

Senator MILLIKIN. Proceed.

Senator MCFARLAND. Mr. Carson, the Boulder Canyon Project Act outlined the conditions under which it would become effective. The compact had to be ratified by seven States and failing to do so within 6 months by six States including California and provided California agree to certain conditions including the following:

"And, further, that until the State of California by act of its legislature shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, Wyoming as an express covenant to the consideration of the passage of this act, and that the aggregate annual consumptive use, diversions less return flow to the river of the water of and from the Colorado River—"

that that is all-inclusive, that wording?

Mr. CARSON. Yes.

Senator MCFARLAND. And that that is the only water they can take?

Mr. CARSON. That's right.

Senator MCFARLAND. Because it says "of and from the Colorado River."

Mr. CARSON. Yes.

Senator MCFARLAND. And for use in the State of California. There couldn't be used any of the Gila River water in the State of California, could there?

Mr. CARSON. No.

Senator MCFARLAND. (reading):

"Including all uses under contracts made under the provisions of this act and all water necessary for the supply of any rights which may now exist, shall not exceed 4,400,000 acre-feet of the waters apportioned to the lower basin States by paragraph (a) of article III of the Colorado River compact."

Now, the only exception to that condition, as I understand your interpretation, is this "plus":

"Not more than one-half of any excess or surplus water unapportioned by such compact, such uses always to be subject to the terms of said compact."

Now I will ask you if in the next paragraph the Congress itself doesn't interpret that provision by setting out what it will ratify if Arizona wants to come in and accept it by way of an agreement "that the States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide: (1) That of the 7,500,000 acre-feet annually apportionment to the lower basin by paragraph (a) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for the exclusive, beneficial consumptive use in perpetuity. And that the State of Arizona may annually use one-half of the excess or surplus water unapportioned by the Colorado River compact, and that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of the State, and that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States or Mexico, but if, as provided in paragraph (c)" and so forth.

In other words, as I understand your interpretation, the Congress of the United States, by setting out this, placed an interpretation on the California Limitation Act, provided for, as permitting that amount of use of water in Arizona.

Mr. CARSON. That's right. And that is emphasized, also, by the contract offered Arizona, to which I referred, by the Department of the Interior. It is already in the record, but I just want to red this much of it.

Senator MILLIKIN. You say "offered Arizona." Was the contract concluded? Was the contract made?

Mr. CARSON. No; this contract wasn't made. It was offered to Arizona by the Secretary of the Interior at that time.

It is article X:

"From storage available in reservoir created by Hoover Dam, the United States will deliver under this contract each year at points of diversion hereinafter referred to on the Colorado River so much available water as may be necessary to enable the beneficial consumptive use in Arizona of not to exceed 2,800,000 acre-feet annually by all diversions effective from the Colorado River and its tributaries below Lee Ferry but in addition to all uses from waters of the Gila River and its tributaries."

Senator MCFARLAND. That is all the questions I have.

Mr. CARSON. Mr. Chairman, there is one more thing that I would like to volunteer.

Senator DOWNEY. Mr. Carson, before you leave that last subject, that contract that you just read and the part you have just read is followed by a stipulation that the contract does not in any way mean to interpret what shall be class A water and class B water?

Mr. CARSON. It has some clause in it that it is without prejudice of the claim

of any State as to interpretations and so forth, I am sure, but I haven't it before me now.

Senator McFARLAND. Is that in all the contracts?

Mr. CARSON. Yes; I think that is in all of the contracts. But, now, in this contract of the Metropolitan water district, which is incorporated and will be placed in the record, it contains within it, as do all of the other California contracts, a statement as to the priority of their claim and that they are subject to the availability of water under the compact and the act to the same degree as we are. There is no difference there, this priority.

Senator MILLIKIN. May I interrupt you just a moment?

Has anyone ever put under single cover all of the contracts and all of the instruments and documents that bear on the legal questions involved in this case?

Mr. CARSON. Most of the underlying contracts, compact, and the act, and some of the opinions that were given up until the time this was published in 1933 are accumulated in this Hoover Dam contract by Wilbur and Ely. There is no other that is complete.

Senator MILLIKIN. Would you remind me, Miss McSherry, to ask Legislative Reference to assemble within two covers all of the contracts and documents including, of course, the compact, the California self-limitation statute, and any other laws that have legal bearing on the legal problems involved here and to submit their work before conclusion to the two Senators so that if anything is omitted it will be included, so that we may have one single source for ready reference to everything that is involved here as far as the legal questions are concerned.

Senator DOWNEY. Mr. Chairman, would it be appropriate to put in that compilation the different statements and interpretations that have been given by the Bureau of Reclamation and these responsible officials that we both here rely on?

Senator MILLIKIN. Let me rule on that in this way, that after Legislative Refence submits its tentative work to the two Senators that anything that either Senator thinks has relevant bearing may be included, and I ask for, and I know it will be forthcoming, a decent sense of restraint against unduly "padding" the record. But I would like to have under one cover everything that all of us consider relevant to the legal questions involved.

Mr. CARSON. May I just make a voluntary statement concerning this metropolitan contract? It contains all of the system of priorities that are set up in California internally that do not affect any other States.

The question here presented, in my judgment, is for California to respect its Limitation Act of 4,400,000 acre-feet per annum of apportioned water, and it it does, it is within California's power to readjust its internal priority agreement without injury to anyone and bring its present uses clearly within its 4,400,000 acre-feet. But they don't propose to do that. They propose to fight Arizona in order to irrigate 400,000 to 500,000 acres of new land on the east mesa and the west mesa of the Imperial Valley for which no distribution works have been built. True, it can be served through the All-American Canal, but no distribution systems have been built and it is nearly all publicly owned land and they could do it now without injury. But they propose to fight Arizona, and if I read them correctly, all of the other States of the basin, in order to assure that they themselves do not have to go in and readjust their own internal priority system.

Now, I am not familiar with California law, but Senator Downey states that they cannot condemn there without condemning everything in the Los Angeles Basin. I am sure if that is the case, the California Legislature can very easily correct it.

That is about all I can add at this time.

Senator MILLIKIN. I think I asked yesterday that there be put in by reference the priority scale California applies internally to these waters. I assume that will be put in.

Senator DOWNEY. Yes.

Mr. CARSON. It is all set out in this metropolitan contract and in each one of their other contracts.

Senator DOWNEY. Mr. Chairman, I have only one question.

I would like to read to Mr. Carson a paragraph of the Arizona-California case in the Supreme Court in 1933, and I would appreciate it if Mr. Carson could give me a "Yes" or "No" answer to my question. I think it simply admits of that, with any explanation that he wants thereafter.

In the opinion of the Court, October term, 1933, United States Reports, volume 292, appears this paragraph:

"The considerations to which Arizona calls attention do not show that there is an ambiguity in article III (b) of the compact. Doubtless, the anticipated physical sources of the waters which combine to make the total of 8,500,000 acre-feet are as Arizona contends, but neither article II (a) nor (b) deal with the waters on the basis of their source. Paragraph (a) apportions waters "from the Colorado River system," i. e., the Colorado and its tributaries and (b) permits an additional use "of such waters." The compact makes an apportionment only between the upper and lower basin; the apportionment among the States in each basin is left to later agreement. Arizona is one of the States of the lower basin and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone. It may be that, in apportioning among the States the 8,500,000 acre-feet allotted to the lower basin, Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her; but that is a matter entirely outside the scope of the compact."

That is the end of the paragraph. Mr. Carson, do you either agree or disagree with the accuracy of the statement made in the Supreme Court decision?

Mr. CARSON. I agree with it.

Senator DOWNEY. That is all, Mr. Chairman.

Mr. CARSON. I want to explain that, Mr. Chairman, then. I brought that suit for Arizona to perpetuate testimony of what had occurred at the original compact negotiations in order to establish what was testified to here by Mr. Meeker in a form that we could later use in any litigation that might later arise. That it was clearly understood is shown by the letters of Mr. Hoover and the statements made by Governor Campbell, Mr. Norveil, and Mr. Lewis, and it was clearly understood at that time that immediately following the adjournment of that conference in Santa Fe, N. Mex., in 1922 there would be a tri-State agreement made between California, Arizona, and Nevada specifying that the million acre-feet of III (b) water was for Arizona.

But during the course of the years, when the California Limitation Act was passed, it became no longer necessary for us to support that position, because there is apportioned 8½ million to the lower basin, 8½ million acre-feet, of which California is limited to 4,400,000, which leaves for Arizona 3,800,000 less minor adjustments for Utah and New Mexico, of which amount we get a million acre-feet from the Gila and the balance from the main stream, so you come out the same.

Senator MILLIKIN. What was the date of the California Limitation Act?

Mr. CARSON. 1929.

Senator MCFARLAND. Do you agree, then, Mr. Carson, with Mr. Matthew when he stated here under cross-examination that if this III (b) water is apportioned water, California couldn't use it; under the California Limitation Act?

Mr. CARSON. That they could not use it, as under the California Limitation Act it is apportioned water.

Senator MCFARLAND. That was admitted by California in their testimony here.

Senator MILLIKIN. What treatment did the Supreme Court give to the California Limitation Act?

Mr. CARSON. It wasn't raised in this case. This was merely a unique bill to perpetuate testimony, and they did not permit us to perpetuate it on the ground, among others, of this sixth ground stated in their opinion. And there was no ambiguity, that it was apportioned to the lower basin but not to Arizona alone and, therefore, there was no necessity of perpetuating the testimony.

Senator MILLIKIN. The California limitation statute was not before the Court at all?

Mr. CARSON. No. There was just a question of perpetuating testimony.

Senator DOWNEY. Mr. Chairman, I would also like to read into this record a different volume than I read from before. It is a different edition but from the same case.

This is 298 U. S. 563 to 568, Eightieth Law Edition.

Mr. CARSON. That is a different case.

Senator DOWNEY. Which case is it? Is this another case between the two States?

Mr. CARSON. Yes. This is 292 U. S.

Senator DOWNEY. Well, I am away behind.

Very well. Mr. Carson is evidently away ahead of me.

Under 564 appears this statement, and I am reading now from the Complaint of Arizona and this allegation of the Complaint of Arizona, I am informed, was adopted as a finding by the Supreme Court.

Senator MILLIKIN. Now, what case is this? And what is the citation?

Senator DOWNEY. This is *Arizona* v. *California* (298 U. S. 563 to 565): "* * * by the six defendant States, and the limitation upon the use of the water by California was duly enacted into law by the California Legislature by act of March 4, 1929, supra. By its provisions the use of the water by California is restricted to 5,484,500 acre-feet annually."

That is the opinion of the Court, deduced from the allegations of Arizona's complaint, which the Court's opinion adopted as its findings. That is the effect of the allegation made in Arizona's pleading.

Mr. Chairman, I have a luncheon engagement, so I think I will withdraw.

Senator MILLIKIN. We will close in just 1 minute.

Do you wish to make any comment on that, Mr. Carson?

Mr. CARSON. I haven't read the full opinion recently, but that was a case brought by Arizona to try to obtain a decision of the Supreme Court equitably to apportion the water of the river, the same kind of a case that they are talking about bringing now; but my recollection is that Arizona's allegations were not as stated by Senator Downey.

I had, previous to the bringing of that case, given an opinion to our people that we could not maintain it, and I did not participate in that suit.

But the Supreme Court refused to take jurisdiction, and made no decision on the merits.

STATEMENT OF CLIFFORD H. STONE, DIRECTOR, COLORADO WATER CONSERVATION BOARD, AND COMMISSIONER FOR COLORADO ON THE UPPER COLORADO RIVER BASIN COMPACT COMMISSION

Senator MILLIKIN. Judge Stone, will you take a seat and give the reporter your name, your address, and your business.

Mr. STONE. My name is Clifford H. Stone. For a period of 10 years I have been identified in various capacities with matters which concern the Colorado River.

I am a lawyer and have practiced in Colorado for 28 years. At the present time I am director of the Colorado Water Conservation Board and commissioner for Colorado on the Upper Colorado River Basin Compact Commission. My work has entailed a study and consideration of the Colorado River compact, Boulder Canyon Project Act, California's Self-Limitation Statute, and various contracts and documents relating to the Colorado River.

The compact, legislative acts, contracts, and related documents have been described as the law of the river.

Any proposed legislation which involves an interpretation of the Colorado River compact is of concern to each of the seven signatory States to that compact. Such interpretation is injected in the hearings on S. 1175 now before this committee.

In my appearance here, I shall confine my statement to two principal issues dealing with interpretation of the Colorado River compact. They are:

1. Is the water covered by paragraph (*b*) of article III of the Colorado River compact excess or surplus waters unapportioned by the compact, and has California, by the terms of the Limitation Act, renounced any claim to the 1,000,000 acre-feet by which the lower basin may increase its beneficial consumptive use?

2. Is the measure of beneficial consumptive use of waters of the Gila River in Arizona the amount of depletion of the virgin flow of the river at its confluence with the Colorado River?

It is my position that the million acre-feet of water, covered by paragraph (*b*) of article III of the Colorado River compact, is apportioned water to the lower basin. It is not excess or surplus water unapportioned by the compact.

Paragraph (*b*), article III, reads:

"In addition to the apportionment in paragraph (*a*), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum."

This paragraph follows paragraph (*a*), which provides:

"There is hereby apportioned from the Colorado River system in perpetuity to

the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist."

Article III contains a paragraph (*f*) which, since the compact was approved by the Congress in 1928, has been commonly understood as the only provision of the compact defining excess or surplus waters of the Colorado River system, unapportioned by other provisions of article III.

This paragraph is important, and I shall discuss it extensively. It reads:

"Further equitable apportionment of the beneficial uses of the waters of the Colorado River System" and I wish the committee would note these reports, "unapportioned by paragraphs (*a*), (*b*), and (*c*) may be made in the manner provided in paragraph (*g*) at any time after October 1, 1963, if and when either basin shall have reached its total beneficial consumptive use as set out in paragraphs (*a*) and (*b*)."

California makes the contention before this committee that III (*b*) water is a part of "excess or surplus waters unapportioned by the Colorado River compact."

In considering this question, the essential nature of an interstate compact must not be overlooked. A compact is an agreement or treaty of sovereign States. Under the Federal Constitution such a treaty or agreement may be made only with the consent of the Congress. After negotiation by representatives or commissioners of the compacting States, it may be effectuated only by ratification of the legislatures of such States. The terms and conditions of a compact must be construed and interpreted so as to reflect the understanding of the legislatures in the ratification of the compact.

The Colorado River compact, after ratification by six of the basin States, was approved by Congress by the Boulder Canyon Project Act, passed in 1928.

Senator MILLIKIN. Is it your contention that there is ambiguity is the compact requiring construction?

Mr. STONE. I am going to point that out to you. I take that up later, Senator.

The Supreme Court of the United States, in *Arizona* v. *California*, 292 U. S. 341, at page 359, held:

"The Boulder Canyon Project Act rests, not upon what was thought or said in 1922 by negotiators of the compact, but upon its ratification by the six States."

This same case holds that when the meaning of a compact is not clear recourse may be had to written statements and documents communicated to the respective governments of the negotiators or to their ratifying bodies. This rule, no doubt, would also apply to written reports or communications transmitted to the Congress by a Federal representative who participated in the negotiation of a compact.

This rule is rational when it is kept in mind that it is the intent, purpose, and understanding of the ratifying bodies of participating State governments, which is of permanent concern. It is the will of the ratifying governments which gives effect to an interstate agreement. Compacts would be of little value, indeed, if their intent and purpose could be thwarted, changed, and modified by strained interpretations, founded on oral statements of negotiators and debates in Congress.

In any event, no report should be made to written documents and legislative history of either the ratifying acts of the signatory States or of the Congress, if the language of a compact is clear, unambiguous, and unequivocal.

It is my position that the language of the Colorado River compact, respecting apportioned water and that which is unapportioned, is so clear and unambiguous that there is no necessity of going beyond the language of the instrument itself to understand its terms, conditions, and provisions, which were ratified by the legislatures of the signatory States.

That answers your question, Senator.

It is against all rules of legislative and judicial procedure to equivocate concerning an agreement among sovereign States, when the language of an agreement made by them is reasonably clear. In this case, we contend that the compact language is so unquestionably clear and unambiguous that any effort to change its patent meaning by interpretations, allegedly supported by collateral documents and statements is equivalent to an attempt to thwart the will of the States. Extreme caution should be exercised to prevent a State, signatory to an interstate compact, from circumscribing by this method its solemn agreement with sister States.

Let us look at the language of the compact on the subject under discussion.

First, we observe that the compact deals with all of the water of the Colorado River and its tributaries within the United States of America. This is

shown by article II (*a*) of the compact defining the "Colorado River system." It is also shown by other language throughout the compact.

Second, article III clearly shows that all of the water of the Colorado River system except that provided for Mexico and the unapportioned surplus as specified in paragraph (*f*), is apportioned between the upper basin and the lower basin, and no apportionment of water is made to any particular State of either of the basins.

Paragraph III (a) "apportioned" from the Colorado River system in perpetuity to the upper basin and lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum. Article III (b) provided that "in addition to the apportionment in paragraph (a)," the lower basin is given "the rgiht to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum."

The words "such waters" in paragraph (b) refer back to the waters of the "Colorado River system" mentioned in paragraph (a).

The dictionary defines the word "apportion" as meaning "to divide and assign in just proportion; to portion out; to allocate." It is only common sense to conclude that when the compact used the word "apportioned" in paragraph (a), and the words "the lower basin is hereby given the right to increase its beneficial consumptive use," in paragraph (b), the probative effect in each instance was the same.

The compact itself recognized that these terms were used in a synonymous sense when it provides in paragraph (f), article III, that "further equitable apportionment of the beneficial uses of the waters of the Colorado River system "unapportioned" by paragraphs (a), (b), and (c) may be made in the manner provided in paragraph (g) at any time after October 1, 1963."

I think we cannot mistake that language.

Note that there, the negotiators of the compact, by their own language, which was subsequently approved by legislatures of the signatory States, used the word "unapportioned" to describe water which was not "apportioned" by either paragraphs (a) or (b) or (c). It is this paragraph (f) which covers "excess or surplus waters." By its own language, it excludes the water in paragraph (b) which, under the contention of California, is attempted to be added to it. If it is the position of California that there is some other type of "excess or surplus water" that is unapportioned, then may we point out that by the terms of paragraph (f) all water is covered except that specified in paragraphs (a), (b), and (c).

It is folly to speculate, or attempt to draw conclusions, as do the spokesmen for California, that there is any significance in the manner by which the compact covers apportioned water in two separate paragraphs. We suspect that there were reasons which are not disclosed by the language of the compact. This is unimportant, however, if the effect of either or both paragraphs is to actually divide, apportion, or allocate water to the two basins or either basin. Effect must be given to the plain wording of the compact.

Nor is there any support in the fact that paragraph (f) mentions paragraph (c), as well as paragraphs (a) and (b), as apportioned water. It is contended by those who support California's position that paragraph (c) does not apportion any water. The fact remains that paragraph (b) is described by paragraph (f) as apportioned water. Further, may we point out that paragraph (c) does affect the apportionment of water. It provides that in the event the United States of America should recognize in Mexico any right to the use of any of the waters of the Colorado River system, such water shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be borne by the upper basin and the lower basin. The effect of paragraph (c) is to cut down the apportionment to each basin upon the happening of a certain contingency. Careful draftsmanship would surely dictate the inclusion of paragraph (c) in setting up in paragraph (f) what constitutes surplus water.

And, may we call attention to the language of paragraph (c) which, itself, clearly supports the conclusion that the water mentioned in paragraph (b) is not excess or surplus water unapportioned by the Colorado River compact. This paragraph states that any water for Mexico shall be provided "first from the waters which are surplus over and above the aggregate of the quantities specified in (a) and (b)." The definition and meaning of "surplus," over and above the aggregate of the quantities specified in paragraphs (a) and (b), is clearly shown by the compact. This paragraph (c) also provides that any

future right of Mexico should be supplied from water surplus over (a) and (b). It demonstrates beyond question that all unapportioned surplus water is covered by paragraph (f), which, according to the expressed provisions of the compact, is water "unapportioned by paragraphs (a), (b), and (c)."

We urge, therefore, that by clear and unambiguous language the Colorado River compact provided that III (b) water is not excess or surplus but is apportioned. As a corollary to this conclusion, we submit that the will and understanding of the legislature which ratified the compact cannot be thwarted and changed by an attempt to vary its terms through collateral documents, statements, or by debate in the Congress when the Boulder Canyon Project Act was under consideration.

This language was not misunderstood by Herbert Hoover, Federal representative, who participated in the negotiation of the compact. He was Chairman of the Colorado River Compact Commission. On March 2, 1923, he transmitted a report of the proceedings of the Commission and of the compact to the Speaker of the House of Representatives (Doc. 605, 67th Cong., 4th sess.). In his letter of transmittal he stated:

"Due consideration is given to the needs of each basin, and there is apportioned to each 7½ million acre-feet annually from the flow of the Colorado River in perpetuity, and to the lower basin an additional million feet of annual flow, giving it a total of 8½ million acre-feet annually in perpetuity."

It will be noted that he used the word "apportioned" as applying both to the 7½ million acre-feet provided for the upper and lower basins and to the additional million acre-feet of annual flow for the lower basin. He also stated that the apportionment of these two amounts was an apportionment of a total of 8½ million acre-feet annually to the lower basin.

The Supreme Court of the United States supports the contention which we here make. In *Arizona* v. *California* (292 U. S. 341), the Court did not sustain Arizona's claim that the million acre-feet covered by III (b) water was specifically apportioned to Arizona alone. However, this same case held that III (b) water was apportioned to the lower basin. It also held that there is no ambiguity in article III (b) of the compact. It, accordingly, overruled the contention which California now makes that III (b) water is unapportioned. As we shall later show, under the California self-limitation statute, even though the compact does not apportion the million acre-feet specifically to Arizona, the effect of the compact in connection with that statute is to make such water available only to Arizona.

On page 358 of the Supreme Court case cited above, it is stated (***Arizona*** v. *California*, 292 U. S. 341, p. 358, sixth ground):

"Sixth. The considerations to which Arizona calls attention do not show that there is any ambiguity in Article III (b) of the Compact. Doubtless, the anticipated physical sources of the waters which combine to make the total of 8,500,000 acre-feet are as Arizona contends, but neither Article III (a) nor (b) deal with the waters on the basis of their source. Paragraph (a) apportions waters 'from the Colorado River system,' i. e., the Colorado and its tributaries, and (b) permits an additional use 'of such waters.' The Compact makes an apportionment only between the upper and lower basins; the apportionment among the states in each basin being left to later agreement. Arizona is one of the states of the lower basin, and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in Paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the states of the lower basin and not specifically to Arizona alone. It may be that, in apportioning among the states the 8,500,000 acre-feet allotted to the lower basin, Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her; but that is a matter entirely outside the scope of the Compact."

The Boulder Canyon Project Act, passed by the Congress in 1928, which provided for the approval of the Colorado River compact, included a section IV (a) which required California to pass what has been called a self-limitation statute. The effect of this statute, subsequently passed by the California Legislature, is to limit California's use of Colorado River water under the Colorado River compact. The act provided that it should not take effect, and there should be no authority exercised under it and no moneys expended in connection with the works authorized by the act, until California passed such a statute.

The act further provided that it would not be effective unless within 6 months

the compact was ratified by all of the signatory States; or if not, by such unanimous ratification, until six of such States, including the State of California, had ratified the compact and consented to waive the provisions of the compact requiring approval by all six States. The act further specified that as a condition to its becoming effective, California "by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an expressed covenant and in consideration of the passage of this Act, that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, shall not exceed four million four hundred thousand acre-feet of the waters apportioned to the Lower Basin States by paragraph (a) of Article III of the Colorado River Compact, plus not more than one-half of any excess or surplus waters unapportioned by said Compact, such use always to be subject to the terms of said Compact."

It is my opinion that the statute passed in 1929 by California in conformity with this provision of section IV (a) of the Boulder Canyon Project Act limits California to 4,400,000 acre-feet of water, plus one-half of the water unapportioned by paragraphs (a) and (b) of article III of the compact, exclusive of any water apportioned to Mexico by treaty. California, on the other hand, through its contention that water covered by paragraph (b) of article III is unapportioned water, takes the position that III (b) water is available as a part of excess or surplus water for use in the lower basin, including California.

We believe that we have shown that III (b) water is apportioned and that the only surplus or excess water is that specified in III (f) as being unapportioned by paragraphs (a), (b), and (c) of the compact.

Section IV (a) of the Boulder Canyon Project Act and the California statute on the subject clearly specify that the aggregate annual consumptive use "of water of and from the Colorado River for use in California" should not exceed 4,400,000 acre-feet of III (a) water, plus not more than one-half of the water unapportioned by the compact. This share of the apportioned water and of the unapportioned water makes up the total water supply which, under the compact and the self-limitation statute, is available to California from the Colorado River. III (b) is not included in the amount which may be used in this specification in California but, on the contrary, is expressly excluded from such use.

By the passage of the self-limitation statute, California renounced any claim to more than 4,400,000 acre-feet of water apportioned to the lower basin by the Colorado River compact, plus one-half of unapportioned water. Apparently, to get around this limitation, California now attempts to increase the amount of unapportioned excess or surplus water so as to include the water covered by paragraph (b) of article III of the compact. She thereby recognizes that unless she can sustain her claim that III (b) water is unapportioned, she must abide by the limitation in the use of III (a) water, plus the share of unapportioned water.

It must be noted in this connection that the confluence of the Gila River with the Colorado is so far down, no part of it can be used in California.

BENEFICIAL CONSUMPTIVE USE OF WATER UNDER THE COLORADO RIVER PROJECT

This is the second point, the question of the beneficial consumptive use of water under the Colorado River compact, which I am discussing.

It is contended by witnesses for California before this committee that beneficial consumptive use of water of the Gila River in Arizona is not measured by depletion of the virgin flow of the river at its confluence with the Colorado River, but is equal to the various increments of consumptive use at the points of use. If this principle is valid, it could be contended by California that it applied to the Upper Basin.

Technical phases of this subject will be discussed by other witnesses. The determination of this matter affects the amount of water which is available to Arizona, under the provisions of the Colorado River compact, to the extent of over 1,000,000 acre-feet.

Article III of the compact, which apportions water between the two basins makes such apportionment for "beneficial consumptive use." Beneficial consumptive use, as applied to the compact, is nowhere defined in that document. An effort should first be made to determine the intended meaning from the com-

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pact itself. Patent evidence of what was intended by the States in making the compact is shown by article III (d), which provides:

"The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series beginning with the first day of October next succeeding the ratification of this compact."

It will be noted that in specifying the measure of beneficial consumptive use of the water apportioned by the compact to the upper basin, depletion at Lee Ferry was used. It cannot be assumed that a measure of beneficial consumptive use would be used for the upper basin differently from that for a large tributary of a river, such as the Gila. The use of the phrase, we believe, would be applied consistently throughout the compact.

Since the use of the term by the compact is not defined therein and because of the importance of its application, resort may be had to statements and documents concerning the compact which were available to the governments of the States in ratifying the compact. The minutes of the Colorado River Compact Commission are extremely enlightening on this subject.

Here I quote from Reuel Leslie Olson, and Reuel Leslie Olson prints a large part of the minutes in the back of his book. The Colorado River Compact, These statements no doubt are taken from them. At page 35, Mr. Olson states:

"The phrase 'exclusive beneficial consumptive use' and the world 'apportion' used in Article III, paragraph (a), defining the right of the Basins, gave great concern to the Commissioners. The first one of these terms, the phrase 'exclusive beneficial consumptive use' was taken by some of the Commissioners to raise the legal problem of whether or not representatives of the separate States could apportion or divide the corpus of the water. The second was selected to express the idea of division of the water between the Upper Basin and the Lower Basin because several of the Commissioners believed that its connotation was somewhat different from the meaning suggested by other terms. It was thought that the word 'apportioned' did not imply appropriation and therefore did not raise the question of whether or not the interstate agreement would have any effect upon the existing system of vesting of water rights by appropriation under State law in the several States of the Colorado River area.

"* * * It caused much argument at the time the Compact was drafted, and in the minutes of the meetings of the Commission we find remarks forewarning us * * * of the controversy."

On page 36, we find this further statement on the subject: by Olson:

"The Commissioners sought to use language in the Compact which would avoid the issue. The phrase 'beneficial consumptive use' was decided upon as the most nearly satisfactory expression. It was supplemented by a statement inserted in the official records of the proceedings to the effect that 'the States of the upper division * * * wish to state affirmatively * * * that it is the understanding that the use of the language in Article III constitutes no waiver on their part or on the part of any one of them to any claim of ownership which they may have to the corpus of the water or any recognition of any right or claim on the part of the United States to the corpus of any of the unappropriated water of the stream, it being the understanding of these States that the language used is the medial ground which in no way raises or affects the title of ownership.' This was subsequently adopted as the statement of all of the Commissioners."

The extended discussion of the matter appears from the Colorado River Commission minutes of the twenty-second meeting, November 1922, Bishop's Lodge, Santa Fe, N. Mex. Reference is made to the minutes on this subject, and as indicative of the discussion in support of the statement made by Mr. Olson, may I quote as follows:

"Chairman HOOVER. The whole proposition here is whether you are going to divide the corpus of this water or whether you are going to divide the use. If you are going to divide the corpus of the water you are going to be in a mighty lot of trouble before the Federal Government. If you are going to divide the use of the water, I don't see any difficulties in the matter at all. Now if you are going to divide the corpus of the water you are going to adopt the extreme State view. If you are going to the other extreme and adopt the extreme Federal view you would acknowledge in this pact the unappropriated water belonged to the Federal Government and that by this act the Federal Government consented to transfer its rights to the States and it would never get through Congress.

"The question is to find a medial ground which does not have either extreme,

and finding that ground on the ground of use has struck me all along as being the medial ground which doesn't raise the question. If you are going to take Mr. Carpenter's view you are going to divide the corpus of the water. That is a contention I don't think the Federal Government would be inclined to stand for. It is not for me to decide, it is purely for you."

This conception of the reason for the use of the term "beneficial consumptive use" by the Colorado River compact, coupled with resort in the compact to "depletion" by article III as the measure of beneficial consumptive use in the upper basin, demonstrates that it is unjustified, unreasonable, and not in accordance with the compact to measure beneficial consumptive use of the Gila River in any manner other than by depletion at its mouth.

Mr. Howard, in his statement before this committee, quotes from the State of Colorado's views and comments on the Colorado River report of the Bureau of Reclamation. These Colorado statements are not inconsistent with the position which we take here. It is a technical matter which will be explained by engineering witnesses.

I might add Mr. Tipton will go into the matter in some detail.

Mr. Howard, in his statement before this committee, said that the phrase "beneficial consumptive use" is a "common one and well understood in water law as meaning diversions from a river minus return flow to the river." We most emphatically disagree with this statement.

From actual experience in compact making on other rivers, I know that the definition of "beneficial consumptive use" and the method of determining such use varies to apply to the specific conditions which are dealt with in a compact. The phrase has a very technical meaning and has been the subject of much study and discussion by the engineering profession. The technical use of the term is not well defined in the law. We do not believe that such technical use was understood or considered by the commissioners when they negotiated the Colorado River compact, nor by the States when it was ratified.

On the contrary, we have here submitted from the minutes of the compact commissioners what they had in mind when they considered the use of the term, and the only measure evidenced by the compact itself of beneficial consumptive use is that of depletion.

Then, in conclusion, the Congress, we believe, will not approve an unconscionable position in interpreting the Colorado River compact for the purposes of proposed legislation. Nor would a court give approval to any interpretation of a solemn agreement among States which would be inequitable. It cannot be assumed that the compacting States intended to apportion water between the upper and lower basins of the Colorado River by terms and conditions, the interpretation of which would limit one of the States to its existing uses of water when the compact was made with a comparatively small opportunity for future development. We submit that the States did not do so.

California, under the compact, has proceeded with extensive development. California, according to the statements made before this committee, now claims that there is no water for the proposed central Arizona project or any other water development—future development, I mean—in the State. The California spokesmen arrive at this conclusion through the interpretations of the Colorado River compact which they asked this committee to accept. May I submit that if these interpretations are approved by this committee or should be approved in the future by a court, the terms of the Colorado River compact would be held to deny one of the signatory States an equitable share of Colorado River water.

STATEMENT OF R. J. TIPTON, CONSULTING ENGINEER FOR THE STATE OF ARIZONA AND CENTRAL ARIZONA PROJECT ASSOCIATION

Senator MILLIKIN. Mr. Tipton, will you take a seat, and give the reporter your name, residence, and business.

Mr. TIPTON. Yes, sir.

My name is R. J. Tipton. I am a consulting engineer from Denver, Colo. I am appearing at this hearing in behalf of the State of Arizona and the Central Arizona Project Association. Among my clients is the Colorado Water Conservation Board for which I am consulting engineer. I am appearing with the full knowledge of responsible officials of the State of Colorado, including the Governor. I have no knowledge of the physical features or merits of the central Arizona project. My statement will be confined to a discussion of water supply and its availability under the Colorado River compact and related documents.

The statement of Mr. James H. Howard, presented to the committee on June 28, makes it necessary for me, in behalf of the State of Colorado, to correct certain impressions which he left with the committee as to Colorado's interpretation of some of the matters which affect the water supply available under the compact to the upper basin as well as to Arizona.

He quoted statements which I made in connection with the Mexican water treaty hearings and quoted from an official report of the State of Colorado which commented on the Colorado River Basin report of the Bureau of Reclamation. The Colorado report was signed by the Governor of the State of Colorado; Clifford H. Stone, director of the Colorado Water Conservation Board; C. L. Patterson, chief engineer of the board; Jean S. Breitenstein, attorney for the board; and myself as consulting engineer of the board. The interpretations which Mr. Howard accredited to me and to the State are directly opposed to the State's interpretation and my interpretation of the matters involved.

In my statement I desire to discuss the following phases of the problem: (1) Beneficial consumptive use; (2) water supply of the Colorado River Basin and the amount available for use by Arizona; and (3) the California situation.

Beneficial consumptive use as it is used in the Colorado River compact is interpreted by California to mean the aggregate of all the individual items of consumptive use at the points of use. Arizona interprets the term to mean depletion of main stream Colorado River water as a result of man's activities.

By California's interpretation, all of the water salvaged by man on tributaries of the Colorado River by converting natural losses to beneficial use would be charged against the amount of the basin's apportionment and against the State's equitable shares of such apportionment, this in spite of the fact that water so salvaged under virgin conditions never did reach the main stream and never could have been used by any other water user in the Colorado River Basin except the one who salvages the water.

Simply stated, California's position is that the upper basin's 7,500,000 acre-feet of annual beneficial consumptive use apportioned by the compact shall be determined by adding up all of the small increments of consumptive use along all of the tributaries, large and small, in the upper basin, each increment of consumptive use to be ascertained by the measurements of diversions from the stream and by deducting from the amount of the diversions the returns to the stream from which each individual diversion is made. California's interpretation would involve the measurements of the thousands of diversions in the upper basin and the measurements of the thousands of returns to the stream from the lands irrigated by those diversions.

The State of Colorado's position is that the upper basin under the Colorado River compact has the right to deplete the virgin flow of the Colorado River at Lee Ferry by 7,500,000 acre-feet annually. This difference in interpretation means a difference in the estimated water supply available to Arizona under the compact and related documents of over 1,000,000 acre-feet, all of which difference is involved in the application of the two interpretations to the use of water on the Gila River. In the upper basin a substantial amount of water is involved.

Mr. James H. Howard, in his statement, assumed the problem to be a simple one. He stated:

"No definition of the phrase 'beneficial consumtive use' is found in the compact, presumably because the term is a common one and well understood in water law as meaning diversions from a river minus return flow to the river. The words 'consumptive use' have been defined in other documents relating to the Colorado River."

Mr. Howard makes this statement despite the fact that the Supreme Court of the United States in an important interstate water case interpreted evidence with respect to consumptive use to mean to divert, take, and use. When in a subsequent case it was sought to have the Supreme Court interpret its decision, the Supreme Court said that it meant gross head-gate diversion, so apparently there is some legal confusion about the legal meaning of the term.

From an engineering standpoint, the conception of consumptive use as it affects the flow of the stream has gradually gone through a process of evolution since the term was first coined in the suit over the uses of water of the Laramie River, *Wyoming* v. *Colorado*. Much work is still being done on this subject by engineers who are studying the problem in various river basins.

In my discussion concerning the meaning of "beneficial consumptive use" as it appears in the Colorado River compact, I shall approach the problem, first, on the basis of intent of the Colorado River Compact Commissioners at the

time the Colorado River compact was negotiated and, second, on the basis of the technical conception of consumptive use at the present time and the evolution which has brought about such conception.

The Colorado River Compact Commission at the time it apportioned the water between the two basins——

Senator MILLIKIN. Is it your contention that we should be governed by the present as distinguished from the then current conception of the meaning of the words "consumptive use"?

Mr. TIPTON. No. It is my position that we should be governed by the conception that the Colorado River Commission had of the term and the intent that the commission had in apportioning the water.

Senator MILLIKIN. What is the relevancy of the present conception of the words?

Mr. TIPTON. The reason for bringing that into the discussion, Mr. Chairman, is to make clear the meaning of Colorado's comments on the Colorado River report by the Bureau of Reclamation, which Mr. Howard quoted.

In my oral presentation, I need not dwell on the technical conception if it seems desirable, in order to save time—I mean during the hearing. But that is the only purpose.

Senator MILLIKIN. Proceed please.

Mr. TIPTON. The Colorado River Compact Commission at the time it apportioned the water between the two basins was not thinking in terms of the technical meaning of "beneficial consumptive use" when it used such term in the compact. The commission used the term for legal reasons. The Colorado River compact commissioners were thinking in terms of dividing between the basins the virgin (termed by them reconstructed flow) of the river in the amount estimated at or near the international boundary. The 7,500,000 acre-feet apportionment to each basin was from the virgin flow at Lee Ferry. The Colorado River Compact Commission in considering the consumptive use of the Gila River was thinking in terms of the depletion of the river at the mouth. The Colorado River Compact Commission, when considering consumptive use in the upper basin was thinking in terms of the depletion of the flow of the river at Lee Ferry. The above conclusions with respect to the intent of the commission are plainly indicated in the minutes of the various meetings of the commission.

I am submitting herewith as appendix A excerpts from the minutes of the seventeenth meeting held in Santa Fe, N. Mex., on November 15, 1922, and the minutes of the eighteenth meeting held at the same place on November 16, 1922, all of which contain the discussion of the commission when it was considering the division of the water of the Colorado River.

In my discussion I wish to quote a portion of the minutes which show plainly the intention of the commission. The emphasis is supplied by me by underlining in the quotations as well as in the appendix.

Senator MILLIKIN. Is that excerpt similar to the one Judge Stone mentioned?

Mr. TIPTON. No, sir. It is entirely different.

Senator MILLIKIN. Proceed please.

Mr. TIPTON. The commission in its attempt to estimate the virgin flow of the river gave consideration to the recorded flow at Laguna, which was a gaging station on the river below the old Laguna Dam diversion and above the old Imperial diversion. In its studies the commission chose to add to that flow the consumptive use of the upper basin and the consumptive use in the Gila Basin plus its outflow at the mouth. At an early point in the minutes which I am attaching, the following statements were made:

"Mr. HOOVER. Then the problem also goes into the consumptive use in the upper basin. In order to reconstruct the river the consumptive use in the upper basin must be taken into account. It is true that the Laguna gagings include the Imperial Valley?

"Mr. A. P. DAVIS. Yes."

It may be noted that Mr. Hoover stated that in order to reconstruct the river the consumptive use in the upper basin must be taken into account. I quote the folowing from the minutes:

"Mr. HOOVER. And if you were to reconstruct the river you must also take account of the consumptive use of the upper basin and add that to the Laguna gagings, and ought to add also the Gila flow. Have you a rough idea as to what the flow of the Gila would be if it had not been used for irrigation, or what the consumptive use, plus the present flow, is?

"Mr. A. P. DAVIS. I can estimate that fairly closely. The mean annual flow as

measured during the last 20 years is 1,070,000 acre-feet. The areas that are irrigated there are given in this document, 142, and we can apply a duty of consumptive use of water on that area and approximate fairly well, I believe, the consumptive use in the Gila Basin, if that is what is wanted.

"Mr. HOOVER. My only point on that is, Does it approximate, possibly, the amount of consumptive use in the upper basin?

"Mr. A. P. DAVIS. Oh, no. It is smaller. The consumptive use in the upper basin is on that table I gave you.

"Mr. HOOVER. About 2,400,000?

"Mr. A. P. DAVIS. In 1920 the consumptive use was about 2,400,000 acre-feet.

"Mr. CARPENTER. This is a progressive increase from 0 up?

"Mr. A. P. DAVIS. Yes.

"Mr. CARPENTER. You would think the Gila consumptive use would be something over a million and a half feet?

"Mr. A. P. DAVIS. Very likely less than a million and a half. But I am not sure about that till I figure on it a little.

"Mr. CARPENTER. In other words, there might be——

"Mr. A. P. DAVIS (interrupting). There would be a good deal less.

"Mr. CARPENTER. There might be, then, a million acre-feet to go into this calculation for translating back from Laguna gagings?

"Mr. A. P. DAVIS. To include the Gila; yes. It doesn't seem like it would apply to the Little Colorado as its contribution is offset by evaporation. There is very little outside the Gila Basin that is not thus offset.

"Mr. CALDWELL. Mr. Davis, just where is the Gila measured?

"Mr. A. P. DAVIS. There have been different points; one at Dome.

"Mr. CALDWELL. Tell me where it is with respect to the mouth?

"Mr. A. P. DAVIS. Dome is about 12 miles above the mouth, and that was changed on account of difficulties of measurement, but not very materially.

"Mr. CALDWELL. This million seventy thousand you speak of is an average flow, is it?

"Mr. A. P. DAVIS. Yes.

"Mr. CALDWELL. Average annual flow over how many years?

"Mr. A. P. DAVIS. Eighteen years, I believe. It is all published in Senate Document 142."

Particular attention is directed to Mr. Hoover's question where he asked Mr. Davis:

"Have you a rough idea as to what the flow of the Gila would be if it had not been used for irrigation, or what the consumptive use, plus the present flow, is?"

It is significant that Mr. Hoover's intent was to determine what the flow of the river would have been to the Colorado River had there been no irrigation on the river. He considered consumptive use and depletion as synonymous because he suggests that the flow before irrigation would be the consumptive use plus the present flow (at the mouth). This is subsequently made plain.

Attention is directed particularly to Mr. A. P. Davis' statement to the effect that:

"It doesn't seem like it would apply to the Little Colorado, as its contribution is offset by evaporation. There is very little outside the Gila Basin that is not thus offset."

In other words, the commission in estimating the amount of water available for apportionment was not considering any of the water which did not reach the main stream of the Colorado River, and as a matter of fact in considering any contributions that in the virgin state did not reach Laguna and the mouth of the Gila.

I call attention to the following statement by Mr. Hoover taken from the minutes of the meeting as shown in appendix A:

"Mr. HOOVER. What would be added here, as a rough guess, would be the flow and consumptive use of the Gila and Little Colorado and the consumptive use of the Colorado below Lee Ferry and above Laguna. This all comes to about a million and a half, and the consumptive use in the upper basin is 2,400,000 so it would be a credit of water to the Laguna readings of approximately a million feet, something like that."

He considers that the flow of the Gila River plus the contribution of the Little Colorado, plus the consumptive use of the Colorado below Lee Ferry and above Laguna amounted to about 1,500,000 acre-feet. Mr. Davis had already stated that the Little Colorado contributed nothing and that there was very little contribution except by the Gila. It is apparent, therefore, that the 1,500,000 acre-feet

which the commission was to add to the flow at Laguna was to represent the virgin flow of the Gila River made up of 1,070,000 acre-feet at the mouth (at Dome, about 12 miles above the mouth) plus approximately 500,000 acre-feet of consumptive use. It is interesting in view of information we now have to check Mr. Davis' estimate of the consumptive use on the Gila and of its virgin flow.

Table CXLVI on pages 284 and 285 of the March 1946 report of the United States Department of the Interior and the Bureau of Reclamation report on the Colorado River shows the estimated virgin flow of the Gila River at the mouth. This is shown in the last column in the table. For the 18 years mentioned by Mr. A. P. Davis, the estimated virgin flow was 1,920,000 acre-feet. This may be compared with the 1,500,000 acre-feet mentioned by Mr. Hoover, cited above. In further explanation of the 1,920,000 acre-feet, that is merely the arithmetical mean of the 18 years mentioned as taken from the last column of the table which was cited as appearing in the Bureau's 1946 report.

In from the 1,920,000 acre-feet there is subtracted Mr. Davis' estimate of the flow of the Gila at the mouth, there results the value of 850,000 acre-feet of indicated depletion of the Gila River at the mouth for the 18-year period.

And at that point I might say that the 850,000 acre-feet would be Colorado's interpretation of the beneficial consumptive use on the Gila at that time, using more complete estimates that are available to us as to the virgin flow which occurred for the 18-year period.

The mean annual total water supply at the point of use in central Arizona for the same 18-year period is indicated by values in the table to have been 3,100,000 acre-feet.

This, again, is an arithmetical mean of the values, appearing in the Bureau's table.

By the California interpretation, the consumptive use in the Gila River during the 18-year period would have been 2,030,000 acre-feet. This may be compared with the 850,000 acre-feet arrived at above. It may be noted that the difference in the Gila consumptive use arrived at by the one interpretation as opposed to the other interpretation again is something over 1,000,000 acre-feet. It does not appear that the commission was interpreting "consumptive use" in the same fashion that California is.

The following is quoted from the minutes which appear in appendix A:

"Mr. HOOVER. I should think for matters of discussion we could take it that the reconstructed mean at Lees Ferry is a minimum of 16,400,000 and perhaps, with this elaborate calculation, half a million above, i. e., 17,000,000. Therefore we would come to a discussion of a 50–50 basis on some figure lying between 16,400,000 and 17,000,000.

"Mr. S. B. DAVIS. With all due respect to these eminent gentlemen, I am still from Missouri, I have to be shown, but I am willing to enter into a discussion on that line.

"Mr. HOOVER. I should think the result of the deliberations and of our advices on that matter have been to establish the 16,000,000 as a sort of least mean.

"Mr. S. B. DAVIS. As the average mean at Lees Ferry.

"Mr. HOOVER. Yes; and that an apportionment of a minimum would be half that sum, 8,200,000 acre-feet instead of the 6,260,000 feet as suggested by Mr. Carpenter—so that this would be the question of your proposal, delivering approximately 82,000,000 acre-feet in 10-year blocks."

It may be noted that the commission, after going through the various calculations to reconstruct the flow of the river at Lee Ferry, arrived at a minimum estimate of 16,400,000 acre-feet per year which Mr. Hoover mentioned might be as high as 17,000,000 acre-feet. At that point in the deliberation, the commission was considering a 50–50 division of the water supply. Mr. Hoover, therefore, suggested an apportionment of a minimum of the 8,200,00 0acre-feet to the lower basin, which was one-half the estimated minimum reconstructed flow at Lee Ferry of 16,400,000 acre-feet.

It is apparent, therefore, at this point the commission was engaged in apportionment of the virgin flow of the river between the two basins. The final apportionment so far as the division of the water at Lees Ferry is concerned was made on that basis as evidenced from the following discussion quoted from the minutes which appear in appendix A:

"Mr. HOOVER. In our discussions yesterday we got away from the point of view of a 50–50 division of the water. We set up an entirely new hypothesis. That was that we make, in effect, a preliminary division pending the revision of this compact. The seven and a half million annual flow of rights are credited to the

south, and seven and a half million will be credited to the north, and at some future day a revision of the distribution of the remaining water will be made or determined.

"An increasing amount of water to one division will carry automatically an increase in the rights of the other basin and therefore it seemed to me that we had met the situation. This is a different conception from the 50–50 division we were considering in our prior discussions.

"Mr. NORVIEL. If this includes reconstruction of the river, then, I concede it is a more nearly fair basis. But if it does not—if it is a division of the water to be measured at the point of demarcation, I still insist that it is not quite fair, because it is simply dividing what remains in the river.

"Mr. HOOVER. We are leaving the whole remaining flow of the basin for future determination.

"Mr. NORVIEL. What I am getting at is this: That the upper basin takes out and uses a certain amount of water, and as this reads, it proposes to divide the rest of it, 7,500,000 acre-feet per annum.

"Mr. HOOVER. No.

"Governor CAMPBELL. That is inclusive, Mr. Norviel.

"Mr. NORVIEL. It reconstructs the river?

"Governor CAMPBELL. Yes; in effect, as I understand it.

"Mr. NORVIEL. Well, if it does that, then my objection will be removed.

"Mr. HOOVER. Any other comment? If not, all those in favor of this clause 7 as read please say 'Aye.'

"(Thereupon a vote having been taken upon the paragraph No. 7, the same was unanimously passed.)"

It may be noted that 7,500,000 acre-feet was apportioned to each basin from the reconstructed flow of the river at Lee Ferry. Mr. Norviel was concerned because he feared that the discussion related to the division of the flow of the river at "the point of demarcation" (Lee Ferry) without its being reconstructed or brought to virgin conditions. When he was assured that the intent was to apportion the reconstructed flow of the river in terms of 7,500,000 acre-feet to each basin, he stated that he would remove his objections. The commission then unanimously voted to adopt such apportionment.

Judge Stone has already shown that the Colorado River Compact Commission used the words "beneficial consumptive use" in the compact to avert implying that the commission was dividing the corpus of the water. The use of the term was for legal reasons and had nothing to do with the technical conception of consumptive use at the present time. In the interest of saving time I shall not read all my discussion on the present technical conception of consumptive use.

Senator MILLIKIN. You might state the end point, Mr. Tipton.

Mr. TIPTON. Summarizing then, it is recognized by definition that there is "farm consumptive use," there is "project consumptive use," there is "valley consumptive use," and there is "basin consumptive use."

Consumptive use is measured by inflow to an area minus outflow from the area; for a farm, consumptive use is diversions minus the return; for a project area, it is the diversions by the main canals minus the return; for a valley, it is the inflow to the valley minus the outflow. For a basin it is likewise the inflow minus the outflow.

The man-made consumptive use or depletion within incremental areas will reflect itself at the mouth of a valley or a basin as depletion, and the difference between the consumptive use of a valley in the virgin state as evidenced by the inflow minus the outflow, and the consumptive use after man has developed the valley evidenced by the then inflow minus outflow represents the beneficial valley consumptive use.

Valley consumptive use so measured is a smaller item than the sum of the incremental consumptive uses in the valley because of the salvaging of water. The same is true for the basin as a whole. The basin consumptive use is less than the sum of the valley consumptive uses on account of the salvaging of water within the valleys which never did reach the mouth of the basin under virgin conditions.

That is, virtually, the substance of my technical concept, the depletion factor of consumptive use. In the middle of page 15 of my written statement is the sentence "Valley consumptive use is determined by measuring inflow to the valley and deducting the outflow."

At that point I desire to submit a definition which appears in the Report of the Joint Investigation on the Upper Rio Grande to make the problem somewhat

clearer. I will not read it at this time but, with the chairman's permission, I would like to submit that as part of my testimony.

Senator MILLIKIN. All right.

Mr. TIPTON. I shall resume, then, reading my written statement.

To get further insight to the Commissioner's thinking, I wish to quote an excellent statement of Mr. Delph Carpenter's made at the eleventh meeting of the commission held in Santa Fe on November 11, 1922:

"Mr. CARPENTER. When you proceed to reduce the adjustment to one of a definite fixing of quantities, or limitations of use as to each State, you have to proceed to a degree of refinement that is hazardous and at this time calls for a knowledge which no man possesses.

"We do not have and cannot obtain, except by long years of study hereafter, basic data upon which to work. Between States in either of these great divisions very different principles should be applied on each different and distinct river, and may have to be applied. The facts are different. *For illustration, some of the rivers rise in the mountains to wither away on the plains before they reach the lower States within a division.* Others are increasing rivers as they flow out from their original source. The territory is new, the conditions will develop and if allowed to develop naturally will call for the ultimate solution between the interested States as respects any particular river.

"In preparing the draft which I have submitted, I first proceeded upon the theory of the individual allocation. My advisers and I myself found ourselves in the position of saying that, as respects a virgin territory, we would be called upon to fix an artificial limitation that might work great injustice later. The river is new, the territory is new, and thereby, after studying stream after stream that flowed out from the mouth, it became evident that *it would be unwise and imprudent to attempt to deal definitely with each detailed river, each individual tributary stream.*

"Proceeding upon that hypothesis, or proceeding upon that conclusion, it became then a problem of seeing if it could not be worked out on *a divisional basis, that division basis largely having been fixed by nature.* We have a great catchment basin like the receptacle basin of a funnel; we have the funnel neck, the canyon, and below the territory that receives the water through this funnel neck with certain additional supplies arising and flowing in that territory, so, in order to attempt to work the problem out and avoid the conflict that would invariably be provoked in this council if you were to attempt to go into detail with respect to each State, it was thought by us more prudent to strike at the root of the whole problem on *a divisional allocation of the waters of the river.*"

The italics are mine.

Mr. Carpenter's statement concerning some rivers which rise in the mountains and wither away on the plans before they reach the lower States within a division is quite significant. It appears that he recognized the waters of such rivers were not available for apportionment among the States. He came to the conclusion that it would be unwise to deal with each detailed river and each individual tributary stream and that there should be a divisional allocation of the waters of the river. He described the physical conditions of the canyon section between the two basins which made such a divisional allocation practicable.

It is my conclusion that the Colorado Compact Commission did apportion the virgin flow of the Colorado River and that it is considered beneficial consumptive use to be synonymous with depletion at Lee Ferry and that it did consider consumptive use on the Gila to be synonymous with the depletion of the Gila River flow at the mouth.

From a technical standpoint, consumptive use is the amount of water consumed by plants plus the incidental evaporation that takes place due to the irrigation of the plants. Consumptive use includes both the consumption of rainfall and the depletion of stream flow. On a short-time basis, it may also involve a change in ground water from one season to the next. For the purpose of this discussion, I shall consider only that part of conspumptive use which causes stream depletion due to man's activities. That is the element of consumptive use with which we are concerned and with which the Colorado River Commission was concerned at the time the compact was negotiated.

Since the term was first coined, engineers have given much study to consumptive use, its effect, and means of measuring it. A technical subcommittee of the irrigation division of the American Society of Civil Engineers gave some attention to the problem in the middle 1920's. This committee recognized the difference between consumptive use as applied to various sizes of areas ranging from

individual farms to an entire valley. During the hearings in the last Arkansas River Supreme Court suit in the 1930's, *Colorado* v. *Kansas*, it was fully recognized that basin consumptive use was not equal to the sum of all the increments of consumptive use in the basin. It was recognized that a material salvage of water takes place as a result of the irrigation of a basin. Much work along the same line has been done since that time.

By definition, there is farm consumptive use, project consumptive use, valley consumptive use, and basin consumptive use. Farm consumptive use is the amount of stream flow actually consumed by plant growth and burned up by incidental evaporation on the farm. Project consumptive use represents the amount of water consumed on the project which causes depletion of the stream flow between the head of the project and the point where the return flow reaches the stream. In general, consumptive use, aside from rainfall, and disregarding annual change in ground water, is determined by measuring the inflow to an area and deducting the outflow.

For example, farm consumptive use is measured by deducting the flow of water leaving the farm from the diversion to the farm. This is ordinarily difficult because some of the return from the farm reaches the ground water and is not susceptible of measurement as it passes th boundaries of the farm.

Project consumptive use is measured by measuring the diversion through the main canals to the project and deducting therefrom the measured returns in drainage canals and waste ditches crossing the project boundaries.

Valley consumptive use is determined by measuring inflow to the valley and deducting the outflow.

"The following definitions are quoted from page 88 of Regional Planning, Part VI—Upper Rio Grande, February 1938, National Resources Committee.

" 'Definitions: The following definitions of consumptive use were used by the Bureau of Agricultural Engineering in its study:

" 'Consumptive Use (evapo-transpiration): The sum of the volumes of water used by the vegetative growth of a given area in transpiration or building of plant tissue and that evaporated from adjacent soil, snow, or intercepted precipitation on the area in any specified time.

" 'Valley consumptive use: The sum of the volumes of water absorbed by and transpired from crops and native vegetation and lands upon which they grow, and evaporated from bare land and water surfaces in the valley; all amounts measured in acre-feet per 12-month year on the respective areas within the exterior boundaries of the valley.

" ' The valley consumptive use (K) is equal to the amount of water that flows into the valley during a 12-month year (I) plus the yearly precipitation on the valley floor or project area (P) plus the water in ground storage at the beginning of the year (G_s) minus the amount of water in ground storage at the end of the year (G_e) minus the yearly outflow (R); all amounts measured in acre-feet. The consumptive use of water per acre of irrigated land is equal to (K) divided by irrigated area (A_1); and consumptive use per acre of the entire valley floor is equal to (K) divided by the entire valley area. The unit is expressed in acre-feet per acre.

" 'Stream-flow depletion: The amount of water which annually flows into a valley, or upon a particular land area (I), minus the amount which flows out of the valley or off from the particular land area (R) is designated 'stream-flow depletion' ($I-R$). It is usually less than the consumptive use and is distinguished from consumptive use in the Rio Grande studies.'

"The report from which the above is quoted gives results of the so-called Rio Grande joint investigation which was participated in by all of the major Federal agencies interested in water development. The interested States—Colorado, New Mexico, and Texas—cooperated in the investigation.

"The report indicates consumptive use, set up as a formula to be as follows:

$$K=I-R+P+(G_s-G_e)$$

in which K is the consumptive use, I is the inflow to the area, R is the outflow from the area; P is the precipitation, G_s is the ground-water storage at the beginning of the period and G_e is the ground-water storage at the end of the period. In the equation, depletion is represented by $I-R$. The reason that depletion is usually less than consumptive use is apparent because consumptive use includes consumption of precipitation as well as depletion. Disregarding precipitation and change in ground-water storage, the equation indicates that consumptive use is synonymous with depletion. As I have indicated in my dis-

cussion, I am considering only that part of consumptive use which is represented by depletion.

"In a river valley the water supply is considered as the outflow from the valley. In the virgin state this would be considered the valley water supply. It is only reasonable to interpret valley consumptive use occasioned by man in terms of the depletion of the valley water supply as represented by the outflow from the valley."

Beneficial consumptive use by man in the valley from the valley standpoint is the difference between the valley consumption as it existed before man entered the valley and valley consumption as it existed after he made his water-consuming development. Valley beneficial consumptive use is a smaller amount than the aggregate of all the project and farm consumptive uses which is taking place within the valley. By like token the sum of all the valley beneficial consumptive uses within a basin is a larger quantity than basin beneficial consumptive use measured as the depletion of the outflow from the basin by man's activities within the basin. This is true because of the salvaging and putting to beneficial use water which was lost under natural conditions.

Two major sources for salvage exist. One is the reduction of stream flow losses by diverting and putting the water otherwise so lost to beneficial use. The other is the conversion of natural losses of river water occurring on raw land to beneficial use after the land is irrigated.

The first type of salvage can best be illustrated by reference to a hypothetical transmountain diversion in the upper Colorado Basin. Assume that such a diversion exports from the headwaters of the Colorado River 500,000 acre-feet of water per year. The exporting of such amount of water represents a depletion of tributary flow of 500,000 acre-feet at the immediate point of exportation. It could be considered so far as the Colorado River is concerned as project consumptive use in the full amount at that point. However, the diversion out of the basin of the 500,000 acre-feet would not deplete the flow of the river at Lee Ferry by 500,000 acre-feet because had this quantity been left in the river, some of it would have been lost in transit by natural processes.

Many areas of raw land in the upper basin of the Colorado River were consuming water from the tributaries of that river in the state of nature before these areas were irrigated. The same is true with respect to many areas that will be irrigated in the future. This is particularly true with respect to native meadowlands such as exist in the Green River Basin in Wyoming and along the upper tributaries in Colorado and Utah. In the state of nature large areas of these lands were perennially overflowed by the streams which caused them to consume water. When man entered the picture, built his ditches, and started to apply water to the land artificially, the consumption of river water by those lands may not have caused much more depletion of the stream than was taking place under virgin conditions. He was merely putting to beneficial use some of the water that was being dissipated by nature in the virgin state. The effect of man's activities in this case on valley consumptive use and basin consumptive use would be the extent to which he increased the depletion of the outflow from the valley and the outflow from the basin.

The salvage of water in the upper basin by these processes after ultimate development has been made may be a substantial item. Testimony already before the committee indicates the item in the Gila River Basin amounts to some million acre-feet per annum. If California's theory were accepted, she would ask that all the small incremental items of consumptive use in the upper basin which occur on the farms and on the projects be added up and that this be considered the beneficial consumptive use that was apportioned to the upper basin under article III (a) of the Colorado River compact. By such process she would be charging the upper basin with natural losses which the upper basin will have salvaged. This salvaged water never did reach the lower basin and never could have reached the lower basin in the state of nature. Nevertheless, California maintains that the equivalent of such salvage water shall flow past Lee Ferry in order to increase the amount of surplus or unapportioned water in the Colorado River Basin.

A hypothetical example may be given to show the effect of this on an individual State. Approximately 80,000 acres of native meadowland exists at the present time in the Green River Basin in the State of Wyoming. At the point of use these lands probably consuming in the order of 100,000 acre-feet of river water per annum. In the state of nature before man entered the picture those lands probably were consuming about 60,000 acre-feet per annum. Man therefore has increased the consumption of river water by 40,000 acre-feet. All of the

40,000 acre-feet of water which man's activities are causing to be lost at the present time at the point of use did not reach Lee Ferry in the state of nature because some of it was lost in transit. Under California's theory, there would be charged against Wyoming's equitable share of the water apportioned to the upper basin the total of 100,000 acre-feet now being consumed by the lands although the citizens of Wyoming caused the flow to the lower basin to be depleted by less than 40,000 acre-feet. California would charge Wyoming with all of the natural losses estimated at some 60,000 acre-feet on those particular lands which occurred before Wyoming was settled and some of the river losses between the meadowlands and Lees Ferry which existed under virgin conditions. A similar situation exists with respect to the other upper basin States.

On the other hand, during periods of protracted droughts should it become necessary for the upper basin to curtail the use of water in order to deliver the 75,000,000 acre-feet (at Lee Ferry) in a 10-year period in accordance with article III (d) of the compact, the curtailment must be in sufficient amount to make up the deficiency at Lee Ferry. The increments of consumptive use which are curtailed will in the aggregate exceed the deficiencies at Lee Ferry by the amount of channel loss required to get the water to Lee Ferry. California therefore in the one instance would not permit the upper basin to enjoy the use of the river losses it salvages, but in the other instance would require that the upper basin make up the river losses by curtailing the increments of consumptive use an amount sufficient to supply such losses.

Mr. Howard in his statement quotes from the Mexican Water Treaty hearings where I call attention to the fact that the treaty uses the term "consumptive uses." Such term was deliberately used in the treaty to include consumptive uses on the various tributaries of the stream.

I want to call particular attention to the use of the word in the plural, "consumptive uses." It was used so that neither deliveries nor basin consumptive use would be the controlling item when the extraordinary drought provision of the treaty is invoked.

Senator MILLIKEN. We will take a 5-minute recess.

AFTER RECESS

Senator MILLIKIN. All right, Mr. Tipton.

Mr. TIPTON. Such provision has no relation whatsoever to the apportionments of water made by the compact. The aggregate of the consumptive uses as used by me in connection with the treaty will be greater than the basin consumptive use because they include water salvaged which in the virgin state was lost by natural processes to the basin and did not reach Lee Ferry.

The same principle was recognized in Colorado's comments on the Colorado River report by the United States Bureau of Reclamation (project report No. 34-8-2). The Bureau underestimated the water supply that would be available to take care of the aggregate of the consumptive uses in the basin by the amount of water that would be salvaged when the basin is entirely developed. The Bureau made an estimate of the consumptive use by each individual project, then added these estimates together and compared the sum with its estimate of the virgin flow of the river at the international boundary in order to determine whether sufficient water was available to supply the quantity of water represented by the sum of the individual project consumptive uses. Colorado's comments pointed out the technical error involved in such a process. Various increments of salvaged water which do not appear as a part of the estimated virgin flow of the Colorado River at the international boundary will be available to take care of some of the consumptive use of those projects which are constructed. In my opinion, the basin beneficial consumptive use in the upper basin will reach a total of 7,500,000 acre-feet under the terms of the Colorado River compact when the depletion at Lees Ferry caused by man's activities equals 7,500,000 acre-feet. This will be less than the sum of the project consumptive uses in the basin.

Mr. Howard reached the interesting conclusion that California's interpretation of beneficial consumptive use as used in the Colorado River compact would be beneficial to the upper basin. He stated that such interpretation would increase the surplus water—water unapportioned by the Colorado River compact—which then would be available to supply the Mexican burden. In this way, he said the call on the upper basin to make up deficiencies in Mexican deliveries would be less frequent and the amounts required to be supplied would be less. In the process, however, the upper basin would be deprived of the

current use of a significant quantity of water which I recognize and concede, under California's interpretations, would fall in the category of surplus. California claims one-half of the surplus; Arizona has a water-delivery contract providing for use by her of one-half the surplus at least until 1963. Who finally gets the surplus on a permanent basis depends upon the results of negotiations by commissioners appointed by the Governors of the seven States of the Colorado River Basin some time after 1963. I am of the opinion the upper basin will be content to enjoy the use of the salvaged water under its interpretation of the compact and not permit the salvaged water under California's interpretation to fall into the category of surplus or unapportioned water.

California's witness, Mr. Raymond Matthew, apparently has the same conception of the compact meaning of "consumptive use" in the upper basin as has Colorado because he estimates consumptive use under the compact in terms of depletion at Lee Ferry. Mr. Matthew, on April 16, 1947, appeared before this same subcommittee in connection with hearings on S. 483, "Reduce the Area of the Gila Federal Reclamation Project." On page 198a of the typewritten transcript of the hearings appears a table submitted by Mr. Matthew. Mr. Matthew states that—

"It (the table) is headed, 'Estimated available water supply for consumptive use in the upper basin under provision of the Colorado River compact.' "

Mr. Matthew then states, page 199:

"The water supply in the upper basin is best indicated by the flow at Lee Ferry."

The table submitted by Mr. Matthew was based on a critical period such as 1931–40, inclusive. The first item in the table is estimated virgin flow at Lee Ferry, 12,200,000 acre-feet average annually. The second item in the table represents the minimum flow required at Lee Ferry by the compact—7,500,000 acre-feet. The third item is designated as available water supply for consumptive use for upper basin without withholding storage—4,700,000 acre-feet.

As Mr. Matthew suggested:

"Item 3 is simply the arithmetical difference between items 1 and 2 and constitutes the available water supply for consumptive use in the upper basin without hold-over storage."

In other words, he is interpreting depletion of the flood at Lee Ferry to be synonymous with the available water supply under the compact for beneficial consumptive use in the upper basin. If Mr. Matthew were to apply exactly the same kind of analysis to the Gila River Basin, he would conclude from the last column of table CXLIV on page 285 of the Colorado River report, March 1946, of the United States Department of Interior, that the average annual amount of water available in the Gila River Basin for beneficial consumptive use is 1,272,000 acre-feet, this being the natural (virgin) flow of the river at the mouth. From this quantity it would be necessary that he deduct whatever flow reaches the mouth due to inability of Arizona entirely to deplete the flow.

I now pass to the subject of water supply of the Colorado River Basin and the amount available for use by Arizona.

Mr. E. B. Debler, consulting engineer for the State of Arizona, submitted a statement on water supply to this committee on June 27, 1947. I concur in Mr. Debler's conclusions with respect to water supply because I collaborated with him in making the studies.

Mr. R. Matthew for California submitted to the committee his conclusions with respect to water supply and requirements of existing projects in the lower basin based on critical periods such as 1931–40 inclusive and 1930–46 inclusive. His conclusions are contained in table No. 1 which he submitted with his statement. While Mr. Matthew stated that his table is only of an engineering nature and is intended to show the estimated available water supply and the requirements of existing projects in the lower basin, nevertheless, it represents the results of the application of California's interpretation of the Colorado River compact and related documents.

The section of the table relating to Arizona projects has to do with requirements of existing (operating) and authorized projects. The section of the table having to do with California's requirements is labeled "California (as limited by existing contracts)." A similar section might have been placed in the table showing the Arizona requirements as limited by the existing water delivery contract between Arizona and the Secretary of the Interior. We believe that Mr. Matthew's table reflects California's legal theory as borne out by Mr. Howard's statement that the effect of his interpretation so far as available water is concerned would be presented by an engineer.

My major differences with Mr. Matthew is with respect to (1) his treatment of Gila River water, (2) his assumption that 200,000 acre-feet of excess delivery to Mexico will be required in order to fulfill the Mexican water treaty obligation, and (3) in the setting up in his table of California's requirements for projects which under California's system of priorities have junior priorities and are therefore on an infirm status so far as water supply is concerned.

Under item 3, Mr. Matthew sets up Gila River water and tributaries as an item of water supply in the amount of 2,300,000 acre-feet. He states that this represents the amount of water supply available for consumption on the Gila River and its tributaries. Contrary to this, he sets up item 9 as a requirement on this water supply in the amount of 2,270,000 acre-feet. He suggests that instead of setting up the 2,300,000 acre-feet, had he used as a water supply the virgin flow at the mouth that is available for depletion by Arizona, that a corresponding amount would have been set up for item 9, and the final result of the table would have been the same. This is true. But the form of the table is misleading. Item 14 implies a present use and requirement by existing authorized projects in Arizona of 3,500,000 acre-feet. Although he insists that the table has nothing to do with the interpretation of the compact or any related documents, and that it is merely an engineering table, nevertheless the above quantity of water could be interpreted to mean the consumptive use by Arizona as intended under the terms of the compact.

I again submit that what the compact commission had in mind with respect to the Gila River and with respect to the upper basin at Lee Ferry was that depletion at the mouth was synonymous with beneficial consumptive use as such term is used in the compact. This being the case, the 3,550,000 acre-feet should be reduced by over 1,000,000 acre-feet which represents natural losses on the Gila River under virgin conditions with which California is charging Arizona by its interpretation.

In passing, I call attention to the fact that if his theory were correct, Mr. Matthew's estimate of item No. 3 is wrong because he has used the long-time average and actually he is dealing with a period of low water supply. On this basis, this item should be less. However, he should have estimated consumptive use on the Gila, by taking the estimated virgin flow of the Gila minus the present flow of the Gila at the mouth.

Senator WATKINS. And the mouth is at this end of the Colorado.

Mr. TIPTON. Yes.

Senator WATKINS. It is theoretical because it does not actually dump any water in there now, does it?

Mr. TIPTON. Very little water comes in.

Senator WATKINS. What you are saying is more or less theoretical?

Mr. TIPTON. There is some. The estimated virgin flow of the river at the mouth, by the Bureau of Reclamation, is 1,272,000 acre-feet. That is a long-time mean. The estimated consumptive use on the Gila as made by the Bureau is 1,135,000 acre-feet. During the last 17 years there has been a drought. Prior to that there was a period of fairly good water supply which, if it recurred, might produce some flow out of the mouth of the Gila.

Shall I proceed?

Senator MILLIKIN. Yes.

Mr. TIPTON. Under item 5, Mr. Matthew assumes that it will be necessary to deliver to Mexico 1,700,000 acre-feet of water in order to insure Mexico's receiving 1,500,000 acre-feet in accordance with the scheduled delivery which she might set up. He states that this is necessary on account of the difficulty of measuring accurately the large quantity involved and of controlling precisely the rate of flow from points of release in the United States to the international boundary. He suggests that this point of release is Davis Dam. Mr. Matthew is wrong in assuming that the rates must be precisely controlled. Article 15, paragraph A of the treaty provides:

"The water allotted in subparagraph (a) of article 10 of this treaty shall be delivered to Mexico at the points of delivery specified in article 11, in accordance to the following two annual schedules of deliveries by months, which the Mexican section shall formulate and present to the Commission before the beginning of each calendar year."

It should be specifically noted that the schedules of delivery are by months and not by days. This is borne out again by paragraph F of article 15 which reads as follows:

"Subject to the limitations as to rates of delivery and total quantities set out in schedules I and II, Mexico shall have the right, upon 30 days' notice in advance to the United States section, to increase or decrease each monthly quantity prescribed by those schedules by not more than 20 percent of the monthly quantity."

Since the accounting is on a monthly delivery basis, overdeliveries and underdeliveries are averaged out over the monthly periods.

Item 9 of Mr. Matthew's table purporting to show the requirements of California's projects in the amount of 5,362,000 acre-feet is misleading and unfair to Arizona and other States. Again Mr. Matthew says that this is a mere showing of water requirement and has no relation to interpretation of the compact or any related documents. Since Arizona also has an existing contract, the amount of water covered by it could also have been set up in the table even though it is recognized that the contract cannot be filled in its full amount. Mr. Matthew did state that the amounts shown in items 15 to 18 of the table as well as the total shown as item 19 are exactly the same as the amounts covered by the various water delivery contracts held by California interests with the Secretary of the Interior. Mr. Matthew failed to mention California's statute of self-limitation and the system of priorities which she has set up to account for the 5,362,000 acre-feet and the fact that 962,000 acre-feet of the so-called requirements are covered by junior priorities which are on an unfirm status.

Before leaving the water supply question and going to the California situation, I would like to comment on a part of Mr. C. C. Elder's statement made before the committee on July 1. Mr. Elder discusses the probable return flow from the Central Arizona project and calls attention to the difference between the estimates made by Mr. Larson of the USBR and by Mr. E. B. Debler. He then concludes that none of the water from the Gila Valley released to take care of salt balance "will dependably reach the Colorado River or at such times as credit can be claimed under the terms of the Mexican Treaty". Mr. Elder then makes the following statement:

"It seems not unfair to recall that only 2 years ago, at the Senate's hearing on the Mexican Treaty, the burden of this treaty allocation on Lake Mead storage was testified to, by USBR and other Federal and State witnesses of distinction, as never to exceed 600,000 acre-feet annually, due to return flow and other related fallacies. In contrast, present USBR and Arizona statements, as well as 1946 and 1947 editions of the USBR Colorado Basin Comprehensive Report, all agree that this burden will be 1,500,000 acre-feet annually. Such sudden and unexplained variations of profound estimates and solemn, even if unsworn, testimony, should at least in some degree affect the weight now given to estimates, equally important and similarly unrelated to observable factual conditions."

Mr. Elder assumes that the Mexican burden on Lake Mead now is shown to be 1,500,000 acre-feet instead of the maximum of 600,000 acre-feet as testified to by witnesses in the hearings on the Mexican Water Treaty. It is inconceivable that an engineer of Mr. Elder's experience would knowingly make such a misleading statement. The USBR Colorado Basin Comprehensive Report as well as the testimony of both Arizona and California witnesses in this hearing dealt with the consumptive use of water when considering water requirements and the comparison of the aggregate of such requirements with the total available virgin water supply. No consideration was given to diversion requirements nor was consideration given to return flow as an element of water supply. Such was not necessary. Although the 1,500,000 acre-feet must come out of the original water supply of the basin because there is no other source, nevertheless, much of the 1,500,000 acre-feet can be and will be supplied by return flow from United States projects which now and will reach the stream too low to be used by gravity diversion in the United States. The testimony in this hearing together with the testimony in the hearing on S. 483 concerning he Gila Federal Reclamation Project indicates that the Mexican burden on water reaching Imperial Dam will not be greater than 600,000 acre-feet per annum.

I wish to call attention to Mr. G. W. Lineweaver's statement referring to the Gila project. He testified as to the total diversions to the various units of the project and the return flow that could be expected to reach the river from those units. His testimony is summarized in a table which I am submitting for the record, which is taken from page 70 of the hearings before the Committee on Irrigation and Reclamation on H. R. 5434, House of Representatives, Seventy-ninth Congress, second session.

(Table 2 above described follows:)

TABLE 2.—*Estimated diversion of water at Imperial Dam return flow and consumptive use in acre-feet—Gila project, Arizona*

Diversion	Area (acres)	Diversion at dam		Estimated return flow		Consumptive use	
		Per acre	Total	Per acre	Total	Per acre	Total
Yuma Mesa	51,000	11.0	561,000	7.0	357,000	4.0	204,000
Wellton-Mohawk	75,000	9.2	690,000	5.2	390,000	4.0	300,000
North and South Gila Valleys	15,000	6.0	90,000	2.0	30,000	4.0	60,000
Total	141,000		1,341,000		[1] 420,000		564,000

[1] Does not include return flow from Yuma Mesa as return flow within the United States from that area is not assured.

It may be noted that he estimates that there will return from the Wellton-Mohawk area 390,000 acre-feet, and from the North and South Gila 30,000 acre-feet. He also testified that the return from the Yuma-Mesa unit would be 357,000 acre-feet but he stated that there is some question whether this return would reach the river before it crossed the boundary into Mexico. S. 483, as reported out by the Senate subcommittee, has the effect of limiting consumptive uses by the Yuma-Mesa and North and South Gila to a total of 300,000 acre-feet per annum and likewise consumptive use by the Wellton-Mohawk unit to 300,000 acre-feet, making a total of 600,000 acre-feet. Assuming that none of the Yuma-Mesa returns do reach the stream in the United States, the following totals can be expected to reach the river below Imperial Dam and be available to satisfy deliveries to Mexico:

Source:	*Return acre-feet*
Gila project	420,000
Yuma project	190,000
Central Arizona project	225,000
Desilting water	100,000
Total	935,000

The burden on the water supply from above Imperial Dam to take care of Mexican delivery in its full amount on the above basis, therefore, would be 565,000 acre-feet. The Mexican delivery will be curtailed during a long drought period which existed for the period covered by Mr. Debler's study. If it is curtailed to the extent assumed by him and by me, the burden on the water above Imperial Dam to satisfy the Mexican delivery would be 433,000 acre-feet. It is reasonable to assume that ultimately the Yuma-Mesa unit of the Gila project will develop to the extent that it will consume 300,000 acre-feet less that which is being consumed by the North and South Gila units. It is assumed the acreage will be increased to the maximum extent possible even though to do this may require the construction of major drainage canals to insure that the return flow from the unit reaches the river in the United States.

The provisions in the Senate bill will further such procedure because any water that returns to the stream below the boundary will be classed as consumptive use, so it will be to the benefit of Arizona to construct drainage canals to insure that returns reach to the river above the boundary.

If this is done, an additional 357,000 acre-feet (Mr. Lineweaver's estimate) will return to the river below Imperial Dam and above the international boundary. This will reduce the burden on the water above Imperial Dam to satisfy normal Mexican deliveries to about 300,000 acre-feet. Under this condition 375,000 acre-feet would have to be delivered to Mexico past Imperial Dam on account of the treaty provisions, which makes that the minimum delivery through the All-American Canal.

If, during a protracted drought period such as envisioned in Mr. Debler's study, the Mexican deliveries were curtailed to the extent estimated by him, very little water would be required to pass Imperial Dam to satisfy the Mexican burden. It would be limited to the minimum amount required to be delivered to Mexico through the All-American Canal.

The amount of return flow might be increased somewhat beyond that indicated above by seepage losses from the All-American Canal when increased amounts of water are carried by it.

Finally, with respect to the water supply available to Arizona for use by its central Arizona project during a critical water period. I am in agreement with Mr. Debler that the full consumptive use requirement of something over 1,000,000 acre-feet would be available.

I shall now pass on to the California situation.

Prior to the ratification of the Colorado River compact by the various States other than California, California was required to limit by statute the use of waters allocated under article III (a) of the Colorado River compact to 4,400,000 acre-feet per year and not over one-half of the surplus water not apportioned by the compact. California passed this self-limiting statute. A copy of the statute has been introduced in the record of these hearings and the committee is familiar with its terms.

California then set up a system of priorities covering the use of 4,400,000 acre-feet of article III (a) water and 962,000 acre-feet of unapportioned surplus water. The priorities as set up by California are given in the table which I present herewith. The table also indicates the estimated present use under each priority.

(The table submitted by Mr. Tipton follows:)

Priority No.	Description	Acre-feet	Total	Estimated present use under each priority (1945)
1	Palo Verde irrigation district, 104,500 acres			
2	Yuma project, 25,000 acres			
3	(a) Imperial irrigation district and lands under All-American Canal in Imperial and Coachella Valleys. (b) Palo Verde irrigation district in lower Palo Verde mesa, 16,000 acres			
	Total for 1, 2, 3	3,850,000		2,794,000
4	Metropolitan water district of Southern California and city of Los Angeles	550,000		66,000
	Total from III (a) water		4,400,000	2,860,000
5	(a) Metropolitan water district of Southern California and the city of Los Angeles	550,000		
	(b) City and county of San Diego	112,000		
6	(a) Imperial irrigation district and lands under the All-American canal in the Imperial and Coachella Valleys. (b) Palo Verde irrigation district in lower Palo Verde mesa, 16,000 acres			
	Total for 6 (a) and (b)	300,000		
	Total from surplus		962,000	None
	Total of all priorities		5,362,000	2,860,000

Mr. TIPTON. Attention is called to the fact that the total priorities are 5,362,000 acre-feet and that the use of water under the priorities during the year 1945 was 2,735,000 acre-feet. I do not have the 1946 values. No water was used under the junior priorities.

California interests then negotiated contracts with the Secretary of the Interior for the delivery of water from Lake Mead to satisfy the several priorities.

The contracts for the delivery of water from Lake Mead are all made "subject to the availability thereof for use in California under the Colorado River Compact and the Boulder Canyon Project Act."

The contracts provide, further:

"The United States shall not be obligated to deliver water to the district when for any reason such delivery would interfere with the use of Boulder Canyon Dam and reservoir for river regulations, improvement of navigation, flood control, and of states or private perfected rights in or to the waters of the Colorado River or its tributaries in pursuance of Article III of the Colorado River Compact; and this contract is made for the express condition and with the express covenant that the right of the district to the waters of the Colorado

River of its tributaries is subject to and controlled by the Colorado River Compact."

Attention is called to subsection (f) of article III of the Colorado River compact. This subsection provides that further equitable apportionment of the beneficial uses of the water of the Colorado River system unapportioned by paragraphs (a), (b), and (c) may be made after October 1, 1963, if and when either basin shall have reached its total beneficial consumptive use as provided in paragraphs (a) and (b) of article III of the compact. Therefore, until the upper basin is consuming its total allocation of 7,500,000 acre-feet or until the lower basin is consuming its total allocation of 8,500,000 acre-feet, no State in either basin can acquire any title to surplus, and it should be noted that any surplus apportioned in the future under subsection (f) must be from surplus after any treaty obligations are satisfied.

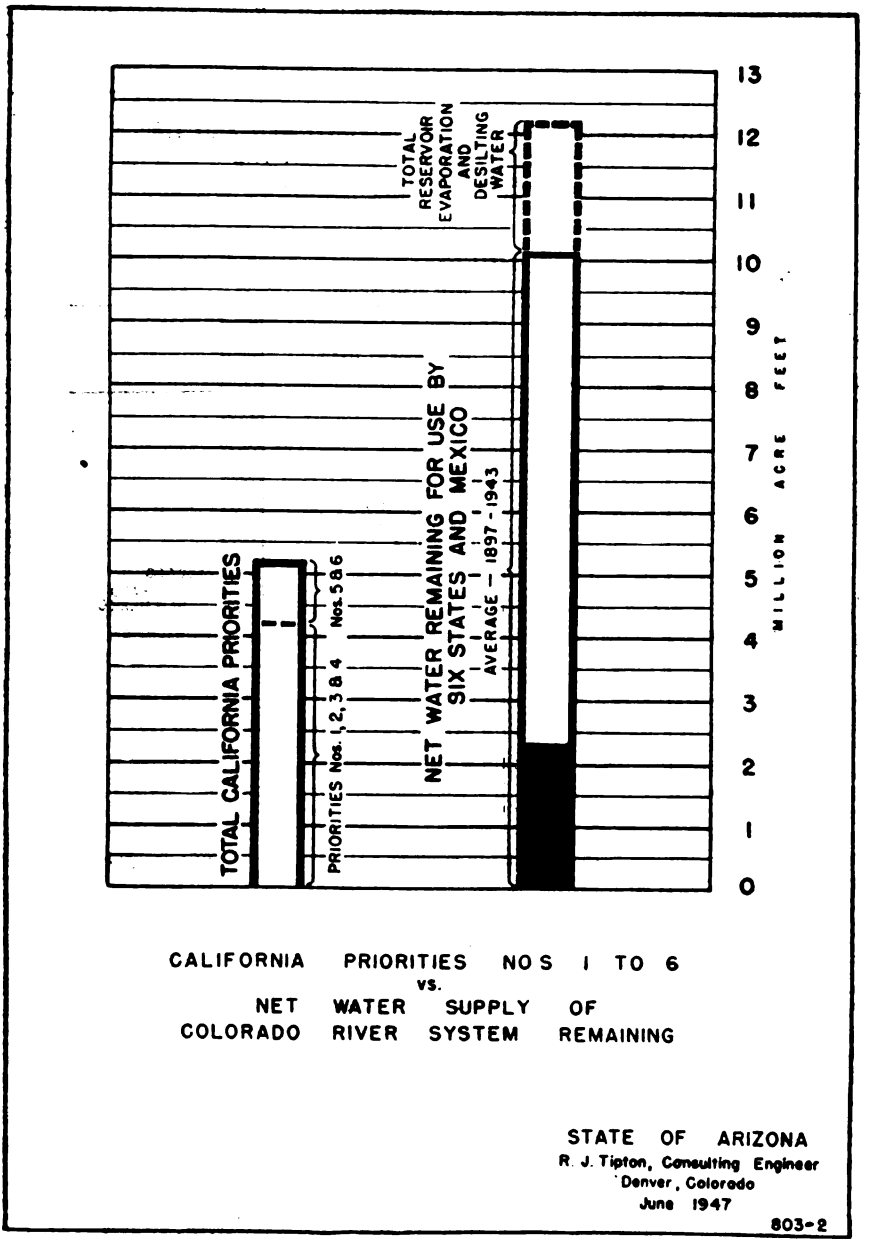
It is apparent, therefore, that the contracts held by California for the delivery of 962,000 acre-feet of surplus water are not firm contracts and are contingent upon what further apportionment might be made of waters of the Colorado River system after October 1, 1963. The water available for delivery under those contracts would not only be contingent upon the apportionment that might be made of the surplus after 1963, but it would appear that the availability of water might also be contingent upon agreement between the lower basin States as to the division of that part of the surplus apportioned to the lower basin after 1963. The status of the various California priorities in relation to the apportionment of water, as made by the Colorado River compact and as visualized by the Boulder Canyon Project Act, is shown graphically on drawing No. 803–2. The drawing is self-explanatory.

The bars below the first (lower) horizontal line on the drawing represent the water apportioned by article III (a) and (b) of the Colorado River compact. The left-hand bar represents the total apportionment of 8,500,000 acre-feet to the lower basin. It is divided into two parts. The upper part represents the 4,400,000 acre-feet of article III (a) water to which California by statute has limited herself. The lower part of the bar represents 4,100,000 acre-feet for Arizona, Nevada, Utah, and New Mexico. The 4,100,000 acre-feet is that which remains for those States out of the total water apportioned to the lower basin after taking out of it the amount to which California has limited herself. The right-hand bar on the graph represents the total allocation of 7,500,000 acre-feet to the upper basin. Above the first horizontal line is the water apportioned by article III (c). It represents the 1,500,000 acre-feet that has been allotted to Mexico by treaty. Above the second (upper)) horizontal line appears a zone to represent surplus water to be apportioned in accordance with article III (f) and (g) of the compact. It is in this category that the 962,000-acre feet represented by the junior priorities of California are found. The bar extending above the second horizontal line represents the 962,000 acre-feet.

Mr. Debler's analysis checked by me indicates that during periods as long as 17 years or possibly up to 20 years there will be no water in the river to satisfy any such priorities. These priorities are not only unfirm due to the provisions of the compact and Boulder Canyon Project Act but ther are unfirm from the standpoint of water supply itself. The water-delivery contracts provide for delivery of water from Lake Mead. During a protracted period of drought such as the one which commenced in 1930 and has not yet ended, under full development in the basin, there would be no surplus water in the meaning of the Colorado River compact to satisfy such junior priorities.

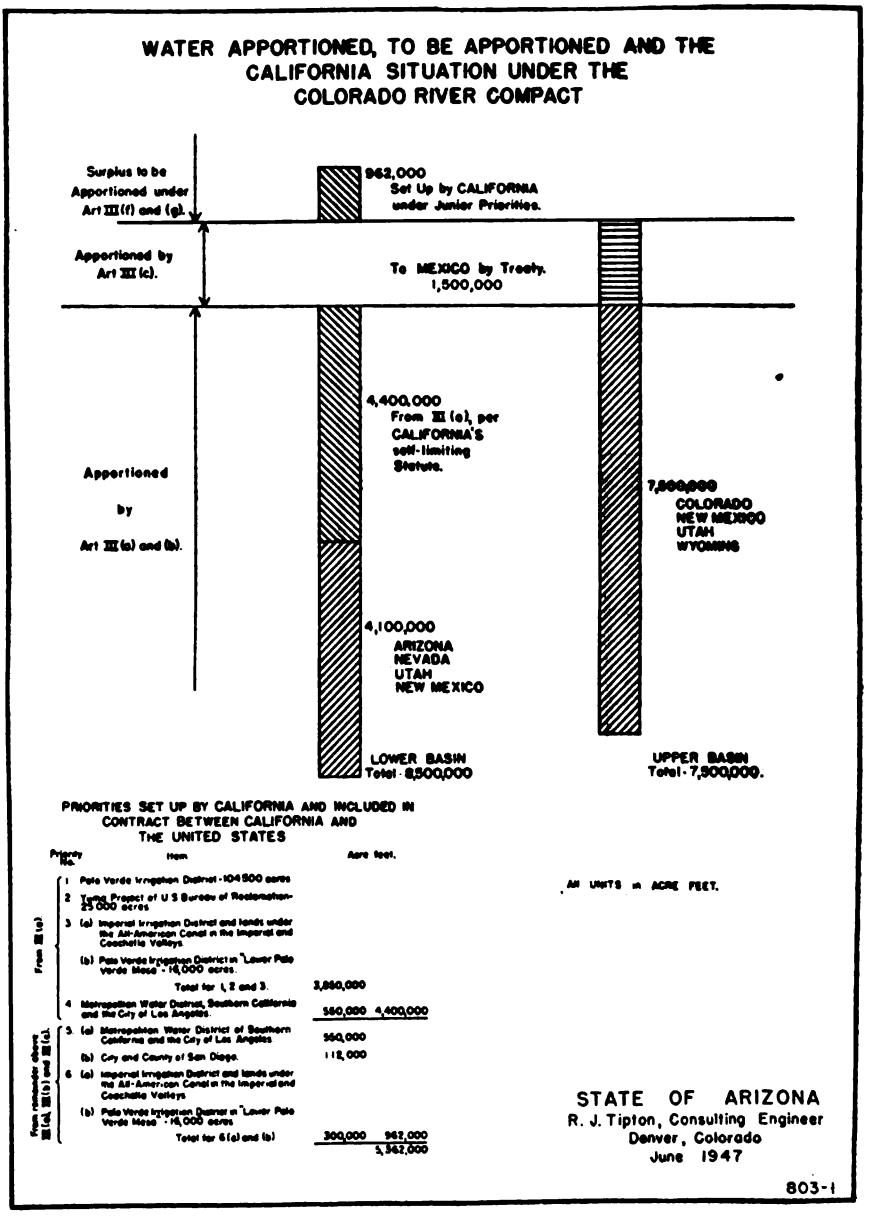
California has been making continuing efforts by various means to provide a firm water supply to satisfy such priorities. At the moment, by the interpretation of the Colorado River compact and related documents, she is attempting to carve out a water supply for such priorities from a water supply which, in my opinion, should go to Arizona and to the upper basin States under the compact. Her interpretation of the meaning of III (b) water probably would provide some 500,000 acre-feet for the junior priorities. Her interpretation of beneficial consumptive use would provide a substantial amount from Arizona and the upper basin water supplies.

The following describes the situation as it would be if California were successful in her attempts. The total average annual virgin-water supply of the Colorado River Basin as estimated by the United States Bureau of Reclamation is 17,720,000 acre-feet. The Bureau's estimate of main-stream-reservoir losses is 1,701,000 acre-feet. Other reservoir losses together with desilting water probably would bring man-made losses close to 2,000,000 acre-feet. There would therefore remain a virgin supply of 15,720,000 acre-feet for net use.



By California's interpretation, she claims that she has a right to the use of 5,362,000 acre-feet from this net supply. There would remain for net use by the other six Colorado River Basin States and Mexico 10,358,000 acre-feet. California's supply would be more than one-half of that remaining for the six States and Mexico. In other words, the only State in the basin which produces no water is attempting to gain the right to use 35 percent of the total net available supply as against the compact and contract rights of the six remaining States and the Republic of Mexico. California by her interpretation would leave to

Arizona out of the water supply indicated above only about 2,300,000 acre-feet which is slightly over 14 percent of the total net water supply. Drawing No. 803-1 shows graphically the above situation.



The left-hand bar on the drawing indicates the total of the California priorities in terms of net water consumption. The bar on the right indicates graphically the remaining total water supply. The top portion of the bar outlined by a dotted line represents total reservoir evaporation and desilting water. The balance of the bar outlined by a solid line represents the net water that would

remain for use by the other six States of the Colorado River Basin and Mexico. The amount of water that would remain for use by Arizona under California's theory is shown as the black portion of the right-hand bar.

That finishes my statement, Mr. Chairman.

Senator MILLIKIN. Any questions?

Senator MCFARLAND. No questions.

Senator MILLIKIN. Thank you, Mr. Tipton.

Senator MCFARLAND. Mr. Chairman, we have one or two additional witnesses. We will abide by the wishes of the Chairman; I would like to have one of them testify if agreeable. His testimony will consume about 10 minutes. I do not wish to burden the Chairman and the members of the committee unduly.

(Appendix A. Excerpts from minutes of seventeenth meeting of Colorado River Compact Commission, R. J. Tipton:)

APPENDIX A

MINUTES OF THE SEVENTEENTH AND EIGHTEENTH MEETINGS OF THE COLORADO RIVER COMMISSION HELD IN SANTA FE, N. MEX., ON THE 15TH AND 16TH OF NOVEMBER 1922

Mr. HOOVER. My mind is a little mixed. In the first place, on page 5, Senate Document 142, are given the gagings at Laguna Dam, which do not include the Gila flow. Mr. Carpenter's calculation is based on the gagings at Yuma, which I understand include the Gila, and that is the difference between M. Carpenter's basis and the basis of the Laguna gagings. Is that not true?

Mr. CARPENTER. No; partly correct. I didn't deduct the loss in the river from Lee Ferry to Laguna.

Mr. HOOVER. I was saying the difference between your calculations and the Laguna gagings is simply the flow of the Gila. The Laguna gagings do include water which goes into the Imperial Valley.

Mr. CARPENTER. Yes, sir.

Mr. HOOVER. So that if we take the Laguna gagings instead of the Yuma gagings, we will exclude the Gila flow.

Mr. A. P. DAVIS. We exclude the Gila flow, but we include the diversion for the Yuma project. The measurements at Yuma, on the other hand, do not include water diverted for the Yuma project, but include the Gila. When you measure at Yuma you are measuring above the Imperial diversion and below the Laguna Dam diversion.

Mr. HOOVER. The Laguna Dam gagings include water which goes to the Yuma project?

Mr. A. P. DAVIS. They do.

Mr. HOOVER. So they include the whole flow of the Colorado River at that point?

Mr. A. P. DAVIS. At that point; yes, sir. That is what they are intended to include, the whole flow there, which is above the Gila and, of course, excludes that.

Mr. HOOVER. Then the problem also goes into the consumptive use in the upper basin. In order to reconstruct the river, the consumptive use in the upper basin must be taken into account. Is it true that the Laguna gagings include the Imperial Valley?

Mr. A. P. DAVIS. Yes.

Mr. HOOVER. The Imperial Valley diverts below.

Mr. A. P. DAVIS. Yes.

Mr. HOOVER. Consequently, at Laguna you have the whole flow of the Colorado River at that point?

Mr. A. P. DAVIS. Yes.

Mr. HOOVER. Without deductions, except the Gila.

Mr. A. P. DAVIS. Yes.

Mr. HOOVER. And if you were to reconstruct the river, you must also take account of the consumptive use of the upper basin and add that to the Laguna gagings, and ought to add also the Gila flow. Have you a rough idea as to what the flow of the Gila would be if it had not been used for irrigation, or what the consumptive use, plus the present flow, is?

Mr. A. P. DAVIS. I can estimate that fairly closely. The mean annual flow as measured during the last 20 years is 1,070,000 acre-feet. The areas that are irrigated there are given in this document, 142, and we can apply a duty of con-

sumptive use of water on that area and approximate fairly well, I believe, the consumptive use in the Gila Basin, if that is what is wanted.

Mr. HOOVER. My only point on that is, does it approximate, possibly, the amount of consumptive use in the upper basin?

Mr. A. P. DAVIS. Oh, no; it is smaller. The consumptive use in the upper basin is on that table I gave you.

Mr. HOOVER. About 2,400,000?

Mr. A. P. DAVIS. In 1920 the consumptive use was about 2,400,000 acre-feet.

Mr. CARPENTER. That is a progressive increase from 0 up?

Mr. A. P. DAVIS. Yes.

Mr. CARPENTER. You would think the Gila consumptive use would be something over a million and a half feet?

Mr. A. P. DAVIS. Very likely less than a million and a half. But I am not sure about that till I figure on it a little.

Mr. CARPENTER. In other words, there might be——

Mr. A. P. DAVIS (interrupting). There would be a good deal less.

Mr. CARPENTER. There might be, then, a million feet to go into this calculation for translating back from Laguna gagings?

Mr. A. P. DAVIS. To include the Gila; yes. It doesn't seem like it would apply to the Little Colorado, as its contribution is offset by evaporation. There is very little outside the Gila Basin that is not thus offset.

Mr. CALDWELL. Mr. Davis, just where is the Gila measured?

Mr. A. P. DAVIS. There have been different points; one was at Dome.

Mr. CALDWELL. Tell me where it is with respect to the mouth?

Mr. A. P. DAVIS. Dome is about 12 miles above the mouth, and that was changed on account of difficulties of measurement, but not very materially.

Mr. CALDWELL. This 1,070,000 you speak of is an average flow, is it?

Mr. A. P. DAVIS. Yes.

Mr. CALDWELL. Average annual flow over how many years?

Mr. A. P. DAVIS. Eighteen years, I believe. It is all published in Senate Document 142.

Mr. CALDWELL. That is near enough.

Mr. HOOVER. On the table on page 5, Senate Document 142, take 1920 for instance, you have 21,000,000. That is the Laguna flow.

Mr. A. P. DAVIS. Yes.

Mr. HOOVER. What would be added here, as a rough guess, would be the flow and consumptive use of the Gila and Little Colorado and the consumptive use of the Colorado below Lees Ferry and above Laguna. This all comes to about a million and a half, and the consumptive use in the upper basin is 2,400,000 so it would be a credit of water to the Laguna readings of approximately a million feet, something like that.

Mr. CARPENTER. Yes. If there are others, like the Virgin and other rivers, that would be still more of a reduction.

Mr. SCRUGHAM. I thought the Imperial Valley had a heading somewhere at Laguna. What was all the disturbance by the Yuma people?

Mr. A. P. DAVIS. They have contracted for building their canal and heading it at Laguna and have agreed to do that, but never have done it. They have never taken any water out above the Yuma project. The best use of the Gila, as I said yesterday, is in its own valley and that probably will be accomplished some day.

Mr. HOOVER. Would it be possible for you to recast some figures in the light of the counteraction of deducting the Gila flow and consumption from the upper basin flow and consumption?

Mr. A. P. DAVIS. The lower basin consumptive use you mean, don't you? Make some approximation of a difference in consumptive use between the lower basin and the upper basin, exclusive of the Imperial Valley, and add that to these figures.

Mr. HOOVER. You would have to add to the consumptive use the flow of the Gila over and above its consumptive use.

Mr. A. P. DAVIS. Did you want the flow of the Gila included also?

Mr. HOOVER. It is a part of the drainage basin.

Mr. CARPENTER. You are now revolving as I revolved at one time and I decided consumptive uses had better offset one another and took the figures as printed.

Mr. A. P. DAVIS. I don't know how near they would do that. You don't mean to undertake to run that back over 20 years—take it as it is now; is that what you mean?

Mr. CALDWELL. Run it back over 20 years.

Mr. A. P. DAVIS. If given time I could make an estimate that would be worth something. The present consumptive use we practically know. How that has grown is a matter of history.

Mr. HOOVER. I might phrase it in another way perhaps. On page 5 of Senate Document 142 your mean flow at Laguna is 16,400,000. Now if you went into this elaborate calculation to account for the Gila consumptive use below and consumptive use about it might add a certain amount to that mean flow—it might add between 500,000 and a million feet. That is just a guess that might be the result of such an elaborate calculation.

Mr. A. P. DAVIS. That is true.

Mr. HOOVER. And if you took the low years as being 500,000 less than that, it probably wouldn't vary materially or affect the mean?

Mr. A. P. DAVIS. No.

Mr. HOOVER. So that you would get somewhere around 17,000,000 feet as the Lee Ferry flow?

Mr. A. P. DAVIS. Yes; 17,000,000 would be a correction in the right direction, probably not very far wrong.

Mr. HOOVER. I should think for matters of discussion we could take it that the reconstructed mean at Lee Ferry is a minimum of 16,400,000 and perhaps with this elaborate calculation, half a million above; i. e., 17,000,000. Therefore, we would come to a discussion of a 50–50 basis on some figure lying between 16,400,000 and 17,000,000.

Mr. S. B. DAVIS. With all due respect to these eminent gentlemen, I am still from Missouri; I have to be shown, but I am willing to enter into a discussion on that line.

Mr. HOOVER. I should think the result of the deliberations and of our advice on that matter have been to establish the 16,000,000 as a sort of least mean.

Mr. S. B. DAVIS. As the average mean at Lee Ferry.

Mr. HOOVER. Yes; and that an apportionment of a minimum would be half that sum—8,200,000 acre-feet instead of the 6,260,000 acre-feet, as suggested by Mr. Carpenter—so that this would be the question of your proposals—delivering approximately 82,000,000 acre-feet on 10-year blocks.

Mr. NORVIEL. As the minimum average.

Mr. HOOVER. That's the total they agree to deliver in 10-year blocks. Then, just to further the discussion, if the Mexican deduction is to be borne by both sides, and we take the maximum Mexican position, it would mean, so far as the southern basis is concerned, their needs, as worked out by the Reclamation Service, including the projects in view, are 7,450,000 feet, so that 8,200,000 covers that with a comfortable margin.

Mr. A. P. DAVIS. It includes half the water to be delivered to Mexico on the basis of 800,000 acres.

Mr. HOOVER. So the southern basin would be protected as to their end and still have a margin of about 800,000 acre-feet.

Mr. NORVIEL. That would be for possible future development.

Mr. HOOVER. Or anything that may happen to you.

Mr. NORVIEL. Delivered at the point of delivery.

Mr. CARPENTER. Delivered at Lees Ferry; you may already have figured your evaporation on the river.

Mr. NORVIEL. Not this one. We figured that for the purpose of calculation.

Mr. CARPENTER. You told us that power was many times more valuable than any other use. We are letting you tear all the fire out of that water clear down to Laguna.

Mr. NORVIEL. You have more miles above and the fire will already have been torn out.

Mr. CARPENTER. It recovers itself; it's just as good; our evaporation is already taken out.

Mr. NORVIEL. The evaporation is not taken out of the 2,000,000 if it is to be delivered to us.

Mr. CARPENTER. If we use it for power above, our evaporation is already out.

Mr. NORVIEL. The evaporation has not been deducted from the million and a half acre-feet that you are going to deliver in Mexico. You have to make delivery at the point of delivery, not 600 miles above.

Mr. HOOVER. Mr. Norviel, you have a margin of 750,000 feet to take care of all needs all along. That's pretty liberal.

Mr. NORVIEL. That makes 8,200,000 acre-feet-a-year minimum.

Mr. HOOVER. That's the total to be delivered at Lees Ferry.

(Mr. Norviel requests time for consultation.)

Mr. NORVIEL (after recess). As I understand the proposition, Mr. Chairman, it is to divide the water so that the lower basin will receive—including the one-half to be furnished the Mexican lands—82,000,000 acre-feet per annum over a period of 10 years average, with 4,500,000 acre-feet minimum annual flow.

Mr. HOOVER. It might be worth discussion. I wouldn't want to put it in the mouth of the gentlemen from the North that it is their proposition.

Mr. CALDWELL. There is no proposition; there is recorded a "no" vote against that minimum yet.

Mr. CARPENTER. That's a subject of discussion.

Mr. NORVIEL. I thought when we retired we were to consider that on the basis of 4,500,000 acre-feet minimum annual flow.

Mr. CARPENTER. From the last poll of the vote on the minimum there were five for and two against, but the period was left undecided.

Mr. NORVIEL. Now we are fixing the period at the greatest number of years suggested, which is 10.

Mr. CARPENTER. We thought the period was left open. The minimum is for 1 year, an irreducible minimum predicated on no period. The low year goes regardless of period.

Mr. HOOVER. Supposing I take the onus of a suggestion for the consideration of the upper States—the 82 million 10-year block and a minimum flow for 1 year of 4½ million.

Mr. CARPENTER. If you crowd us on the minimum we will have to have a protecting clause on precipitation, because we can't control that. Nature will force us into a violation, any possibility of which we should strenuously avoid in our compact, because that would provoke turmoil and strife. The mere matter of 500,000 acre-feet as the minimum is small, but it might be decisive at such a time. It is not with the idea of trying to avoid delivering the water that I am suggesting the low figure, it is to avoid that which would result from nature's forcing a minimum that we could not control; therefore, we want to avoid that as nearly as we can.

Mr. HOOVER. You are seeking protection from a shortage on precipitation beyond that heretofore known. (Colorado River Commission minutes of the sixteenth meeting, Bishop's Lodge, Sante Fe, pp. 19–29, Tuesday, 3 p. m, November 14, 1922.)

Mr. S. B. Davis: Mr. Norviel, in order that we may know how far apart we are in this matter—offer of 65,000,000 acre-feet in a 10-year period—would you state what you do consider a fair amount to be guaranteed to you at Lees Ferry?

Mr. NORVIEL. I think, inasmuch as your needs are practically even, we will accept the burden of the losses below Lees Ferry, and take a reconstructed river on an even basis at Lees Ferry. * * *

Mr. NORVIEL. I will go back to the proposition made to us yesterday. We will accept 8,200,000 acre-feet, on a 10-year basis with a 4,500,000 minimum, while on a 5-year basis a 4,000,000 minimum flow will be acceptable. * * *

Mr. CARPENTER. That is, for any 5-year period there is to be a minimum of 4,000,000 acre-feet per year?

Mr. NORVIEL. Yes. * * *

Mr. HOOVER. What Mr. Norviel means is for any 1 year the minimum shall not be less than 4,000,000 for a 5-year period, or less than four and a half a year for a 10-year period.

Mr. S. B. DAVIS. The difficulty with 82,000,000, as I have said, is that we have already experienced 10 years in which it would have been impossible for us to comply.

Mr. HOOVER. The difficulty is in guaranteeing in the face of an unknown quantity?

Mr. S. B. DAVIS. Yes, sir (Colorado River Commission, minutes of the seventeenth meeting, Bishop's Lodge, Santa Fe, pp. 12, 13, 14, Wednesday, 11 a. m., November 15, 1922.)

Mr. NORVIEL. Before we recess, perhaps, I might state another little proposition and let them give it consideration if they care to.

The State of Arizona proposes to allocate the waters of the Colorado River between the proposed upper and lower divisions upon a 50–50 division as follows:

The river is to be reconstructed annually by measuring the flow at or near Lee Ferry in Arizona and by adding thereto the consumptive use of water in the upper basin, the total amount of water thus found to be the basis for an equal division between the two divisions, each division contributing equally to the amount that may hereafter be allotted to Mexico by international agreement

or otherwise. In the event that the upper division should in any year exceed its percentage and thus deprive the lower division of its percentage the deficiency shall be compensated for during the next two succeeding years. * * *

Mr. CALDWELL. Just how would you determine the consumptive use in the upper basin?

Mr. NORVIEL. It is to be determined each year.

Mr. CALDWELL. Just a minute. Would you predetermine the consumptive use in acre-feet, or would you use the actual consumptive use?

Mr. NORVIEL. It would have to be measured.

Mr. CALDWELL. It would be very difficult, impossible practically.

Mr. NORVIEL. I think I said so in the beginning of our meetings.

Mr. CALDWELL. I think it would be impossible.

Mr. NORVIEL. Practically.

Mr. HOOVER. We will recess until 3 o'clock this afternoon.

Thereupon the meeting adjourned to meet again at 3 p. m., November 15.

CLARENCE C. STETSON,
Executive Secretary.

(Colorado River Commission, minutes of the seventeenth meeting, Bishop's Lodge, Santa Fe, pp. 24–25, November 15, 1922.)

(NOTE.—The caucus contained the afternoon and evening of November 15, the commission resuming executive sessions Thursday, November 16, at 10 a. m.)

Mr. HOOVER. * * * During the term of this compact the States in the upper division shall not deplete the flow of the river (at the point of division) below 75,000,000 acre-feet for any 10-year period, or below a flow of 4,000,000 acre-feet in any 1 year. Provided, however, that the lower division may not require delivery of water unless it can reasonably be applied to beneficial agricultural and domestic uses; and the upper division shall not withhold any water which may not be applied within such divisions to beneficial agricultural and domestic use. * * *

Mr. NORVIEL. Mr. Chairman, I can't get away from the idea that the figures are too low. While there is in it an element of a guaranty it is lower than the lowest 10-year period we have any knowledge of and it is also after the division is made—after the whole use in the upper division is taken out and would include the total use in the lower division. In other words, it is the excess over and above what the upper States have not heretofore used. It is less than half of the lowest 10-year period that has ever existed.

Mr. CARPENTER. That we have any record of.

Mr. NORVIEL. Yes; and I rather think that former years, if they had been measured, would have shown perhaps a worse condition, so I can't think that that is a fair division over a 10-year period, nor one which gives the fullest protection.

Mr. HOOVER. In our discussions yesterday we got away from the point of view of a 50–50 division of the water. We set up an entirely new hypothesis. That was that we make, in effect, a preliminary division pending the revision of this compact. The seven and a half million annual flow of rights are credited to the south, and seven and a half million will be credited to the north, and at some future day a revision of the distribution of the remaining water will be made or determined.

An increasing amount of water to one division will carry automatically an increase in the rights of the other basin and therefore it seemed to me that we had met the situation. This is a different conception from the 50–50 division we were considering in our prior discussions.

Mr. NORVIEL. If this includes reconstruction of the river, then, I concede it is a more nearly fair basis. But if it does not—if it is a division of the water to be measured at the point of demarcation, I still insist that it is not quite fair, because it is simply dividing what remains in the river.

Mr. HOOVER. We are leaving the whole remaining flow of the basin for future determination.

Mr. NORVIEL. What I am getting at is this: That the upper basin takes out and uses a certain amount of water, and as this reads, it proposes to divide the rest of it, 7,500,000 acre-feet per annum.

Mr. HOOVER. No.

Governor CAMPBELL. That is inclusive, Mr. Norviel.

Mr. NORVIEL. It reconstructs the river?

Governor CAMPBELL. Yes; in effect, as I understand it.

Mr. NORVIEL. Well, if it does that, then my objection will be removed.

Mr. HOOVER. Any other comment? If not all those in favor of this clause 7 as read please say "Aye."

(Thereupon a vote having been taken upon the paragraph numbered 7, the same was unanimously passed. (Colorado River Commission, minutes of the eighteenth meeting, Bishop's Lodge, Santa Fe, pp. 30-33. Thursday, 10 a. m., November 16, 1922.))

Mr. MURDOCK. I should also like to ask permission to have inserted in the record the testimony of Charles A. Carson, special attorney for the State of Arizona on Colorado River matters, printed in the hearings on H. R. 5434, Seventy-ninth Congress, second session (pp. 367–445 and pp. 517–533); also the brief of the Colorado River Basin States Committee which appears in the hearings on House Joint Resolution 225 et al., Colorado River water rights, Eightieth Congress, second session (pp. 265–296). Without objection, these will be inserted in the record at this point.

There was no objection.

(The matters referred to are as follows:)

STATEMENT OF CHARLES A. CARSON, SPECIAL ATTORNEY, STATE OF ARIZONA, ON COLORADO RIVER MATTERS, PHOENIX, ARIZ.

Mr. CARSON. Yes, Mr. Chairman. My name is Charles A. Carson, of Phoenix, Ariz., appearing here on behalf of the State of Arizona as special attorney for the State of Arizona in connection with Colorado River matters, under an act of the Arizona Legislature, which authorized the Governor to appoint attorneys and engineers.

There has been so much said here on the question and so many questions interjected here that I would like, if I can, to make a kind of a general geographical and historical statement without interruption in order to get it clear in this record as to Arizona's view on these matters.

Chairman MURDOCK. The witness may proceed to make a connected statement without interruption. Of course, there will be questions later.

Mr. CARSON. Yes; as soon as I am through.

Mr. WHITE. That was apparently for the ranking member on the Democratic side, was it not, Mr. Chairman?

Chairman MURDOCK. The matter about asking questions, well, no, not altogether.

Mr. CARSON. I wanted to call your attention to the map on the wall there of the Colorado River Basin.

This map on the wall represents by this outline the natural drainage basin of the Colorado River system, with the one exception that down here on the California side of the river it also tabes in an area which comprises the Imperial irrigation district, the Coachella Valley, the Metropolitan water district area, and the county of San Diego. That is not a natural part of the Colorado River Basin. The basin line at that point is indicated with this dotted line [indicating on map]. This map [indicating] does not show the areas in the upper basin outside of the natural drainage area of the basin from which water may be utilized.

The definition of the Colorado River compact takes into account not only the natural drainage basin but also areas upon which water from the basin might be utilized, and in that connection it is interesting to note that the natural drainage basin comprises some 240,000 square miles, of which Arizona contains 103,000 square miles; California, 4,000 square miles; Nevada, 12,000 square miles; Utah, 40,000 square miles; New Mexico, 23,000 square miles; Colorado, 39,000 square miles; and Wyoming, 19,000 square miles.

This history of the controversies concerning the Colorado River is not particularly important for the consideration of this bill, it seems to me, with some notable exceptions.

The first development, aside from a small development in the Palo Verde area was at Blythe, and the Yuma project, both in California and in Arizona was begun about 1895 by some California financiers who owned land in the Imperial Valley of California and in the Mexicali Valley of Old Mexico, and at that time they initiated the right to divert water through the old Alamo Canal through

Mexico for the use of the Imperial Valley and also for the use of the Mexican land.

That contract provided that, of the water flowing through that canal, Mexico should be entitled to one-half.

The plan involved in the filing of water rights and in the operation contemplated a canal of 10,000 cubic feet per second capacity, which, if it ran all year, would be some 7,000,000 acre-feet of water, of which Mexico would be entitled to one-half.

Then coming on down, the material thing, it seems to me, to this issue is this: Remember at that time, if you please, that Arizona was a territory. In the early stages of this Arizona had not acquired the status of statehood and did not acquire that status until 1912 when the Constitution of Arizona was adopted in accordance with the enabling act of Congress passed in 1910.

In that enabling act there is a significant provision, the United States required that Arizona by its constitution agree that the United States withdraw from entry and reserve all of the power dam sites on the Colorado River across the State of Arizona with the right to withdraw and reserve the lands bordering that stream across the State of Arizona, which Arizona did by the adoption of its constitution. So that Arizona has never had the ordinary rights enjoyed by the other basin States to control or to build or operate dams and diversion works from the Colorado River.

It has always been my thought that those provisions were inserted there for the protection of the development of the Imperial Valley and the Mexican lands then owned by California financiers.

Mr. Harry Chandler, of the Los Angeles Times, testified in 1924 before this committee that at that time he and his associates owned 833,000 acres of land in Mexico immediately below the border, of which some 600,000 acres were irrigable from the water of the Colorado River.

Now, keep that in mind, if you please. The canal right gave them the right, assuming continuous flow, to the use of 3,500,000 acre-feet in Mexico. This 600,000 acres of land had a diversion right, assuming 5 acre-feet per acre, which would make 3,000,000 acre-fet of water of the Colorado River going to Mexico, and the restrictions placed upon Arizona at the time of its admittance as a State and in the constitution assured those people, I assume, or, at least, they thought it did, that Arizona could not divert water from the main stream of the Colorado River without the consent of Congress.

Well, Arizona became a State in 1912.

The next point I want to go to is the Colorado River compact that was signed at Santa Fe, N. Mex. in 1922. It was not ratified by Arizona, nor by the other States so as to make it effective until June, or approximately June 1929.

At that conference attempts were first made to divide the water between the States, and no agreement could be reached. Finally an agreement was reached dividing the water between the upper basin and the lower basin at Lee Ferry. They did not undertake to divide at that time all of the water of the stream because at that time it was calculated that the average annual flow was greatly in excess of the 15,000,000 acre-feet that was divided, 7,500,000 acre-feet to the Upper Basin, and 7,500,000 acre-feet to the lower basin.

Mr. PHILLIPS. That was in 1929?

Mr. CARSON. 1922 was when the compact was written.

At that conference, Arizona's representative, Mr. W. S. Norviel, was concerned because the over-all definition of the Colorado River System, as contained in the compact, did include and does now include the Gila River and its tributaries in Arizona which enter the river at Yuma below a point where they can ever be used again in the United States, and which were at that time wholly appropriated. So, Mr. Norviel refused to affix his signature to that compact until the provisions were written into the compact that are in article 3 (b) of the compact, which were added after this first draft had been completed and accepted by all the other States. I will read article 3 (b) for the record:

"In addition to the opportionment in paragraph (a) the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum."

Which was then the estimated use then being made of the Gila River. He would not sign it then until there was an oral understanding, not binding but an oral understanding and agreement between the States of California, Arizona, and Nevada, and accepted by all of the people attending that conference, that when that conference adjourned they would undertake to write out a tri-State compact between Arizona, California, and Nevada apportioning the water allocated to the

lower basin, and in that compact or contemplated tri-State compact, provide that the exclusive beneficial consumptive use of the water of the Gila River should go to Arizona.

At this point I woud like to insert in the record a letter and a picture, a letter from Mr. Herbert Hoover, who was chairman of that conference to Mr. W. S. Norviel, and a picture of Mr. Hoover also sent to Mr. Norviel, the picture carrying this notation, "W. S. Norviel, from Herbert Hoover—in tribute to a million acre-feet and a fine associate." The letter reads:

DEPARTMENT OF COMMERCE
OFFICE OF THE SECRETARY
WASHINGTON

LOS ANGELES, CALIF., *November 26, 1922.*

Mr. W. S. NORVIEL,
State Engineer, Phoeniz, Ariz.

MY DEAR NORVIEL: This is just by way of registering again my feelings of admiration for the best fighter on the commission. Arizona should erect a monument to you and entitle it "One million acre-feet."

I am sending you herewith a photograph which does not purport to be a likeness but it is a better-looking fellow than the one you have, and I send it as an excuse for writing this letter expressing my personal appreciation of this fine association which we have had.

Faithfully yours,

HERBERT HOOVER.

Mr. ROCKWELL. What is the date of that?

Mr. CARSON. November 26, 1922. The compact was signed in Santa Fe, N. Mex., November 24, 1922.

Mr. ROCKWELL. I thought you said something about the fact that it was not signed until 1929?

Mr. CARSON. The compact was signed at Santa Fe, N. Mex., November 22, 1922. It required ratification by the various States and the Congress before it could become effective, which was not brought about until 1929.

Then I should also like to put in the record the testimony of Gov. Thomas E. Campbell, who was then Governor of Arizona and in attendance upon this Santa Fe conference, given before the Colorado River Commission of Arizona in 1933 or 1934; I think it was 1933.

Mr. PHILLIPS. What is the document from which you are reading?

Mr. CARSON. I am reading from a brief that I prepared in 1934 for submission to the Secretary of the Interior, but which was not in fact filed with the Secretary.

Chairman MURDOCK. But this is testimony of Gov. Thomas Campbell.

Mr. CARSON. Yes, sir; Gov. Thomas E. Cambpell [reading]:

"TESTIMONY OF GOVERNOR THOMAS E. CAMPBELL GIVEN BEFORE THE ARIZONA-COLORADO RIVER COMMISSION

"Q. Were you present at the time of the execution of the Colorado River compact, at Santa Fe, N. Mex., on November 24, 1922?—A. Yes; I was present.

"Q. At that time what was your official position in the State of Arizona?—A. I was governor of the State of Arizona for the years 1919, 1920, 1921, and 1922; and was governor of the State of Arizona at the time of the conference at Santa Fe, and at the time the Colorado River compact was signed.

"Q. Were you present at Bishop's Lodge, near Santa Fe, N. Mex., during the negotiations and discussions leading up to the agreement that was signed at that time respecting the waters of the Colorado River?—A. Yes; I was.

"Q. Had you appointed Mr. W. S. Norviel as the representative of the State of Arizona at that conference?—A. No; I did not appoint Mr. Norviel as the representative of the State of Arizona. That was taken care of by the fact that the Enabling Act, which provided for a meeting of the representatives of the several Colorado River Basin States, designated the water commissioners of the several States as representatives at the conference. I had appointed Mr. Norviel as the water commissioner of Arizona, and during that year—1922—

Geo. Norvel from Herbert Hoover —
In tribute to a million acre feet and a
fine associate.

he was the qualified water commissioner, so that when the act was passed by the United States Congress, providing for the meeting of the representatives of the several States, he automatically became the representative from Arizona.

"Q. Do you recall who were present at the time of the Colorado River conference at Santa Fe during the fall of 1922?—A. Yes; I recall many of the persons who were there. The United States was represented by Herbert Hoover, who acted as chairman. He had been previously selected at a meeting in Washington. California was represented by W. F. McClure, who has since died; Colorado was represented by Delph E. Carpenter; Nevada by J. G. Scrugham; New Mexico by Stephen B. Davis, Jr.; Utah by R. E. Caldwell; Wyoming by Frank C. Emerson, who afterward became governor of Wyoming and has since died; and Arizona was represented by W. S. Norviel. The Reclamation Service was represented by Arthur P. Davis, and several advisers. Judge Richard E. Sloan was present in a legal capacity on behalf of Arizona besides Mr. Norviel and myself. California had many representatives, from the Imperial Valley and other places.

"Q. How was the conference organized?—A. Mr. Hoover acted as chairman; he had tendered the services of Clarence C. Stetson, of Maine, as secretary of the conference, and Mr. Stetson acted as secretary. The proceedings were taken down in shorthand, and I presume were transcribed, although I have never seen a copy.

"Q. The Enabling Act directed that the water of the river be divided among the States. Why was this not done?—A. We found it would be impossible, because every State at that time was claiming more water than was in the system, and early in the conference we came to the conclusion that it would not be possible to arrive at a compact which would definitely allot to each State any definite amount of water.

"Q. As the conference progressed, did you come to a solution of this question of division of the water?—A. Yes; we finally concluded a compact could be arrived at by dividing the water among the States represented by groups.

"Q. Then what was done?—A. It was the consensus of opinion, and agreed to, that the States be separated into two divisions, known as the upper basin and the lower basin. The upper basin was to include the States of Colorado, Utah, New Mexico, and Wyoming, and those comprising the lower basin were Arizona, California, and Nevada. It was further agreed that Lee Ferry would be a division point between the two basins and that would be the point considered for a division of the water—Lee Ferry and not at the so-called dam site. The division was to be 50–50 as to the amount of water, 7½ million acre-feet to the upper basin and 7½ million acre-feet to the lower basin. When the question of the system was presented to the Arizona delegates, composed of the State water commissioner, Judge Sloan, and myself, we objected vigorously to the inclusion of the waters of the Gila River, inasmuch as that water had been placed to beneficial use and would be of no value for storage at any place in the river for the lower basin States. After 2 days of discussions, mainly informal, it was finally agreed by the other participants in the compact that there would be allowed an extra million acre-feet, which was approximately the amount run off in the Gila system, to be used by Arizona to its exhaustion.

"Q. What attitude did the commission or the representatives from Arizona take toward the compact as written, and before the arrangement was made as to the million acre-feet—did you refuse to sign the compact because of the inclusion of the waters of the Gila River?—A. Absolutely we did. That was the reason why section 3B was put into the compact.

"Q. Was anything said about designating this million acre-feet for Arizona?—A. Yes, that was discussed, and it was concluded that we could not tag that as belonging to Arizona because the plan on which we proceeded was that the waters be divided among the basins and no particular water would be allowed to any one State. If we attempted to tag it, then every other State would demand that it get a certain amount of water.

"Q. Was there any agreement between the Arizona representative and the representatives of the other lower basin States as to setting aside to Arizona the water described in paragraph 3B of the proposed compact?—A. Yes, there was a definite understanding that after the seven-State compact was ratified, so far as the three States in the lower basin were concerned, they would enter into a compact in which it would be agreed that all of the water of the Gila River would go to Arizona.

"Q. Who were present at the discussions which resulted in that understand-

ing?—A. Mr. McClure, of California; Mr. Scrugham and Mr. Squires, of Nevada; and Mr. Norviel and myself, of Arizona.

"Q. Did these discussions take place before the execution of the compact on November 24, 1922?—A. That understanding was arrived at before the compact was ratified and signed.

"Q. For what purpose was the water of the Gila River to go to the State of Arizona?—A. For the benefit of Arizona and for use in irrigation.

"Q. At the time the discussions were had with reference to putting this paragraph 3B into the compact, did all of the delegates to the conference know that Arizona had objected to the compact without such a provision?—A. Absolutely; they all knew that was the fact; it was the lock upon which we had stuck for a couple of days, and discussions were had by all of the delegates and commissioners. I assume these discussions would appear in a transcript of the minutes; the fact was well known and discussed by everybody present. Without that provision of 3B, by which Arizona was awarded an extra million acre-feet of water for the inclusion of the water of the Gila River, the compact would never have been signed by Arizona.

'Q. Then after the arrangement was made for the inclusion of paragraph 3B in the compact, it met with the approval of Arizona, and Mr. Norviel signed the compact for Arizona?—A. He did.

"Q. Why was it that this understanding for the tri-State compact between California, Nevada, and Arizona, was not carried out?—A. The new administration in the State of Arizona was opposed to any compact and never went ahead.

"Q. Who was the Governor-elect of Arizona?—A. Gov. George W. P. Hunt defeated me in the November election of 1922, and with my going out of office, the continuity of the negotiations with respect to the carrying out of the compact were blocked and no progress was thereafter made.

"Q. Have you ever discussed this question of the Colorado River compact and the provision of this paragraph 3B since that time?—A. No, I have never been in court, or before any official body to present my knowledge of the understanding that was arrived at at that time. I have always been anxious to tell what took place at the conference and why the compact was drawn in the way that it was."

I also have the testimony of Mr. W. S. Norviel and of Mr. C. C. Lewis, who attended that conference, to the same effect, but I think it unnecessary at this time to encumber the record with it.

Chairman MURDOCK. May we see the picture in that little pamphlet? You had a picture there that I am interested in.

Mr. CARSON. I will be glad if you will tear the picture out of this book and put it in the record, and also the letter and the other statements by the other men also.

Chairman MURDOCK. I will pass this picture along to the committee. Some of you will recognize quite a change in Mr. Herbert Hoover of 1922—this picture may have been taken before 1922—and the elder statesman of today. I think this is material evidence that goes to show just what took place.

Without objection, we will include the testimony of Mr. Norviel and Mr. Lewis.

Mr. CARSON. The testimony is in this brief, and it is to the same effect as that of Governor Campbell.

Chairman MURDOCK. It was testimony given before the same board as Governor Campbell's testimony?

Mr. CARSON. Yes.

(The matter referred to is as follows:)

"TESTIMONY OF MR. W. S. NORVIEL GIVEN BEFORE THE ARIZONA-COLORADO RIVER COMMISSION

"Q. State your name, residence, and profession.—A. W. S. Norviel, Phoenix, Ariz., attorney at law.

"Q. How long have you been a practicing lawyer in Arizona?—A. Since 1916, except two short periods.

"Q. Are you still active in the practice?—A. Yes.

"Q. In 1922, what, if any, was your official position in Arizona?—A. State water commissioner.

"Q. By reason of your being water commissioner, were you designated as a commissioner under the Federal enabling act respecting the division of the waters of the Colorado River?—A. Yes.

"Q. Did the State water commissioners of the State of Arizona, California, Nevada, New Mexico, Wyoming, Utah, and Colorado meet pursuant to the provisions of the enabling act?—A. Yes. That is, those having charge of public waters, mostly called State engineers, met.

"Q. Where did you first meet?—A. Washington.

"Q. Who was elected chairman?—A. Herbert Hoover, then Secretary of Commerce.

"Q. Was Mr. Hoover designated by the Federal authorities as the United States representative?—A. Yes.

"Q. Who was the secretary of the conference?—A. Clarence C. Stetson was made executive secretary.

"Q. How long did the meeting at Washington last?—A. Four or five days.

"Q. What matters were discussed at Washington?—A. It was the first coming together of the commissioners. After the organization, the representatives were called upon to express ideas as to the proper procedure to accomplish the purposes of the congressional act and the acts of the several State legislatures. I presented a written proposed compact, and discussion then followed upon it.

"Q. Did the question first come up at the Washington conference of dividing the waters, not among the States, but between two groups of States, namely, the upper basin and the lower basin?—A. At the Washington meeting we discussed the division of the waters among the several States, but it immediately was apparent that there never could be an accord as to the proper allocation to each State.

"Q. Before the conference broke up at Washington in January 1922 did you accomplish anything definite with respect to an agreement on the division of the waters?—A. No. The commissioners were without sufficient information and were unwilling to be bound to anything definite, save procedure.

"Q. After the Washington meeting in January 1922, when did you next meet?—A. Public hearings were held in various cities of the interested States.

"Q. Did the conference convene in Santa Fe, N. Mex., in November 1922?—A. Yes.

"Q. Was the meeting in Santa Fe, N. Mex., in November 1922, a continuation of the Washington meeting, with the same persons present and the same States represented?—A. Yes.

"Q. Was Mr. Hoover present?—A. Yes.

"Q. Did Mr. Hoover preside as chairman and did Mr. Stetson serve as secretary?—A. Yes. At all the meetings.

"Q. Were the minutes of that meeting taken down stenographically?—A. Yes.

"Q. Have you a copy of those minutes?—A. No.

"Q. Have you ever seen a transcript of the stenographic record?—A. No.

"Q. Did you at that meeting agree to divide the waters of the Colorado River between two groups of States, designated as the upper and lower basins?—A. Yes.

"Q. Why was that done, rather than divide the waters among the several States, allocating to each State a definite amount?—A. It was agreed that insurmountable difficulties would block any effort to allocate to the several States a definite portion of the water. The general consensus being often expressed that nothing should be granted to a single State, no State or stream particularly or otherwise favored or hindered.

"Q. In the compact that was finally signed, in paragraph (a), article II, the Colorado River system is defined, and in paragraph (b), article II, the Colorado River Basin is defined, which terms include the Gila River and its tributaries. Why was the Gila River included in the Colorado River compact?—A. The terms "Colorado River system" and "Colorado River Basin" were defined to include all the streams tributary to the Colorado River and the area draining into the Colorado River, and it was deemed advisable to make no exceptions of any particular tributary. Arizona objected vigorously to the inclusion of the Gila River, but our objections were overruled.

"Q. Is it true that in November 1922 the Gila River was then in use, or had been appropriated completely?—A. Yes.

"Q. Is it not a fact that the Gila River enters the Colorado River below the point where all interested parties contemplated the dam would be built?—A. Yes.

"Q. At the November 1922 conference, what was the consensus of opinion as to where the first dam would be built in the river?—A. It was the general opinion that such dam would be located in Boulder Canyon.

"Q. Was this point not above the point where the Gila River enters the Colorado River?—A. Yes.

"Q. Could any States benefit by the fact that the Gila was included in the

Colorado River system?—A. No. Its waters enter the main stream of the Colorado at a point which prevents the use of the Gila waters within the United States.

"Q. Were those matters discussed at this meeting?—A. Yes. It was my contention that only Arizona could use or had a right to Gila waters.

"Q. Did you point out that the definition "Colorado River system" included the Gila River system in the division of the waters?—A. I raised the question and demanded the Gila be specifically excluded.

"Q. What position did you take on the inclusion of the Gila River in the compact?—A. That it be excluded entirely from the discussion. Later we compromised when the conference granted an extra million acre-feet to Arizona. This extra million acre-feet was intended for the sole use of Arizona to compensate for the inclusion of the Gila River as part of the Colorado River system. Following the predetermined plan of allocating no water to any particular State, but to groups or basins only, the provision for this extra million acre-feet was couched in language as used elsewhere in the compact; that is, it read to the lower basin, rather than to Arizona, but it was definitely understood that this additional water was for the exclusive use of Arizona.

"Q. Was the draft of the compact prepared and submitted to the conference before it was finally signed up?—A. Yes.

"Q. After the compact was submitted, how many days elapsed before it was actually signed?—A. Some 4 or 5 days elapsed, during which time we were attempting to dispose of this Gila River matter.

"Q. At the time the draft was submitted, and you testify that it was several days before it was signed, did that draft include paragraph (b) of article III, of the Colorado River compact?—A. No. The draft merely included the Gila as part of the Colorado River system. It did not contain the provision now known as III (b) which made provision for the allocation of the extra million acre-feet to the lower basin.

"Q. Do you have the copy of the proposed contract which did not contain the provision with reference to the million acre-feet, to which you have referred?—A. Yes.

"Q. Is this the original copy that you had at the meeting in Santa Fe?—A. Yes; except that there are some notes that I made in this copy at or during the meeting November 22, or in the succeeding days.

"Q. I hand you a document and ask you if that is the original.—A. Yes. It is.

"Q. It shows the date of November 18, 1922. Is that the date that you first received it?—A. It would indicate that it was first handed in at that time, and we then began the discussion.

"Q. You refused to sign that draft of the compact?—A. Yes.

"Q. Why?—A. Because it included the Gila River and made no provision for compensation to Arizona.

"Q. You had that draft before you, and you declared Arizona's position before the Conference?—A. Yes.

"Q. After that a new compact was prepared which did contain a provision for compensation to Arizona, known as paragraph (b) of article III?—A. Yes.

"Q. That compact was consented to by you and executed on November 24, 1922?—A. Yes.

"Q. Who prepared paragraph (b) of article III of the Colorado River compact as signed?—A. Judge Sloan and Stephen B. Davis, and one other whom I do not recall.

"Q. What discussion was had relating to the said paragraph (b) of article III and its meaning and purpose?—A. I had steadfastly refused to agree to the original draft that merely included the Gila River and after several days of discussion and argument, during which the conference refused to exclude the Gila and I refused to accept the draft which included the Gila, a compromise was reached in the form of article III (b) which provided the extra million acre-feet to compensate Arizona for the inclusion of the Gila River in the Colorado River system. It was fully understood by all that this million acre-feet was for the sole and exclusive use of Arizona, although the language used provided for its use by the lower basin. I have explained why such wording was used.

"Q. Was the answer that you have given of the meaning and purpose discussed at the full meeting of all the delegates at this conference, including California and Nevada?—A. Yes. All the delegates, including California and Nevada, understood and agreed that this additional water was for Arizona's use.

"Q. Will you state if you made any statement to the Colorado River Commission with reference to the definition given to the Colorado River system and the Colorado River Basin, and the meaning of paragraph (b), article III?—A. Yes.

I did make a statement. I asked the conference if it was the understanding of the Commission that the million acre-feet of water set out in article III (b) was for the sole and exclusive use of Arizona and stated that if that was the understanding I would sign the compact, if it was not the understanding I would refuse to sign. The unanimous reply was that this million acre-feet was for Arizona alone. With that understanding I signed the compact for Arizona.

"Q. Were these statements which you made stated to the open conference?—A. All delegates and representatives were present. We were having a final meeting preparatory to the signing of the compact.

"Q. What response did delegates from the other States, including California and Nevada, make in regard to your statements?—A. They agreed in the understanding which I have just stated. Mr. McClure, of California, stated to me and to the conference that he, as the California representative at the conference agreed to the understanding that this water of article III (b) was for he exclusive use of Arizona.

"Q. What response did Mr. Hoover make?—A. Mr. Hoover did not take part in the discussion, did not state his views on any part, as I remember. He urged us to agree, and sometimes referred us to a former agreement, or purported agreement.

"Q. Was there any statement made at that time contrary to the explanations that had been given as to the meaning and intent of paragraph (b) article III of the compact?—A. None whatever; there was a full accord and agreement by all delegates.

"Q. At that time, what, if anything, was said in reference to a tri-State agreement between the representatives of California and Nevada and Arizona and Mr. Hoover?—A. It was several times suggested that there should be no difficulty for the three lower States to agree to a division of the waters allocated to the lower basin.

"Q. Were these statements, with reference to a tri-State agreement, made prior to the time the compact was actually signed?—A. Yes, and Mr. Squires made some statements afterward. Mr. McClure, Mr. Scrugham, and Mr. Squires expressed their willingness to enter into such a compact. It seemed very feasible.

"Q. Did each and every one signing the Colorado River Compact know of the discussion with reference to the supplemental tri-State compact to be executed by California, Nevada, and Arizona?—A. Yes. It had been discussed in the open conference and Mr. Hoover made several suggestions regarding such a tri-State compact.

"Q. Was there ever any statement made by anyone at the conference that the waters of the Gila River were to go to anybody except the State of Arizona?—A. None whatever.

"Q. Was any claim ever made at that time that any other State had any interest in the waters of the Gila River?—A. No.

"Q. Was there a universal agreement by each and every one of the delegates that the Gila River belonged to the State of Arizona?—A. That was the agreement upon which I consented to sign the compact for Arizona.

"Q. In addition to the waters of the Gila River, was Arizona to participate in the division of the waters in the main stream of the Colorado River?—A. Yes. Arizona was to share in the main stream waters.

"Q. Were these matters discussed at the time of the conference?—A. Yes. To the extent that Arizona, Nevada, and California were to all share in the main stream waters and Arizona was to have the exclusive use of the waters of the Gila.

"Q. Did you make any statement that if the Colorado River had any different meaning from what you have testified, you would not sign the compact?—A. I stated that I would absolutely refuse to sign the compact if it had any other meaning.

"Q. Did the representatives of the other States and the chairman agree to your statement?—A. Yes. All, including California and Nevada, agreed.

"TESTIMONY OF MR. C. C. LEWIS GIVEN BEFORE THE ARIZONA-COLORADO RIVER COMMISSION

"Q. State you name, residence, and profession.—A. C. C. Lewis, Phoenix, Ariz., statistician.

"Q How long have you been in Arizona?—A. Twenty-four years.

"Q. In 1922, what, if any, was your official position in Arizona?—A. Assistant State water commissioner.

"Q. By reason of your being deputy water commissioner, did you attend the meetings held under the Federal Enabling Act, respecting the division of the waters of the Colorado River?—A. Yes; except the first meeting held at Washington, D. C.

"Q. Did the conference convene in Santa Fe, N. Mex., in November 1922?—A. Yes.

"Q. Was the meeting in Santa Fe, N. Mex., in November 1922 a continuation of the Washington meeting, with the same persons present and the same States represented?—A. Yes; as I recall it, the same persons were representatives.

"Q. Was Mr. Hoover present?—A. Yes.

"Q. Did Mr. Hoover preside as chairman and did Mr. Stassen serve as secretary?—A. Yes.

"Q. Were the minutes of that meeting taken down stenographically?—A. Yes.

"Q. Have you a copy of those minutes?—A. No.

"Q. Have you ever seen a transscript of the stenographic record?—A. No.

"Q. Did you at that meeting agree to divide the waters of the Colorado River between two groups of States, designated as the upper and lower basins?—A. Mr. Norviel, Arizona State water commissioner, did.

"Q. Why was that done, rather than divide the waters among the several States, allocating to each State a definite amount?—A. Because of the impossibility of ever agreeing on an apportionment among the seven States. It was not practical. Further, there was a point provided by nature for the division line between the upper and lower basins.

"Q. In the compact that was finally signed, in paragraph (a), article II, the Colorado River system is defined, and in paragraph (b), article II, the Colorado River Basin is defined, which terms include the Gila River and its tributaries. Why was the Gila River included in the Colorado River compact?—A. The Gila River was included, because it was determined that the drainage area should include all tributaries of the Colorado River in all of the seven States, and that it was inadvisable to make any exceptions. Arizona objected to the inclusion of the Gila River because of the fact the waters could be applied to beneficial use only by Arizona.

"Q. Is it true that in November 1922, the Gila River was then in use, or had been appropriated completely?—A. Yes. That which was not being used had been appropriated.

"Q. Is it not a fact that the Gila River enters the Colorado River below the point where all interested parties contemplated the (dam) would be built?—A. Yes.

"Q. At the November 1922 conference, what was the consensus of opinion as to where the first dam would be built in the river?—A. Boulder Canyon.

"Q. Was this point not above the point where the Gila River enters the Colorado River?—A. Yes.

"Q. Could any States benefit by the fact that the Gila was included in the Colorado River system?—A. Not by the use of the Gila waters because the Gila enters at a point that would prevent the use of same in the United States.

"Q. Were those matters discussed at this meeting?—A. Yes. It was contended that Arizona only could use the Gila waters, and it being entirely appropriated, it should be excluded.

"Q. Did Mr. Norviel point out that the definition 'Colorado River system' included the Gila River system in the division of the waters?—A. Yes. On this point he was firm.

"Q. What position did Mr. Norviel and the Arizona delegation take on the inclusion of the Gila River in the compact?—A. That it should be excluded and did not yield until a million acre-feet additional was granted the lower basin States with a definite understanding by all that this additional million acre-feet was for Arizona's use and not to be considered in the final apportionment of the Colorado River water.

"Q. Was the draft of the compact prepared and submitted to the conference before it was finally signed up?—A. Yes.

"Q. After the compact was submitted, how many days elapsed before it was actually signed?—A. I do not remember, but a few days on account of Gila River matters.

"Q. At the time the draft was submitted, and you testify that it was several days before it was signed, did that draft include paragraph (b) of article III, of the Colorado River compact?—A. No.

"Q. Did you see the copy of the proposed contract which did not contain the

provision with reference to the million acre-feet, to which you have referred?—A. Yes.

"Q. This instrument which I hand you. Is this the original copy which you and Mr. Norviel had at the meeting at Santa Fe?—A. Yes.

"Q. It shows the date of November 18, 1922. Is that the date that you first received it?—A. I could not say, but it seems the date thereon would so indicate.

"Q. Mr. Norviel refused to sign that draft of the compact?—A. Yes.

"Q. Why?—A. Because of the inclusion of the Gila River.

"Q. This draft was before the Arizona delegation and Arizona's position was made known to the conference?—A. Yes. It was contended that the Gila River water was not only all appropriated, but if it were never appropriated no other State could possibly use it because of the physical situation obtaining.

"Q. After that a new compact was prepared which did contain a provision for compensation to Arizona known as paragraph (b) of article III?—A. Yes.

"Q. That compact was consented to by Mr. Norviel and the Arizona delegation and executed on November 24, 1922?—A. Yes.

"Q. Who prepared paragraph (b) of article III of the Colorado River compact, as signed?—A. Judge Sloan, Judge S. B. Davis, and Frank C. Emerson.

"Q. What discussion was had relating to the said paragraph (b) of article III and its meaning and purpose?—A. Due to Mr. Norviel's firm refusal to sign the compact with the Gila River included there were several days' delay and the final result was paragraph (b) of article III, with the definite understanding that this million acre-feet belonged to Arizona in compensation for inclusion of the Gila River in the Colorado River system.

"Q. Was the answer that you have given of the meaning and purpose discussed at the full meeting of all the delegates at this conference, including California and Nevada?—A. Yes.

"Q. Will you state if Mr. Norviel and the Arizona delegation made any statement to the Colorado River Commission with reference to the definition given to the Colorado River system and the Colorado River Basin, and the meaning of paragraph (b), article III?—A. Yes. Mr. Norviel made it very clear that he would sign the final draft of the compact only on the full and complete understanding by all that the additional million acre-feet was for the use of Arizona alone. To this Mr. McClure, representing California, agreed and all others joined in and agreed to this understanding.

"Q. Were these statements made to the open conference?—A. Yes.

"Q. What response did delegates from the other States, including California and Nevada, make in regard to these statements?—A. They all agreed, Mr. McClure making a statement to this effect, all others agreeing, including Nevada."

Mr. CARSON. Now then, subsequent to the signing of the Colorado River compact, various efforts were made between Arizona and California to work out an agreement. During that interval, Arizona thought that she was entitled to the exclusive beneficial consumptive use of the Gila River and half the water flowing in the main stream in the lower basin other than that required by Nevada, to be divided equally between California and Arizona. You see, that would have resulted in Arizona securing 3,600,000 acre-feet of the main-stream water allocated to the lower basin, and it should not seem such an unreasonable request when you consider that that is the sole supply of water for Arizona, which contains in excess of 100,000 square miles of land.

California contains 4,000 square miles of land—and this area that I am describing is within the basin in California—and in California there are no streams of any consequence feeding the Colorado River, and California wanted to take the great bulk of her water outside of the natural drainage area of the Colorado River Basin and over into the Imperial Valley from which no return flow whatever can reach the Colorado River, and over to the Los Angeles area from which no return flow whatever can reach the Colorado River.

Mr. FERNANDEZ. Where is Lee Ferry?

Mr. CARSON. This dotted line [indicating at map] is the division between the upper and lower basins, as made by the compact. You will notice that all of Arizona is within the basin of the compact except this very small area [indicating] in the southeast corner of the State. The State is square at that point.

Mr. ROCKWELL. Where is Lee Ferry compared to Boulder Dam?

Mr. CARSON. This is Lee Ferry, and Boulder Dam is down here [indicating] on the State line between Nevada and Arizona. The thread of the stream there is the boundary between Arizona and Nevada.

Those efforts thereafter made during that period to reach an agreement were not successful, and no agreement was reached.

In the meantime, the California financiers were pressing for the construction of Boulder Dam and the Swing-Johnson bill had been introduced and further efforts were made to reach an agreement on the division of the main stream of the river. Those efforts finally resulted in a governors' conference in Denver, Colo., in the fall of 1927. It had been postponed from consideration by Congress that spring at our request, to see whether or not we could by further efforts compose our differences.

At Arizona's request a governors' conference was held in Denver, Colo., in the fall of 1927 in two sessions; one lasted from August 22 to September 1, and one from September 19 to October 4. At that meeting the governors of the seven river basin States were present. For Arizona, Governor Hunt; California, Gov. C. C. Young; Colorado, Governor Adams. William H. Adams; New Mexico, Gov. Richard G. Dillon; Nevada, Gov. F. B. Balzar; Utah, Gov. H. Dern; Wyoming, Gov. Frank B. Emerson. They were each accompanied by various advisers.

California and Arizona stated their positions. They were unable to agree. Governor Young stated there, as has been stated here in the hearing, that California would be willing to submit the controversy to any impartial tribunal. It was not a binding agreement. I do not want to be misunderstood; it was not in any way binding, but the four governors of the upper basin States constituted themselves as such an arbitration committee and called in separately California and Arizona and finally made this recommendation which I would like to read into the record:

"Suggested basis of division of water between the States of the lower division of the Colorado River system submitted by the governors of the States of the upper division at Denver conference, August 30, 1927.

"The governors of the States of the upper division of the Colorado River system suggested the following as a fair apportionment of water between the States of the lower division subject and subordinate to the provisions of the Colorado River compact insofar as such provisions affect the rights of the upper basin States:

"1. Of the average annual delivery of water to be provided by the States of the upper division at Lee Ferry, under the terms of the Colorado River compact.

"(*a*) To the State of Nevada, 300,000 acre-feet.

"(*b*) To the State of Arizona, 3,000,000 acre-feet.

"(*c*) To the State of California, 4,200,000 acre-feet."

You will note that is a reduction in Arizona's contention that she was entitled to half the water, from 3,600,000 acre-feet to 3,000,000 acre-feet.

"2. To Arizona, in addition to water apportioned in subdivision (b), 1,000,000 acre-feet of water, to be supplied from the tributaries of the Colorado River flowing in said State and to be diverted from said tributaries before the same empty into the main stream. Said 1,000,000 acre-feet shall not be subject to diminution by reason of any treaty with the United States of Mexico, except in such proportion as the said 1,000,000 acre-feet shall bear to the entire apportionment in 1 and 2 of 8,500,000 acre-feet.

"3. As to all waters of the tributaries of the Colorado River emptying into the river below Lee Ferry, not apportioned in paragraph 2, each of the States of the lower basin shall have the exclusive beneficial consumptive use of such tributaries within its boundaries before the same empty into the main stream, provided the apportionment of the waters of such tributaries situated in more than one State shall be left to adjudication or apportionment between said States in such manner as may be determined upon by the States affected thereby.

"4. The several foregoing apportionments to include all waters necessary for the supply of any rights which may now exist, including water for Indian lands for each of said States.

"5. Arizona and California each may divert and use one-half of the unapportioned waters of the main Colorado River flowing below Lee Ferry, subject to further equitable apportionment between the said States after the year 1933, and on the specific condition that the use of said waters between the States of the lower basin shall be without prejudice to the right of the States of the upper basin to further apportionment of water, as provided by the Colorado River compact."

That was in the fall of 1927.

Then the Swing-Johnson bill came up again the following year in Congress.

I might state before leaving this that when these findings were presented the Arizona delegation said they would accept the recommendations made and California refused to accept the recommendations made. Then the matter came on before the Congress in the consideration of the Boulder Canyon Project Act, which was enacted in December of 1928, and Congress undertook to give effect

to this recommendation of the four upper State Governors, and did it in several ways in that act.

I am now reading from the Boulder Canyon Project Act, section 4 (a), at the beginning of the second paragraph of that act:

"The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide, (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity," I call your attention there to the fact that Congress again reduced Arizona's claim, as approved by the upper basin governors, from 3,000,000 to 2,800,000 acre-feet—"and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact; and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State.

"4. That the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico; but if, as provided in paragraph (c) of article III of the Colorado River compact, it shall become necessary to supply water to the United States of Mexico from waters over and above the quantities which are surplus as defined by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply, out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin; and

"5. That the State of California shall and will further mutually agree with the States of Nevada and Arizona that none of said three States shall withhold water and none shall require the delivery of water which cannot reasonably be applied to domestic and agricultural uses; and

"6. That all the provisions of said tri-State agreement shall be subject in all particulars to the provisions of the Colorado River compact; and

"7. Said agreement to take effect upon the ratification of the Colorado River compact by Arizona, California, and Nevada."

Even though Arizona was at that time, perhaps, somewhat in the doghouse, which I have always considered to be partially due to the fact that Mr. Harry Chandler, who is now deceased, the owner of the Los Angeles Times, and perhaps Mr. Hearst—and I am not certain but that Mr. Hearst was the owner of lands in Mexico—but during this period after the Colorado River compact was signed, the press of the country tried to indicate that Arizona was a dog in the manger and should have agreed without anything further to the Colorado River compact and without division between California and Arizona.

Now, remember, if you please, that Arizona was a very young State, not a strong State, and was going up against the financial power of the most powerful men in southern California, so Congress, in order to see that this provision would be carried out by California, provided further—

"This Act shall not take effect * * * until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as in express covenant and in consideration of the passage of this Act, that the aggregate annual consumptive use (diversions less returns to river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this Act and all water necessary for the supply of any rights which may now exist, shall not exceed four million four hundred thousand acre-feet of the waters apportioned to the lower basin States by paragraph (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact."

I want to call your attention specifically to the fact that under this limitation with California enacted by an act of its legislature in 1929, in exact compliance with this requirement, III (b) water is not mentioned. California cannot lawfully use any water of the Colorado River system except 4,400,000 acre-feet of III (a) water, plus not more than one-half of any excess or surplus waters unapportioned by said compact.

So now the question comes, Is III (b) water apportioned water? If it is,

California by her limitation act has excluded herself from making any claim to it.

In that connection, let me go further into what Congress was trying to do in this. This is section 11 of the act.

"That the Secretary of the Interior is hereby authorized to make such studies, surveys, investigations, and to do such engineering as may be necessary to determine the lands in the State of Arizona that should be embraced within the boundaries of a reclamation project, heretofore commonly known and hereafter to be known as the Parker-Gila Valley reclamation project, and to recommend the most practical and feasible method of irrigating lands within said project, or units thereof, and the cost of the same, and the appropriation of such sums of money as may be necessary for the aforesaid purposes, from time to time is hereby authorized. The Secretary shall report to Congress as soon as practicable, and not later than December 10, 1931, his findings, conclusions, and recommendations regarding such project."

Now, at that time, the Parker-Gila project included not only the 585,000 acres that was later mentioned in the Porter J. Preston report, but also an additional 100,000 acres in the vicinity of Parker, Ariz., which is up the river from all projects here involved. It is in this vicinity up here [indicating at map] above the Palo Verde Valley and in the town of Blythe, and a bit more of it is right in here. At that time the project included this land and this land down here to the extent of 585,000 acres [indicating] of which 585,000 acres this mesa division of the Yuma project and the Wellton-Mohawk area are a very small part.

Now, to go back again a minute to the compact on whether or not III (b) water is apportioned water, I would like to read into the record here these provisions of the Colorado River compact. I am reading article 3 (a).

"There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

"(b) In addition to the apportionment in paragraph (a) the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

"(c)—"

and this is important, in my estimation, in considering this bill—

"If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River system, such waters shall be supplied, first, from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be equally borne by the upper basin and the lower basin, and whenever necessary the States of the upper division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

"(d) The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series beginning with the first day of October next succeeding the ratification of this compact.

"(e) The States of the upper division shall not withhold water, and the States of the lower division shall not require the delivery of water which cannot reasonably be applied to domestic and agricultural uses.

"(f) Further equitable apportionment of the beneficial uses of the waters of the Colorado River system unapportioned by paragraphs (a), (b), and (c) may be made in the manner provided in paragraph (g) at any time after October 1, 1963, if and when either basin shall have reached its total beneficial consumptive use as set out in paragraphs (a) and (b)."

It is clear there, to my mind, that (b) water is apportioned water, and that (c) water, to Mexico, when and if the quantity is determined, is likewise apportioned water.

Let me emphasize that again:

"Further, equitable apportionment of the beneficial uses of the waters of the Colorado River system, unapportioned by paragraphs (a), (b), and (c), may be made in the manner provided * * *."

So, back there in 1922, when this contract was signed, all the States of the basin recognized the possibility and the desirability, if you please, of a treaty with Mexico, which would fix the limits of Mexico's rights, and went so far as to pro-

vide in this contract in 1922 how that supply would be furnished and who would furnish it.

Then, coming on down—and I will be through with this historical background shortly—in 1933 I was at that time employed as a special assistant attorney general and counsel for the Arizona and Colorado River Commission, and continued until the spring or the summer of 1935. They submitted to me questions concerning the construction which I have just referred to you, and I gave it as my legal opinion then, and do now, that under those provisions of the California Limitation Act, as required by the Boulder Canyon Project Act, California can make no successful claim whatever to any use of the water of the Gila River, or to a claim of an equal amount, or any portion of that amount in the main stream of the river. The Commission knew of course what had occurred at the Santa Fe Conference in 1922, so they requested that I bring a bill into the United States Supreme Court rights to perpetuate testimony of what occurred at Santa Fe in 1922, some evidence of which I have already placed in this record. I did file such a bill in the Supreme Court of the United States.

The Supreme Court of the United States took jurisdiction of the case and said that it was properly brought, but they refused the right to perpetuate testimony; one of the grounds being it was immaterial and could never become material. I would like to read to you now part of paragraph 6 of the Supreme Court's opinion appearing in volume 292, United States, at page 359.

"Sixth. The considerations to which Arizona calls attention do not show that there is any ambiguity in article III (b) of the compact. Doubtless, the anticipated physical sources of the waters which combine to make the total of 8,500,000 acre-feet are as Arizona contends, but neither article III (a) nor (b) deal with the waters on the basis of their source. Paragraph (a) apportions waters 'from the Colorado River system,' i. e., the Colorado and its tributaries and (b) permits an additional use 'of such waters.' The compact makes an apportionment only between the upper and lower basin; the apportionment among the States in each basin being left to later agreement. Arizona is one of the States of the lower basin and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b)—"

Now, this is the part—"* * * does not contradict the intent clearly expressed by paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone."

Now, can there be any doubt that under that language and under the language of this compact that III (b) water is apportioned to the lower basin? Can there be any doubt that California, by adopting its limitation act, has excluded herself from claiming any part of the III (b) water?

Mr. PHILLIPS. My recollection is not very clear on that. Will you read section 7, please?

Mr. CARSON. Yes. That is another ground for the dismissal. California filed briefs in opposition to this. They did not want this evidence preserved, which is now in this record and, among others, there was the question raised that it was not in proper form and was not relevant because it had not been communicated back. And in that connection they also raised this other ground that it was immaterial and irrelevant. The committee said it was not material or relevant because California has excluded herself from claiming III (b) water [reading]:

"Seventh. Even if the construction to be given paragraph (b) of the compact were relevant to the interpretation of any provision in the Boulder Canyon Project Act and such provision were ambiguous, the evidence sought to be perpetuated is not of a character which would be competent to prove the Congress intended by paragraph 4 (a) of the 1928 act to exclude California entirely from the waters allotted by article III (b) to the States of the lower basin and to reserve all of those waters to Arizona. The evidence sought to be perpetuated is not documentary. It is testimony as to what divers persons said 6 years earlier while negotiating a compact with a view to preparing the proposal for submission to the legislatures of the seven States and to Congress for approval—a proposal which Arizona has not ratified and which the six other States and Congress did ratify, as later modified, by statutes enacted in 1928 and 1929. The Boulder Canyon Project Act rests, not upon what was thought or said in 1922 by negotiators of the compact, but upon its ratification by the six States."

I think I have pretty well covered that. Now, following the enactment of the

Boulder Canyon Project Act by Congress and this decision, we tried to secure a contract from the United States for our share of this water. We were opposed by California on the ground, among others, that we had not ratified the Colorado River compact. So, in 1939, the Arizona Legislature enacted chapter 33 (ch. 33, Session Laws of Arizona, 1939) in which it provided, and the compact set out in here in terms is as nearly as we could draw it taken from the Boulder Canyon Project Act in paragraph 4 (a) of the Boulder Canyon Project Act, with the addition of the necessary definitions to make it clear:

"SECTION 1. TRI-STATE COMPACT.—The State of Arizona desiring to enter into a compact with the States of California and Nevada under the authority of and in accordance with the provisions of the act of Congress of the United States of America approved December 21, 1928, proposes the following compact or agreement between the States of Arizona, California, and Nevada."

Then it sets it out. Section 2 of the act, after setting out the proposed compact, provides:

"SEC. 2. ACCEPTANCE BY ARIZONA.—The proposed agreement between the States of Arizona, California, and Nevada as set forth in section 1 of this act is approved and accepted for the State of Arizona, and the Governor of the State of Arizona is authorized and directed to sign said agreement for the State of Arizona and to give notice of its aprpoval as in said agreement provided.

"SEC. 3. CONDITIONAL APPROVAL OF COLORADO RIVER COMPACT.—If the agreement set forth in section 1 of this act be approved by the Congress of the United States and the States of California and Nevada within 1 year after the effective date of this act, or within a period of one additional year thereafter, provided the Governor of the State of Arizona shall by proclamation so extend the period for such approval, the Colorado River compact shall thereupon be and become by the terms of this act ratified for and on behalf of the State of Arizona."

Now, following the passage of that act, it is my understanding there were numerous meetings between the Colorado River Commission of Arizona and the representatives of California to try to work out this compact, on which Commission at that time Senator Hugo Farmer was a member, who is now here. That was rejected by California and no agreement could be made.

Now, I have to go back again a little to the physical situation. Boulder Dam was built and filled. I might be in error on this date, but it became full by some time in 1938 or 1939, so that it was no longer able to hold back the flow of the river which came down, and in 1941 12,000,000 acre-feet of Colorado River water went across the border into Mexico. In 1942 something in excess of 11,000,000 acre-feet, and 1943, in excess of 10,500,000 acre-feet went across the border into Mexico.. Now, when Boulder Dam began to regulate the flow of the Colorado River through Mexico, it enabled a much greater development of Mexico below the United States border. In its natural state, as I understand the picture, in the late summer when water was needed for irrigation it was not in the river. Boulder Dam operated to equate that flow so that the flow here [indicating] that I have called attention to went through Mexico in an equated condition. It benefited Mexico in many ways. It eliminated the danger of floods and seasonal floods in the lower delta of Mexico and assured them a full supply of water there when they needed it for irrigation purposes.

Now, during that period, from the time we tried to get a contract in 1934, and an agreement, the uses in Mexico were rapidly expanded and built up to use a great deal more water in Mexico. It has been variously estimated by the engineers as to the quantity of land in Mexico that could be irrigated by water from the river, and I think a conservative estimate was approximately 1,000,000 acres which could establish a right to the use of water in Mexico, with a possibility of Mexico's increasing its use of water to 5,000,000 or 6,000,000 acre-feet, if we permitted that development to proceed without the Mexican Treaty limiting their right in advance of the development of the river basin in the upper States as well as in the lower States.

Then we found the Imperial irrigation district of California, as soon as the All-American Canal was in operation, increased its supply of water to Mexico through that canal and we found that the Imperial irrigation district of California owned, and I believe still owns, all of the stock of the Mexican corporation which delivers water through the Alamo Canal in Mexico to Mexican land. So that by 1943 and again in 1944 Mexico actually diverted and used on her lands from the Colorado River, with the aid and support of the Imperial irrigation district of California, 1,800,000 acre-feet of water in the year 1943 and again in the year 1944.

So, remembering now the history of this initial development and the fight made

against Arizona for the use of any water in the main stream [and that fight by the way, if I can read the signs right, will be made against every other project in the Colorado River Basin, in whatever State located] we went to work.

It has been intimated here that the Mexican Treaty was negotiated behind California's back.

When I got back into this picture early in 1943, the first meeting I attended was here in Washington with the then legal adviser of the State Department and the legal advisers of all the other States, at which California was very well represented. I am informed that even before that, since about 1937, the danger of the loss forever by use in Mexico had been rather generally recognized in the Colorado River Basin and there had been many repeated earlier meetings considering the question of Mexico's claims to the water of the Colorado River, and from the first meeting I attended early in 1943 the California representatives were present at every meeting at which I was present in the discussion of this river until, through the committee of 16, we reached the parting of the ways—California opposing the treaty; Colorado, Utah, Wyoming, New Mexico, and Arizona supporting the treaty because of the benefit to the United States, as we saw it, in having an over-all, all-time limit on Mexico's claim of right to the water of the river which was being rapidly increased. California opposed it. Nevada at that time passed, at that meeting at which a formula was adopted, and later came to the support of California in opposing the treaty.

Mr. Dowd made one statement with which I wish to take direct issue. If I understood him correctly, he said, while the State of Arizona supported the treaty that, without exception, all users of water in Arizona joined with California in opposing it.

Mr. PHILLIPS. I do not think he said all of them.

Mr. CARSON. Was not that your statement?

Mr. DOWD. No; I said the Salt River Valley Water Users' Association, which is the largest irrigation district in Arizona, and projects using water around Florence and San Carlos, and the largest users of water in the Yuma Valley and other similar organizations, not only supported California and Nevada but had representatives in Washington who appeared against the treaty.

Mr. CARSON. I still want to take direct exception. It reminds me of the story of the three tailors of Threadneedle Street—"We, the people of England." What actually happened was that California organized a meeting which had for its purpose objecting to this treaty and invited a few people from Arizona and other States out there. I imagine there were not very many from Arizona. But actually this whole treaty matter was explained in detail to the Legislature of the State of Arizona, which represents all of the farmers of the State and includes, among its membership, members of the boards of directors of some of these various organizations, and in the Legislature of Arizona they passed a memorial urging the ratification of the treaty—the senate unanimously, and the house of representatives by 48 to 1. And the people who met in Las Vegas, as I understand it, were called up there, and there had been no previous instruction to them by their organizations in opposition to the treaty and they fell under the very persuasive power of Mr. Dowd and Mr. Northcutt Ely, or whoever was there.

Mr. ELY. Since my name has been mentioned, may I say the board of governors of the Salt River Valley water users went on record as opposing the treaty, and later proposed reservations to the treaty which I suggest be incorporated in the hearings at this point—their resolution and their proposed reservations to the treaty as presented by the members of the boards of governors and the chief counsel at the hearing on the treaty before the Foreign Relations Committee of the United States Senate.

Chairman MURDOCK. The 16-page booklet offered as evidence is too long to interject here. The resolution on page 16 will suffice at this point and the entire document may appear later. Was that prior or subsequent to the meeting in Las Vegas?

Mr. ELY. The resolution of the board of governors approved the action taken by four members of the board at Las Vegas, and ratified it with proposed reservations to the treaty.

"RESOLUTION

"Whereas this board of governors of Salt River Valley Water Users' Association authorized the following of its members:

"V. I. Corbell, J. A. Sinnott, H. C. Dobson, and J. H. Evans to represent the said association at the meeting held in Las Vegas, Nev., on January 12 and 13,

1945, in opposition to the proposed treaty with Mexico relating to the allocation of the waters of the Colorado River; and

"Whereas there was adopted at said Las Vegas meeting a resolution in opposition to the proposed treaty with Mexico, which said resolution was supported by the aforesaid members of this board of governors: Therefore be it

"*Resolved*, That the action of the aforesaid members of this board of governors in voting at the Las Vegas meeting for the adoption of the resolution in opposition to the proposed treaty with Mexico be, and it hereby is, declared ratified.

* * * * * * *

"CERTIFICATE

"I, F. C. Henshaw, the duly appointed and acting secretary of the Salt River Valley Water Users' Association, hereby certify that the above and foregoing is a true, correct, and complete copy of a resolution duly adopted at a meeting of the board of governors of said association duly and regularly held on the 5th day of February 1945, at which said meeting a quorum was present.

"[SEAL] F. C. HENSHAW, *Secretary*."

Chairman MURDOCK. The Chair holds the entire 16-page booklet pertaining to this discussion but directs that it appear in an appendix at the end of the published hearings. (See pp. 763–769.) Only the closing resolution on page 16 is necessary at this point.

Mr. CARSON. That was later. But at that time you were employed, were you not, by the State of California?

Mr. ELY. Yes. Mr. Chairman, do you wish to go into that? I shall be very happy at the appropriate time, if you wish, to do so.

Mr. WHITE. Could not you give a simple answer to a simple question?

Mr. ELY. What is the question?

Mr. WHITE. Whether at that time you were employed—yes or no?

Mr. ELY. I was employed by the department of water and power of the city of Los Angeles and had been for many years as both clients of course knew. If the committee desires me to go into that question, I will be very happy to do so. I represented then, and now, the California Water Project Authority in Central Valley, and now represent the Colorado River Board of California.

Mr. WHITE. I do not think that calls for anything but a yes or no answer to the question.

Chairman MURDOCK. Yes; that is properly and adequately answered.

Mr. CARSON. But they did fall under the persuasive power and influence of the representatives of California at that meeting—those few individuals.

Now, to go back again to the construction of this contract, article III of the Colorado River compact under the Boulder Canyon Project Act, as to III (b) water the Department of the Interior, in regulations approved by the then Secretary of the Interior, Ray Lyman Wilbur, promulgated regulations offering a contract to the State of Arizona for 2,800,000 acre-feet annually from the main stream of the Colorado River.

Chairman MURDOCK. When was that?

Mr. CARSON. In 1933. The regulation was dated February 7, 1933. The proposal was brought to Phoenix, as I understand it—and again I want to be corrected if I am incorrect—by Mr. Ely, who was then an Assistant Secretary; but it was brought out there right in the last days of February 1933, before the change of administration which was occurring on March 4 following; so that the negotiations were not concluded and the contract was not at that time signed. But it is significant in this, that in the proposed contract, in the regulations of the Secretary, the water to be delivered was described as follows:

"Ten. From storage available in the reservoir created by Hoover Dam, the United States will deliver under this contract each year, at points of diversion hereinafter referred to on the Colorado River, so much of the available water as may be necessary to enable the beneficial consumptive use in Arizona of not to exceed 2,800,000 acre-feet annually by all diversions effected from the Colorado River and its tributaries below Lee Ferry; but in addition to all uses of waters from the Gila River and its tributaries—"

Also article 15 (a) provided—

"The State of Arizona will hereafter grant no permits for, nor otherwise authorize, uses of the waters of the Colorado River and its tributaries other than the Gila River and its tributaries, except subject to the terms of this contract."

Now, this was offered at a time when Arizona had not ratified the Colorado River compact and this did not contemplate that it would; so that there can be no question on that.

Mr. FERNANDEZ. This was offered as an administrative interpretation of the act?

Mr. CARSON. Yes; by the Bureau of Reclamation and the Interior Department at that time. Then, as the years passed and this increase in the use in Mexico became so apparent to us in Arizona, we again became very much concerned about any possible water from Arizona from the main stream of the Colorado River in view of those developments; so, again, the legislature passed an act, in view of the failure of California to agree, authorizing the negotiation of a contract with the Secretary of the Interior for 2,800,000 acre-feet of main stream water and agreed when that was done Arizona would ratify the Colorado River compact, and we went into lengthly negotiations upon a contract. And whereas California representatives had formerly based their main opposition, as I understood it, on the fact Arizona had not ratified the Colorado River compact, they opposed the recent effort to get a contract, even though it contained a provision that it should not become effective unless and until Arizona ratified the compact. At the same time, that effort to negotiate a contract had not been made by me until after I had attended this State Department conference with the legal adviser, when all of this treaty matter had come up and it became apparent that, for the benefit of the United States, it was necessary that the treaty be made. And I told them at that meeting, before we adjourned that day, that in my judgment Arizona must now proceed to get a contract, and we wanted it to be effective in advance of the Mexican treaty; because we did not want this group of California men to continue to block developments in Arizona and for them to be able to say "Too bad, Arizona, but that is your water that is going to Mexico" either under or without a treaty. And that has been our whole position.

We started then, in 1943, and on February 9, 1944, we secured a contract from the United States, acting through the Secretary of the Interior, for 2,800,000 acre-feet of main stream water.

Mr. PHILLIPS. When you say "contract," what was the form of it?

Mr. CARSON. I will put a copy in the record, if I may. I do not think it is necessary for me to read it all, but I will put a copy in the record; but the provisions as to the water supply I would like to read.

Chairman MURDOCK. Without objection, it will be admitted to the record at this point.

Mr. CARSON. This is headed "Delivery of water."

"7. (a) Subject to the availability thereof for use in Arizona under the provisions of the Colorado River compact and the Boulder Canyon Project Act, the United States shall deliver and Arizona, or agencies or water users therein, will accept under this contract each calendar year from storage in Lake Mead, at a point or points of diversion on the Colorado River approved by the Secretary, so much water as may be necessary for the beneficial consumptive use for irrigation and domestic uses in Arizona of a maximum of 2,800,000 acre-feet.

"(b) * * * The United States also shall deliver from storage in Lake Mead for use in Arizona, at a point or points of diversion on the Colorado River approved by the Secretary, for the uses set forth in subdivision (a) of this article, one-half of any excess or surplus waters unapportioned by the Colorado River compact to the extent such water is available for use in Arizona under said compact and said act, less such excess or surplus water unapportioned by said compacts as may be used in Nevada, New Mexico, and Utah in accordance with the rights of said States as stated in subdivisions (f) and (g) of this article.

* * * * * * *

"(d) The obligation to deliver water at or below Boulder Dam shall be diminished to the extent that consumptive uses now or hereafter existing in Arizona above Lake Mead diminish the flow into Lake Mead, and such obligation shall be subject to such reduction on account of evaporation, reservoir and river losses, as may be required to render this contract in conformity with said compact and said act.

"(e) This contract is for permanent service, subject to the conditions stated in subdivision (c) of this article, but as to the one-half of the waters of the Colorado River system unapportioned by paragraphs (a), (b), and (c) of article III of the Colorado River compact, such water is subject to further equitable apportionment at any time after October 1, 1963, as provided in article III (f) and articles III (g) of the Colorado River compact."

Those are the things I want particularly to emphasize:

"(f) Arizona recognizes the right of the United States and the State of Nevada to contract for the delivery from storage in Lake Mead for annual beneficial consumptive use within Nevada for agricultural and domestic uses of 300,000 acre-feet of the water apportioned to the lower basin by the Colorado River compact, and in addition thereto to make contract for like use of one twenty-fifth of any excess or surplus waters available in the lower basin and unapportioned by the Colorado River compact, which waters are subject to further equitable apportionment after October 1, 1963, as provided in article III (f) and article III (g) of the Colorado River compact.

"(g) Arizona recognizes the rights of New Mexico and Utah to equitable shares of the water apportioned by the Colorado River compact to the lower basin and also water unapportioned by such compact, and nothing contained in this contract shall prejudice such rights.

"(h) Arizona recognizes the right of the United States and agencies of the State of California to contract for storage and delivery of water from Lake Mead for beneficial consumptive use in California, provided that the aggregate of all such deliveries and uses in California from the Colorado River shall not exceed the limitation of such uses in that State required by the provisions of the Boulder Canyon Project Act and agreed to by the State of California by an act of its legislature (ch. 16, Statutes of California of 1929) upon which limitation the State of Arizona expressly relies."

(The contract above referred to is, in full, as follows:)

"UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION—BOULDER CANYON PROJECT, ARIZONA-CALIFORNIA-NEVADA

"CONTRACT FOR DELIVERY OF WATER

"THIS CONTRACT made this 9th day of February 1944, pursuant to the Act of Congress approved June 17, 1902 (32 Stat. 388), and acts amendatory thereof or supplemental thereto, all of which acts are commonly known and referred to as the Reclamation Law, and particularly pursuant to to the Act of Congress approved December 21, 1928 (45 Stat. 1057), designed the Boulder Canyon Project Act, and acts amendatory thereof or supplementary thereto, between THE UNITED STATES OF AMERICA, hereinafter referred to as "United States," acting for this purpose by Harold L. Ickes, Secretary of the Interior, hereinafter referred to as the "Secretary," and the STATE OF ARIZONA, hereinafter referred to as "Arizona," acting for this purpose by the Colorado River Commission of Arizona, pursuant to Chapter 46 of the 1939 Session Laws of Arizona,

"WITNESSETH THAT—

"EXPLANATORY RECITALS

"2. WHEREAS for the purpose of controlling floods, improving navigation, regulating the flow of the Colorado River, providing for storage and for the delivery of stored waters for the reclamation of public lands and other beneficial uses exclusively within the United States, the Secretary acting under and in pursuance of the provisions of the Colorado River Compact and Boulder Canyon Project Act, and acts amendatory thereof or supplementary thereto, has constructed and is now operating and maintaining in the main stream of the Colorado River at Black Canyon that certain structure known as and designated Boulder Dam and incidental works, creating thereby a reservoir designated Lake Mead of a capacity of about thirty-two million (32,000,000) acre-feet; and

"3. WHEREAS said Boulder Canyon Project Act provides that the Secretary under such general rules and regulations, as he may prescribe, may contract for the storage of water in the reservoir created by Boulder Dam, and for the delivery of such water at such points on the river as may be agreed upon, for irrigation and domestic uses, and provides further that no person shall have or be entitled to have the use for any purpose of the water stored, as aforesaid, except by contract made as stated in said Act, and

"4. WHEREAS it is the desire of the parties to this contract to contract for the storage of water and the delivery thereof for irrigation of lands and domestic uses within Arizona, and

"5. WHEREAS nothing in this contract shall be construed as affecting the obligations of the United States to Indian tribes,

"6. NOW, THEREFORE, in consideration of the mutual covenants herein contained, the parties hereto agree as follows, to wit:

"DELIVERY OF WATER

"7. (a) Subject to the availability thereof for use in Arizona under the provisions of the Colorado River Compact and the Boulder Canyon Project Act, the United States shall deliver and Arizona, or agencies or water users therein will accept under this contract each calendar year for storage in Lake Mead, at a point or points of diversion on the Colorado River approved by the Secretary, so much water as may be necessary for the beneficial consumptive use for irrigation and domestic uses in Arizona of a maximum of 2,800,000 acre-feet.

"(b) The United States also shall deliver from storage in Lake Mead for use in Arizona, at a point or points of diversion on the Colorado River approved by the Secretary, for the uses set forth in subdivision (a) of this article, one-half of any excess or surplus waters unapportioned by the Colorado River compact to the extent such water is available for use in Arizona under said compact and said act, less such excess or surplus water unapportioned by said compact as may be used in Nevada, New Mexico, and Utah in accordance with the rights of said States as stated in subdivisions (f) and (g) of this article.

"(c) This contract is subject to the condition that Boulder Dam and Lake Mead shall be used: First, for river regulation, improvement of navigation, and flood control; second, for irrigation and domestic uses and satisfaction of perfected rights in pursuance of article VIII of the Colorado River compact; and third, for power. This contract is made upon the express condition and with the express covenant that the United States and Arizona, and agencies and water users therein, shall observe and be subject to and controlled by said Colorado River compact and the Boulder Canyon Project Act in the construction, management, and operation of Boulder Dam, Lake Mead, canals and other works, and the storage, diversion, delivery, and use of water for the generation of power, irrigation, and other uses.

"(d) The obligation to deliver water at or below Boulder Dam shall be diminished to the extent that consumptive uses now or hereafter existing in Arizona above Lake Mead diminish the flow into Lake Mead, and such obligation shall be subject to such reduction on account of evaporation, reservoir and river losses, as may be required to render this contract in conformity with said compact and said Act.

"(e) This contract is for permanent service, subject to the conditions stated in subdivision (c) of this article, but as to the one-half of the waters of the Colorado River system unapportioned by paragraphs (a), (b), and (c) of article III of the Colorado River compact, such water is subject to further equitable apportionment at any time after October 1, 1963, as provided in article III (f) and article III (g) of the Colorado River compact.

"(f) Arizona recognizes the right of the United States and the State of Nevada to contract for the delivery from storage in Lake Mead for annual beneficial consumptive use within Nevada for agricultural and domestic uses of 300,000 acre-feet of the water apportioned to the lower basin by the Colorado River compact, and in addition thereto to make contract for like use of 1/25 (one twenty-fifth) of any excess or surplus waters available in the lower basin and unapportioned by the Colorado River compact, which waters are subject to further equitable apportionment after October 1, 1963, as provided in article III (f) and article III (g) of the Colorado River compact.

"(g) Arizona recognizes the rights of New Mexico and Utah to equitable share of the water apportioned by the Colorado River Compact to the Lower Basin and also water unapportioned by such compact, and nothing contained in this contract shall prejudice such rights.

"(h) Arizona recognizes the right of the United States and agencies of the State of California to contract for storage and delivery of water from Lake Mead for beneficial consumptive use in California, provided that the aggregate of all such deliveries and uses in California from the Colorado River shall not exceed the limitation of such uses in that State required by the provisions of the Boulder Canyon Project Act and agreed to by the State of California by an act of its Legislature (Chapter 16, Statutes of California of 1929) upon which limitation the State of Arizona expressly relies.

"(i) Nothing in this contract shall preclude the parties hereto from contracting for storage and delivery above Lake Mead of water herein contracted for, when and if authorized by law.

"(j) As far as reasonable diligence will permit, the water provided for in this contract shall be delivered as ordered and as reasonably required for domestic

and irrigation uses within Arizona. The United States reserves the right to discontinue or temporarily reduce the amount of water to be delivered for the purpose of investigation and inspection, maintenance, repairs, replacements, or installation of equipment or machinery at Boulder Dam, or other dams heretofore or hereafter to be constructed, but so far as feasible will give reasonable notice in advance of such temporary discontinuance or reduction.

"(k) The United States, its officers, agents, and employees shall not be liable for damages when for any reason whatsoever suspensions or reductions in the delivery of water occur.

"(l) Deliveries of water hereunder shall be made for use within Arizona to such individuals, irrigation districts, corporations, or political subdivisions therein of Arizona as may contract therefor with the Secretary, and as may qualify under the Reclamation Law or other Federal statutes or to lands of the United States within Arizona. All consumptive uses of water by users in Arizona, of water diverted from Lake Mead or from the main stream of the Colorado River below Boulder Dam, whether made under this contract or not, shall be deemed, when made, a discharge pro tanto of the obligation of this contract. Present perfected rights to the beneficial use of waters of the Colorado River system are unimpaired by this contract.

"(m) Rights-of-way across public lands necessary or convenient for canals to facilitate the full utilization in Arizona of the water herein agreed to be delivered will be granted by the Secretary subject to applicable Federal statutes.

"POINTS OF DIVERSION; MEASUREMENTS OF WATER

"8. The water to be delivered under this contract shall be measured at the points of diversion, or elsewhere as the Secretary may designate (with suitable adjustment for losses between said points of diversion and measurement), by measuring and controlling devices or automatic gauges approved by the Secretary, which devices, however, shall be furnished, installed, and maintained by Arizona or the users of water therein in manner satisfactory to the Secretary; said measuring and controlling devices or automatic gauges shall be subject to the inspection of the United States, whose authorized representatives may at all times have access to them, and any deficiencies found shall be promptly corrected by the users thereof. The United States shall be under obligation to deliver water only at diversion points where measuring and controlling devices or automatic gauges are maintained, in accordance with this contract, but in the event diversions are made at points where such devices are not maintained, the Secretary shall estimate the quantity of such diversions and his determination thereof shall be final.

"CHARGES FOR STORAGE AND DELIVERY OF WATER

"9. No charge shall be made for the storage or delivery of water at diversion points as herein provided necessary to supply present perfected rights in Arizona. A charge of 50¢ per acre-foot shall be made for all water actually diverted directly from Lake Mead during the Boulder Dam cost-repayment period, which said charge shall be paid by the users of such water, subject to reduction by the Secretary in the amount of the charge if it is concluded by him at any time during said cost-repayment period that such charge is too high. After expiration of the cost-repayment period, charges shall be on such basis as may hereafter be prescribed by Congress. Charges for the storage or delivery of water diverted at a point or points below Boulder Dam, for users, other than those specified above, shall be as agreed upon between the Secretary and such users at the time of execution of contracts therefor, and shall be paid by such users; provided such charges shall, in no event, exceed 25¢ per acre-foot.

"RESERVATIONS

"10. Neither Article 7, nor any other provision of this contract, shall impair the right of Arizona and other States and the users of water therein to maintain, prosecute, or defend any action respecting, and is without prejudice to, any of the respective contentions of said States and water users as to (1) the intent, effect, meaning, and interpretation of said compact and said act; (2) what part, if any, of the water used or contracted for by any of them falls within Article III (a) of the Colorado River Compact; (3) what part, if any, is within Article III (b) thereof; (4) what part, if any, is excess or surplus waters unappor-

tioned by said Compact; and (5) what limitations on use, rights of use, and relative priorities exist as to the waters of the Colorado River system; provided, however, that by these reservations there is no intent to disturb the apportionment made by Article III (a) of the Colorado River Compact between the Upper Basin and the Lower Basin.

"DISPUTES AND DISAGREEMENTS

"11. Whenever a controversy arises out of this contract, and if the parties hereto then agree to submit the matter to arbitration, Arizona shall name one arbitrator and the Secretary shall name one arbitrator and the two arbitrators thus chosen shall meet within ten days after their selection and shall elect one other arbitrator within fifteen days after their first meeting, but in the event of their failure to name the third arbitrator within thirty days after their first meeting, such arbitrator not so selected shall be named by the Senior Judge of the United States Circuit Court of Appeals for the Tenth Circuit. The decision of any two of the three arbitrators thus chosen shall be a valid and binding award.

"RULES AND REGULATIONS

"12. The Secretary may prescribe and enforce rules and regulations governing the delivery and diversion of waters hereunder, but such rules and regulations shall be promulgated, modified, revised, or extended from time to time only after notice to the State of Arizona and opportunity is given to it to be heard. Arizona agrees for itself, its agencies and water users that in the operation and maintenance of the works for diversion and use of the water to be delivered hereunder, all such rules and regulations will be fully adhered to.

"AGREEMENT SUBJECT TO COLORADO RIVER COMPACT

"13. This contract is made upon the express condition and with the express covenant that all rights of Arizona, its agencies and water users, to waters of the Colorado River and its tributaries, and the use of the same, shall be subject to and controlled by the Colorado River Compact signed at Santa Fe, New Mexico, November 24, 1922, pursuant to the Act of Congress approved August 19, 1921 (42 Stat. 171), as approved by the Boulder Canyon Project Act.

"EFFECTIVE DATE OF CONTRACT

"14. This contract shall be of no effect unless it is unconditionally ratified by an Act of the Legislature of Arizona, within three years from the date hereof, and further, unless within three years from the date hereof the Colorado River Compact is unconditionally ratified by Arizona. When both ratifications are effective, this contract shall be effective.

"INTEREST IN CONTRACT NOT TRANSFERABLE

"15. No interest in or under this contract, except as provided by Article 7 (1), shall be transferable by either party without the written consent of the other.

"APPROPRIATION CLAUSE

"16. The performance of this contract by the United States is contingent upon Congress making the necessary appropriations for expenditures for the completion and the operation and maintenance of any dams, power plants or other works necessary to the carrying out of this contract, or upon the necessary allotments being made therefor by any authorized Federal agency. No liability shall accrue against the United States, its officers, agents, or employees by reason of the failure of Congress to make any such appropriations or of any Federal agency to make such allotments.

"MEMBER OF CONGRESS CLAUSE

"17. No Member of or Delegate to Congress or Resident Commissioner shall be admitted to any share or part of this contract or to any benefit that may arise herefrom, but this restriction shall not be construed to extend to this contract if made with a corporation or company for its general benefit.

"DEFINITIONS

"18. Wherever terms herein are defined in Article II of the Colorado River Compact or in Section 12 of the Boulder Canyon Project Act, such definitions shall apply in construing this contract.

"19. IN WITNESS WHEREOF the parties hereto have caused this contract to be executed the day and year first above written.

"THE UNITED STATES OF AMERICA,
"By (Signed) HAROLD L. ICKES,
Secretary of the Interior.
"STATE OF ARIZONA, acting by and through its COLORADO RIVER COMMISSION,
"By (Signed) HENRY S. WRIGHT, *Chairman,*
"By (Signed) NELLIE T. BUSH, *Secretary.*

"Approved this 7th day of February 1944.
"(Signed) SIDNEY P. OSBORN, *Governor of the State of Arizona.*"

Mr. WHITE. Mr. Chairman, a parliamentary inquiry? I would ?
State of Arizona, signed on behalf of the United States on the 7th day ?
made by whom; what the agreement is, and by whom it was made?

Chairman MURDOCK. Mr. Carson, will identify it?

Mr. CARSON. This is a contract between the United States and the State of Arizona, signed on behalf of the United States on the 7th day of February 1944, by Harold L. Ickes, Secretary of the Interior, and signed on behalf of the State of Arizona by its Colorado River Commission, by Henry S. Wright, chairman, and Nellie T. Bush, secretary, and by Sidney P. Osborn, Governor of the State of Arizona. I might add that this contract required ratification by the Arizona Legislature, and it was ratified before the end of February 1944, and the Colorado River compact was also ratified before the end of February 1944.

Mr. WHITE. Did such a contract by the Secretary of the Interior require the ratification by the Congress?

Mr. CARSON. No, sir.

Mr. PHILLIPS. The other day Mr. White asked, and I am a little confused at this point, about the right of the Secretary of the Interior to apportion the waters of the Colorado, and it seemed to me the answer was "No." I am not questioning it; I just do not understand how he can apportion the water. I think the answer to Mr. White's question the other day was, it had to be an agreement between the three lower basin States.

Chairman MURDOCK. As I understand this apportionment, if it can be called that, is under the law; it is in conformity with the act of 1928, the Boulder Canyon Project Act. I think that probably is the Secretary's authority for entering into such a contract.

Mr. PHILLIPS. Well, Mr. Carson, did not the Secretary, in the statement you just read or the agreement you just read, say something about the quality of the water?

Mr. CARSON. No, sir; none of them, so far as I know, say anything about the quality of the water.

Mr. PHILLIPS. Was not there a memorandum, then, from the Secretary which accompanied it at the same time and, to all intents and purposes became a part of it, that should be put in the record right here, which might be called an explanatory memorandum regarding this contract you have just read?

Mr. CARSON. Not so far as I know. This is the entire contract between the United States and the State of Arizona.

Mr. PHILLIPS. I think there is a memorandum, Mr. Chairman; and, if there is such, I think we ought to put it in at this point, so that it can be read in connection with this contract.

Chairman MURDOCK. If there is such a memorandum from the Secretary of the Interior, it may be incorporated.

Mr. CARSON. There is a provision here that we all have to comply with, including California.

Mr. PHILLIPS. If I may pursue that, I think maybe I was wrong in my question. I think what I had in mind was the reference to whether it was III (a) or III (b) water, and I think the Secretary did say something about that.

Mr. CARSON. No. It does not specify.

Mr. PHILLIPS. It does not say definitely, but does not he specify that he cannot decide that?

Mr. WHITE. Let us turn back to III (a) and III (b). I distinctly remember three different references to the contract referred to in the agreement.

Mr. CARSON. No; not in the water to be supplied to us.

Mr. WHITE. I mean in the document you read there.

Mr. CARSON. Let me say that it is not Arizona's contention that by this contract the Department of the Interior has undertaken to settle any dispute between Arizona and California. They felt they should not do that.

Mr. WHITE. Read that language you read before.

Mr. CARSON. Let me go back here for a minute to Mr. Phillips' prior question. The Boulder Canyon Project Act provides that contracts respecting water for irrigation and domestic uses shall be for permanent service and shall conform to paragraph (a) of section 4 of this act "that no person shall have or be entitled to have the use for any purpose of the water stored as aforesaid, except by contract made as hereinafter stated."

And the claim of right by every California agency to the water from Lake Mead is based upon contracts with the Secretary of the Interior, as is our right, and on that basis they are all in an equal status.

Chairman MURDOCK. Are those firm contracts?

Mr. CARSON. No, sir; they are just exactly the same as ours are. I will refer to that question in a minute. They are not firm contracts, and there is no firm commitment on the part of the United States to deliver any specified quantity of water to California. It is always subject to its availability for use in California, under the Colorado River compact and the Boulder Canyon Project Act.

Mr. PHILLIPS. I think maybe Mr. White has asked a very important question there. I have the memorandum I referred to in my hand.

Mr. CARSON. What was that—a press release or something?

Mr. PHILLIPS. Yes; a press release which accompanied the memorandum. This press release had three paragraphs and then contained in full the memorandum of February 2; but evidently there was some question of authority which Mr. White asked about. Is not there something in the contract where he reserves to the States the right to contract?

Mr. CARSON. Oh, surely; but he does not undertake to settle these questions. But let me go back to what I said. I did not undertake to say that by this contract the Department of the Interior has agreed to deliver to Arizona or specifically named III (a) water. They do not name III (a) water, but they do provide that this water is to be delivered from Lake Mead. That is the only authority that the Secretary has, as I understand it, to make contracts for the water of the Colorado River, that water which can be stored in Lake Mead created by Boulder Dam. I want to call your attention to the location again on that. Here [indicating] is Boulder Dam away up here. Now, the way we construe all of these documents and statutes and contracts is that the upper basin States are required to deliver at Lee Ferry an average of 7,500,000 acre-feet each year. That water comes on down and is augmented by the Little Colorado River out of Arizona and some small streams out of northern Arizona and one, I believe, going into Utah until it reaches Boulder Dam where it is there stored.

Now, the Secretary's authority to make contracts for the delivery of water is limited to water stored behind Boulder Dam or as may be later stored by any dam authorized by Congress. Generally speaking, I will agree that the Secretary of the Interior does not own the water of the Colorado River; that it is owned by the States and is subject to appropriation in accordance with their respective laws, and in the Colorado River Basin all of us have the right of prior appropriation. But under the act of Congress which I have read, the Secretary is authorized to make contracts for the delivery of water stored in Lake Mead, and that is what our contract provides—that from the water stored in Lake Mead, which is up here [indicating], the Secretary shall deliver so much water as may be necessary for the beneficial consumptive use for irrigation and domestic uses in Arizona of a maximum of 2,800,000 acre-feet; again, however, subject to its availability for use in Arizona under the provisions of the compact and the Boulder Canyon Project Act. So that clearly excludes from this contract any part of the Gila River water and relates to water that is delivered at Lee Ferry, which is subject to all of those applications.

Chairman MURDOCK. You could not call that a firm contract, then?

Mr. CARSON. No, sir; we do not. It is a contract for delivery in Arizona of a quantity of water, subject to its availability, for use in Arizona under the compact and the act.

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Chairman MURDOCK. But you do assert that it is on a par with all other contracts of such a character?

Mr. CARSON. Yes.

Mr. WHITE. I wonder if the witness could not proceed down to where the three provisions were mentioned, the B and A were mentioned in the contract. I would like to get that in the record. That was in the contract.

Mr. CARSON. I think, Mr. White, that what I was referring to in this contract was the provisions of paragraph 7 and in this paragraph the language is also divided into A and B. But I will also refer to the part that concerns the reservations.

Mr. WHITE. The gentleman from California asked the question.

Mr. CARSON. Yes. This is one of the reservations that I think you wanted brought out.

Paragraph 10 of this Arizona contract reads:

"Neither article seven, nor any other provision of this contract, shall impair the right of Arizona and other States and the users of water therein to maintain, prosecute, or defend any action respecting, and is without prejudice to, any of the respective contentions of said states and water users as to (1) The intent, effect, meaning, and interpretation of said compact and said act; (2) what part, if any, of the water used or contracted for by any of them falls within article III (a) of the Colorado River Compact; (3) what part, if any, is within article III (b) thereof; (b) what part, if any, is excess or surplus waters unapportioned by said compact; and (5) what limitations on use, rights of use, and relative priorities exist as to the waters of the Colorado River system; provided, however, that by these reservations there is no intent to disturb the apportionment made by Article III (a) of the Colorado River Compact between the Upper Basin and the Lower Basin."

Chairman MURDOCK. In other words, that simply means the contract is made subject to the Boulder Canyon Project Act.

Mr. CARSON. Yes; and the Colorado River compact.

Chairman MURDOCK. Exactly.

Mr. FERNANDEZ. Mr. Chairman, since the contract is in evidence in aid to a proper understanding of the Boulder Canyon Act and its interpretation by the Department, should we not also have whatever is contained in the press release, as a part of the record?

Chairman MURDOCK. I think that is pertinent.

Mr. PHILLIPS. I think it would be helpful if we did put in this Bureau of Reclamation release of February 10, 1944, and following the three preliminary paragraphs is found the statement that Secretary Ickes issued the following memorandum, and this is the paragraph I had in mind, and I quote:

"I have considered carefully the objections made by California in its printed brief and at the hearing before me on February 2. California is fearful that subdivisions (a) and (b) of article 7 construed together create an inference that a maximum of 2,800,000 acre-feet which the United States agrees to deliver under subdivision (a) is water apportioned to the lower basin under article III (a) of the compact and that Arizona could contend, to California's prejudice, that this constituted an administrative determination that Arizona was entitled by this contract to 2,800,000 acre-feet of III (a) water. I am convinced that California's fears in this respect are unfounded for at least two reasons. First, I wish to make it clear and to emphasize that the delivery of water under both subdivision (a) and subdivision (b) of article 7 is expressly 'subject to its availability under the Colorado River compact and the Boulder Canyon Project Act.' The proposed contract does not attempt to obligate the United States to deliver any water to Arizona which is not available to Arizona under the terms of the compact and act. Secondly, article 10 was purposely designed to prevent Arizona, or any other State, from contending that the proposed contract, or any provision of the proposed contract, resolves any issue on the amounts of water which are apportioned or unapportioned by the compact and the amounts of apportioned or unapportioned water available to the respective States under the compact and the act. It expressly reserves for future judicial determination any issue involving the intent, effect, meaning, and interpretation of the compact and act. The language of article 10 is plain and unequivocal and adequately reserves all questions of interpretation of the compact and the act."

In other words, that just says again that this committee cannot determine the allocation of the water.

Mr. CARSON. I am not asking the committee to determine the allocation of the water, and I will make that clear before I have finished.

Mr. WHITE. Why not have the entire memorandum made a part of the record.

Chairman MURDOCK. You wish the entire memorandum in the record?

Mr. PHILLIPS. I think that will be all right. I only read the one paragraph. And I did not read the entire release.

(The statement referred to follows:)

"DEPARTMENT OF THE INTERIOR—INFORMATION SERVICE—BUREAU OF RECLAMATION

"For immediate release Thursday, February 10, 1944 W

"Secretary of the Interior Harold L. Ickes announced today he had signed, on behalf of the United States, a contract to deliver to the State of Arizona annually 2,800,000 acre-feet of Colorado River water from storage in the Bureau of Reclamation's Boulder Dam Reservoir, subject to its availability for use in Arizona under the provisions of the Colorado River compact and the Boulder Canyon Project Act.

"Commissioner of Reclamation Harry W. Bashore said the contract would become effective when ratified by the Arizona Legislature and when this body unconditionally ratifies the Colorado River compact. The legislature, on March 25, 1943, voted to ratify the compact, provided a contract for the delivery of water from Lake Mead was executed between the United States and Arizona.

"The Secretary signed the contract after considering fully the objections presented by the State of California in a hearing on February 2 and representations made by the State of Arizona in reply. The contract had previously been approved by the committee of fourteen, which is composed of two representatives of each of the seven Colorado River Basin States. All members of the committee except those from California approved the agreement which the Secretary has now signed.

"In announcing his decision, Secretary Ickes issued the following memorandum:

"Memorandum re hearing February 2 on California's objections to the proposed contract between the United States and Arizona for the delivery of water from Lake Mead

"There has been submitted to me for approval and execution a proposed contract between the United States and the State of Arizona for the delivery of water from Lake Mead for use in Arizona. Section 5 of the Boulder Canyon Project Act authorizes me to contract for the storage and delivery of water impounded by Boulder Dam. Under subdivision (a) of article 7 of the proposed contract the United States agrees to deliver annually from storage in Lake Mead for use in Arizona a maximum of 2,800,000 acre-feet of water, subject to its availability for use in Arizona under the provisions of the Colorado River compact and the Boulder Canyon Project Act, and under subdivision (b) of article 7 the United States agrees to deliver one-half of any excess or surplus water unapportioned by the compact to the extent such water is available for use in Arizona under the compact and act. The contract is conditioned upon the unconditional ratification of the compact by Arizona.

"'The proposed contract was drafted by the committee of fourteen after the Arizona Legislature last spring passed an act contingently ratifying the compact—the contingency being the execution and ratification by the legislature of a contract for the delivery of water from Lake Mead. Representatives of the Bureau of Reclamation worked closely with the committee and made a number of modifications which were accepted by the committee and Arizona. Bureau representatives, under my instructions, have taken the position throughout the negotiations that any contract proposed should not commit the Department as to any controversial issue regarding the amounts of water available to Arizona, or to any compact State, under the compact and the act. The proposed contract has been approved by the representatives of each of the Colorado River States, except California.

"'I have considered carefully the objections made by California in its printed brief and at the hearing before me on February 2. California is fearful that subdivisions (a) and (b) of article 7 construed together create an inference that the maximum of 2,800,000 acre-feet which the United States agrees to deliver under subdivision (a) is water apportioned to the lower basin under article III (a) of the compact and that Arizona could contend, to California's prejudice, that this constituted an administrative determination that Arizona was entitled by this contract to 2,800,000 acre-feet of III (a) water. I am convinced that

California's fears in this respect are unfounded for at least two reasons. First, I wish to make it clear, and to emphasize, that the delivery of water under both subdivision (a) and subdivision (b) of article 7 is expressly "subject to its availability under the Colorado River compact and the Boulder Canyon Project Act." The proposed contract does not attempt to obligate the United States to delivery any water to Arizona which is not available to Arizona under the terms of the compact and act. Secondly, article 10 was purposely designed to prevent Arizona, or any other State, from contending that the proposed contract, or any provision of the proposed contract, resolves any issue on the amounts of waters which are apportioned or unapportioned by the compact and the amounts of apportioned or unapportioned water available to the respective States under the compact and the act. It expressly reserves for future judicial determination any issue involving the intent, effect, meaning, and interpretation of the compact and act. The language of article 10 is plain and unequivocal and adequately reserves all questions of interpretation of the compact and the act.

" 'It is my opinion that I have authority under section 5 of the act to execute such a contract as is proposed to be made with Arizona. The Department has made contracts with California and Nevada for the delivery of waters from Lake Mead subject to its availability under the compact and act. Now that Arizona has agreed to ratify the compact, it is my opinion that Arizona is entitled to be accorded the same consideration that the Department has accorded to California and Nevada. Accordingly, I have decided to approve and execute the proposed contract with Arizona.

" 'HAROLD L. ICKES,
" '*Secretary of the Interior.*

" 'FEBRUARY 9, 1944.' "

"California and Arizona have been at odds for more than 20 years over the division of the waters of the Colorado River system. The fundamental controversy between the two States concerns the amount of water to which each State is entitled under the compact and the Boulder Canyon Project Act.

"The dispute dates back to 1922 when six of the seven States in the Colorado River Basin agreed to the Colorado River compact which apportioned the waters from the main river and its tributaries to the upper and lower basins. Arizona was the lone objector. Subsequently, the legislatures of all States, except Arizona, ratified the compact.

"In 1928 the Congress passed the Boulder Canyon Project Act, which provided that the act would not become effective until the California Legislature agreed to limit its use to 4,400,000 acre-feet of water apportioned in article III (a) of the compact, plus one-half of the excess or surplus unapportioned water. California passed such a limitation act in 1929."

Mr. CARSON. That does not specify that it is III (a) water, of course.

Mr. PHILLIPS. No.

Mr. CARSON. Nor does the California contract specify that. I want to read now from the water contract of the metropolitan water district, which contains a clause similar to the other contracts. I am reading from page 300 of what we call the "Hoover bible," "The Hoover Dam Contracts—Wilbur and Ely," coming down to the part of the contract dealing with "Delivery of water by the United States," under explanatory recitals, number (6), is found this language:

"The United States shall, from storage available in the reservoir created by Hoover Dam, deliver to the district each year at a point in the Colorado River immediately above the district's point of diversion (at or in the vicinity of the proposed Parker Dam) so much water as may be necessary to supply the district a total quantity, including all other waters diverted by the district from the Colorado River, in the amounts and with priorities in accordance with the recommendation of the chief of the division of water resources of the State of California, as follows (subject to the availability thereof for use in California under the Colorado River compact and the Boulder Canyon Project Act):"

That is exactly the same provision that is in the Arizona contract, as far as that is concerned. And then it goes ahead and says:

"The water of the Colorado River available for use within the State of California under the Colorado River compact and the Boulder Canyon Project Act shall be apportioned to the respective interests below named and in amounts and with priorities therein named and set forth, as follows—"

That is, waters of the Colorado River available for use within the State of California under the Colorado River compact [continuing]:

"SECTION 1. A first priority to Palo Verde irrigation district for beneficial use

exclusively upon lands in said district as it now exists and upon lands between said district and the Colorado River, aggregating (within and without said district) a gross area of 104,500 acres, such waters as may be required by said lands."

Then, continuing with the priorities, and coming down to section 7, we find this language:

"A seventh priority of all remaining water available for use within California, for agricultural use in the Colorado River Basin in California, as said basin is designated on map No. 23000 of the Department of the Interior, Bureau of Reclamation."

All that these so-called California contracts amount to, as I see, are merely agreements between the State of California agency as to priority of rights in the use of such water as may be available for use in California under the compact and the act, and the Secretary agrees to deliver whatever water is available in accordance with those priorities.

So that I do not want any inference to be drawn one way or the other that there is any distinction between the availability of water to California and to Arizona. The Department has not undertaken to determine or to settle questions as between them. But my contention is that California, by her limitations act, required to be passed by the Boulder Canyon Project Act, has definitely and permanently, if the good faith of the State of California means anything, precluded herself from claiming any part of III (b) water. There cannot be any mistake about that; and—"further, until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona—" and the other basin States——

Chairman MURDOCK. From what are you reading now?

Mr. CARSON. From the Boulder Canyon Project Act, section IV.

Mr. PHILLIPS. Mr. Chairman, we are about to recess, and I just want to say, Mr. Carson, that I am not quite clear with regard to the letter of Mr. Hoover, and I was going to ask you if you would care to comment on the comparison between the statements in that letter—and I have not had an opportunity to read them—and the letter which Mr. Hoover wrote on January 25, 1923, when the matter was still very fresh in his mind, apparently, to Senator Hayden. You are familiar with that, are you not, in which he set out definitely in reply to Senator Hayden's questions, the understanding arrived at in conferences in connection with the compact?

Mr. CARSON. I am not prepared to answer now as to what Mr. Hoover said, whether there are any conflicts.

Mr. PHILLIPS. I am not sure that there are.

Mr. CARSON. I do not know; I am not familiar with all of the statements.

Chairman MURDOCK. Gentlemen of the committee, the House is now in session. Anxious as I am to continue the hearings and to conclude them as soon as possible, I am wondering about a session this afternoon.

Mr. WHITE. Mr. Chairman, the debates in the House this afternoon are of paramount importance to all the people of the United States.

Chairman MURDOCK. They certainly are.

Mr. WHITE. And I personally will not be able to be here.

Mr. PHILLIPS. It is my desire to be on the floor, Mr. Chairman. We have a conference report coming up this afternoon.

Chairman MURDOCK. Without objection, the committee will stand adjourned.

(At 12:10 p. m., the hearing was adjourned to meet at 7:30 o'clock the following evening, Tuesday, July 9, 1946.)

HOUSE OF REPRESENTATIVES,
COMMITTEE ON IRRIGATION AND RECLAMATION,
Washington, D. C., Tuesday, July 9, 1946.

The committee met at 7:30 p. m., Hon. John R. Murdock (chairman) presiding.

Chairman MURDOCK. The committee will come to order, please. This is a little unusual for this committee, to hold an evening session, but in view of the crowded legislative program we thought that it would be the best thing to do.

This hearing is a continuation of the hearings on H. R. 5434. Mr. Carson, of Arizona, was on the stand at the close of our last session.

Mr. Carson, you had not completed your statement?

FURTHER STATEMENT OF CHARLES A. CARSON

Mr. CARSON. No.

Chairman MURDOCK. Would you like to continue perhaps without interruption for a while?

Mr. CARSON. Yes. I would like to get my testimony as clear and concise in the record as I can, and then I will be glad to answer questions.

When the committee adjourned yesterday, I had just stated that the Arizona Legislature had ratified the contract and the Colorado River compact, and I would like to put into the record the reference to the act, chapter 4 of the session laws of the first special session of the 1944 legislature, printed in the 1945 Session Laws of Arizona, which ratified the contract between the United States and the State of Arizona and was approved by the Governor on February 24, 1944. That is the contract that is now in the record of this committee which was signed on February 9, 1944.

Chapter 5 of the same session laws of that special session ratified the Colorado River compact. That was likewise approved by the Governor on February 24, 1944.

Chapter 6 appropriated $200,000 for a cooperative survey with the Bureau of Reclamation, which survey has progressed rapidly but has not yet been completed. That act likewise was approved by the Governor on February 24, 1944.

So, with these acts, the Colorado River compact became fully effective between all the States of the Colorado River Basin and the contract between the United States and the State of Arizona became fully effective.

Now, I would like to correct myself in one particular. We have discussed this basin so many times and have always talked about the upper basin States being composed of Wyoming, Colorado, Utah, and New Mexico. Part of Arizona is also in the upper basin—this dotted line being the dividing point [indicating at map]. We have talked about the lower basin being California, Arizona, and Nevada, but a part of Utah, the southwest corner of Utah, is also a part of the lower basin, as is the western part and southwestern part of New Mexico, this [indicating at map] being the dividing line in New Mexico.

We have been talking also of the 2,800,000 acre-feet of water to be delivered to Arizona by this contract. That is not the exact amount; it is subject to reductions by virtue of the use in those portions of Utah and New Mexico which are in the lower basin, and by some other matters that will be discussed by Mr. Baker, our engineer, when he gives the figures on the water supply.

Then, I would like to go back a moment to the statement that California agencies were required to underwrite and guarantee the cost of Boulder Dam. That is not accurate in the ordinary acceptance of the term "underwrite and guarantee." Actually, the dam was built by appropriations by Congress, and the California agencies contracted to buy power at so much a kilowatt-hour, which in the judgment of the Secretary of the Interior was sufficient to assure repayment of the cost, but they never did underwrite or guarantee that cost in the ordinary acceptance of the term. They merely buy electrical energy at a very favorable rate and pay for whatever they receive.

There was at that time reserved for Arizona 18 percent of the power at Boulder Dam, which has now been reduced, which Arizona is trying to get at the same rate California gets and which California is fighting. So there never was any underwriting or guaranty. If Boulder Dam were destroyed tonight California would owe the United States nothing at all; it would be the United States loss.

That, in the main, is the sole source of revenue for the repayment of the dam's cost, except that the metropolitan water district and the city and county of San Diego agree to pay 25 cents per acre-foot in storage for the delivery of water to them for domestic purposes, and the State of Nevada agreed to pay 50 cents per acre-foot for the diversion directly from Lake Mead.

Now the present situation of the use of water in the basin.

The upper basin States are at this time using a little less than 2,500,000 acre-feet. California, under its priority system, is using——

Mr. PHILLIPS. What was that word that you used?

Mr. CARSON. Priority system—under its priority system.

Mr. WHITE. Does that mean superior water rights?

Mr. CARSON. I mean under their domestic priority, in California, the total delivered to California, as I understand it, is approximately 2,600,000 acre-feet, or perhaps 2,700,000 acre-feet now.

The metropolitan water district, under the California system of priorities, has

1,100,000 acre-feet ultimate, of which they had diverted up to last year not more than 60,000 acre-feet in any one year, according to my understanding.

Arizona, out of the main stream, used—including those on the Little Colorado system, which is entirely within Arizona—has been using, consumptively using, between 400,000 and 500,000 acre-feet, the exact figures as to which Mr. Baker will give you.

That is the draft in the United States on the river which has not yet reached any close approximation of the ultimate apportionment or rights to any of the States.

It was suggested here that Aridona needed an underground water code. We know that we need an underground water code. The legislature at a special session in September appropriated $40,000 for a cooperative survey with the United States Geological Survey of the underground water resources of Arizona upon which to base an intelligent and workable underground code. It is hoped that will be presented to, and result in a law at the next session of, the legislature. But that is not any of California's business as to whether or not we have an underground code. We need it for our own protection and the protection of existing developments, and that is the reason that we are adopting it.

It has also been suggested here that we should, prior to the diversion of any water into Arizona, establish, as California did, a schedule of priorities. Bear in mind, please, that of the 2,800,000 acre-feet of water we are now using between 400,000 and 500,000 acre-feet only.

The surveys of the Bureau of Reclamation, and the location for the use of the balance of our water are not yet determined. The central Arizona bill is not yet ready for hearing because the Bureau's reports are not ready or available. We will in all respects abide by, without question, our agreement with the United States that we agree that California can use water up to the limit available to it under its own Limitation Act, and we do not propose to infringe in any way whatsoever upon that. We do figure that out of the 2,800,000 acre-feet there is ample water for the irrigation of the Wellton-Mohawk area, that part of the Yuma Mesa which is to be reauthorized and the central Arizona diversion, and we intend to confine those diversions to the quantities of water which are good for all time and firm without any regard at this time to the use in Arizona of any of the surplus water of the river. That we propose to take up and work out at a later date.

Now it has also been suggested here that all developments in the basin should cease until water is allocated as between the States. I respectfully call the committee's attention to the Colorado River compact which makes a division of the water from the Colorado River between the upper basin and the lower basin which all of us are now parties to, including Arizona and California. I respectfully call the attention of the committee again to the California Limitation Act which, together with the Arizona contract, has by agreement of California and Arizona effected a division between them of the water allocated to the lower basin. It is true it is not a direct agreement between the two States, but if California lives up to her commitments and Arizona to her commitments, the commitments are made.

California agreed with the United States, for the benefit of Arizona, that the uses in California should never exceed 4,400,000 acre-feet of III (a) water plus not more than one-half of the surplus, or water unapportioned by the compact. They made that limitation agreement irrevocably and unconditionally and expressly for the benefit of Arizona. Arizona likewise made an agreement with the United States under which Arizona agreed that she recognizes the right of the United States to contract and deliver to California water, to the extent of the water available for use in California under its Limitation Act, and Arizona at any rate proposes to live up entirely to its agreement.

If California would live up to the letter and spirit of the agreement, this controversy would not have been raised here, as we see it.

California's position, as we understand it here, is: Of course, you will not interfere with us, our use of 4,400,000 acre-feet of water apportioned to the lower basin by article III (a) of our compact, or to our right to use one-half of the surplus, but we will see—and this, to me, seems to be California's position—as far as we are able that you are not able to use the 2,800,000 acre-feet which we have agreed we will never use, and which, if not used in Arizona, cannot lawfully be used anywhere else in the United States, including California.

So all that we ask of California is, if they cannot help us, to see that they maintain the position now and all the rest of the time that they will live up to the

agreements they have already made under the Colorado River compact and the California Limitation Act.

Mr. PHILLIPS. I have not understood that from the testimony so far, but I do not want to interrupt the witness.

Chairman MURDOCK. We will continue.

Mr. CARSON. May I continue and try to make that plain again, Mr. Phillips? California has ratified and is bound by the Colorado River compact, which divides the water between the upper and lower basin. California is bound by the Limitation Act of the California Legislature, which in express terms limits use in California to 4,400,000 acre-feet, plus not more than half of the surplus. The compact apportions the lower basin 8,500,000 acre-feet. Now, the 2,800,000 acre-feet which we are claiming in this hearing cannot lawfully be used in California under the California Limitation Act, and you have agreed for our benefit that it cannot; yet the apparent attempt here is to prevent its being used in Arizona. We can only come to one conclusion on that, that the spokesmen for California agencies are now trying to lay the groundwork to avoid the Colorado River compact and the California Limitation Act.

It seems to me that their attitude is this: Of course, we signed the Colorado River compact; we ratified it. Of course, we passed the California Limitation Act, but we got for those acts of ours the construction of Boulder Dam and our California contracts. We have received all of the considerations that would ever possibly come to us; therefore, those compacts and the Limitation Acts are of no further use to us, so we will seek some way to avoid them and stop Arizona from using the water which we have agreed that we cannot use and which cannot lawfully be used anywhere else in the United States.

Now that position, taken in conjunction with the question of the Pilot Knob power plant and the development of lands in Mexico, seems to us to indicate that there is still in the back of the minds of the California spokesmen the thought that some day somehow they either might avoid these limitations on California use or aid in the development of Mexico at the expense of the United States and Arizona.

There has been a lot of free advice given to Arizona. I would just like to give a little to California—that they recognize now the sanctity and the validity of the Colorado River compact and the California Limitation Act, and that the State of California in its sovereign capacity and the good people of California see that its spokesmen do not take any action which would involve the breach of either of them and involve the good faith and the integrity of the commitments of the sovereign State of California, made in the most solemn way known to man—by compact with the other States and by agreement with the Government of the United States.

Now, I have one further statement, that if this Pilot Knob question and the question of the Mexican lands could be eliminated from California's consideration, or ours, I think that it would be very helpful in creating better relationships between California and Arizona.

After all, we are a part of the same trade territory and economic section of the United States, and we should be helping one another; we should not always be fighting one another.

Mr. PHILLIPS. Of course, Mr. Chairman, that is the way that we felt when the Mexican Water Treaty was under consideration.

Mr. CARSON. Now, I will have to go into that again for a moment—the Mexican Water Treaty.

The Imperial irrigation district was delivering water to Mexico and being paid for the delivery of the water to Mexico and increasing the use of the water in Mexico to where in 1943 and 1944 Mexico had used 1,800,000 acre-feet of water, and that use was rapidly expanding. As we see it, as we saw it then, and we see it at present, it was necessary for the benefit of all the States of the Colorado River Basin, including California, insofar as she wanted to use water within the borders of California, that there be fixed on Mexico for all times an over-all all-time limit on its claim of right of water from the Colorado River and stop that development. That was our purpose, our sole purpose, in supporting the treaty.

Now, the treaty makes these provisions that are necessary, as we see it, in order that we, and all the States of the basin, can get credit for the return flow in the main stem of the river, limiting Mexico's claim for water through the All-American Canal and Pilot Knob power plant to 500,000 acre-feet a year to 1980, and thereafter to 375,000 acre-feet.

Our engineers have estimated that with the desilting water that is necessary

to flow through the Imperial Dam and the return flow, mainly from Arizona projects, there will be in the main stream of the river approximately 1,000,000 acre-feet.

Mr. PHILLIPS. From what source?

Mr. CARSON. From the return flow from the Arizona projects, and the desilting water that must pass through the Imperial Dam.

Mr. PHILLIPS. One million acre-feet?

Mr. CARSON. Approximately 1,000,000 acre-feet. That is the reason for the limitation through the All-American Canal to 500,000 acre-feet. The two together make the 1,500,000, and they played safe by cutting that down after 1980 to 375,000 acre-feet, figuring that by that time there might be 1,125,000 acre-feet of return flow available in the main stream of the river under the Mexican schedules set out.

Mr. PHILLIPS. May I ask you something there? Will you point out these other projects in Arizona that you have been talking about at various times? Will you point out the Salt River project? I thought that while you were at the map it might be a wise thing if you did that.

Mr. CARSON. That has not been worked out in detail, Mr. Phillips. The plan of the Bureau and of Arizona has not yet been worked out.

Mr. PHILLIPS. You have spoken of the San Carlos and Salt River as parts of the Gila system; is that right?

Mr. CARSON. Yes.

Mr. PHILLIPS. Could you just put your finger on it for me?

Mr. CARSON. Let me make a little more general statement.

The present plan is to build Bridge Canyon Dam on the main stream of the river, and from there divert through this tunnel and canal water to the Salt River above the Granite Reef Dam, and on over to the Gila River above the town of Florence.

Mr. PHILLIPS. That is what we call the central Arizona project?

Mr. CARSON. Yes.

Mr. PHILLIPS. What are the ones there now in the Gila system?

Mr. CARSON. The ones that are there now, the Yuma Mesa and the Wellton-Mohawk, all of which return flow enters the river below the Imperial Dam.

Mr. PHILLIPS. Where is San Carlos?

Mr. CARSON. Over here [indicating].

Mr. PHILLIPS. And where is Salt River?

Mr. CARSON. In the central part of the State.

Mr. WHITE. While the witness is at the map, I wish that he would indicate where the Central Valley is in Arizona. Is it north or south of the present Salt River project?

Mr. CARSON. It is the same thing. We just call it the Bridge Canyon central Arizona project. We hope to get a workable project to present to this committee for the bringing of the main stream water from Bridge Canyon Dam through a tunnel and canal to the Salt River, and to the Gila River, to furnish supplemental supplies for these presently irrigated lands in those valleys which are very short of water.

Mr. PHILLIPS. How would you bring it over?

Mr. CARSON. By aqueduct. It is indicated here on this map. We hope also, by an exchange of water, to these lower lands, to release Gila River water for use upstream in the Safford and Duncan Valleys and over into the Virden Valley of New Mexico, so that all those valleys will have an adequate supply of water that will be there in the late summer when they need it. The engineers are now investigating and making detailed surveys to report on the Hooker Dam site in New Mexico as a storage site for the benefit of the lands below it on the Gila in New Mexico, and in Arizona above the Coolidge Dam.

Chairman MURDOCK. Before you leave there, is that part of New Mexico considered within the lower basin, and does that share in the 2,800,000 acre-feet of water?

Mr. CARSON. Yes. Mr. Fernandez, you were not here a minute ago. I wanted to explain to you for just a moment that we have been using rather loosely here the term "upper basin" as referring to Wyoming, Utah, Colorado, and New Mexico. That, in the main, is correct, and through the course of years we have all been talking that way, but actually the upper basin also includes a part of Arizona above this dotted line [indicating]. That is in the upper basin under the definition of the compact. We have been talking about the lower basin as California, Nevada, and Arizona, but actually the lower basin includes the western part of

New Mexico from this line [indicating] down. Also, it includes the southwest corner of Utah from this line over to the Nevada line [indicating].

Our contract with the United States recognizes the rights of those portions of those States in the lower basin to an equitable share of the water apportioned to the lower basin, and we deduct that share as calculated by the Bureau of Reclamation's engineers from 2,800,000 that will otherwise be deliverable to us at Lake Mead. There are certain other deductions that show that the 2,800,000 is a rough figure, but Mr. Baker, when he comes to the stand, will have the figures to show the reduced amount that we think we are entitled to under that contract.

Mr. FERNANDEZ. You spoke about bringing the water down the Colorado River through a tunnel to the Gila River land. That appears to be hundreds of miles.

Mr. CARSON. It is.

Mr. FERNANDEZ. There is no land closer to the source of supply?

Mr. CARSON. There is, but the lands, in the lower Gila Valley, around Florence, Casa Grande, and Coolidge are very short of water and so are the lands in the Safford and Duncan Valleys, by reason of the vested rights in the Florence, Casa Grande, and Coolidge area.

This year, for instance, in the Casa Grande, Florence, and Coolidge area those lands, from surface flow and pumping, will have less than nine-tenths of 1 acre-foot of water per acre this year, and the shortage extends clear up into Safford, Duncan, and the Virden Valley of New Mexico.

Mr. FERNANDEZ. That diversion is not involved in this bill?

Mr. CARSON. It is involved in the central Arizona bill, which is not yet ready for report, but which has been discussed by California as one reason for opposing this bill. But then out of the 2,800,000 acre-feet there will be, according to our figures, ample water to supply the central Arizona project and the Wellton-Mohawk Yuma Mesa project out of firm water, good for all time, involving no part of the surplus, and part of that water we plan to give to the lower users on the Florence, Casa Grande, and Coolidge area, so they will exchange upstream Gila water for use in the Safford, Duncan, and Virden Valleys.

Mr. PHILLIPS. Where are those—farther east than where we are talking about now? I mean those valleys?

Mr. CARSON. Yes; one is in New Mexico.

Mr. PHILLIPS. Did I understand you to say that this dam in New Mexico is a part of the central Arizona project?

Mr. CARSON. Yes.

Mr. PHILLIPS. Is that New Mexico water III (a) water?

Mr. CARSON. Yes; and deductible from our 2,800,000 acre-feet.

Chairman MURDOCK. That is New Mexico water by virtue of the fact that part of New Mexico is in the lower basin; is that right?

Mr. CARSON. Yes.

Mr. PHILLIPS. If that is III (a) water, how about the uses on the Gila westward; is that also III (a)?

Mr. CARSON. I will come to our theory of that later.

Coming back, then, to this Pilot Knob Mexican land question, if the United States paid the Imperial irrigation district for a proportionate cost of the Imperial Dam and of the All-American Canal down to and including Pilot Knob and its power plant adequately and fairly, then it would seem to me that we might avoid this thought of the Imperial irrigation district persuading the other California agencies to fight other States in order to maintain that proposition. And it would be fair and the United States contemplated that in its treaty with Mexico.

I would like to read into the record in that connection a portion of article XIV of the treaty between the United States and Mexico on the water question:

"In consideration of the use of the All-American Canal for the delivery to Mexico in the manner provided in articles XI and XV of this treaty, of a part of its allotment of the waters of the Colorado River, Mexico shall pay to the United States (a) a portion of the cost actually incurred in the construction of the Imperial Dam and the Imperial Dam-Pilot Knob section of the All-American Canal; this proportion and the methods of terms of repayment to be determined by the two governments, which for this purpose shall take into consideration proportionate uses of these facilities by the two countries, these determinations to be made as soon as Davis Dam and Reservoir are placed in operation."

That was contemplated in the treaty, and if there was any aid that Arizona

could give to the Imperial irrigation district in getting adequate compensation for that, we would be glad to do that.

Mr. PHILLIPS. Getting money for water is not always the kind of exchange that you want. I thought that the principal discussion here was on the quantity of water and, under the compact, what part was being charged against III (a) and III (b).

Mr. CARSON. This would involve the Imperial irrigation district surrendering not one drop of water that can be utilized in the United States. This would be only surrendering its right, or claimed right, which it had before the treaty was signed, to permit water to run through the All-American Canal and Pilot Knob into Mexico, which it was then selling to Mexico for money.

Mr. PHILLIPS. I think perhaps we are at cross purposes. The argument that I have heard here, and have been hearing every day, is whether there is enough water. Now the unanswered question still is, "What is the usable quantity of the water," and it seems to me that we have been rather disregaring the quantity of the water available. It seems to me that the people of California have not been attempting to tell the people of Arizona what they can do, but are attempting to find out how much water there is to do it with; is that not right?

Chairman MURDOCK. You are right about quantity of water being involved, but the main question is how much water is lawfully available, both in California and Arizona, and the point I think the witness is now trying to make is that so long as the Imperial irrigation district has an oversized canal with a sufficiently large capacity there is a strong temptation to deliver water to Mexico, which it was doing before the treaty was made, but which the treaty now modifies.

Now, our point is that if the United States Government would pay the Imperial irrigation district a certain cost of that canal down to the Pilot Knob plant and remove the temptation to furnish an overdue amount of water to Mexico for pay, for consideraion, and with the same produce power at Pilot Knob, it would undoubtedly release more water in the basin within the United States for diversion.

Mr. CARSON. And I think that it would take away a lot of this fight.

Mr. DOWD. The Imperial irrigation district has received not one penny for any water that has been run through the All-American canal and delivered to Mexico. Those arrangements have been made directly between the State Department of the United States and the Ministry of Foreign Affairs of Mexico. The financial arrangements are made between the two countries, and the Imperial district has not received one penny from any water run through the All-American canal and delivered to Mexico.

Mr. PHILLIPS. I was just making a note to bring that up later so as to not interrupt the witness, because that was not a deal with the Imperial irrigation district; it was a deal with the State Department.

Mr. CARSON. I will answer that right now. It was brought out in the hearings on the Mexican water treaty before the Senate Foreign Relations Committee, and it is printed in the record, that the financial transactions were between the Imperial irrigation district and its wholly owned subsidiary in Mexico, which owns all of the Alamo canal that serves Mexican lands, and it is all a matter of record in the hearings of the Senate committee. I do not want to get into too much argument here about it.

Chairman MURDOCK. Will you give the exact Senate hearing so that we may have that for the record? This record should show those references to the Senate hearings.

Mr. DOWD. The Imperial irrigation district has been delivering water through the old head gate that has served Mexico and also used to serve the Imperial Valley for many years.

Mexico has been paying the district for the rental of those works, but I repeat and the record will show that the Imperial district has not received 1 cent from the delivery of water through the All-American Canal to Mexico. It has been completely under the control of the United States Government and would be under the control of the United States Government under the All-American Canal contract, when we take over the control of the canal.

Mr. CARSON. The hearings to which I referred are entitled "Water Treaty With Mexico, Hearings Before the Committee on Foreign Relations, United States Senate, Sixty-ninth Congress, First Session, on Treaty With Mexico Relating to the Utilization of Water of Certain Rivers."

Chairman MURDOCK. Will you supply the page reference also?

Mr. CARSON. I will be glad to do so.

(The information requested is as follows:)

"Pages 401, 402, 438, volume 2, testimony of Phil Swing, of California; page 713, volume 3, testimony of M. J. Dowd, of California; pages 1644 to 1652, volume 5, testimony of Evon T. Hewes, of California, president of Imperial irrigation district."

Mr. WHITE. From reading the testimony I got the impression that the Pilot Knob project has not yet been constructed, and I did not know that there was any water being delivered through that source.

Mr. DOWD. May I clear that up? When the United States built the All-American Canal a spillway was necessary at Pilot Knob, and according to the plans worked out with the district, that spillway was constructed from the All-American Canal to the old Alamo Canal which diverts from the river at Pilot Knob. The plan was that the district would install a power plant alongside the spillway, and the discharge from that power plant, as well as from the spillway, could either go into Mexico or back to the river and down the river into Mexico, depending upon the treaty, or whatever arrangements the United States wanted to make.

The Imperial irrigation district did not have, does not now have, and would not in the future have, the control of the water that goes to Mexico by means of the All-American Canal and the old Alamo Canal.

Mr. WHITE. You keep mentioning the Imperial irrigation district. It is clear from the testimony that some district has been selling water to Mexico. I do not know whether it is the Imperial district or some other district.

Mr. DOWD. The Imperial irrigation district has been diverting water at the old heading called the Rockwood Gate, which was the diversion point for Mexico and the Imperial Valley from 1900 to 1942. Since the latter date, the water for the Imperial Valley has come through the All-American Canal. The old heading, which is owned by the Imperial irrigation district, has continued to be used with the sanction and at the request of the State Department for the delivery of water to Mexico.

Mexico got into trouble because the river surface dropped. The river eroded its bottom, and the district could not divert the Mexican demands through the old heading from the river, and by arrangements made between the United States Government and the Mexican Government, the United States diverted water into the All-American Canal, carried it down the canal to Pilot Knob and there turned it back into the old Alamo Canal through the Pilot Knob wasteway.

Mr. WHITE. What does Mexico pay for the service?

Mr. DOWD. Mexico, as far as I know, may have made a payment, but whatever payment Mexico makes for the use of the All-American Canal will be paid directly to the United States Government.

Ask the represenative of the Bureau of Reclamation right now. The Bureau of Reclamation made the recommendation to the United States of the amount of money that Mexico should pay for the use of the All-American Canal and that money paid by Mexico will be paid to the United States Government; is that not right?

Essentially is that not right? Has not the Bureau of Reclamation made the recommendation to the United States as to what Mexico should pay for the use of the All-American Canal? You refused to take into account Imperial district's wishes.

Mr. EATON. I hesitate to answer that without examining Bureau files.

Chairman MURDOCK. We will ask you to supply that information from the Bureau for the record.

Mr. EATON. The chairman requested the Bureau to supply information concerning whatever arrangements have been made by the Bureau of Reclamation relative to payments by the Government of Mexico for water delivered to Mexico through the All-American Canal by means of releases into the Pilot Knob wasteway and those into the Alamo Canal.

Article 27 of the treaty of February 3, 1944, with Mexica provides that, pending regular scheduled deliveries to Mexico subsequent to completion of Davis Dam, the United States will cooperate with Mexico in measures for meeting certain Mexican irrigation requirements. By request of the State Department of the United States, the Bureau of Reclamation delivered in 1944 and 1945 and is delivering in 1946 water through the All-American Canal for release into the Alamo Canal. The Secretary of the Interior has recommended to the Secretary of State the amounts which the Mexican Government should be requested to pay for such deliveries of water and the formula on which those payments are calculated.

Correspondence relative to the initiation of deliveries in 1944 is set forth at

pages 1731–1736 of part 5 of the printed hearings before the Senate Committee on Foreign Relations on the treaty of February 3, 1944. Deliveries in 1945 and the current deliveries are being made on conditions in general similar to those set forth in the 1944 correspondence referred to, particularly in Secretary Ickes' letter of August 14, 1944, to Secretary of State Hull.

The amounts which the Department has recommended to the State Department as payment by Mexico for this service are based primarily on (1) a "capital charge," consisting of a payment, on the basis of the proportionate part of each year in which the canal was in part devoted to serving Mexican needs of the pro rata share of the annual amount necessary to amortize the construction cost of the works involved over a 40-year period with interest at 3 percent, the pro rata share being based on Mexico's portion of the total canal discharges during the period of use to serve her needs, and (2) on an "operation and maintenance charge," covering all costs of operation and maintenance properly allocable to the delivery of water for Mexican use. Whatever other costs and expenses that are entailed by the Bureau in connection with this special use of the canal have been included in the Department's recommended charges. For the year 1944, the Department recommended a payment by Mexico of $51,471.06, and for the year 1945 a payment of $106,885.92 was recommended. Determination of the amount to be recommended for 1946 awaits completion of deliveries.

Mr. PHILLIPS. I would like to support Mr. White's motion again, that this subcommittee go out and look at all of this. I am learning something every day, and I represent one of the areas involved.

Mr. WHITE. The present testimony is somewhat confused. I am under the impression that the All-American Canal was built for and financed by these California irrigation districts, and that the United States built it and they paid the costs, to be repaid by these California water users. Now they are talking about revenue to the United States from Mexico for the use of this All-American Canal. If these districts financed the construction of the canal, why do they not get the charges that are made against Mexico?

Mr. DOWD. The United States says that this money that it receives, if and when it receives any money from Mexico for this past service during 1944, 1945, and this year, some part of it will be credited against the All-American Canal. But you make the very point that we have made.

This canal was built under a contract between the United States and the Imperial district and the Coachella district, whereby those districts guaranteed the repayment of every dime of cost to the United States, but when it came to utilizing that canal that those districts were obligated to pay for, for the benefit of Mexico, the Imperial district and the Coachella district were given no consideration whatsoever.

Mr. CARSON. The point that I am trying to make here, that by that statement it seems to me that if the United States pays the Imperial district a proportionate part of the cost of the Imperial Dam and the All-American Canal to Pilot Knob; and for the power privilege at Pilot Knob if necessary, then this question of the Imperial irrigation district getting California to fight the other States will be largely eliminated. It seems to me it would be further eliminated if the Imperial irrigation district, which now owns all of the stock, as I understand it, of a Mexican subsidiary corporation incorporated under the laws of Mexico, which owns and operates the Alamo Canal that comes off of here [indicating] and irrigates the Mexican lands, could, with the help of the State Department, get paid for that Alamo Canal out of Mexico and entirely divorce itself from any financial interest in transporting water across the border into Mexico. If that were done, I believe that a great deal of this controversy would be eliminated and that the Imperial irrigation district would be in no manner financially hurt.

I do think when the United States takes over the delivery of water through the All-American Canal to Pilot Knob for the benefit of Mexico, limited as it is to 500,000 acre-feet a year by this treaty, that the United States should pay the Imperial irrigation district for a proportionate part of the cost of the Imperial Dam and the canal down to a point including perhaps the power privilege at Pilot Knob itself, and if that were done and the Imperial irrigation district completely divorced itself from the ownership of the canal system in Mexico for which its subsidiary has always been paid—and the stock of which is owned by the Imperial irrigation district—and get away from the idea of having to salvage or save any part of its investment in old Mexico by the sale of water to Mexico, or the delivery of water to Mexican lands, that a great deal of this controversy could be avoided without any financial injury to the Imperial irrigation district.

The United States could well afford to do that. All it would have to do would be to give the Imperial district credit upon the amount which it otherwise would owe, which has not yet been paid.

Chairman MURDOCK. You said a moment ago that that was contemplated, and you were reading from the treaty.

Mr. CARSON. From the treaty itself.

Chairman MURDOCK. What do you mean by "contemplated"? Is it not in the treaty?

Mr. CARSON. Yes; it is in the treaty that Mexico should pay the United States. Let me read it again, article XIV, to make it clear:

"In consideration of the use of the All-American Canal for the delivery to Mexico in the manner provided in articles XI and XV of this treaty, of a part of its allotment of the water of the Colorado River, Mexico shall pay to the United States, (*a*) a portion of the cost actually incurred in the construction of the Imperial Dam and the Imperial Dam Pilot Knob section of the All-American Canal; this proportion and the methods of terms of repayment to be determined by the two Governments, which for this purpose shall take into consideration proportionate uses of these facilities by the two countries, these determinations to be made as soon as Davis Dam and reservoir are placed in operation."

Mr. PHILLIPS. It does not say how much should be paid.

Mr. CARSON. No, but I should think certainly that the Imperial irrigation district, if it made up its mind to comply with the terms of this treaty, could work that out with the United States Government and that the United States would be amply fair to the Imperial irrigation district.

Mr. PHILLIPS. It seems to me that might have been settled before the treaty was signed, do you not think so?

Mr. CARSON. It could not have been settled before the treaty was signed.

Mr. DOWD. I do not want to take the committee's time right now, but I do believe, regarding the unfair accusations against the Imperial irrigation district that Mr. Carson has made, I should be given the time and opportunity to answer them. Moreover, may I say just one thing? He has talked about the sanctity of contracts and how they should be observed. The farmers of the Imperial Valley think the same thing; that their contracts with the United States should be sanctified; should be observed by the United States and should not be considered a scrap of paper to be torn and tossed to one side as it sees fit.

Chairman MURDOCK. What the committee wants to find out are the facts in the case, and I think all of us agree that contracts are sacred and should be so regarded.

Mr. HOWARD. May I say a word in behalf of the Metropolitan water district? The Metropolitan water district has no interest whatever, direct or indirect, in the Pilot Knob power plant, or in the deliveries of water to Mexico, except that we think the Mexican water treaty was unduly liberal.

The elimination of the Pilot Knob power plant from consideration would in no wise affect the attitude of the metropolitan water district to overappropriation or to the overselling of the Colorado River. I just want the record to show that the statement that the elimination of the Pilot Knob plant would go toward solving the problem, so far as the Metropolitan water district is concerned, is without foundation.

Mr. WHITE. Since the old Alamo Canal has been mentioned, is water being delivered to Mexico through that canal?

Mr. DOWD. Not at the present time, because the river has scoured down to where water cannot be diverted from the river at the old Alamo Canal. It has been delivered by the United States through the All-American Canal and then back into the Alamo Canal into Mexico.

Mr. WHITE. Then it gets into the Alamo Canal at some point at the present time.

Mr. DOWD. It comes back into the Alamo Canal just inside the United States and then goes into Mexico.

Mr. WHITE. In what volume?

Mr. DOWD. As much as about 4,000 second-feet has been delivered through the All-American Canal and into the Alamo Canal into Mexico.

Mr. WHITE. Translate that into acre-feet.

Mr. DOWD. 4,000 second-feet running continuously would be somewhere around 3,000,000 acre-feet a year—if you run that amount continuously—but, of course, in the wintertime Mexico uses practically no water at all. They reach a peak for a few weeks in the summertime.

Mr. WHITE. If Pilot Knob comes into use, that same water could be delivered through Pilot Knob?

Mr. DOWD. That is correct, through the Pilot Knob power plant.

Mr. WHITE. And incidentally make power?

Mr. DOWD. Absolutely. It would help the farmers of the Imperial Valley to repay the cost of the canal to the United States.

Mr. WHITE. Who would get the power?

Mr. DOWD. The power could go to the Imperial irrigation district's power system to be sold to the people of the Imperial and Coachella Valleys.

Mr. WHITE. And the Imperial irrigation system would get the revenue?

Mr. DOWD. Yes. The net proceeds come back to the United States to help pay the cost of the All-American Canal.

Mr. WHITE. Do you mean that with the application of the power revenue it would pay out that much sooner and it would really be for the benefit of that irrigation district?

Mr. DOWD. For the benefit of the people who have guaranteed to repay the cost of the canal to the United States.

Mr. WHITE. When the United States is paid off they will get the benefit of the revenue?

Mr. DOWD. Yes.

Mr. WHITE. I understand from the previous testimony, and I think this is very important, that any water that went through Pilot Knob would be that much taken away from the water users in California.

Chairman MURDOCK. Not from water users in California.

Mr. DOWD. No, sir; there would not be 1 acre-foot taken away from any water user in the United States because it is water, up until the time that the surplus is used up, that would not be used in the United States.

Mr. WHITE. The Imperial irrigation district has quite a profit to make there by the power revenue as between the two plans of getting the water to Mexico, or against the three plans of getting the water to Mexico. There is the plan for the return flow from the Wellton-Mohawk to go into Mexico as a credit; the water going down the main river as a credit, or that the water that goes through the Pilot Knob power plant as a credit, and Pilot Knob would be a winner for the California district in a big way in power revenues. Is that not one of the issues?

Mr. DOWD. No, sir. All the water that the lower basin has a right to would be utilized. Our point is that there is not enough water to go around. It is not a question of having a surplus to put through Pilot Knob. The tabulation that I gave the committee the other day shows that; that under final development there is not one drop to go through Pilot Knob except perhaps water which the treaty requires to go to Mexico.

Mr. WHITE. It is a very simple equation, as I see it. If the water goes to Wellton-Mohawk and the return flow goes down the Gila and into Mexico, then the other irrigation districts over in California are that much the losers by failing to get the water to go through and generate power at Pilot Knob. That is one of the main issues here.

Mr. DOWD. That is not the point at all.

Chairman MURDOCK. I feel that is an important point.

Mr. CARSON. That enters into it. I do not know whether or not that is the basis for their objection. If the Imperial irrigation district could be made whole on account of that proportionate investment in the Imperial Dam and the All-American Canal from Imperial to Pilot Knob, and the Pilot Knob power plant, made clear to them, they would have no further question or attack upon this treaty, provided they could further be divorced from their ownership of the canal system, or property in Mexico. If that were done, it seems to me that it would be fairer to the people of the Imperial Valley and they would not in the long run lose anything.

Chairman MURDOCK. Are there not other drops on the All-American Canal beyond Pilot Knob which would permit this irrigation company to produce power and pay for the canal while using their own irrigation water?

Mr. CARSON. It is my understanding there are six other drops on the canal; two of them have been partially developed and four have not been developed at all, although when they built the canal they built in the necessary foundations. But no plants have been installed, and they would have those drops upon which they could make power with water going into the Imperial Valley and into the Coachella Valley in California, to which none of us would have any objection.

Mr. PHILLIPS. It seems to me that every time we have a hearing about water the first thing we know we are talking about power. I still think that we should be talking about water. I think that a great deal of this about the production of power is interesting, but it is not what we are talking about in connection with our bill. I think that we are talking about how much water there is.

Mr. CARSON. You brought it up.

Chairman MURDOCK. That is only part of it. Yes; we must know how much water there is. Then how best to use it. Power is involved secondarily.

Mr. PHILLIPS. I did not bring up the question of power. I think yesterday Mr. Dowd introduced into the record a list—you have it before you—which is headed "Annual water supply in critical periods and demands of existing projects in lower basin."

Now, I think this is about the most important thing that is under discussion right here, and I would like to make this formal request through you, Mr. Chairman, that the Bureau of Reclamation give us a statement as to whether or not they agree with that analysis of water and requirements against the water under the various demands; in other words, take this list and say whether or not the Bureau of Reclamation agrees with it; and if they do not agree with it, have them give us a complete statement of why they do not. It seems to me that we could save a lot of days of hearings if we could get material like that into the record instead of a discussion as to whether there is going to be power made at Pilot Knob or somewhere else.

Chairman MURDOCK. No; Congressman Phillips, the matter of having more than 500,000 acre-feet of water pass through a power plant at Pilot Knob to produce power has a very definite connection with the quantity of water which may be used for irrigation in the United States.

I have that compilation mentioned, and I have one here from an engineer from Arizona, and I notice some difference. I would like to have engineers take the two statements and give us the facts.

Mr. PHILLIPS. That would be fine.

Chairman MURDOCK. I agree with you, Mr. Phillips, that water is the subject here, and I have no reason for mentioning power unless it be that the production of power at some place takes away some of the water from the United States of America, and that is the thing that we must get very clearly in our minds.

Mr. PHILLIPS. It was brought out in the previous hearings, and I think that you should read them—I have read them all—that there would not be any water that would even reach Pilot Knob, if that is what you have in mind, unless it is water that is not used in the United States. If it is taken up and used in the United States it will never get to Pilot Knob and there would not be any power made. The control of the amount of water that gets to Pilot Knob does not rest with the Imperial District nor any other district, but with the United States.

Mr. WHITE. Does the gentleman from California overlook the fact that 1,500,000 acre-feet has to go to Mexico through some channel?

Mr. PHILLIPS. I do not overlook it, and I have been trying to impress that upon other States for the past year.

Mr. WHITE. Do you recognize the fact that in falling water power is inherent and if you utilize that power you can have the power and the water at the same time? I think that is one of the motivating influences in the whole reclamation program.

Mr. PHILLIPS. And I want to know, if we are going to give that much water to Mexico, exactly where we are going to get it and who is going to give it up.

Mr. WHITE. It will come out of the Colorado River, and in the second place, we are going to deliver them 1,500,000 acre-feet. Whether it goes down the main Colorado River and makes no power, or whether it goes over and is used by the Wellton-Mohawk and the return flow goes in as a credit, or whether it goes down the All-American Canal and through the Pilot Knob and generates an income for the California irrigation district, is a matter definitely before this committee.

Chairman MURDOCK. Here is a pertinent fact that I would like to establish. Did the witness say that in 1943 and again in 1944 that 1,800,000 acre-feet of Colorado River water were used to irrigate land in Mexico?

Mr. CARSON. Yes; that was the report by the International Boundary Commission and the Bureau of Reclamation.

Chairman MURDOCK. Well, then, only two things would prevent that happening—or even more being used—in the following years, as I see it. One is a

treaty that will prevent it, and another is that there just is not water in the river. Am I right or wrong about that?

Mr. CARSON. If it had not been for the treaty, we fear that Mexican use would rapidly increase to where eventually it might be as much as 5 or 6 million acre-feet a year, because there is 1,000,000 acres of land immediately below the border in Mexico, so we are informed, irrigable from the Colorado River, and they were rapidly increasing their rights.

Since Boulder Dam has filled, there has been up until 1944 not less than 10,000,000 acre-feet going across the border into Mexico. That would have continued for many years with a great deal of water going across the border into Mexico, because, as I have tried to point out, the States of the Colorado River Basin now are using out of the Colorado River nothing like their ultimate consumptive use that will be made in the basin. I suppose that the total consumptive use now—and I do not have the figures clearly in mind—would be somewhere around 7,000,000 acre-feet in the whole basin.

Until the upper basin, and we in Arizona and California likewise, can make use of the proportions of the water to which they are entitled, the excess will of necessity go across the border into Mexico.

Mr. FERNANDEZ. Regardless of the treaty?

Mr. CARSON. Regardless of the treaty, but without the treaty Mexico could have built up a claim of right. Now, we have with Mexico an inter-American treaty of arbitration signed in 1929 and ratified in 1935 under which we would have been required to arbitrate at Mexico's request a division of the water of the Colorado River which, in our judgment, Mexico could have invoked 50 or 100 years from now and then be awarded whatever water she was at that time using, so it was essential to the benefit of us all, including those that want to use water in California, that an over-all time limit be placed upon Mexico at the lowest possible quantity just as soon as possible, and that was the effect of the treaty.

There has been so much discussion about the treaty by California witnesses here as if that imparted some new consideration into this matter, that I would like to file with the committee—and I know that you can get it—a copy of the treaty.

Now, the question was asked as to where the water is coming from.

Mr. PHILLIPS. I do not object at all to rehearing the treaty because I have been trying to get some of you gentlemen to listen to the conditions involved in that treaty for a long time, and if the chairman will permit me, you asked if 1,800,000 acre-feet of United States water was being credited to Mexico, or could be credited to Mexico.

Chairman MURDOCK. Had been used in Mexico.

Mr. PHILLIPS. I want to say that as a good illustration of what I am talking about, the chairman will remember those were the figures given in the hearing before our Senate committee. They were not the figures given before the Mexican Senate, and in the data furnished the Mexican Senate by its representatives, that data did not show that much water will be used. The only way that amount of water could be built up, for the Senate hearings in the United States, was by including every bit of water that flowed into Mexico, including the water which, at the request of the State Department, was put through the canal and into Mexico to save the Mexican crops, and which at the time the State Department said would not be credited as Mexican use.

Now, I mean to say it is a very complicated matter and I do not want to retry the hearings, but I want to point out there are details in the Mexican treaty which are going to require considerable argument between the United States and Mexico from now on. I would like to say to my friend from Idaho, Mr. White, that I really do not agree with you entirely that the matter before this committee is the amount of water that goes through and makes power. I understand what you mean and agree with part of it, but I think what this committee is discussing, under the bill, is the amount of water in the Colorado River available for all the projects which are being proposed for the use of Colorado River water.

Now, does not the gentleman from Idaho think that is really the issue before us; that the Colorado River is not a miraculous pitcher that you can keep pouring water out of, as you could from the pitcher in the old fable?

Mr. WHITE. The main issue that has been raised before the committee is the division of the water between the three lower-basin States.

Mr. PHILLIPS. That is right.

Mr. WHITE. Incidental to that there comes along with it the problem that we

have to take into consideration that Mexico has a draft on the water to the extent of 1,500,000 acre-feet. You said that they had been delivered 1,800,000 acre-feet.

Mr. CARSON. In '43 and '44.

Mr. WHITE. They have been delivered more than under the treaty.

Mr. CARSON. That was before the treaty was signed.

Mr. WHITE. If they are already limited to 1,500,000 acre-feet they do not have any chance to expand. They are using up the full limit of that water right now.

Mr. CARSON. In that connection I would like to call the committee's attention to H. R. 5944, which was a bill introduced by Mr. Hinshaw, of California, which in my judgment would have the effect of conflicting with the treaty to such a degree that there might be a danger of an abrogation of the treaty by legislative action, so if that ever comes up we certainly would want to be heard upon it, and it certainly is designed to permit the continued flow of water through the Pilot Knob power plant, which I tried to explain, and I am not sure that I made it clear.

It was necessary in the treaty to limit strictly the quantity of water that could go to Mexico through the Pilot Knob power plant to 500,000 acre-feet until 1980, and thereafter to 375,000 acre-feet, and it was necessary to do that in order that the United States, for the benefit of all the States in the basin, could get the benefit of the return flow which enters the Colorado River below the Imperial Dam, which is the take-out point for the All-American-Pilot Knob route of delivery, and this treaty provides that for the return flow entering the river below Imperial Dam the United States gets credit on the total obligation of 1,500,000 acre-feet which would have been lost if the continued flow through Pilot Knob had been permitted, or if the treaty permitted any greater draft through the Pilot Knob power plant.

So I came back to the same proposition, that if the United States compensates the Imperial irrigation district for a proportionate share of the cost of the Imperial Dam and All-American Canal down to Pilot Knob, and the prospective Pilot Knob power production, if necessary, the Imperial irrigation district would be in no sense hurt, and we would have avoided a lot of this questioning and argument.

The treaty provides further, in article XIV of the treaty that Mexico should pay to the United States those same amounts. While I am certain that the United States will reduce the debt of the Imperial irrigation district by a proper and reasonable amount, then the treaty goes ahead and requires that Mexico pay a proportionate part of the operation of the All-American Canal down to Pilot Knob.

Mr. PHILLIPS. Since Mr. Carson has brought that bill in as an issue, I think—while I have not talked to Mr. Hinshaw—that I will now formally request that he be permitted to appear as a witness and say what the points at issue really were in that bill. I am quite sure that the chairman agrees with me that that is a wrong impression of the bill. I will make that as a formal request on behalf of the California delegation for whom Mr. Hinshaw was speaking when he introduced that bill.

Mr. CARSON. I just pointed that out now because it is not up for hearing, and I call attention to the fact that if it does come to a hearing Arizona wants to be heard in opposition.

Mr. PHILLIPS. You made a statement, Mr. Carson, that it would cause conflict between the two nations.

Mr. CARSON. I did not say that, Mr. Phillips. What I meant to imply was that in my judgment it conflicts with the terms of the treaty, and you can, by a legislative act of Congress, as I understand it, nullify and abrogate a treaty. I think this bill goes that far, and we want an opportunity to be heard in opposition to it if it ever comes up for hearing.

Mr. PHILLIPS. The point that I am making now is that the bill was introduced by Mr. Hinshaw at the request of the California delegation, and he was acting for the California delegation. The intent was to prevent further conflict with Mexico, because we are fully convinced that there are unsettled details of the treaty which will eventually provide a very serious argument between the United States and Mexico. Therefore, I would like to make a formal request that Mr. Hinshaw be permitted to come before the committee. He may not want to come.

Chairman MURDOCK. The bill has been referred to this committee, has it not?

Mr. CARSON. I do not know.

Mr. DOWD. Yes.

Chairman MURDOCK. In that case, both parties here have given formal notice that they want to be heard on the bill, one maintaining that it might disrupt

the treaty and the other maintaining that it was intended to lead to better cooperation between the two countries. Both parties should be heard at the proper time. We shall be glad to hear Congressman Hinshaw on this bill.

Mr. WHITE. The provision of that bill is in no way binding upon this committee. It has simply been introduced, and it is within the discretion of the chairman whether to take it up or not.

Chairman MURDOCK. That is right.

Mr. CARSON. Proceeding then, we figure that out of our share of the main stream water there is ample water for this Wellton-Mohawk and Yuma Mesa division and also for the central Arizona project within the firm water, good for all time, without any draft, as contemplated in these bills, upon the surplus, one-half of the surplus to which Arizona is entitled.

If these projects are found feasible and the bills are passed and authorized—and I have no doubt of the feasibility of the Mohawk and the Yuma Mesa division, nor of the central Arizona project, although the reports on the central Arizona project are not yet ready—and we begin to approach the limit of 2,800,000, with the deductions that are made, after these projects are constructed and it appears there is still surplus available for use in the lower basin under these agreements that are now effective, but which later may be withdrawn by the upper basin States, we might at that time consider whether or not we could, on less expensive projects, use that water under some system of priority. But until 2,800,000 is used, we have no necessity for any system of priority on this water in Arizona.

Chairman MURDOCK. Mr. Carson, I want to ask you a few questions. We are approaching the hour for closing. You can be here tomorrow morning at 10 o'clock?

Mr. CARSON. Yes.

Chairman MURDOCK. It has been suggested by witnesses, and it is a suggestion within the recent report of the Bureau of Reclamation on the Colorado River development, that there ought to be an apportionment of water to each State which the Santa Fe compact did not make.

Mr. CARSON. Yes.

Chairman MURDOCK. Especially is that desirable among the lower basin States, I believe.

Mr. CARSON. Yes.

Chairman MURDOCK. It has been suggested here that there ought to be steps immediately taken to authorize a tri-State compact. How do you feel about that?

Mr. CARSON. There is plenty of authority in the Boulder Canyon project act for a tri-State compact. We have tried to make it. Failing to get an agreement with California, we have now arrived at the point where we have agreed with California, according to the terms of the Colorado River compact, and California has agreed with the United States expressly for the benefit of the State of Arizona, as to its limit of use, and we, for Arizona, have agreed for the benefit of California with the United States that we concede California's right to use water up to the extent of her limitation, so the division has been made in the lower basin States just as effectively as though we had been able to make a compact straight across the table between us. It is now made in the lower basin. If California will live up to the Colorado River compact and the California Limitation Act, and we live up too, as we will, in Arizona, to our commitments, then an interstate agreement between California and Arizona is not necessary to a division of the water in the lower basin because we in Arizona recognize that the right of Utah and New Mexico, who are in the lower basin, to come out of our share, and we both recognize the right of Nevada.

Mr. WHITE. What is Nevada's tentative share?

Mr. CARSON. 300,000 acre-feet. She has a contract for that with the Secretary of the Interior to which we have all agreed, and we expressly in our contract agree to that for Nevada.

Chairman MURDOCK. We might as well dispose of this one idea, that it is not necessary for the Congress now to pass a law to permit the lower basin States to enter into compacts. It is constitutionally necessary for Congress to pass such a law for State compacts, but in this case that was authorized by the act of 1928; was it not?

Mr. CARSON. Under the act of 1928. Under that act the upper basin States are going to have a meeting on the 22d to work out another compact.

Mr. WHITE. What is the amount covered by the California limitation?

Mr. CARSON. 4,400,000 acre-feet of III (a) water, plus a part of the surplus or water unapportioned by the compact.

Mr. WHITE. Then under the terms of the contract how much for Arizona?

Mr. CARSON. 2,800,000.

Mr. WHITE. Did you say 300,000 for Nevada?

Mr. CARSON. Yes; the total would be 7,500,000.

Mr. WHITE. Where is this 1,000,000 extra?

Mr. CARSON. It was apportioned to the lower basin. We figure that we are using it in Arizona on the Gila River.

Mr. WHITE. I understand that half of the water that is coming into the lower basin is 7,500,000 acre-feet.

Chairman MURDOCK. Half of the apportioned water at Lee Ferry by article IIIa of the compact.

Mr. WHITE. I am talking now about the original compact.

Mr. CARSON. That is right.

Mr. WHITE. That is divided, in turn, into 4,400,000 feet. That is the limitation California sets for itself.

Mr. CARSON. Yes.

Mr. WHITE. Then by contract between Arizona and the Secretary of the Interior, 2,800,000 feet go to Arizona?

Mr. CARSON. Yes.

Mr. WHITE. And 300,000 feet to Nevada?

Mr. CARSON. Yes; or a total of 7,500,000 feet.

Mr. PHILLIPS. I am not so sure but what I could not clear up this argument by continuing your question right there, Mr. Chairman. May I ask the witness something?

Now, Mr. Carson, do you consider the Gila and the tributaries to the Gila as part of the Colorado River system?

Mr. CARSON. Yes; they are in the definition of the compact.

Mr. PHILLIPS. I would like for you to classify these things for me. Perhaps it will help me. Do you classify, under the Colorado River compact, the perfected rights on the Gila River system—the Salt River that I asked about and the San Carlos and other projects—do you classify those as part of the 7,500,000 acre-feet of III (a) water?

Mr. CARSON. No, sir; because you are overlooking entirely III (b) water, an additional 1,000,000 acre-feet. The apportionment to the lower basin made by the compact is not 7,500,000 acre-feet; it is 8,500,000 acre-feet. III (a) water is 7,500,000 acre-feet, and III (b) water is 1,000,00 acre-feet, so we have a total apportionment of 8,500,000 acre-feet.

California has limited itself to 4,400,000 acre-feet of III (a) water and one-half the surplus, and has excluded herself from III (b) water.

Mr. PHILLIPS. Then, if you do not classify that as III (a) water, you are classifying it as III (b) water. If it is not III (a) water, how do you classify it? You said that you did not classify it III (a).

Mr. CARSON. III (b).

Mr. PHILLIPS. All right, now. Arizona claims 2,800,000 acre-feet. How much of that do you claim from the main stream?

Mr. CARSON. 2,800,000 acre-feet.

Chairman MURDOCK. Some of that goes to Utah and some to New Mexico.

Mr. CARSON. With the deductions that we will show by the engineers.

Mr. PHILLIPS. How much do you claim? You spoke of a court case that you had. How much of the use of the water from the Gila River did Arizona claim in the litigation against California?

Mr. CARSON. I do not know which case you are talking about, Mr. Phillips.

Mr. PHILLIPS. The only one I know about is the first case, the one you spoke about.

Mr. CARSON. That is not the first case. I am glad that you brought that up. Let me explain that to you.

According to my view of the flow of the Gila River under natural virgin conditions, it is reported by all the engineers to be 1,270,000 acre-feet. Part of that water is used over here in New Mexico, part in Arizona.

At the time that the compact was written the consumptive uses on the Gila River in Arizona were figured to be 1,000,000 acre-feet. Now then we have increased our use in Arizona, the last reports indicate, to where we have a use of 1,135,000 acre-feet.

Mr. PHILLIPS. How do you classify the uses on the Gila in excess of 1,000,000?

Mr. CARSON. we deduct them from the 2,800,000 of the main stream, as the engineer will show you. We are dealing now with firm water. We are excluding surplus.

Mr. PHILLIPS. Well, now, this 75,000,000 acre-feet that I think Mr. Dowd spoke about that accumulates every 10 years, is that not all III (a) water?

Mr. CARSON. We think it is III (a) water. California says it is not. Under III (d), the upper basin States are required to deliver 75,000,000 acre-feet each 10 years at Lee Ferry.

Mr. PHILLIPS. You call it III (a) water?

Mr. CARSON. We do not classify it in our contract with the Secretary, but the California contract and our contract are exactly on the same basis, made by the same authority and with the same source of water supply—Lake Mead.

Now, it so happens that Lake Mead's supply of water comes from this delivery at Lee Ferry, with the addition of some water by tributaries between Lee Ferry and Boulder Dam, so that in practical effect the water stored at Lake Mead is the 75,000,000 acre-feet delivered every 10 years at Lee Ferry.

Then the 1,000,000 acre-feet of III (b) water was never in Lake Mead; it was always utilized in Arizona and New Mexico through the Gila River.

Mr. PHILLIPS. If that is so, why would not the upper basin States then have to contribute half of the 1,500,000 acre-feet to Mexico, if you have it all accounted for?

Mr. CARSON. Because the contract between the States, the compact by which California is bound and by which Arizona is bound, all of these contracts were made in expectation of the treaty, and the contracts went so far as to provide how that supply to Mexico would come, first, out of the surplus, and if there was a deficiency in the surplus, then half out of the upper basin and half out of the lower basin.

Mr. WHITE. Is the upper basin ever mentioned in any of the treaties or compacts?

Mr. CARSON. Yes; they agree to the same thing. That is article III (c) of the Colorado River compact.

Mr. WHITE. I would like to get the water straight now in the State of Arizona. You said 1,135,000 acre-feet down there in the Gila River.

Mr. CARSON. Yes.

Mr. WHITE. That is the Salt River Valley.

Mr. CARSON. That is included.

Mr. WHITE. That is 1,135,000?

Mr. CARSON. Yes; 1,135,000 acre-feet.

Mr. WHITE. How much is proposed to be taken on the Wellton-Mohawk under this bill?

Mr. CARSON. 600,000 acre-feet, consumptive use. That is all consumptive use.

Mr. WHITE. Anything that you do not consume goes back to Mexico?

Mr. CARSON. Yes.

Mr. WHITE. Now then, you have a siphon that is bringing some water into the State of Arizona. How much water comes in there?

Mr. CARSON. Mr. Baker will have all those figures accurately. My figures are from recollection, but I think 204,000 acre-feet.

Mr. WHITE. How much is proposed to be diverted for Central Valley by that long canal?

Mr. CARSON. Consumptive use, 1,065,000 acre-feet, which will mean a larger diversion than that.

Mr. WHITE. The only thing that counts in the Gila River is an excess over 1,000,000 feet, which would be 135,000 feet.

Mr. CARSON. That is right.

Mr. WHITE. That is charged against the 2,800,000 feet. Now, you have shown where 4,400,000 acre-feet goes to California, 2,800,000 to Arizona, and 300,000 feet to Nevada, which makes the even half of the river, but Mexico comes in with a draft of 1,500,000 feet of the Colorado River. How are you going to fill that?

Mr. CARSON. Out of the surplus water that is in the river.

Mr. WHITE. Surplus. I thought that the upper and lower basins took all the water.

Mr. CARSON. No, sir; that was not all the water. There is still, according to the reports of the engineers, the 7,500,000 acre-feet for use in the lower basin and in the upper basin. There comes to Lee Ferry approximately 1,500,000 feet extra, surplus, that is apportioned neither to the lower basin nor to the upper basin.

Mr. WHITE. Then the Colorado compact did not take into consideration all the water and you find just about enough to satisfy Mexico's demand?

Mr. CARSON. Yes.

Chairman MURDOCK. Section 3 (c) in the compact covers that. The historical flow of the Colorado River is much greater than the computed average of 15,000,000 acre-feet divided half and half between the two basins.

Mr. WHITE. I am just trying to get this thing straightened out.

Mr. CARSON. That is right.

Mr. PHILLIPS. According to some of the water engineers out there, there is not that surplus.

Mr. CARSON. If there is not, why, we have already agreed where we will get the water. Article III (c)—I am reading now from the Colorado River compact: "If as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River system, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b)"—that is the 16,000,000 acre-feet—"7,500,000 to the upper basin and 7,500,000 to the lower basin, with an additional 1,000,000 acre-feet to the lower basin, and if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be equally borne by the upper basin and the lower basin, and whenever necessary the States of the upper division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d)."

Mr. PHILLIPS. How much would California get under your computation?

Mr. CARSON. 4,400,000 acre-feet, and half of the surplus, whatever the surplus was.

Now, Mr. Phillips, the surplus cannot now be accurately measured. It will be variable from year to year, and there will be available to California and to Arizona whatever surplus is available in the lower basin with deductions from our share for that part that can be utilized in Nevada, Utah, and New Mexico. Now, for instance, at the present time, of the upper-basin apportionment there is still coming down the river 5,000,000 acre-feet approximately annually.

Mr. PHILLIPS. I was just going to ask you about that.

Mr. CARSON. Of which you could use half and we could use half.

Mr. PHILLIPS. But right now the upper basin is not using the full allotment.

Mr. CARSON. No. That is surplus so far as we in the lower basin are concerned, and we could annually use it with this reserved right to withdraw it.

Mr. PHILLIPS. And they are fixing to use it with some rather large projects. Right now I do not think that the lower basin is using all its water. I think they are going to use it up with these things that we are talking about now. Suppose the upper basin had all of these projects developed for the past 15 or 16 years and that the lower basin had been using up the water with the projects that we are talking about, would there have been any water to give to Mexico?

Mr. CARSON. I think so. I think so, because we do not utilize all of the water of the river.

Mr. PHILLIPS. We do not now.

Mr. CARSON. I mean we would not. When the upper basin reaches its utilization of the apportionment, and we in the lower basin fully utilize ours, there will still be in the river—figured upon the dependable long-time mean average flow, more than enough water to supply Mexico, and the answer is—storage. We will need more storage on the upper basin than in the lower basin to take us over low flow.

Mr. PHILLIPS. I think the chairman said that Mr. Baker was coming in. I will not take your time to ask questions. I will just point out that from the questions that were asked of Mr. Dowd and others it was then shown that there would be a deficit.

Mr. CARSON. Mr. Baker will handle that.

Mr. PHILLIPS. You spoke several times about Arizona being willing to sign a compact and so forth and California not being willing to sign a compact.

Will Arizona right now sign a tri-State compact in the words of section 4 (a) of the Boulder Canyon Project Act, the second paragraph?

Mr. CARSON. I do not think that California will.

Mr. PHILLIPS. I asked you if you will.

Mr. CARSON. Well——.

Mr. PHILLIPS. Will you sign a three-State compact? You have said before this committee that Arizona has sort of wanted to sign a compact but California would not. Will Arizona sign a compact in the exact words of the second paragraph of section 4 (a) of the Boulder Canyon Act?

Mr. CARSON. We cannot sign it in the exact words because we have to have some definitions.

Mr. PHILLIPS. Is not that the whole kernel in the nutshell? In other words, you want to change the Boulder Canyon Act before you sign a compact?

Chairman MURDOCK. It is now 9:15.

Mr. CARSON. No; I do not think that I do.

Chairman MURDOCK. Mr. Carson will be our first witness, and we will continue our questioning at 10 o'clock in the morning.

The committee will stand adjourned until 10 o'clock in the morning.

(The statement of Salt River Valley Water Users' Association expressing its attitude toward the Mexican-Colorado River Treaty referred to earlier, is as follows:)

"RESOLUTION

"Whereas this board of governors of Salt River Valley Water Users' Association authorized the following of its members:

"V. I. Corbell, J. A. Sinnott, H. C. Dobson, and J. H. Evans to represent the said association at the meeting held in Las Vegas, Nev., on January 12 and 13, 1945, in opposition to the proposed treaty with Mexico relating to the allocation of the waters of the Colorado River: and

"Whereas there was adopted at said Las Vegas meeting a resolution in opposition to the proposed treaty with Mexico, which said resolution was supported by the aforesaid members of this board of governors: Therefore, be it

"*Resolved*, That the action of the aforesaid members of this board of governors in voting at the Las Vegas meeting for the adoption of the resolution in opposition to the proposed treaty with Mexico be and it hereby is declared ratified.

"CERTIFICATE

"I, F. C. Henshaw, the duly appointed and acting secretary of Salt River Valley Water Users' Association, hereby certify that the above and foregoing is a true, correct, and complete copy of a resolution duly adopted at a meeting of the board of governors of said association duly and regularly held on the 5th day of February 1945 at which said meeting a quorum was present.

"[SEAL] F. C. HENSHAW, *Secretary*."

(Whereupon, at 9:15 p. m., the committee adjourned to reconvene the next day, Wednesday, July 10, 1946, at 10 a. m.)

HOUSE OF REPRESENTATIVES,
COMMITTEE ON IRRIGATION AND RECLAMATION,
Washington, D. C., July 10, 1946.

The committee met at 10 a. m., Hon. John R. Murdock (chairman), presiding.

Chairman MURDOCK. The committee will come to order, please. We find it necessary to use all the time that we can use because of the early meeting of the House these days, and I have just been informed the House will meet at 10 o'clock tomorrow morning, which will mean we will have to forego a committee meeting at that hour tomorrow.

Mr. Carson was on the stand at the close of our last session. This meeting is a continuation of the hearings on H. R. 5434 and, Mr. Carson, we would like to have you take the stand again. I think you had completed your statement, but there were questions reserved.

FURTHER STATEMENT OF CHARLES A. CARSON—Resumed

Chairman MURDOCK. I should like to lead off with a few questions which I have been holding in reserve, Mr. Carson. It was suggested at one time in the hearings that there ought to be a tri-State agreement among the States of the lower basin. It was suggested that we might authorize by act of Congress such an agreement. Do I understand you to contend there has already been such an authorization and, hence, there is no need for a further authorization?

Mr. CARSON. Yes, sir; under the Boulder Canyon Project Act.

Mr. WHITE. Let me ask a question at that point. Is it inferred from the terms of the Colorado River compact that these States have authority under the provi-

sions of that compact to enter into an arrangement for the distribution and division of that water in the lower basin States; is that the idea?

Mr. CARSON. Yes.

Mr. WHITE. But, in this case, the Congress has specifically authorized by legislation compacts of certain States, authorized the entering into compacts, for the division of water.

Mr. CARSON. Yes; and that authorization here is contained in the Boulder Canyon Project Act that was passed in 1928.

Mr. WHITE. Would a bill authorizing a compact now strengthen the program and call attention of the States, at least call the attention of the people in the States, to the fact they should enter into such a compact if the Congress proceeded to pass a bill specifically authorizing such negotiations or arrangements commonly called a "compact" between the three lower basin States? Would it not be a step for the division of the Colorado River water in advance in getting these States together and getting them to agree?

Mr. CARSON. Not in my judgment.

Mr. WHITE. You are speaking now of the sentiment, or position, or attitude of the several States?

Mr. CARSON. No.

Mr. WHITE. Of those three States; that is the officials' position; but now the people themselves ought to exert some influence to get a compact.

Mr. CARSON. No; it would not, in my judgment, Mr. White. Efforts have been made for many, many years. In 1939 the Arizona Legislature passed a bill authorizing the execution of the tri-State agreement under the terms of the Boulder Canyon Project Act.

Mr. WHITE. Do you have the exact text of the authorization that is contained in this bill, can you put that in the record at this point?

Mr. CARSON. Section 19 of the Boulder Canyon Project Act reads:

"That the consent of Congress is hereby given to the States of Arizona, California, Nevada, New Mexico, Utah, and Wyoming to negotiate and enter into compacts or agreements supplemental to and in conformity with the Colorado River Compact and consistent with this act for a comprehensive plan of development * * *."

And again——

Mr. PHILLIPS. Do you want him to read the whole article?

Mr. WHITE. I just want the citation of the authorization. I think that language he has just read certainly answers the question.

Mr. CARSON. Yes. And there is another provision also in this act. In section 4 of the act it specifically authorized a compact between Arizona, California, and Nevada in this language:

"The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide—

"(1) That of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet, and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity; and

(2) That the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact; and

"(3) That the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State; and

"(4) That the waters of the Gila River and its tributaries except the return flow after the same enters the Colorado River shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico but if, as provided in paragraph (c) of article III of the Colorado River compact, it shall become necessary to supply water to the United States of Mexico from waters over and above quantities which are surplus as defined by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply, out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin; and

"(5) That the State of California shall and will further mutually agree with the States of Arizona and Nevada that none of said three States shall withhold water and none shall require the delivery of water, which cannot be reasonably applied to domestic and agricultural uses and (6) that all of the provisions of said tri-State agreement shall be subject in all particulars to the provisions of the Colorado River compact; and

"(7) Said agreement to take effect upon ratification of the Colorado River compact by Arizona, California, and Nevada."

Mr. WHITE. That is the master agreement made in Santa Fe?

Mr. CARSON. No; this that I just read is the authorization of Congress for the States of Arizona, California, and Nevada to enter into a three-State compact, or tri-State compact, between themselves, subject to the Colorado River compact, which is a different instrument and which was signed at Santa Fe, N. Mex., on November 24, 1922.

Mr. WHITE. Well, that language is in the bill passed by Congress?

Mr. CARSON. Yes, sir.

Mr. WHITE. And pursuant to that authorization California, Arizona, and Nevada have never signed?

Mr. CARSON. Have never signed.

Mr. WHITE. Have never entered into or signed such a compact?

Mr. CARSON. That is right. Now, the Arizona Legislature in 1939——

Mr. WHITE. What is the date of that instrument you read?

Mr. CARSON. That is the Boulder Canyon Project Act, approved December 21, 1928. In 1939 the Arizona Legislature enacted chapter 33 of the 1939 session laws of Arizona which I referred to previously, offering to enter into the compact as set out here. That was a complete failure. I was told here that California considered we had made a change in the language set out in the Boulder Canyon Project Act; but, as I understand it, that was not their reason given for refusal to sign. But I did not participate in those negotiations after the passage of this act. They would strike out the word "and" after the third clause of the Boulder Canyon Project Act where it provides "and (3) That the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State."

Mr. PHILLIPS. Who would strike that out?

Mr. CARSON. The California contention, as I understand it, and their argument would be that this amount from the Gila River must come out of the 2,800 acre-feet.

Mr. PHILLIPS. Mr. Chairman, I do not think that is quite clear in the record. It sounded as if Mr. Carson was saying that California would strike that out. Arizona would strike that out and insert in place of it the words "In addition to."

Mr. CARSON. Yes.

Mr. PHILLIPS. That is the interpretation which Arizona wants to make in the compact?

Mr. CARSON. And which, we submit, the Congress made. And you do not have to go anywhere but to this act to see that that was the intent—that the Gila River should be used exclusively in Arizona and it should be in addition to the 2,800,000 acre-feet of main-stream water; because Congress required that the State of California agree irrevocably and unconditionally for the benefit of Arizona that its total consumptive use should not exceed 4,400,000 acre-feet of III (a) water, plus not more than one-half of the surplus. That completely estops California from claiming any part of the Gila River water, either out of the Gila River or out of the main stream of the Colorado, and says that the Gila must be deducted. I want to say, then, further, that this compact was refused by California. Now, our position is that the intent of this compact is now binding upon California by virtue of its Limitation Act, passed by the California Legislature in 1929, and by virtue of its ratification of the Colorado River compact. So that our contention, as we view it, is that it has already been agreed to by California and is now binding upon California. We just have not got a contract signed between us right across the table on this particular phase. We have on the compact phase; and on this phase California has agreed with the United States irrevocably and unconditionally and for the benefit of Arizona to this construction of this agreement.

Chairman MURDOCK. Mr. Carson, you as an attorney have done the proper thing by reading from those basic laws. I am not an attorney, so I just wanted to get the thing down in plain, simple language so that I can be sure to understand it.

Mr. CARSON. Yes.

Chairman MURDOCK. You have read appropriately almost the entire Santa Fe compact, at least the pertinent parts, and you have read most of the Boulder Dam Project Act and quoted from it quite liberally.

Mr. CARSON. Yes.

Chairman MURDOCK. Do you regard the Santa Fe compact as a binding treaty between the basin States?

Mr. CARSON. Yes, sir.

Chairman MURDOCK. You regard the Boulder Canyon Project Act, an act of Congress, as the law of the river?

Mr. CARSON. As one of the instruments which together make the law of the river; yes.

Chairman MURDOCK. You regard the California statute of limitation passed in 1929 as a condition leading up to the enactment of the Boulder Canyon Project Act as more than a statute; that it is a solemn pledge of a sovereign State in regard to this whole transaction?

Mr. CARSON. Yes, sir.

Mr. FERNANDEZ. Mr. Chairman, nobody contends otherwise.

Chairman MURDOCK. But they might contend otherwise, and I see a possibility of such contention looming on the horizon. Is it not true that an act of the legislature can be superseded and repealed by a subsequent act?

Mr. CARSON. Not in this particular instance; I think not in this instance, because by its terms it was made irrevocable and unconditional with the United States, for the benefit of the State of Arizona and the other basin States in consideration of the passage of the Boulder Canyon Project Act, which was passed. California has already received the consideration and I think can never avoid its limitation act.

Chairman MURDOCK. Now, to go a little further, you spoke of apportioned water under the Santa Fe compact and surplus water.

Mr. CARSON. Yes, sir.

Chairman MURDOCK. What sections of the compact apportions water?

Mr. CARSON. Articles III (a), III (b), and III (c).

Chairman MURDOCK. III (a) making an apportionment between the upper and lower basins?

Mr. CARSON. Yes.

Chairman MURDOCK. III (b) adding an extra million to the lower basin?

Mr. CARSON. Yes.

Chairman MURDOCK. And III (c) having reference to Mexico?

Mr. CARSON. Making apportionment to Mexico in an amount to be determined by treaty.

Chairman MURDOCK. You maintain, then, that III (b) water is apportioned water to the lower basin?

Mr. CARSON. Yes, sir.

Chairman MURDOCK. And can never be regarded as surplus; therefore, it cannot be divided under the terms of the compact and the California Limitation Act?

Mr. CARSON. Yes, sir. You have stated it as I see it.

Chairman MURDOCK. Your contention is, then, that there are 8,500,000 acre-feet of water annually apportioned to the lower basin?

Mr. CARSON. Yes, sir.

Chairman MURDOCK. And California has limited her use of that apportioned water by a statute which cannot be revoked?

Mr. CARSON. Yes.

Chairman MURDOCK. To 4,400,000 acre-feet annually?

Mr. CARSON. Yes, sir.

Chairman MURDOCK. And that that precludes California from asking for or having any part of the apportioned water apportioned to the lower basin other than within her limitation?

Mr. CARSON. Other than that that is within her limitation.

Chairman MURDOCK. Of course, she has one-half of any surplus water.

Mr. CARSON. Yes. And that surplus water is by the compact defined and by the California Limitation Act defined as water which was unapportioned by the Colorado River compact.

Chairman MURDOCK. If there is any shortage of water, then, it must be due to the fact that the original computations were not quite accurate and the water simply is not there.

Mr. CARSON. That is right.

Chairman MURDOCK. I think that suffices for my purpose just now.

Mr. PHILLIPS. Mr. Chairman, you are not suggesting that was a one-sided contract, are you?

Mr. CARSON. No; but——

Mr. PHILLIPS. The answer apparently is "No; but."

Chairman MURDOCK. The "but" means that California got something for her act of limitation. Let us have the other side brought out. I am interested in knowing what Arizona can expect to get out of the 8,500,000 acre-feet allotted to the lower basin.

Mr. PHILLIPS. I think that is what the whole committee is interested in. Last night, just before we adjourned, I had asked Mr. Carson if Arizona would sign a three-State compact in the exact words of that part of the Boulder Canyon Project Act which he this morning read, and I take it the answer is "Yes, but," just as his reply to my question regarding a "one-sided contract" was "No, but." In other words, Arizona does not want to sign it in the terms of that paragraph, but wants to change several words in the paragraph which is already signed, sealed, and delivered.

Mr. CARSON. Only by virtue of this fact——

Mr. PHILLIPS. In other words, it is a matter of interpretation between the two parties to the contract.

Mr. CARSON. No.

Mr. PHILLIPS. And I do not know who can settle that controversy, except a court or a board of arbitration.

Mr. CARSON. No.

Chairman MURDOCK. As I understand Mr. Carson's earlier testimony, he indicated that the Santa Fe compact, as first approved, was unsatisfactory to the Arizona delegation. Gov. Tom Campbell and Mr. Norviel were there, and some others, but the Arizona delegates refused to sign the compact until something was done about the Gila River.

Now, the compact, in its text, does not say that that 1,000,000 acre-feet was in lieu of the Gila River. I think it is unnecessary to prove that such in real truth was the case; it is unnecessary to do that; but I think certainly we have plenty of evidence to show from the letter from Secretary Hoover to Mr. Norviel, together with the picture of Mr. Hoover with his notation on it, and from the testimony of Governor Campbell and others, what the intent was in adding (b) to article III of the compact. Now, whether that would hold up in a court of law and be admitted as evidence is beside the question. The point I am trying to clinch here is this: There is not any doubt about the lower basin having apportioned to it 8½ million acre-feet of water annually, if it is in the river.

All right. Now, California has limited herself to 4,400,000 acre-feet of that water. California passed her Limitation Act to get the Boulder Canyon Project Act from Congress with all its benefits. Now, I cannot see how anybody has any claim to any other part of that water apportioned to the lower basin except Arizona and Nevada. So that it does not make any difference whether that million acre-feet pertained to the Gila River or not.

Mr. PHILLIPS. The other day, before we recessed, I think Mr. Carson had read from a letter from Mr. Hoover, and I would like, in order to complete the record, whenever the chairman will let me have the time, to read from Mr. Hoover's letter, which was dated January 21, 1923, when the matter was still very fresh in his mind, addressed to Senator Hayden, then Congressman Hayden, questions 6, 7, and 8, which were the ones I had in mind. I do not know whether we should put the entire letter in, but question 6 is this, quoting from the letter from Mr. Herbert Hoover to Mr. Carl Hayden of January 21, 1923, which appears in this little book [exhibiting], entitled "Colorado River and the Boulder Canyon Project":

"Question 6. Are the 1,000,000 additional acre-feet of water apportioned to the lower basin in paragraph (b) of article III"—which is III (b) water—"supposed to be obtained from the Colorado River or solely from the tributaries of that stream within the State of Arizona?"

Mr. Hoover's answer was:

"The use of the words 'such waters' in this paragraph clearly refers to waters from the Colorado River system, and the extra 1,000,000 acre-feet provided for can therefore be taken from the main river or from any of its tributaries."

That did not seem to be quite in accord with what has been said.

"Question 7. If more than 1,000,000 acre-feet of water are beneficially used and consumed annually on the tributaries of the Colorado River in Arizona, will the excess above that amount be charged against the 75,000,000 acre-feet of water to be delivered at Lee Ferry during any 10-year period, as provided in paragraph (d) of article III? In other words, will the use of any amount of water from the tributaries of the Colorado below Lee Ferry in any way relieve the States of the

upper division from their obligation not to cause the flow of the river to be depleted below 75,000,000 acre-feet in any period of 10 consecutive years?"

Mr. Hoover replied:

"I can see no connection between the use of waters in Arizona from Colorado River tributaries and the obligation of the upper States to deliver the 75,000,000 acre-feet each 10 years at Lee Ferry. Their undertaking in this respect is separate and independent and without reference to place of use or quantity of water obtained from any other source. On the face of this paragraph this amount of water must be delivered even though not used at all. The obligation certainly cannot be diminished by the fact that Arizona obtains other water from another source. The contract is to deliver a definite amount of water at a definite point above the inflow of various important tributaries—and so forth."

Then the third question:

"Question 8. As a matter of fact, more than 1,000,000 acre-feet of water from the tributaries of the Colorado below Lee Ferry are now being beneficially used and consumed within the State of Arizona. Will the excess above that amount be accounted for as a part of the 7,500,000 acre-feet first apportioned to the lower basin from the waters of the 'Colorado River system' as provided in paragraph (a) of article III?"

And Mr. Hoover said:

"By the provisions of paragraphs (a) and (b), article III, the lower basin is entitled to the use of a total of 8,500,000 acre-feet per annum from the entire Colorado River system, the main river and its tributaries. All use of water in that basin, including the waters of tributaries entering the river below Lee Ferry, must be included within this quantity. The relation is reciprocal. Water used from these tributaries falls within the 8,500,000 acre-feet quota. Water obtained from them does not come within the 75,000,000 acre-feet 10-year period flow delivered at Lee Ferry, but remains available for use over and above that amount."

It seems to me we have this question you have just raised a moment ago and our problem is how much water there is and whether it is III (a) or III (b). And I want to say to Mr. Carson, if I can continue at this point, that I am not wholly clear on what he said last night, because I do not see how water developed in one State can be III (a) water.

Chairman MURDOCK. Before we go to that, may I interrupt for just a moment? We can weigh the testimony of Mr. Hoover in the two letters referred to but I think it is immaterial right now as to whether III (b) water actually was supposed to be Gila water or not, as I said before. The only material thing is that it is allocated to the lower basin States.

One reason I want to bring that out here at all is to show the intent of the Arizona delegates at the Santa Fe meeting. They were doing their best to safeguard the Gila River system, because it had already been put to beneficial use. But it is immaterial whether that III (b) means Gila River water or means Colorado River system water.

Mr. PHILLIPS. Well, the question of whether there is or is not available to California half of the surplus depends on whether or not the Gila users are charged as consumptive users in Arizona.

Chairman MURDOCK. I cannot see how either III (b) water or Gila River water could possibly be surplus water under the terms of the compact.

Mr. PHILLIPS. Now, coming back to this question I asked Mr. Carson last night: As I get it, Mr. Carson, you say that the users of Gila water in New Mexico are using III (a) water, and the users of Gila water in Arizona are using III (b) water. Is that right?

Mr. CARSON. They are using apportioned water in Arizona, New Mexico, Utah, and I think Nevada—they use very little water—and California, out of the 8,500,000 acre-feet. In Arizona we are using a little in excess of the 1,000,000 acre-feet apportioned to the lower basin by article III (b) of the Colorado River compact. That means, then, as I see it—and this is the only place this has any application, as I say again—of the over-all basin use in the entire lower basin, we are limited by the compact to 8,500,000 acre-feet. We having used 1,000,000 acre-feet of III (b) water, or any other water of this apportioned water out of the Gila in Arizona, then it must follow, it seems to me, that the uses in the other States are part of the apportioned water; whether you call it III (a) water or III (b) water, it limits the use in the lower basin of the apportioned water. Therefore, as Mr. Baker will show you, when we are figuring our water supply in Arizona, we deduct from that which is deliverable to us as a firm right at Boulder or Lake Mead any excess over 1,000,000 acre-feet that we ourselves

use of the Gila, that which is used in Utah and New Mexico, and our 2,800,000 acre-feet is reduced to that extent.

What that means in that reduction is that the water is delivered at Lee Ferry and Lake Mead, which we have said is our firm commitment is reduced and the amount of water deducted then becomes part of the surplus, part of which could be utilized in California and part in Arizona, and the only bearing it has on this question, as I understand it——

Mr. PHILLIPS. May I ask one of those "true and false" questions like school teachers like to ask in high-school examinations?

Chairman MURDOCK. And which are rather tricky.

Mr. PHILLIPS. Mr. Carson, is this true, and I quote:

"Said compact, referred to as the Colorado River compact, defines the term 'Colorado River system' so as to include therein the Gila River and its tributaries, of which the total flow, aggregating 3,000,000 acre-feet of water annually, was apportioned and put to beneficial use prior to June 25, 1929, in Arizona and New Mexico."

Mr. CARSON. No, sir; that is not true.

Mr. PHILLIPS. That is not true?

Mr. CARSON. Let me axplain that again, if I may. I want to explain the point on that as I see it. The virgin flow of the Gila River at its mouth is 1,271,000 acre-feet. We divert in New Mexico and Arizona water of the Gila, and redivert, redivert, and redivert to where now we have reduced the flow of the Gila by use in Arizona by the amount of 1,135,000 acre-feet. Our consumptive use of the water of the Gila, therefore, is the amount by which the virgin flow is reduced at the mouth. The term "consumptive use" is not defined in the Colorado River compact; however, it is defined in the Boulder Canyon Project Act, and applies to California as well, I take it, the same rule that would apply to us here. In the California Limitation Act and in the Boulder Canyon Project Act it is defined in this way:

"That the aggregate annual consumptive use (diversions less returns to the river) of water by and from the Colorado River for the use of the State of California" in other words, that means the net river depletion; so when we reduce the flow of the Gila at its mouth it is our net consumptive use.

To illustrate, suppose in the upper basin we will just assume the Fraser River, for instance, up in Colorado, and assume it would in its natural state flow into the Colorado River 100,000 acre-feet, but the people along that stream, we will assume, divert, divert, and divert, and use up that 100,000 acre-feet that would otherwise have reached the main stream of the Colorado River; their consumptive use would be 100,000 acre-feet. You would not go and add up all of the diversions and reuses, which might bring you up to 300,000 or 400,000 or 500,000 acre-feet—probably not that much, but 200,000 or 300,000 acre-feet—by reuse and rediversion. And that is what has happened on the Gila River; we have rediverted.

Mr. PHILLIPS. You mean you take water out of here and measure it down there [indicating], and the difference between the two is the consumptive water?

Mr. CARSON. In reaching the main stream of the Colorado River; you cannot consume more water of the tributaries of the Colorado River than there is there.

Mr. PHILLIPS. Let me ask this other question; this is another "true or false" question. Is this true, and I quote:

"Of the appropriated water"—that is, the Colorado River and its tributaries—"diverted below Lee Ferry, 3½ million acre-feet are annually diverted, used, and consumed in Arizona; 2,900,000 acre-feet are diverted from the Gila and its tributaries. All of the water of the Gila River and its tributaries was apportioned to and for the beneficial use of Arizona and New Mexico prior to June 25, 1929, and there was not on said date, nor has there been since, nor are there now, any unappropriated waters of the Gila River or its tributaries."

Mr. CARSON. No; that is not exactly true. There is some water that now reaches the main stream of the Colorado River from the Gila River. It is not a dependable supply, but comes from flash floods and otherwise. The total quantities there, if you are trying to apply them to the beneficial consumptive use and stream depletion, are greatly in excess of what is actually used, as I have tried to explain.

Mr. PHILLIPS. I rather had in mind the question of contractive use, and so forth, Mr. Carson, in the contracts.

Mr. FERNANDEZ. What are you quoting from?

Mr. PHILLIPS. These are quotations from Arizona's bill of complaint of October 1930, in the case against California.

Mr. FERNANDEZ. How much water is in the Gila River?

Mr. CARSON. There are 1,271,000 acre-feet at its mouth where it flows into the Colorado River, under virgin conditions; that is, before any at all is used in upstream areas.

Mr. FERNANDEZ. How much has been appropriated and put to beneficial use?

Mr. CARSON. Mr. Baker would have those exact figures, but it is 1,135,000 acre-feet reduction by use in Arizona, and I think now 16,000 acre-feet in New Mexico, and provision is made for some expansion in New Mexico.

Mr. PHILLIPS. This is what I had in mind. Mr. Carson read this compact which became binding on Arizona in 1944. Now, at that time the users from the Gila—and that is the only thing I referred to yesterday—the Salt River Valley and the San Carlos had developed to their present extent, had they not?

Mr. CARSON. Yes.

Mr. PHILLIPS. All right; their water rights were then perfected.

Mr. CARSON. On what date?

Mr. PHILLIPS. 1944.

Mr. CARSON. Yes; pretty well perfected.

Mr. PHILLIPS. Now, this act you read—I do not know whether you read this one this morning, but this is the compact, and I quote:

"There is hereby apportioned from the Colorado River system"—which you have already said, Mr. Carson, includes the Gila—"in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist."

Now, water rights on the Gila being in existence at the time of which the compact speaks, how can that water be charged to anything but III (a) water?

Mr. CARSON. Under (b):

"In addition to the apportionment made in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum."

You have to read the whole thing together.

Mr. PHILLIPS. I do not know whether we do. Did not you say something about an increase there?

Mr. CARSON. Yes.

Mr. PHILLIPS. Well, "increase" does not include present use of water contracted for, or water contracted for as of that date.

Mr. CARSON. Yes.

Mr. FERNANDEZ. Does not the word "increase" refer to the quantity apportioned?

Mr. CARSON. Yes.

Mr. FERNANDEZ. They may increase the quantity apportioned, where it is appropriated or put to beneficial use?

Mr. PHILLIPS. Read that again.

Mr. CARSON (reading):

"In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum."

Mr. PHILLIPS. Here is what the compact says—I am trying to get it in my mind, and here is what the compact says:

"There is hereby apportioned from the Colorado River system"—that includes the Gila—"in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist."

Mr. CARSON. Yes.

Mr. PHILLIPS. Then how can you apply the language in (b)?

Mr. CARSON. Yes; it is just a permissive increase of the apportionment from 7,500,000 to 8,500,000 acre-feet—all of the 8,500,000 acre-feet would include all of the water necessary for the supply of any rights which may now exist.

Mr. PHILLIPS. Over and above that already used.

Mr. CARSON. No; not necessarily. This refers to the quantity of the water. In other words, these two together, Mr. Phillips, make 8,500,000 acre-feet apportioned to the lower basin, which must then include the then existing rights.

Mr. PHILLIPS. Mr. Chairman, is that clear to you?

Chairman MURDOCK. One reason why I wanted to get it down in black and white was so that I can read it 10 times and make sure I understand it.

Mr. WHITE. I think I see where the confusion is. If you will read the language, I will point out the confusion to you. Read that statement again.

Mr. CARSON (reading): "There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist. (b) In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such water by 1,000,000 acre-feet per annum."

Mr. WHITE. In that language it means "all of the water of the Colorado River system"?

Mr. CARSON. Yes.

Mr. WHITE. And that includes the Gila River?

Mr. CARSON. That includes the Gila River.

Mr. WHITE. And that extra 1,000,000 acre-feet that is in excess of the 7,500,000 acre-feet of the main Colorado is proposed to include the Gila River?

Mr. CARSON. Yes. I cannot quite see the force of Mr. Phillips' argument; because actually California could use none of it under either construction of it. If you assumed that this must include the Gila River in the first 7,500,000 acre-feet, then there is apportioned to the lower basin an additional 1,000,000 acre-feet which cannot be used in California under its limitation act. So it is just a matter of a play on words here. You are already excluded from III (b) water.

Mr. PHILLIPS. I answered that a moment ago by saying I think it does affect California through the availability of a surplus.

Mr. CARSON. That would not help you either; because either way you put it there can be no more surplus in the lower basin until the consumptive use of the lower basin has reached 8,500,000 acre-feet. So whether you figure it one way or the other, you come out at the same end, that the surplus is over and above the quantity of water apportioned to the lower basin by article III (a) and III (b).

Mr. WHITE. There is one question that arises in my mind as to States' rights governing water rights filed by applicants in the several States on the Colorado River system. I am wondering how many valid and existing water rights have been filed by these lower basin States for the use of water of the Colorado River in Nevada, Arizona, and California. California had established certain priority water rights which were recognized, and so had Arizona. What part of the waters of the Colorado River are not covered? What portion of the water allocated by the compact to the Colorado, which is 7,500,000 acre-feet, are not covered by State water rights?

Mr. CARSON. You have to distinguish there between filings, and rights put to use.

Mr. WHITE. Appropriation is what governs, is it not?

Mr. CARSON. Yes.

Mr. WHITE. You can file all the notices you want to; but, if you do not appropriate the water your filings lapse.

Mr. CARSON. That is right. Now, then, as I understand this present situation—and I am speaking without very accurate knowledge—the total present uses of Colorado River water in California which are actually in use approximate 2,700,000 acre-feet.

Mr. WHITE. That does not reach the thing I want to know. I want to know what valid water rights are in existence in the three States to the waters of the Colorado River.

Mr. CARSON. I cannot tell you that accurately.

Chairman MURDOCK. We have an engineer here who will tell us something about the water actually used in Arizona.

Mr. WHITE. It is not the water actually used; it is the water they have a right to use by reason of existing valid water rights.

Mr. CARSON. Mr. White, no matter how many filings were made in any State or how much water was actually put to use, the right in that State is limited by the limitations on that State that are effective here—in California, by the California limitation act, to 4,400,000 acre-feet plus one-half of the surplus. I have no doubt there are in the proper water authority offices in California filings for many times that amount of water, but that limitation is what governs. In

Arizona there are filings for a lot more water than we can take under our limitation, and it is the limitation that should govern in the applications for water rights.

Mr. FERNANDEZ. Mr. Chairman, I think that question is very important in this way: I agree that what Mr. Carson says is true; but in the consideration of this bill it seems to me the important question is whether or not Arizona is about to reach the limit of its 2,800,000 acre-feet. If it has not reached that, then California cannot complain, because they both agree they are entitled to 2,800,000 acre-feet. Now, if they have reached 2,800,000 acre-feet or are about to reach that with this project, then the question of whether or not they are entitled to an additional 1,000,000 acre-feet is important. Therefore, that question, I think, is very important here, and I have been wanting to ask that when Mr. Baker is on the stand.

Mr. CARSON. Yes.

Mr. PHILLIPS. Should not we say, when you say "water," that you mean main-stream water?

Mr. FERNANDEZ. That is what we are dealing with here, is it not?

Mr. PHILLIPS. No; system water.

Mr. FERNANDEZ. System water. Now, you are both agreed, I think, that system includes the Gila River, except Arizona claims they have 1,000,000 acre-feet in the Gila River over and above the 2,800,000 acre-feet.

Mr. PHILLIPS. When you speak about the 2,800,000 acre-feet, you are talking about system water.

Mr. FERNANDEZ. System water. You are both agreed they are entitled to 2,800,000 acre-feet of system water, and until that point is reached California cannot complain.

Mr. CARSON. If you apply system water and try to include it all in one, they have apportioned to the lower basin 8,500,000 acre-feet, not 7,500,000 acre-feet.

Mr. FERNANDEZ. That is true; that is what you contend, but they do not agree to that, but do agree that there is 7,500,000 acre-feet.

Mr. CARSON. Then their limitation is 4,400,000 acre-feet and Nevada's is 300,000 acre-feet. So if you include them all in the same system and use the same measuring stick, Arizona is entitled to 3,800,000 acre-feet, less these small quantities which are used in New Mexico and Utah.

Mr. PHILLIPS. Then if it is not established that the actual beneficial use of the Gila amounts to 2,000,000 acre-feet, the claim of Arizona in the main-stream water would be reduced to 1,800,000 acre-feet; is that right?

Mr. ROCKWELL. I would like to ask a question at that point. Maybe I will get off the track on this, but I would like to ask this question of Mr. Carson and the others. Up in my State I haev heard this water question discussed for a good many years. In fact, I was president of the Colorado Senate when this compact was signed at Santa Fe, and we have always contended that each State had the right to its own water while within the boundaries of that State. I think the Supreme Court so held up until a decision was handed down by that body by a vote of 5 to 4, I believe it was, which changed their policy to first in time, first in right.

Mr. CARSON. That is right.

Mr. ROCKWELL. Went into effect regardless of State boundaries.

Mr. CARSON. That is right.

Mr. ROCKWELL. Now, in our State we still think that some other Supreme Court will decide the way it was originally decided and, if that should happen, what would be the situation here? I do not want to get off on another track, but that may happen at some time and might change this thing upside down.

Mr. CARSON. It would not affect this.

Mr. ROCKWELL. It would the Gila, would it not?

Mr. CARSON. No. I think it would not affect the Gila or the Colorado River compact; because, as I see it now, we have agreed to our limit in each State; not in the upper basin as between States, but between the upper basin and the lower basin where we have agreed. In the lower basin we have agreed, although not directly across the table, through a compact and the California limitation act that our total water, whatever could be used, no matter what the final court decision on that would be, would be out of firm water—ignoring for the moment surplus—3,800,000 acre-feet, and in California 4,400,000 acre-feet. Then the State law in Arizona comes into play as to where it would be used and who would have a prior right within the State, and the California law in California. So, when the State's division is once made, then it is a matter for the State jurisdiction to determine the priorities of its own users within the State. That is

under the jurisdiction of the State and not under the United States. So, I think one of the cases you refer to is that of *Kansas* v. *Colorado* and *Colorado* v. *Wyoming* in which the Supreme Court added up the users in both States and in effect did apply the right of prior appropriation regardless of State lines in determining the quantity each State should have. But here we have done that by agreement.

Mr. ROCKWELL. In other words, that will not affect this question; the upper States, as I understand it, have to turn 7½ million acre-feet down.

Mr. CARSON. Yes.

Mr. ROCKWELL. Then the lower States have 8,500,000 additional between them.

Mr. CARSON. That is right.

Mr. ROCKWELL. So any decision changing that would not affect this particular controversy.

Mr. CARSON. That is right.

Mr. ROCKWELL. It struck me it might only in the case of the Gila River, where Arizona might divide with respect to that water that they had priority over any other State.

Mr. CARSON. It would under the State law in Arizona say that the Gila River and any other appropriations would have priority in the order in which they were made; so that out of our 3,800,000 acre-feet apportioned the first rights would be along the Gila River where it was first put to use, so that they can never be disturbed by anything that any of us can do, nor would any of us want to disturb those rights. So that they are all secure.

You were not here last night, Mr. Rockwell. The total water that Arizona is now using out of the main stream of the Colorado River—Mr. Baker will go into the figures, but it is somewhere in the neighborhood of a little over 400,000 acre-feet. So that under our construction we have 2,800,000 acre-feet less some deduction for the water used in Utah and New Mexico and in addition to the use of over 1,000,000 acre-feet that we use of the Gila, still in the main stream subject to our right to use, and then when that is put to use by this Wellton-Mohawk and Yuma projects and the central Arizona project, the State laws apply in the determination of priority rights, depending upon the priority of appropriation.

Mr. FERNENDEZ. You read from the Boulder Dam Act one provision authorizing the entering into of a compact between the three lower States; then you also read from section 4 another provision which, as I understand, undertakes to interpret the various compacts and transactions that had theretofore taken place, and to place them in a provision for a contract. If that compact, as provided by section 4, is entered into, then that becomes a compact without necessity of ratification by the Congress, because it has already authorized it in specific language?

Mr. CARSON. Yes.

Mr. FERNANDEZ. That is correct; is it not?

Mr. CARSON. Yes.

Mr. FERNANDEZ. Now, if that kind of a compact is entered into, that ends the matter.

Mr. CARSON. I do not think that necessary.

Mr. FERNANDEZ. Why not?

Mr. CARSON. Because California is now bound, as I see it, Mr. Fernandez, by its limitation act to the construction that we place upon this compact.

Mr. FERNANDEZ. Yes; but that limitation act is included in the compact which the Congress has authorized to be entered into?

Mr. CARSON. No; the limitation is effective whether or not this compact is entered into.

Mr. FERNANDEZ. That is true; but if the compact is entered into, then there is no question left?

Mr. CARSON. Yes; I think we would still have the same question.

Mr. FERNANDEZ. The difficulty is that the interpretation which the Congress tried to put into the various transactions your two States interpret differently; therefore, neither Arizona nor California want to enter into that particular compact because you do not understand it alike?

Mr. CARSON. Well, California has raised this one question and that was not raised in the course of the negotiations, so far as I know. I did not hear that until this hearing began, that the Arizona Legislature changed the meaning of this permissive compact as set out in the act.

Mr. FERNANDEZ. That is correct.

Mr. CARSON. And I submit we did not. But since they have raised that question and since in my judgment they are already bound by the limitation act which is effective whether or not the compact is made, then before we enter into any compact with them we should make it absolutely clear. I do not like to enter into compacts in behalf of a State in which there is a disagreement or failure of a meeting of minds upon the meaning of clear language.

Mr. FERNANDEZ. Well, the Arizona Legislature did change the language.

Mr. CARSON. Yes.

Mr. FERNANDEZ. And changed it so as to conform with its interpretation of the proposed compact.

Mr. CARSON. And with the provisions of the California limitation act, also.

Mr. FERNANDEZ. Well, I do not see where the California limitation act has anything to do with that particular section. The main objection of both of you is whether or not you are entitled to 2,800,000 acre-feet of water or 3,800,000 acre-feet of water.

Mr. CARSON. That is right.

Mr. FERNANDEZ. And your legislature did change the language so as to make it clear that you were entitled to 3,800,000 acre-feet.

Mr. CARSON. Yes, sir.

Mr. FERNANDEZ. And California says that is not what is meant by the language which Congress proposed.

Mr. CARSON. I think we are talking about something that would not happen.

Mr. FERNANDEZ. Anyway, that is a fact; is it not?

Mr. CARSON. Yes.

Mr. FERNANDEZ. Now, going back to the other provision, if California and Arizona would sit down together now and enter into a compact which would be in conformity with the compact dividing waters between the two basins, the upper States and the lower States, whether they use this language or other language, if they could agree between them and Nevada, then that compact could be entered into and submitted for ratification to the Congress.

Mr. CARSON. Yes.

Mr. FERNANDEZ. The point I am trying to make is that we do not have to do anything now about reauthorizing any such compact. The three lower-basin States already have ample authority to work out a compact and submit it to Congress for approval.

Mr. CARSON. That is right; that is just exactly correct.

Mr. WHITE. The only thing that appears to me is that in this authorization for a compact that has been read here the whole program was set out in the nature of a limitation; there was not much left for these States to agree upon. They had to take the authorization as it was stated, with that limitation, and the fact is I do not see much use of having a compact except to ratify what the Congress has already outlined in the authorization for a compact.

Mr. CARSON. I don't either, Mr. White, and I don't think we could ever make a compact.

Mr. WHITE. Doesn't that infringe the rights of the three States to the water of the Colorado River having a right to agree on the use of water? Didn't Congress infringe that by setting up the limitations in the authorization of the compact?

Mr. CARSON. No. Congress, at the time this Boulder Canyon Act was passed, put in this permissive clause for a tri-State compact in the lower basin and, for fear California would not enter into that compact, which was the fact, inserted this limitation to California's use, to which California, by act of its legislature, has agreed "* * * and, further, until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an express covenant and in consideration of the passage of this Act, that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this Act and all water necessary for the supply of any rights which may now exist, shall not exceed four million four hundred thousand acre-feet of the waters apportioned to the lower basin States by paragraph (a) of Article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact."

Mr. FERNANDEZ. May I pursue that a little?

Chairman MURDOCK. Yes.

Mr. FERNANDEZ. Will you yield?

Mr. WHITE. Yes.

Mr. FERNANDEZ. You say that because of that, California being assured 4,400,000 acre-feet of water plus one-half of the surplus, that California has no right to come in here and question whether or not Arizona is entitled to 2,800,000 or 3,800,000 acre-feet, so long as they get their water.

Mr. CARSON. That is exactly right—until there is some surplus.

Mr. FERNANDEZ. If you are correct that you are entitled to 3,800,000 acre-feet, then the surplus must be over and above that.

Mr. CARSON. That is right.

Mr. FERNANDEZ. And if they are correct that it is 2,800,000 acre-feet, then the surplus begins when that is used, and there would be 1,000,000 acre-feet of surplus water.

Mr. CARSON. If they could be correct on that.

Mr. FERNANDEZ. To which they would be entitled to one-half.

Mr. CARSON. That is right.

Mr. FERNANDEZ. Or half a million acre-feet.

Mr. CARSON. That is right.

Mr. FERNANDEZ. Then they do have a right to come in and question that provision now, do they not?

Mr. CARSON. No. The point here, Mr. Fernandez, if you take the over-all apportionment of the basin, there is 8½ million feet of water to the lower basin. California is limited to 4,400,000 acre-feet. That leaves Arizona 3,800,000 acre-feet of apportioned water, which California has agreed she can never use.

Mr. FERNANDEZ. But they say it is not 8½ million acre-feet of water, but 7½ million acre-feet. Therefore, they would be entitled to one-half a million of the surplus.

Mr. WHITE. I think that the gentleman from New Mexico is confusing the water in the main Colorado River and the tributary, the Gila River.

Mr. FERNANDEZ. I am not confusing it for this reason, that if the Gila water of 1,000,000 acre-feet that they claim from that stream is credited against what they are supposed to get from the main stream, that leaves them with a claim for much less water than they say they are entitled to, and with that much more surplus to be divided.

Mr. WHITE. The legislative limitation imposed on itself by the State of California, does that conform exactly to the limitation set up in the authorization bill?

Mr. CARSON. Yes, sir.

Mr. WHITE. It conforms exactly?

Mr. CARSON. Yes; it conforms exactly, irrevocably, and unconditionally.

Now, Mr. Fernandez, on that question of what is apportioned to the lower basin, I think that California would agree that 8½ million feet are apportioned to the lower basin. Whether they would agree or not, it is clear from this Colorado compact.

Mr. FERNANDEZ. As Congress interpreted the transactions leading up to the compact and as you interpret the interpretation made by Congress.

Mr. CARSON. No; as the compact shows in its express terms.

Mr. FERNANDEZ. Will you read those express terms?

Mr. CARSON (reading):

"(a) There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

"(b) In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

"(c) If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River system, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be equally borne by the upper basin and the lower basin, and whenever necessary the States of the upper division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d)."

Now, I jump down to (f). These others do not affect this particular question.

"(f) Further equitable apportionment of the beneficial uses of the waters of the Colorado River system unapportioned by paragraphs (a), (b), and (c) may be made in the manner provided in paragraph (g) at any time after October 1, 1963, if and when either basin shall have reached its total beneficial consumptive use as set out in paragraphs (a) and (b)."

So there is no question that it is apportioned water, and the Supreme Court of the United States has, it seems to me, in clear and unmistakable language, held that it was apportioned water. So then, if it is apportioned water—and I am clear that it is—then California has precluded herself from ever claiming any part of it because she has limited herself to 4,400,000 acre-feet plus half of the surplus. And, therefore, whether or not you figure it as an over-all apportionment of 8½ million feet to the lower basin, which it clearly is by this language, it leaves 3,800,000 acre-feet for use in Ariozna.

The difficulty and the confusion, it seems to me, comes in this fact, that the Secretary of the Interior by this act was authorized to make contracts for the delivery of water from Lake Mead and everybody was precluded from claiming water except by contract with the Secretary. Well, now, of the 8½ million feet apportioned to the lower basin, 7½ million feet of that comes down from the upper basin and is called III (a) water, but, actually, when you get down to figure the ultimate right to water here, it does not make any difference whether you specify that that is III (a) to the exclusion of III (b); the result is the same. The water coming down from Lake Mead is the only place where the Secretary has authority to deliver water, except by act of Congress. All of these contracts relate to water in Lake Mead, where the supply is limited by the Colorado compact to 7½ million feet. Therefore, in the Airzona contract, that is why we say the Secretary agrees to deliver and we to take 2,800,000 feet. The Secretary has not any jurisdiction over the Gila River.

Mr. FERNANDEZ. Then I am wrong in my assumption and interpretation of the compact that it would result in more water?

Mr. CARSON. I think you are right in your assumption, if there should be any more than 1,000,000 acre-feet of the Gila River depletion; that might reduce our right from the main stream and the difference would be a surplus from which they could take a part.

Mr. FERNANDEZ. That is their interpretation.

Mr. CARSON. Yes. But in doing that, they run into two difficulties. They add up diversions and call them consumptive use, contrary to the language of Congress when it says "diversion less returns to the river." When we use the virgin flow of the river, if we use it entirely in the Gila River, all consumption would be 1,271,000 acre-feet because we would have prevented any return from the Gila River to the main stream. They want to apply one definition of consumptive use to us and another to themselves.

If we are correct on that, they cannot transfer, by any stretch of the imagination, any quantities of water from the Gila River by any mathematical computation to the main stream of the river, which they would attempt to do.

Mr. FERNANDEZ. Now, if no compact is entered into and no judicial determination is made which would determine who is correct, then Congress will do that as it goes along in authorizing new projects.

Mr. CARSON. I do not think so on this.

Mr. FERNANDEZ. Who is going to do it, then?

Mr. CARSON. Let me tell you my theory on this particular bill, which we have largely overlooked in this discussion. But if you could figure, under any stretch of the imagination, that California's position as to the total consumptive use in the lower basin was in any way correct, still, as you have well stated, the only effect of it would be to give them a right to half of whatever mathematical quantity they could figure from the Gila that should be deducted in order to make the consumptive use of 8½ million feet of the lower basin, so that they could claim half.

Mr. FERNANDEZ. Therefore, in doing that, we actually determine this question for ourselves.

Mr. CARSON. No. On this bill, even if——

Mr. FERNANDEZ (interposing). Not necessarily on this bill, but as we go along.

Mr. CARSON. On future projects?

Mr. FERNANDEZ. Yes. When we approach the limit, the Congress will have to decide that for itself.

Mr. CARSON. Yes; but not on this bill, because even under their method of figuring there would be a lot more water in the river than this project would consume—in addition to all uses in Arizona would consume.

My point again is that the Congress has already determined this, Mr. Fernandez, by this limitation act, which California has accepted. California has excluded themselves from any part of apportioned water except 4,400,000 acre-feet, and that leaves 300,000 feet in Nevada and 3,800,000 feet in Arizona.

Mr. WHITE. You mean in the water system—not in the river.

Mr. CARSON. In the water system.

Mr. PHILLIPS. What are the present uses in Arizona?

Chairman MURDOCK. We shall come to that later when we hear the engineer.

Now, Mr. Howard tells me that he is leaving and wanted a few minutes today, and it is pretty near 12 o'clock. I did want to hear from Mr. Baker, the engineer, in answer to some of the questions put by some of the members.

We have with us this morning, Mr. Hinshaw, and I am glad to welcome him to our hearings.

I wish that every member of this committee, in addition to the subcommittee, might sit in on these hearings because it is very important.

Mr. PHILLIPS. When we go into the full committee we will have to go over all this material again.

Chairman MURDOCK. We will have it before us. As one of the members said to me the other day, "I can get this a lot better if I can see it."

Mr. Hinshaw, we will be glad to have you. Did you want to make some statement with reference to the bill?

FURTHER STATEMENT OF CHARLES A. CARSON, SPECIAL ATTORNEY FOR THE STATE OF ARIZONA ON COLORADO RIVER MATTERS

Mr. PHILLIPS. You are Mr. Charles A. Carson?

Mr. CARSON. That is correct.

Mr. PHILLIPS. I told you I had a question to ask you that was more or less serious.

Mr. CARSON. Yes, sir.

Mr. PHILLIPS. You said the other day in your testimony that the water that was being delivered into the Salt River Valley was III (b) water. I wondered whether you do believe that is an accurate statement of that situation?

Mr. CARSON. That is more or less rhetorical, Mr. Phillips. I tried to make that clear for Mr. Rockwell's benefit, as well. The situation is something like this—and I would like to go again to the point where this division was made.

Mr. PHILLIPS. I was just asking the question if you felt that the Gila water used in New Mexico and the Gila water used in Arizona would come into that, and, if so, just how?

Mr. CARSON. I am going back to this proposal, if I may, for a moment, with Mr. Rockwell's statement in mind.

Mr. Rockwell, no matter whether you consider this III (b) water, to be Gila water, or part of this 8½ million acre-feet in the lower basin, it is very clear in my mind that the III (b) water is apportioned to the lower basin, and was water bearing that identical relationship to the Gila River water that I mentioned before, and to which you have addressed your question. I think that is clear, now. It is apportioned to the lower basin, as is likewise the 7½ million acre-feet of III (a) water, so it makes the apportionment to the lower basin 8½ million acre-feet.

Now, California, by her limitation act, has agreed that her use can never exceed 4,400,000 acre-feet of this 8½ million acre-feet, plus one-half of whatever surplus or excess is in the river over and above the 8½ million feet apportionment to the lower basin. So, taking that view of the thing, then, Arizona is entitled to 3,800,000 acre-feet without in any way infringing upon the California limitation. That still leaves 300,000 feet for Nevada.

Of this 3,800,000 acre-feet, we take—and this is the source of the supply likewise—apply that to the Gila River 1,000,000 acre-feet which leaves us out of the main stream 2,800,000 acre-feet. But by those two quantities, 2,800,000 acre-feet, and the million acre-feet, Arizona has reached her limit of consumptive use of apportioned water under the compact, and under the California Limitation Act, California cannot be heard to complain because she agreed with the United States by a solemn, statutory agreement made, as I say, in the most solemn way an agreement could be made involving assurances of one State to the United States, and to her sister States. That agreement was made in terms irrevocably and unconditionally for the benefit of the State of Arizona, as well as other basin States. And it is on that limitation or solemn agreement

that California can never use more than 4,400,000 acre-feet of the water apportioned to the lower basin, plus not more than one-half of the surplus, that we rely, I believe.

Moreover, I think we should apprehend that it is a pure question of mathematics; 8½ million acre-feet as your total: 4,400,000 acre-feet to California: less 300,000 acre-feet for Nevada; leaves 3,800,000 acre-feet for Arizona. If you take those three figures away from 8½ million feet, you should come down to zero.

Then, Mr. Baker has told you that under any of these figures of flow there is ample storage in Boulder Dam to regulate the river and provide a steady flow of water to the projects that are described in this bill; that is the Gila-Wellton project, and the Yuma Mesa-Wellton-Mohawk.

I can illustrate this very clearly. Even if Mr. Dowd should prevail and say we are using 2,000,000 acre-feet on Gila—which we do not admit for a moment—why, we would have to deduct a million acre-feet out of our otherwise main stream apportionment, which would still leave 1,600,000 acre-feet for us in the main stream. This project takes 600,000 acre-feet, which still leaves us with a million acre-feet, with the use on the Indian reservations, and the water required for this project, if we utilized all of that, we would not even then have reached our limitation even under that construction on this project.

Of course, we have gone into a lot of argument about ultimate conditions that may happen in the upper basin and the lower basin, as may now or in the future take effect, but even with those ultimate conditions as projected they would not be jeopardized as to these water rights.

Again, if Mr. Dowd's theory should prevail on the consumptive use on the Gila River—which to my mind it cannot, and is not capable of being done—but even if it should prevail, if they could show that the salvage water on the Gila River—that is, if they can, by salvaging the water, and the salvage I am satisfied would be less than 500,000 acre-feet, and might be as low as 400,000 acre-feet, but even if they should prevail on that, what would happen? That would merely add up on their consumptive use in the basin, and reduce our firm supply and leave a surplus in the main stream to which they would be entitled to one-half. The water would be in the main stream because we are only figuring on the water at Lee Ferry. So if we deduct that from our firm water it is still bound to be in the main stream of the river at Lake Mead, and they could use half of that, so the most we could ever lose is 200,000 acre-feet, or 300,000 acre-feet, or thereabouts.

Therefore, in this question that they are raising here about delaying until an agreement can be made, or until all of these water questions can be settled, it seems to me that they are without any merit at all. I say that because if they are bound, and they are admitting that they are bound by the California Limitation Act, they cannot in any way be heard to complain.

On the question of the arbitration we will not, so far as I am ever authorized to speak for Arizona, ever concede that they are entitled in any way to avoid or evade their limitation act or the Colorado River compact, or the Boulder Canyon Project Act, and unless and until they can do that, then they have already now agreed, and there is no use of our trying to make any further agreement with them. They have agreed now, and they are bound.

Then as to the question of the arbitration, as I said before they are out, because this was an informal arbitration, true, but it was an arbitration, and the recommendation was made, and when it came to Congress, Congress accepted it with but a slight change, and wrote it into the Boulder Canyon Project Act.

I want to say that Congress and California obviously accepted that division, because they wrote in their own requirements in the California Limitation Act, which California adopted. So the agreement is made. The only difference is that instead of California and Arizona signing the same piece of paper, why, they signed with the United States for our benefit; we signed with the United States for their benefit, but the division is made just as squarely and as fully as if there were a different manner of doing it, and if they had gone about it the other way and signed on the same paper, that would not strengthen it in the slightest.

It is not necessary for Congress to undertake to adjudicate water rights to determine between conflicting interest for water. If Congress will read its own act, the Boulder Canyon Project Act, the California Limitation Act, and the Colorado River Compact, it will see that all of these matters here in controversy have already been definitely settled, as definitely as they could be in any agreement or in any court decree. It is settled. It is settled now.

I do not appreciate the fact that they come in and ask this committee to postpone consideration pending the making of an agreement, an agreement by which they are already bound, or to arbitrate again, when they have already arbitrated, and they are now refusing apparently to accept it, or delay until a court can determine it, when they say that they have no way to get into a court. When, as a matter of fact, Arizona filed a suit in 1935 for an equitable apportionment of the water, the California people objected to the jurisdiction of the court, and the court dismissed it partially on the grounds that the United States was not a party to the suit; and also on the grounds that, as the attorneys say, the United States will not take jurisdiction in cases requiring declaratory relief solely. In other words, there must be a valid right, which it is alleged may be endangered, and by the very fact that they say that they are advised by their attorneys that the court will have no jurisdiction is a prime admission that they know that they will not be damaged by this project.

If they thought that this project would be a danger to them, they would say, "Yes, the Supreme Court would have jurisdiction." They say it has no jurisdiction, and the reason they say that is because they cannot make an allegation that they are damaged, before the Court.

Now, Mr. Phillips, it does not make any difference here whether you classify the Gila water as III (a) water or as III (b) water, if you keep in your mind the fact that the entire 8½ million acre-feet of III (a) and III (b) water is apportioned water to the lower basin and California has, by the California Limitation Act, limited herself to a certain amount, and as required by the Boulder Canyon Project Act has made certain commitments. That is all there is to it, as I see it.

All these other questions about these matters brought up in these arguments are, to my mind, to a very large degree, is much to do about nothing, because they fall, when you carefully consider them, of their own weight. After we have settled those, and I do believe I have covered them completely in my statement I just made, the sole question left from these arguments that we have here is what is the total consumptive beneficial use of the Gila River.

I have tried to cover, and I took some little time to do that, the points which are involved in that matter. I believe we will be consistent with the total consumptive use, as measured exactly the same in Arizona as it is in California, diversions less returns to the river, in the language of the Boulder Canyon Project Act. If that be true, then we are using now on the Gila River 1,135,000 acre-feet, and we have Mr. Baker's charts charging against ourselves on the main stream 135,000 acre-feet, which is the amount over and above the 1,000,000 acre-feet of III (b), but is part of the 1,135,000 acre-feet total figure that I gave. We have utilized the III (b) provision merely because it makes a division between the sources of supply.

In the beginning it was agreed that such a provision would be written into the tri-State contract. That was not done, it was not binding, but California, being bound by her limitation act, and excluded from the million acre-feet of III (b), it makes no difference whether you consider it in III (a) or III (b), because whatever it is, III (a) or III (b), we come to this situation: If it is III (b), and it is separated, then it means that California can claim no part of the Gila River; but if it is III (a), then you say there is an additional million acre-feet in the main stream, which California has agreed by her limitation act she cannot take.

In other words, I think the source of the water in each case is clear, and I think that the implications as to what can be done as to that particular water, whatever its source may be, are equally clear.

Mr. PHILLIPS. I should like to read a part of the act into the record; I think it can be found somewhere in here. I think in effect what we have this afternoon is that Mr. Carson is attempting by his testimony to change this statement.

Mr. CARSON. Whose statement?

Mr. PHILLIPS. Your own statement.

Mr. CARSON. I have not changed my statement, I submit.

Mr. PHILLIPS. I think the record will show it. Yesterday you did make a rather definite division between class A and class B waters.

Mr. CARSON. No, sir; I told you yesterday it made no difference which way you figured out, you came out to the same place in the end, that you cannot claim any part of it in California under the limitation act, because this is a portion of the lower basin.

Mr. PHILLIPS. Mr. Carson, you said a minute ago that this has been arbitrated, and you also said that California had refused to arbitrate.

Mr. CARSON. I said "agreed informally to arbitrate," not binding or anything like that. I made that clear, in my opinion.

Mr. PHILLIPS Also, I do not think you meant to emphasize the fact that California was claiming to be injured now. I do not think that is the claim, and that is the first time it has been set up, the presumption that we should not figure now on the conditions in the river at future times. It seems to me that that is exceedingly important, if the upper basin is going to be exhausted of its water rights, and the lower basin is going to be exhausted of its water rights, every State in the basin is interested in the future water supply, and particularly southern California, where all of this water has been presumbly contracted for.

Now, I just would like to ask Mr. Carson in very simple language: Do I understand now that Arizona refuses to arbitrate?

Mr. CARSON. Yes, sir; you can understand that.

Mr. PHILLIPS. And yet the record will show the other day that Mr. Carson said that California refused to arbitrate.

Mr. CARSON. Yes, you did; because we tried it.

Chairman MURDOCK. I cannot see any inconsistency there.

Mr. CARSON. It was an informal matter.

Chairman MURDOCK. To my personal knowledge, there has been effort made to get Arizona and California to get together for a quarter of a century, ever since 1923, certainly since 1927, and more certainly since the Boulder Canyon Project Act was passed. Somebody, some place, has held up the agreement.

I want to make this point clear: As I understand, Mr. Carson, in order to bring an action before the Supreme Court you have to show that you are being injured?

Mr. CARSON. That is true.

Chairman MURDOCK. It is useless for us to talk about litigation to settle this thing until one or the other is placed at a disadvantage, and one or the other of the contestants can show that he is being injured. If this question cannot be brought into court, if it cannot be effectively arbitrated, and if, as some contend, it cannot and should not be determined by an act of Congress, then it cannot be settled, therefore nothing will be done. The status quo should be highly satisfactory to interest and agencies in California now getting practically all the benefits from the river.

Mr. PHILLIPS. I do not think anybody claims he is injured now. I think Mr. Dowd said there is today an excess of water, but I asked you the other day, to be consistent, if you would recommend the building of water projects anywhere which subsequently might be found not to have enough water available to them.

I will say this for the record, and I will say it categorically, that California supports and will continue to support and stand behind the compact, stand behind the California Limitation Act, and the Boulder Canyon Act, and we will arbitrate. Let Mr. Carson say what he may.

Mr. WHITE. What about the contract between the Department of the Interior and Arizona, do you accept that?

Mr. PHILLIPS. I do not know the wording of it. I would have to look into it more.

Mr. DOWD. We will accept it on the basis that the then Secretary of the Interior Ickes said he signed it. We intend to put into testimony certain parts of this contract between Mr. Ickes and the State of Arizona; we agree that there was such a contract.

Mr. WHITE. Do you not think that the contract between California and Arizona is still material and binding as to the limitation act?

Mr. DOWD. No, sir; because under the Boulder Canyon Act, Congress set up certain limitations. It said, "If you will accept these limitations, we will do so-and-so." The Secretary was under a mandate to make contracts, under that act, with California, and California, within the limits of the limitation act, was in a position to make contracts with the Secretary of the Interior.

Mr. WHITE. That is undoubtedly so.

Mr. DOWD. Well, we will stand back of it.

Mr. WHITE. I believe you are qualified as a lawyer?

Mr. CARSON. Yes, sir.

Mr. WHITE. I believe you are familiar with water-right laws?

Mr. CARSON. Quite a few. I am quite familiar with them.

Mr. WHITE. State laws concerning them?

Mr. CARSON. Yes.

Mr. WHITE. Before any negotiations were undertaken by the States of Cali-

fornia, Arizona, and Nevada; in fact, before there were any negotiations undertaken between the States of the upper basin and the lower basin with the Federal Government, the States had certain rights to the water of the Colorado River; is that a fact?

Mr. CARSON. Yes, sir.

Mr. WHITE. By authorization of Congress, the several States entered into an agreement or so-called compact with the Federal Government for certain use of the waters of the Colorado River?

Mr. CARSON. That is correct, sir.

Mr. WHITE. In making that agreement and compact, did that convert and convey certain rights to the Federal Government to the control of waters in the Colorado River?

Mr. CARSON. No; generally speaking, I think, Mr. White, that it made the agreement between the States that a portion of the water in the upper and lower basin would be apportioned. Then Congress, by the Boulder Canyon project, gave rights to the United States, and nobody claimed otherwise, so far as I know, under the United States, save that it should be controlled by the compact.

In other words, I think that that is all embodied in the compact and does not go beyond it in any case.

Mr. WHITE. Let us discuss the compact. Do the provisions of the compact convert and convey rights to the Federal Government to go in and exercise some control over the waters of the Colorado River by regulating its flow?

Mr. CARSON. I see what you mean. No, sir; but it is provided in the Boulder Canyon Act that the Secretary of the Interior was authorized to make contracts for the storage and delivery of the water in what is now known as Lake Mead, and that nobody could acquire or claim such rights except by such contract with the Secretary of the Interior, and it is under that provision that these California contracts are executed. These contracts are on that same basis, both as to the authority of the Secretary of the Interior to make them and as to the water in storage behind Boulder Dam in Lake Mead, are subject to availability to California and Arizona in exactly the same way, by virtue of the contracts in connection with the water of the Colorado River stored at Lake Mead and the Boulder Canyon Project Act, Colorado River compact, and California Limitation Act.

Mr. WHITE. Under the provisions of this compact, the Santa Fe compact, it continued to recognize the existing water rights and the existing appropriations of water?

Mr. CARSON. That is correct.

Mr. WHITE. And that was all taken care of in the provisions of the compact?

Mr. CARSON. That is correct.

Mr. WHITE. Then the Government proceeded to enter into contracts for the diversion of water to California communities, and the California so-called contractors?

Mr. CARSON. That is correct.

Mr. WHITE. To that extent that is the situation?

Mr. CARSON. I think that would be so. Of course, there are certain provisions in there.

Mr. WHITE. To that extent, the Federal Government enters into the situation?

Mr. CARSON. That is correct.

Mr. WHITE. To that extent, there was also authorization to the Federal Government to enter into an agreement with the States and the States themselves, and at the time by themselves, and with the Federal Government agreed to devote their energies and their will to the diversion of water from the Colorado River, and the States, by that agreement, surrendered to and conferred upon the Federal Government certain rights to the control of the waters of the Colorado River?

Mr. CARSON. That is the way that this thing was carried out, so far as water stored in Lake Mead is concerned.

Mr. ROCKWELL. Is that the actual fact? I do not understand it to be quite that way. We do not confer upon the United States Government; we agree that an agency by which these compacts are carried into effect could do certain things; we had to have some agency.

Mr. CARSON. Maybe I do not understand correctly.

Mr. WHITE. But did the water users or contractors contract with the Secretary of the Interior for the use of the water?

Mr. CARSON. From Lake Mead, the United States, acting under and by virtue of that act.

Mr. WHITE. The Lake Mead water, but that is simply an enlarged place in the Colorado River.

Mr. CARSON. It is a place where water is stored in the Colorado River.

Mr. WHITE. Is it an enlarged place where all the water that comes down the Colorado River flows, all of it flows ultimately through Lake Mead?

Mr. CARSON. That is correct.

Mr. WHITE. All in the world that Lake Mead is, is a plan to regulate the flow of the Colorado River?

Mr. CARSON. Yes; it stores it and holds it.

Mr. WHITE. It stores it in high-water periods and by that means regulates the flow of the Colorado River?

Mr. CARSON. That is correct.

Mr. WHITE. Laying aside the fact that there is a generation of power there, it is still the purpose of Lake Mead or Boulder Dam, as I have inicated?

Mr. CARSON. That is correct.

Mr. WHITE. To regulate the flow of the Colorado River?

Mr. CARSON. That is correct.

Mr. WHITE. By the terms of this compact with both the upper basin and the lower basin States, they transferred certain of their rights to the United States Government.

Mr. CARSON. By the Boulder Canyon Project Act and these water contracts. They surrendered their rights to control the storage of water in Lake Mead, and beyond that it would be my construction that we did not surrender any rights on the Colorado River, as a whole. You cannot get water out of Lake Mead stored there except by contract with the Secretary of the Interior, then Mr. Ickes. When we do get it in our various States then the State law governing prior appropriations enters into the picture for the first time for a determination of relative priority rights in the respective States.

Mr. WHITE. I have not made a detailed study of the language of the Colorado compact, or the contracts entered into under the terms of that compact, but it is my understanding that the Federal Government, acting under the authority conferred upon it by the Colorado compact, which was made at Santa Fe, N. Mex., and supporting legislation, entered into a contract with the States, and with the city of Los Angeles, and with the metropolitan water users district to divert and deliver to these two contractors a certain portion of the waters of the Colorado River. Is that right?

Mr. CARSON. That is a correct statement.

Mr. WHITE. They did that under some authority.

Mr. CARSON. So they did.

Mr. WHITE. And the Federal Government, until the compact was entered into, had no authority.

Mr. CARSON. I am not so sure that it necessarily arises in the compact.

Mr. WHITE. Did not the States enter into this contract thereby conveying certain rights to the Federal Government?

Mr. CARSON. That is hard to answer that directly. I think the Secretary of the Interior evidently has the right to contract for the storage and delivery of water at Lake Mead, and that nobody can get that water except by contract with the Secretary of the Interior once it is stored in Lake Mead.

Mr. WHITE. How did the Secretary of the Interior obtain that right?

Mr. CARSON. By the provisions of the Boulder Canyon Project Act, which authorized the construction of the dam.

Mr. ROCKWELL. At this point, I should like to read an excerpt from the act; I will just paraphrase it slightly, in which it says: Nothing herein shall be considered as interfering with State rights as the States now have either of the waters within their borders or to adopt such policies and enact such laws as they may deem necessary with respect to the appropriation, control, and use of waters within their boundaries, except as modified by the Colorado River compact, or other interstate agreements.

Does that in general state what you think to be the situation in that regard?

Mr. CARSON. That is true.

Mr. WHITE. That is right in harmony with what I have just said. The State did transfer certain rights to the waters of the Colorado River to the United States Government. Maybe I did not state it just that way, but it seems to me that it follows right along that very same line.

Mr. ROCKWELL. It goes on to discuss the matter of agreements or contracts in connection with the construction of the dam, and the headwaters which would be before the dam, and the necessary flood-control regulations, and so forth, and their authorizations there. I can read that, if necessary.

Mr. WHITE. Who has the authority and who does it authorize? It seems to me that would be the point in question.

Mr. ROCKWELL. Section 19, I think you might turn to. There is a reference there to negotiate and to enter into compacts or agreements supplemental to and in conformity with Colorado River compact, and consistent with this act for the comprehensive plan for the development of the Colorado River, and provide for the storage, diversion, and use of waters of the Colorado River.

Mr. WHITE. Diversion of the waters?

Mr. CARSON. I do not want to be understood here in any way as saying that the States have surrendered the control of the waters within their boundaries to the Federal Government. As I take it, authority of the Secretary of the Interior in regard to the river is limited to the waters stored in Lake Mead behind Boulder Dam, and the Secretary has authority under section 5 of the Boulder Canyon Project Act to do certain things, which I think you have reference to there.

Mr. WHITE. What did the compact say? That is what the States entered into. Congress, in the Boulder Canyon Project Act—that is the only case where the Federal Government had rights and authorities conferred on the Federal Government in that manner.

Speaking generally, the Federal Government has rights and authority conferred on it by the Constitution of the United States. Now, then, the States have granted certain rights to the Federal Government, and retained all their other rights to themselves.

Mr. CARSON. That is correct, sir.

Mr. WHITE. For that reason, the State constitution is a limitation and the Federal Constitution is a grant of power.

Mr. CARSON. Speaking broadly, that is correct.

Mr. WHITE. Coming down to what happened here, the States entered into a compact with the utilization—or for the utilization of the waters of the Colorado River, and made some obligation or entered into some obligations with the Federal Government. My questions are directed to ascertaining, if possible, just what happened.

If the States in this particular instance conferred certain rights, or relinquished certain rights, to the apportionment of the water of the Colorado River, I think we should know that.

Mr. CARSON. No; not at all, in my judgment, except to the water stored in Lake Mead behind Boulder Dam.

Mr. WHITE. Then the normal flow of the Colorado River, aside from storage of water, the normal flow would still be under complete control of the States?

Mr. CARSON. In each State as effected by the Colorado River compact.

Mr. WHITE. We had this same issue on Lake Pend Oreille. The Pend Orielle River runs into Canada, and due to the international situation we could not disturb the normal flow of the river, but there was nothing to prevent us from storing back the surplus water in the lake that would otherwise run off, and utilize that for our own discretion and advantage.

Mr. CARSON. That is what the Government did, you see. They authorized the Secretary of the Interior to make contracts and to prevent individuals from getting water except by contract.

Mr. WHITE. That still leaves the question open as to the division of the waters of the Colorado River as between the three States of California, Arizona, and Nevada, unless you can convince the committee that the contracts entered into between the State of Arizona and the Federal Government, through its Department of the Interior, Secretary Ickes, and the limitation that California placed on the use of the water and the contract entered into with the State of Nevada, did not, in effect, divide and appropriate the water of the Colorado River.

Mr. CARSON. In the lower basin, that is my position. I think that has already been done, by the agreement made by California with the United States for our benefit—benefit of Arizona.

Mr. WHITE. You do not seem to take a consistent position. In one place you say that the States have not surrendered any rights, and in another place you say that by reason of some agreement with the Secretary of the Interior representing the United States, that he has the controlling and paramount power over this water. You seem to be in an opposite direction in those two cases.

Mr. CARSON. I think not. Let me explain it to you.

The compact is between the States and the water division made by the compact is between the upper basin and the lower basin; in the lower basin the

division is made between the States by virtue of the California Limitation Act; the California contracts and the Nevada contract and the Arizona contract. They are just as effective in my judgment as if they were a tri-State contract, and do affect the division in the lower basin. That is what I am getting at there.

The over-all supply in the lower basin is 8½ million acre-feet, and California has, by agreement with the United States, made an irrevocable and unconditional contract for the benefit of Arizona, according to the way I interpret that, that they will take 4,400,000 acre-feet, and no more, except one-half of the surplus or excess water that may accrue.

Mr. WHITE. You are not bringing in something new for the benefit of Arizona?

Mr. CARSON. No, sir. I emphasized that the very first time.

Mr. WHITE. That is, bringing anything in the record to help Arizona.

Mr. CARSON. Yes; the State of California by act of its legislature agreed irrevocably and unconditionally with the United States of America, and for the benefit of the State of Arizona, as well as Nevada, California, New Mexico, Utah, and Wyoming, as an express covenant, and in consideration of the passage of this that the aggregate annual consumptive use (diversion less return to the river) of water of and from the Colorado River for use in the State of California including the use of water necessary for the supply of any rights which may now exist, shall not exceed 4,400,000 acre-feet of the waters apportioned to the lower basin, as set forth by paragraph (a) of article 3 of the Colorado River compact plus not more than one-half of any excess or surplus waters unapportioned by said compact, such use to be subject to the terms of said compact.

That is practically, although not completely, a quotation from the act itself. You see, I know these things pretty well. I simply live with them.

Mr. WHITE. Was that prior to or subsequent to the entering into of the California Limitation Act?

Mr. CARSON. This act was passed in December 1928.

Mr. WHITE. I understand this is a Federal act.

Mr. CARSON. This is a Federal act; yes, sir.

Mr. WHITE. It was passed before or after the California Limitation Act?

Mr. CARSON. Before the other was passed.

Mr. WHITE. California, in response to that act, proceeded to comply with requirements of the Federal Government, and passed the limitation act by its legislature?

Mr. CARSON. I will have to refer to the first part of this section, because I think that will make it rather clear. I am talking now about the Boulder Canyon Project Act. [Reading:]

"This Act shall not take effect, and no authority shall be exercised hereunder and no work shall be begun and no moneys expended on or in connection with the works or structures provided for in this Act, * * * until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States, and for the benefit of the State of Arizona—"

And so on. They passed it in order to get this act effective. They adopted the act of the California Legislature in 1929—I think it was in March 1929; was it not, Mr. Dowd?

Mr. DOWD. I think so. Then the States ratified the compact, and the compact became effective with the proclamation of the President of the United States.

Mr. CARSON. That is true. After the States ratified the compact, the compact became effective by the proclamation of the President of the United States on June 25, 1929, in which he recited these particular points, and I wish to refer to one in particular, to the effect that the State of California has in all instances met the requirements set out in the first paragraph of section 4 (a) of said act of December 31, 1928, necessary to render said act effective, and so on, and so forth. That is the limitation act. So California is limited, therefore, to 4,400,000 acre-feet of the 8½ million acre-feet apportioned to the lower basin, and Nevada received 300,000 acre-feet, which left 3,800,000 acre-feet of the 8½ million acre-feet for use in Arizona and parts of Utah and New Mexico, which are in the lower basin.

Mr. WHITE. What happens if the water is deficient and does not flow?

Mr. CARSON. What is that, sir?

Mr. WHITE. Suppose there is not that much water.

Mr. CARSON. I think we will never have that situation, sir, and if it did happen, then, under this plan they would cut down in proportion, under my construction of it. However, I do not think it will ever do that, because it is far in excess of that amount.

Mr. WHITE. Mr. Chairman, I think it is very essential that someone place in this record, so that we will have at some place in this record, a record of the full and complete rights on the Colorado River as determined by the several States.

Chairman MURDOCK. That has already been inserted.

Mr. WHITE. We do have in the record now also the flow of the Colorado River as determined by the appropriate Federal bureau?

Chairman MURDOCK. That has also been inserted in the record.

Mr. WHITE. Do you have the flow by years?

Chairman MURDOCK. That has been put in.

Mr. WHITE. I want the minimum flow, where the water is so measured, and the maximum flow for the last 10 years, and I would like to know if that is available in this record.

Chairman MURDOCK. Those are already inserted, or, if not, I will direct that they be inserted for we must have those physical facts.

Mr. WHITE. What is the maximum annual flow?

Mr. CARSON. I do not know that it has been worked out yet in this record.

Mr. Baker called attention to the table in the report of the Bureau of Reclamation.

Mr. ROCKWELL. Mr. Baker's figure was 16,271,000 acre-feet.

Mr. WHITE. I want the minimum and the maximum flow.

Mr. BAKER. I will work that out for you.

Mr. CARSON. I think we can get that worked out.

Mr. WHITE. Can you put that in, Mr. Baker? I think it would be very essential to have that as a part of this testimony.

Mr. BAKER. I will do so.

Mr. ROCKWELL. For the last 15 years I think it has been running about 4,000,000 feet less than that. The only question is that we may not be able to do as much in the upper basin as we planned.

In other words, the upper basin people probably cannot use these 7½ million acre-feet that they thought they were reserving for themselves.

Mr. WHITE. Let us suppose we come down to 7,500,000 acre-feet per year.

Mr. ROCKWELL. Yes. What would happen, then?

Mr. WHITE. You have given us the figure, I believe, of 16,271,000 acre-feet.

Mr. ROCKWELL. 16,271,000 acre-feet has been the average for the last 46 years, which is twice as much as is needed.

Mr. WHITE. Certainly that is twice as much as is needed. On the other hand, in the last 15 years has there been a change in the situation?

Mr. ROCKWELL. Would it be possible, because of Colorado and other upper basin States, not availing themselves of the full amount?

Mr. WHITE. I think it is a good question as to whether they are, myself. I will put the question: Would it be possible, because Colorado, New Mexico, and other upper basin States are not availing themselves of the full flow to which they are entitled? Is it possible for them to use all of it that they are not now utilizing?

Mr. Baker, can you answer that?

Mr. ROCKWELL. I think that was the basis of Mr. Dowd's statement; to show that if we had been using 7½ million acre-feet for the last 15 years, there would be about 1½ million more acre-feet per year shortage. And we would have to restrict ourselves that much per year. On the other hand, we are only using 2½ million acre-feet in the four upper-basin States at the present time, which would have us available for some development in the four upper-basin States but not enough.

Mr. WHITE. Under the terms of the contract, half of the deficiency will fall on California and half of it on Arizona?

Mr. CARSON. So far as the Mexican treaty is concerned—and we have to take that into consideration, also—let me develop that a little bit. Under the compact, article 3 (d), the upper States agree to deliver to Lee Ferry 75,000,000 acre-feet over each 10-year period reckoned in consecutive series so that the lower basin is under all conceivable circumstances entitled to count on 7½ million acre-feet average, which will be 7½ million acre-feet per year for use in the lower basin. These figures that Mr. Baker has put in, and those that Mr. Rockwell has put in, are based upon the flow at Lee Ferry. Assuming that the upper basin used 7½ million feet this would show there is no additional storage needed, so far as this project is concerned. There is ample storage available at Boulder Dam to take care of this flow, and of this additional 600,000 acre-feet, and leave a considerable amount due to Arizona still in the river under

any possible theory of the construction of this California contention, in Lake Mead created by the Boulder Dam itself.

So that under any construction of it, or under no consideration, could this amount of water added to what other water now is used in Arizona, could there in any way be any infringement upon the 4,400,000 acre-feet California is entitled to receive. The total we are now using on all projects—you mentioned priorities; I do not have the relative priorities between these projects that Mr. Baker spoke of, but all the projects and priorities in Arizona now utilizing Colorado River water out of the main stream, total only 407,000 acre-feet. This project for 600,000 acre-feet, and if California could by any way try to increase the normal consumptive use in the lower basin under their figures, it would be not more than 1,000,000 acre-feet consumptive use, and there would still be plenty of water.

In other words, it boils down to this, no matter how California goes about this thing, so long as they stay within the most outermost regions of the California Limitation Act, there will be plenty of water, and there would be a surplus even beyond that.

Mr. WHITE. The test would be if every State used their full portion, California to use its full portion under its limitation, there would be a comparable situation on which we might consider the issue. There is probably another contention here. As to the residue, which would include Arizona along with the rest.

Mr. CARSON. Yes; on the over-all plan, but I have not heard any statement about that, and California has not made any claim that this 600,000 acre-feet for the Wellton-Mohawk-Mesa project could interfere with their use.

Mr. WHITE. There is another element, the 1,500,000 acre-feet that is being delivered to Mexico?

Mr. CARSON. That is correct.

Mr. WHITE. A reduction of the waters available for use in the United States by that amount, so if there is a deficiency in the upper basin or lower basin, then you would have to prorate their share of such a shortage?

Mr. CARSON. Yes. We have taken care of that, and still there is no possibility of this project interfering with California, under her limitation act.

Mr. WHITE. I think that is a very definite statement you have made there, sir.

Chairman MURDOCK. Mr. Rockwell, do you have anything to add to that?

Mr. ROCKWELL. I just want to say, Mr. Chairman, that I think you told a very good story. We had a lawyer at home who only wanted to hear one side of the case, because when he heard both sides it confused him. When Mr. Carson gets on the stand he convinces me, and when Mr. Dowd gets on the stand I am on the other side. Mr. Carson, I would like to go over these figures and see where I am wrong.

There are 8,500,000 acre-feet of water in the lower basin.

Mr. CARSON. That is correct, sir.

Mr. ROCKWELL. There are 4,400,000 acre-feet that go to California?

Mr. CARSON. That is correct.

Mr. ROCKWELL. Four hundred thousand feet go to Nevada, Utah, and New Mexico?

Mr. CARSON. That is correct.

Mr. ROCKWELL. Three million seven hundred thousand acre-feet are available for Arizona. What happens to the surplus?

Mr. CARSON. I can tell you, and then I think I can tell you where the difficulty arises.

We took the other figures. You took the surplus figures of Mr. Dowd. We took the other figure, 3,800,000 acre-feet for Arizona, and from that figure we deducted for use in those portions of Utah and New Mexico, parts of which are in the lower basin, 131,000 acre-feet for their use and prospective use in Utah and New Mexico. They are in the lower basin, within that definition.

Mr. ROCKWELL. You get the same result?

Mr. CARSON. We get the same result, but we figure it a little bit differently.

Mr. ROCKWELL. From Mr. Baker's statement the other day I take it these figures show that there was no use or prospective use of the 1,500,000 acre-feet for your Central Valley project.

Mr. CARSON. Just how is that, sir?

Mr. ROCKWELL. Let me get those figures again before me.

From Mr. Baker's statement I take it that these figures show that there was in use, or in prospective use, 1,500,000 acre-feet for the Central Valley; 1,000,000 acre-feet for the Gila project; 407,000 acre-feet for the five little projects down

here; 600,000 acre-feet for this project we are talking about, namely, the Yuma Mesa-Wellton-Mohawk; then we add in there 317,000 acre-feet losses from reservoirs; and that makes a total of 3,569,000 acre-feet of water, not accounting for the probability of having to get 750,000 acre-feet to Mexico which breaks the thing up again.

What is wrong with my figures? Where have I missed a point? This is apparently a little more than 3,700,000 acre-feet, and I think I got those figures from Mr. Baker.

Mr. CARSON. I think I had better let the answer come from Mr. Baker, then. If you got them from him, perhaps he would be a better man to explain them to you than I.

Mr. BAKER. I could not follow you there, sir, I am afraid. Perhaps if I could discuss with you off the record, I could show you what figures I have, and you can show me the figures you have, and we could work the thing out.

Chairman MURDOCK. While you are doing that, I do want to go into a few matters here.

If I understand the philosophy that appears from the West in Congress, and those interested in reclamation, it is this: That we out West, where reclamation prevails, are very jealous of State rights and control of water by the States; that we have given up a portion of that right in developing the Colorado River in this case going to the United States Government, the control of water stored in Lake Mead, but otherwise we are virtually maintaining our State control over the use of waters; "yes" or "no" on that?

Mr. CARSON. Yes, sir. May I add a little to that, if I may, Mr. Chairman?

Chairman MURDOCK. Certainly, you may do so.

Mr. CARSON. As to this water stored in Lake Mead, we cannot get at it except by contract with the Secretary of the Interior, then Mr. Ickes, but once we do get it out then the State laws relative to priority of use within the State again take hold.

Chairman MURDOCK. Now, one more statement: I want to say this for the benefit of my friend here from Idaho, Mr. White, who led me to believe that he does think under the right of State control of waters it would be possible to take water out of the rivers to use in some place in Arizona. Now, I want to remind my friend from Idaho that there are seven States in the Colorado River Basin, six of them being full-grown States prior to 1910, and no doubt were diverting water along the river, but when Arizona became a State, as a condition of statehood, she was required to pinch herself off from the Colorado River by a border of public lands.

Mr. WHITE. It related to water rights.

Chairman MURDOCK. Yes. To have irrigation in Arizona we have to get at the water, but we have to have the authority to do so from the Federal Government. This is a legal fact of paramount importance.

Mr. WHITE. As a practical matter, the water of a State belongs to every citizen of that State until it is appropriated, and the States themselves composed of the citizens of the State devise and pass certain laws that confer the right of the citizen to avail themselves of the water rights and proceed to appropriate it. Then the right of that water user becomes superior to the right of the other inhabitants.

Mr. CARSON. That is correct.

Chairman MURDOCK. Yes.

Mr. WHITE. That is the reason I am asking here that the secretaries of the three States furnish us a list of the existing water rights; that is, those recognized, the ones that are presently valid. Any excess of water covered by these water rights stored in Lake Mead, the Government has the authority to contract, or was given the authority to deliver to these contractors in consideration of their contribution to repay the cost of the Boulder Dam project, and have the water diverted to them. Let us stop a moment at that point.

Where is that authority to be found?

Mr. CARSON. That is section 5 of the act. But we have listed here in this table 3 of Mr. Baker's all of the use in Arizona—existing and planned—at this time of water of the main stream of the Colorado River.

Mr. WHITE. Does that include State water rights?

Mr. CARSON. Yes; it has come out of our share of the main stream water to supply the existing rights.

Mr. WHITE. It has cost this individual Member of Congress $3,000 to find out something about water rights in a law-suit, and that has made me sensitive to the matter.

Mr. CARSON. Our contract with the Secretary provides for the delivery to persons in Arizona, including all existing rights of 2,800,000 acre-feet, less these minor deductions, and then the State law steps in and protects the private users in the order of their priority.

Mr. WHITE. How do you propose to appropriate water from the Colorado River without covering it by a filing with the Secretary for the use of the Colorado River water?

Mr. CARSON. We will have to get a contract with the Secretary of the Interior after this act is passed. Then, after we have made arrangements with the Secretary for the irrigation of the Yuma Mesa-Wellton-Mohawk project, whenever the limits of the land to be irrigated are determined, the irrigation district will then file with the State orders and applications for that water.

Mr. WHITE. You are just anticipating a little? You are going to anticipate making a contract with the Secretary for the utilization of this water, the appropriation of water of the Colorado River? You are anticipating the right you will obtain by the State filings?

Mr. CARSON. Yes; and they will be filed in ample time. We cannot, as I understand it, by acts of the legislature or otherwise, set up these things other than in that way, without upsetting our water code. In other words, that will be the odrerly course of procedure, as I understand it.

Mr. WHITE. Other than the authority of the law to make filings on the Colorado River?

Mr. CARSON. To make filings on the Colorado River; yes.

Mr. WHITE. But you have to have some intent to make the filing, and that has to be evidenced?

Mr. CARSON. Yes; and you have to show the source of the water, and you can show the source of the water at Lake Mead and not until you can get arrangements worked out with the Secretary. In other words, you cannot show the source of the water of Lake Mead until you have an arrangement worked out with the Secretary that you can get that water. I think that, of course, is obvious.

Chairman MURDOCK. I want to point out again that the State of Arizona differs from the other basin States: it is the only State out of these seven Colorado Basin States that has this condition in its water supply from the river because of our not having free access to the Colorado River. I am not going to let that fact be overlooked on such bills as this.

Mr. Rockwell, do you have some comment to make on that now?

Mr. ROCKWELL. I might say that Mr. Baker had a table that he had apparently used before I came which gives the same results that I have worked out. In others words, if and when the three projects were all built, all the water that Mr. Baker feels Arizona is entitled to will be used.

Mr. CARSON. I think that is satisfactory, sir.

Mr. FARMER. I would like to make a statement here.

I might state another angle of this matter, because I am the sponsor of this particular bill; I am responsible for this particular Wellton-Yuma Mesa-Mohawk bill.

Mr. WHITE. And you are from the great State of Arizona?

Mr. FARMER. I certainly am.

Chairman MURDOCK. Should this come in here or should it come at the opening of our session tomorrow?

BRIEF OF THE COLORADO RIVER BASIN STATES COMMITTEE REPRESENTING THE STATES OF WYOMING, COLORADO, NEW MEXICO, ARIZONA, AND UTAH IN OPPOSITION TO S. J. RES. 145, NOW PENDING IN THE SENATE, AND TO H. J. RES. 225, 226, 227, AND 236 AND H. R. 4097, NOW PENDING IN THE HOUSE OF REPRESENTATIVES OF THE 80TH CONGRESS

The Colorado River Basin States Committee:
State of Colorado: Clifford H. Stone, Chairman; Frank Delaney.
State of Wyoming: L. C. Bishop, H. Melvin Rollins.
State of Utah: W. R. Wallace, Grover A. Giles.
State of New Mexico: Fred E. Wilson, John H. Bliss.
State of Arizona: Nellie T. Bush, Charles A. Carson.

I

INTRODUCTORY STATEMENT OF FACTS

On July 3, 1947, there was introduced in the Senate of the 80th Congress by Senator McCarran, for himself and the other Senator from Nevada and the Senators from California, S. J. Res. 145, which reads as follows:

[S. J. Res 145—80th Cong., 1st sess.]

"IN THE SENATE OF THE UNITED STATES

"July 3 (legislative day, April 21), 1947.

"Mr. McCarran (for himself, Mr. Downey, Mr. Knowland, and Mr. Malone) introduced the following joint resolution; which was read twice

"July 8 (legislative day, July 7), 1947

"Referred to the Committee on Public Lands

"JOINT RESOLUTION TO AUTHORIZE COMMENCEMENT OF AN ACTION BY THE UNITED STATES TO DETERMINE INTERSTATE WATER RIGHTS IN THE COLORADO RIVER

"Whereas the development of projects for the use of water in the Lower Colorado River Basin is being hampered by reason of long-standing controversies among the States in said basin as to the meaning and effect of the Colorado River compact, the Boulder Canyon Project Act, the Boulder Canyon Adjustment Act, the California Limitation Act (Stats. Cal. 1929, ch. 16), various contracts executed by the Secretary of the Interior with States, public agencies, and others in the Lower Basin of the Colorado River, and other documents and as to various engineering, economic, and other facts: Now, therefore, be it:

"*Resolved by the Senate and House of Representatives of the United States of America in Congress assembled*, That for the purpose of avoiding a multiplicity of actions and expediting the development of the Colorado River Basin, the Attorney General is hereby directed to commence in the Supreme Court of the United States of America, against the States of Arizona, California, Nevada, New Mexico, and Utah, and such other parties as may be necessary or proper to a determination, a suit or action in the nature of interpleader, and therein require the parties to assert and have determined their claims and rights to the use of water of the Colorado River system available for use in the Lower Colorado River Basin."

Similar proposals were made in the House of Representatives.

It will be observed that although the Resolution purports at the beginning thereof only to "*authorize*" the commencement of the action, it winds up by "directing" the commencement of the action. In other words, the proponents of the Resolution realized that a mere authorization would not suffice, because if the Attorney General is convinced that the rights of the United States in the Colorado River are being jeopardized by the lower basin States of the Colorado basin, or any of the States of the Basin, the Attorney General is not only authorized to bring such an action, but it is his duty to do so, which duty it is presumed he will perform, and consequently there would be no necessity for a mere authorization. The effect of the Resolution then is to direct the Attorney General to bring the action irrespective of whether he determines there is any legal basis for it or not. This poses the question as to whether the legislative branch of the Government should substitute its judgment as to the necessity for legal action, for that of the executive officer charged with the responsibility of determining such matters.

It will also be observed that the recitals of the Resolution, the basis of fact for it, state that the reason for the bringing of the suit or action is not that there is any long standing, or any controversy between the United States and the States of the lower basin States, or any of the States of the Basin, but that there are long standing controversies only among the States in the lower Colorado River Basin as to the meaning and effect of the Colorado River Compact, the Boulder Canyon project Act, the Boulder Canyon Adjustment Act, the California Limitation Act, various contracts executed by the Secretary of the Interior with States, public

agencies and others in the lower Basin of the Colorado River, and other documents, and as to various engineering, economic and other facts. What would be the conclusion from this statement of facts, assuming them all to be true? Obviously no other than that the meaning and effect of these documents should be judicially determined.

But those responsible for this Resolution were well aware of the fact that the Supreme Court of the United States, in the exercise of its original jurisdiction, will not render declaratory judgments, and, accordingly, the Resolution goes beyond the Recitals upon which it is based and directs that the Attorney General shall bring an action against the States of "Arizona, California, Nevada, New Mexico, and Utah, and such other parties as may be necessary or proper," which would include, though not specifically named, the other States of the Basin, namely, Colorado and Wyoming, not that the meaning and effect of the recited documents and other "facts" be determined, but that the rights to the use of water of the Colorado River system available for the lower Colorado River Basin be determined.

In order to make that determination, it would, of course, be necessary to determine the rights of all of the Basin States to the use of the water of the Colorado River, and so the necessary effect of the Resolution and the contemplated suit or action would be to throw the entire river into litigation before the Supreme Court and, as specifically stated in the Resolution, to "require" all of the Basin States named in the Resolution, as well as those included without being named to "assert" and have determined their rights to the use of the water of the River.

It will further be observed that not only does the Resolution direct that a suit or action be brought against the States named and those necessarily included, but it directs the form of action that the Attorney General shall bring. It is not an interpleader action, because those responsible for the Resolution were aware that such a suit or action could not be brought. They knew full well that in such an action the moving party, that is, the United States, would have to allege that it has no interest in the fund in its possession, in this case the River, and the United States could not allege that it has no interest in the River, and so it is to be, not a real interpleader action, but a suit or action "in the nature of an interpleader action." This raises the question as to why all this circumlocution. Is it because California and Nevada realize they have no real genuine present controversy between themselves, or either of them, against the other Basin States, or any of them, which would enable them to bring a suit or action in the Supreme Court of the United States, in the exercise of its original jurisdiction, as they have a constitutional right to do if they, or either of them, have such a controversy, and seek by means of "a suit or action by the United States against the States named or contemplated in the nature of an interpleader action" to give color to jurisdiction by the Court, which it would otherwise not have? In other words, if California or Nevada has a real genuine presently existing controversy with any of the Colorado River Basin States, why does not that State, or the two jointly, bring a suit or action in the Supreme Court of the United States to determine such controversy? Why do they or either of them, request that the United States be required to bring suit or action against them and the other States?

Finally, it will be observed that the Resolution is "for the purpose of avoiding a multiplicity of suits and expediting the development of the Colorado River Basin." Why its adoption and the bringing of the action or suit contemplated will avoid a multiplicity of suits and how such action will expedite the development of the Colorado River Basin (by which it must be assumed is meant the entire Basin, not merely the lower Colorado River Basin) is not stated. The assertion that a multiplicity of suits will be avoided is undoubtedly made because those who are responsible for the Resolution have in mind that some equitable ground must be stated to give color to the claim that the Court would have jurisdiction of the suit or action "in the nature of an interpleader" since they concede that a real interpleader action cannot be brought. This poses the question, what are the multiple suits that are to be avoided? And the statement that the action proposed "will expedite the development of the Colorado River Basin" raises the question as to whether in fact it will have that effect.

After this Resolution had been introduced and similar proposals made in the House of Representatives, the Colorado River Basin States Committee, an organization composed of official representatives of all the Colorado River Basin States, but from which California and Nevada had previously withdrawn, at a meeting held at Salt Lake City adopted the following Resolution:

"RESOLUTION RE M'CARRAN BILL ADOPTED BY COLORADO RIVER BASIN STATES COMMITTEE AT SALT LAKE CITY, UTAH, OCTOBER 1, 1947

"Be it resolved by the Colorado River Basin States Commitee representing the States of Arizona, Colorado, New Mexico, Utah, and Wyoming, and open to the States of California and Nevada, in meeting assembled in Salt Lake City, Utah, this first day of October 1947:

"That, Whereas, after thorough discussion, this Committee is of the opinion that the Resolution introduced in the Senate of the United States by Senator McCarran, Downey, Malone, and Knowland, S. J. Res. 145, which purports to be intended to authorize litigation over Colorado River Waters is unwise, in that no litigation is necessary for the reason that California's rights to water of the Colorado River are clearly defined and forever limited by the California Limitation Act (Chapter 16, California Statutes, 1929) to 4,400,000 acre-feet of apportioned water, plus not more than one-half of the surplus: No, therefore, be it

"*Resolved*, That this Committee opposes S. J. Res. 145 and urges its defeat; and be it further

"*Resolved*, That the Chairman and Secretary of this Committee are requested to send copies of this Resolution to the Chairman of the Subcommittee on Irrigation and Reclamation of the Public Lands Committee of the Senate of the United States, and also to send copies of this Resolution to the Chairman of the Judiciary Committee of the House of Representatives of the United States, to the Secretary of the Interior, to the Commissioner of the Bureau of Reclamation, and to our Congressional delegations, and to take any and all means necessary or advisable to bring to the attention of any Committees which may consider said S. J. Res. 145, or any similar resolution, the action taken by this Committee."

Subsequently at a meeting of the Committee held at Denver, Colorado, a subcommittee of representatives of the five states was appointed to take such measures as are proper to carry out the purpose and intent of the foregoing Resolution of the Committee. This Brief, then, in opposition to the adoption of Joint Resolution 145 (and similar proposals in the House of Representatives) is written in behalf of the States of Colorado, Wyoming, New Mexico, Arizona, and Utah, pursuant to the foregoing action taken by the Colorado River Basin States Committee, and to answer the questions developed by the foregoing analysis of the Resolution and in answer to the Brief of the States of California and Nevada in support of the Resolution heretofore filed in the Department of Justice, hereinafter referred to as the "California-Nevada Brief."

Before proceeding further with argument with respect to these matters, for the sake of clarity, we deem it proper to state certain physical facts connected with the Colorado River, and briefly to state the contents of certain of those documents recited in the Resolution, and commonly spoken of as the law of the river.

The Colorado River rises in the State of Colorado, flows through the northwestern portion of that State into the Southeastern part of Utah, where it is joined by the Green River, one of its principal tributaries, which rises in the State of Wyoming, and by the San Juan River, another of its principal tributaries, which rises in Colorado and flows through the Northwestern part of New Mexico. The Colorado River then flows into the Northern part of the State of Arizona, thence in a westerly direction until it reaches and forms the boundary between the States of Arizona and Nevada, continues in a southerly direction, still forming the boundary between these two states, thence still in a southern direction, forming the boundary between the States of Arizon and California, where it is joined by the Gila River, another of its principal tributaries, then in a southerly direction into Mexico and there empties into the Gulf of California. The River has many other tributaries which it is not deemed necessary to mention here.

Althought the documents, which it is commonly said constitute the law of the Colorado River, are named in the Resolution, there contents are not disclosed so as to make evident what controversies, of long standing, or otherwise, it could be claimed exist as to their meaning and effect. For that reason, and the reason that their summarization will go far, as we conceive, to determine whether there is or can be any dobut as to their meaning, we deem it proper briefly to state their contents.

The Colorado River Compact is, of course, the fundamental document, because all subsequent legislation, compacts, and contracts relating to the River are necessarily limited by its provisions, whether therein expressly so stated or not and generally they expressly so state. It had three prime purposes, (1)

to make an equitable division and apportionment of the use of the water of the Colorado River System, defined in the Compact to be that portion of the River and its tributaries within the United States of America, so as "to remove causes of present and future controversies" (2) "to establish the relative importance of different beneficial uses of water," and (3) to protect the rights of the United States as to the River. It defines the term "Colorado River Basin" as "all of the drainage area of the Colorado River System, and all other territory within the United States of America to which the waters of the Colorado River System shall be beneficially applied." It divides the States of the Basin into two Divisions, the States of the "Upper Division," namely, Colorado, New Mexico, Utah, and Wyoming, and the States of the "Lower Division," namely, Arizona, Nevada, and California, and the States of the Basin are divided in another way as between the "Upper Basin" which includes "those parts of the States of Arizona, Colorado, New Mexico, Utah, and Wyoming within and from which waters naturally drain into the Colorado River System above Lee Ferry, and also all States located without the drainage area of the Colorado River System which are now or shall hereafter be beneficially served by waters diverted from the system above Lee Ferry." (The crossing of the Colorado River known as Lee Ferry is in Arizona and is defined in the compact as "a point in the main stream * * * one mile below the mouth of the Paria River," one of the tributaries of the Colorado River, and the "Lower Basin" which includes "those parts of the States of Arizona, California, Nevada, New Mexico, and Utah within and from which waters naturally drain into the Colorado River System below Lee Ferry, and also all parts of said states located without the drainage area of the Colorado River System which are now or shall hereafter be beneficially served by waters diverted from the system below Lee Ferry.")

It is further provided that the term "domestic use" shall include the use of water for household, stock, municipal, mining, milling, industrial, and other like purposes, but shall exclude the generation of electrical power.

The Compact then proceeds in Article III to divide the water and is quoted in full, except subparagraph (g), which merely provides the method for the further apportionment provided in subparagraph (f), and it is not deemed necessary to state its contents herein, as follows:

"ARTICLE III. (a) There is hereby apportioned from the Colorado River system in perpetuity to the Upper Basin and to the Lower Basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

"(b) In addition to the apportionment in paragraph (a), the Lower Basin is hereby given the right to increase its beneficial consumptive use of such waters by one million acre-feet per annum.

"(c) If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River System, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be equally borne by the Upper Basin and the Lower Basin, and whenever necessary the States of the Upper Division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

"(d) The States of the Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of ten consecutive years reckoned in continuing progressive series beginning with the first day of October next succeeding the ratification of this compact.

"(e) The States of the Upper Division shall not withhold water, and the States of the Lower Division shall not require the delivery of water which cannot reasonably be applied to domestic and agricultural uses.

"(f) Further equitable apportionment of the beneficial uses of the waters of the Colorado River System unapportioned by paragraphs (a), (b), and (c) may be made in the manner provided in paragraph (g) at any time after October first, 1963, if and when either Basin shall have reached its total beneficial consumptive use as set out in paragraphs (a) and (b)."

It is not deemed essential for the purposes of this Brief to quote any of the other provisions of the Compact, except to say that Subparagraph (a) of Article IV recites that the Colorado River has ceased to be navigable for commerce, and the reservation of its water for navigation would seriously limit the development of its basin, the use of its waters for purposes of navigation shall be subservient

to the uses of such waters for domestic, agricultural, and power purposes, and Subparagraph (b) of that Article, which reads as follows:

"Subject to the provisions of this compact, water of the Colorado River System may be impounded and used for the generation of electrical power, but such impounding and use shall be subservient to the use and consumption of such water for agricultural and domestic purposes and shall not interfere with or prevent use for such dominant purposes."

Article VII, which reads as follows:

"Nothing in this compact shall be construed as affecting the obligations of the United States of America to Indian tribes."

and Article VIII, which reads as follows:

"Present perfected rights to the beneficial use of waters of the Colorado River System are unimpaired by this compact. Whenever storage capacity of 5,000,000 acre-feet shall have been provided on the main Colorado River within or for the benefit of the Lower Basin, then claims of such rights, if any, by appropriators or users of water in the Lower Basin against appropriators or users of water in the Upper Basin shall attach to and be satisfied from water that may be stored not in conflict with Article III.

"All other rights to beneficial use of waters of the Colorado River System shall be satisfied solely from the water apportioned to that basin in which they are situate."

It is important to note that because of the topographical situation and because of the obligations of delivery of the water at Lee Ferry, a distinction is drawn between the "Upper Division" and the "Lower Division" of States, and between the "Upper" and "Lower" Basin States, with the result that a part of Arizona is in the Lower Basin and a part thereof in the Upper Basin, and a part of New Mexico is in the Upper Basin and a part in the Lower Basin, and a part of Utah is in the Upper Basin and a part in the Lower Basin.

The Colorado River Compact has now been ratified by the Congress and by all of the Basin States, and is binding alike upon the United States and each and all of said States. Indeed, so far as the United States is concerned, the Congress, before it was approved, was fully cognizant of all its interests involved. Herbert Hoover (who represented the United States on the Compact Commission, and who was its Chairman), in his letter of transmittal of the Compact to the Speaker of the House of Representatives, fully set forth the interests of the United States in the River as follows:

"(1) Its interest in the Colorado River as a navigable stream.
"(2) Its relation with the Republic of Mexico.
"(3) Its interest as proprietor of public lands and as owner of irrigation works.
"(4) Its duties in relation to Indian tribes.
"(5) Its interest under the Federal water power act."

and discussed them at length, concluding with his opinion that the Compact does not adversely affect any interest of the United States. When Congress ratified the Compact, then, with full knowledge of its interests involved, it must be presumed to have determined that all of its interests were amply protected by the Compact.

Recently, and postdating all the documents referred to in the Resolution, the Mexican Treaty which the Compact contemplated would be entered into, as above set out, has been entered into.

It is not necessary to set out all the terms thereof, because in the California and Nevada Brief, those States explicitly make no claim that the whole or any part thereof affects their rights in the River; it is only necessary to state the amount of water to which Mexico is entitled to receive from the Colorado River. In that regard the Treaty in Article 10 allots to Mexico—

"(*a*) A guaranteed annual quantity of 1,500,000 acre-feet (to be delivered in accordance with certain conditions and specifications as to point and rate).

"(*b*) Any other quantities arriving at the Mexican points of diversion, with the understanding that in any year in which, as determined by the United States section, there exists a surplus of waters of the Colorado River in excess of the amount necessary to supply users in the United States and the guaranteed quantity of 1,500,000 acre-feet annually to Mexico, the United States undertakes to deliver to Mexico * * * additional waters of the Colorado River system to provide a total quantity not to exceed 1,700,000 acre-feet a year. Mexico shall

acquire no right * * * by use of the waters of the Colorado River System for any purpose whatsoever, in excess of 1,500,000 acre-feet annually.

"In the event of extraordinary drought or serious accident to the irrigation system in the United States, thereby making it difficult for the United States to deliver the guaranteed quantity of 1,500,000 acre-feet a year, the water allotted to Mexico under subparagraph (a) of this article will be reduced in the same proportion as consumptive uses in the United States are reduced."

The Boulder Canyon Project Act is the next document referred to in the Resolution (Act of December 21, 1928, c 42, 45 Stat. 1057, U. S. C. A. 43, Paragraph 617 and succeeding subdivisions thereof). That Act authorizes the construction of the dam now called the Hoover Dam (Act of April 30, 1947, c. 46, 61 Stat. 561, See note, U. S. C. A. 43, Paragraph 617) and the reservoir created thereby, since known as Lake Mead, and a main canal located entirely in the United States, connecting the Laguna Dam, or other suitable diversion dam, which diversion dam is now known as Imperial Dam, and which canal is now known as the Imperial Canal, with Imperial and Coachella Valleys. In addition to providing for the dam's construction and the reservoir created thereby, so far as is material here, it provided that the Act should not take effect until the State of California by act of its legislature, "shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an express covenant and in consideration of the passage of the Act, that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of the Act, and all water necessary for the supply of any rights which may now exist (December 21, 1928) shall not exceed four million four hundred thousand acre-feet of the waters apportioned to the lower-basin States by paragraph (a) of Article III of the Colorado River Compact, plus not more than one-half of any excess or surplus water unapportioned by said compact, such uses always to be subject to the terms of said Compact."

The Act further provides that "the Secretary of the Interior is hereby authorized, under such general regulations as he may prescribe, to contract for the storage of water in said reservoir and for the delivery thereof at such points on the River and on said canal as may be agreed upon, for irrigation and domestic uses, and generation of electrical energy and delivery at the switchboard to States, municipal corporations, political subdivisions, and private corporations of electrical energy generated at said dam," * * *.

It is not deemed necessary to recite the terms of the Boulder Canyon Project Adjustment Act, next referred to in the Resolution, because it does not affect any of the matters herein discussed, nor is it necessary to set out any of the provisions of the California Limitation Act (Stats. California 1929, Ch. 16), except to say that it complies precisely with the conditions set out in the Boulder Canyon Project Act, nor is it necessary to set out any of the various contracts executed by the Secretary of the Interior and referred to in the Resolution, except to say that each and all of them are specifically made subject to the terms of the Colorado River Compact, and the Boulder Canyon Project Act, and to state that the contract entered into between the Department of the Interior and the State of Arizona limits the amount of consumptive use of the Colorado River by Arizona to 2,800,000 acre-feet per annum, and the contract with the State of Nevada limits its consumptive use to 300,000 acre-feet per annum, the total aggregate of which, together with the 4,400,000 acre-feet per annum to which California is limited by the Boulder Canyon Project Act, and her acceptance of that limitation by the California Limitation Act, is the amount of water allocated to the Lower Basin States by the above quoted Article III, Subparagraph (a) of the Colorado River Compact.

These statements are pertinent and will become more pertinent as we proceed, as bearing upon the administrative construction of the Colorado River Compact by the United States through the Department of Interior, particularly with relation to the 1,000,000 acre-feet of water per annum referred to in Article III (b), as being additional to the 7,500,000 acre-feet per annum allocated by Article III (a) to the Upper and Lower Basin States. In other words, the question arises as to why this total is 7,500,000 feet if in administering the Act the Secretary of the Interior construed that any of the Lower Basin States other than Arizona had any interest in the 1,000,000 acre-feet metioned in Article III (b) commonly spoken of as "III (b) water."

It is not necessary for the purposes of this Brief to state any other facts, except

to say that at the present time none of the Colorado River Basin States, including the States of Nevada and California, have approached the consumptive use of the water of the Colorado River apportioned to it by the Colorado River Compact. In fact, so far as the State of California is concerned, it is not now using in excess of 3,000,000 acre-feet, and the State of Nevada is using only a very small portion of the 300,000 acre-feet allocated to it. And there is flowing into Mexico a large amount of water in excess of the 1,500,000 acre-feet of water per annum to which it is entitled; indeed, the total is approximately 8,000,000 acre-feet per annum.

III

ARGUMENT

1. The jurisdiction of the Supreme Court, in the exercise of its original jurisdiction, so far as material for our consideration, extends only to justiciable controversies between the United States and one or more States, and to controversies between two or more States.

Article III, Section 2, of the Constitution of the United States provides, so far as material here, "The judicial power shall extend to * * * controversies to which the United States shall be a Party;—to controversies between two or more States." That section further provides "In all cases * * * in which a State shall be a party, the Supreme Court shall have original jurisdiction."

The Supreme Court of the United States has had occasion frequently to pass upon the meaning of the foregoing constitutional provisions in suits or actions between States, and to fix the limits of its jurisdiction thereunder. It has held that it will not grant relief against a State unless the complaining State shows an existing or presently threatened injury of serious magnitude (*Missouri* v. *Illinois*, 200 U. S. 496, 521; *New York* v. *New Jersey*, 256 U. S. 296, 309; *North Dakota* v. *Minnesota*, 263 U. S. 364, 374; *Connecticut* v. *Massachusetts*, 282 U. S. 660, 669; *Alabama* v. *Arizona*, 291 U. S. 286, 291; *Washington* v. *Oregon*, 297 U. S. 517, 528).

A potential threat of injury is insufficient to justify an affirmative decree against a state. The Court will not grant relief against something feared as liable to occur at some future time (*Alabama* v. *Arizona*, 291 U. S. 286, 291).

The rule that judicial power does not extend to the determination of abstract questions has been announced in numerous cases (*Ashwander* v. *Tennessee*, 297 U. S. 288, 324; *New York* v. *Illinois*, 274 U. S. 488; *U. S.* v. *West Virginia*, 295 U. S. 463).

For there to be a justiciable controversy it must appear that the complaining state has suffered a loss through the action of the other state, furnishing a claim for judicial redress, or asserts a right which is suceptible of judicial enforcement according to the accepted principle of jurisprudence (*Massachusetts* v. *Missouri*, 308 U. S. 1, 16). The mere fact that a state is plaintiff is not enough (*Florida* v. *Mellon*, 273 U. S. 12, 16). An injunction will issue to prevent existing or presently threatened injuries but will not be granted against something merely feared as liable to occur at some indefinite time in the future (*Connecticut* v. *Massachusetts*, 282 U. S. 660, 674). The Court has repeatedly said that it will not issue declaratory decrees (*Arizona* v. *California*, 283 U. S. 423, 473; *United States* v. *West Virginia*, 295 U. S. 463, 474; *Alabama* v. *Arizona*, 291 U. S. 286, 291; *Massachusetts* v. *Missouri*, 308 U. S. 1, 15). Inchoate rights dependent upon possible future development furnish no basis for a decree in an interstate suit (*Arizona* v. *California*, 283 U. S. 423, 462).

In discussing this constitutional provision the Court said in *Texas* v. *Florida* (306 U. S. 398, 405, 59 S. Ct. 563):

"So that our constitutional authority to hear the case and grant relief turns on the question of whether the issue framed by the pleadings constitutes a justiciable 'case' or 'controversy' within the meaning of the constitutional provision, and whether the facts alleged and found afford an adequate basis for relief according to the accepted doctrines of the common law or equity systems of jurisprudence, which are guides to decision of cases within the original jurisdiction of this Court."

Many years earlier in *Louisiana* v. *Texas* (176 U. S. 1, 15, 20 S. Ct. 251), the Court declared:

"But it is apparent that the jurisdiction is of so delicate and grave a character that it was not contemplated that it would be exercised save when the necessity was absolute and the matter in itself properly justiciable."

The Court will not grant relief against something feared as liable to occur

at some fuutre time. In *Alabama* v. *Arizona* (291 U. S. 286, 291, 54 S. Ct. 399), it was said:

"This Court may not be called upon to give advisory opinions or to pronounce declaratory judgment * * *. Its jurisdiction in respect of controversies between states will not be exerted in the absence of absolute necessity."

In the New River Case (*U. S.* v. *Appalachian Electric Power Co.*, 311 U. S. 377, 432) the Court said:

"To predetermine, even in the limited field of water power, the rights of different sovereignties, pregnant with future controversies, is beyond the judicial function."

So far we have cited all the leading cases between States decided by the Supreme Court of the United States, in which the question of the existence of a justiciable controversy wthin the Court's jurisdiction was raised, except four, of which three will now be considered, and the fourth, *Arizona* v. *California* (298 U. S. 558), which is cited in the last of the three cases will be considered later herein. The first is the case of *Kansas* v. *Colorado* (206 U. S. 46) in which the Court said "that the appropriation of the waters of the Arkansas by Colorado, for purposes of irrigation, has diminished the flow of water into the state of Kansas; that the result of that appropriation has been the reclamation of large areas in Colorado, transforming thousands of acres into fertile fields, and rendering possible their occupation and cultivation when otherwise they would have continued barren and unoccupied; that while the influence of such diminution has been of perceptible injury to portions of the Arkansas Valley in Kansas, particularly those portions closest to the Colorado line, yet, to the great body of the valley it has worked little, if any, detriment, and regarding the interests of both states, and the right of each to receive benefit through irrigation and in any other manner from the waters of this stream, we are not satisfied that Kansas has made out a case entitling it to a decree. At the same time it is obvious that if the depletion of the waters of the river by Colorado continue to increase there will come a time when Kansas may justly say that there is no longer an equitable division of benefits, and may rightfully call for relief against the action of Colorado, its corporation and citizens, in appropriating the waters of the Arkansas for irrigation purposes."

The bill of Kansas was dismissed without prejudice to its right to institute new proceedings "whenever it shall appear that through a material increase in the depletion of the waters of the Arkansas by Colorado, its corporations, or citizens the substantial interests of Kansas are being injured to the extent of destroying the equitable apportionment of benefits between the two States resulting from the flow of the river." In other words, the Court said that at the time of bringing the suit, Kansas had failed to show any existing substantial injury, and that there must be, to give the Court jurisdiction, and that the fact there might come a time when there would be such injury is not sufficient, but when that time came, and then only, could Kansas bring her suit.

Subsequently Colorado brought a suit against Kansas (320 U. S. 383), to protect it and its citizens in the beneficial use of the waters of the Arkansas River as determined by the former decree of the Court. Kansas answered and in its answer claimed that Colorado users had largely increased their appropriations and diversions and threatened to increase them, "to (as the Court put it) the material damage of Kansas' substantial interests." The Court said:

"In such disputes as this, the court is conscious of the great and serious caution with which it is necessary to approach the inquiry whether a case is proved. Not every matter which would warrant resort to equity by one citizen against another would justify our interference with the action of a state, for the burden on the complaining state is much greater than that generally required to be borne by private parties. Before the court will intervene the case must be of serious magnitude and full and clearly proved. And in determining whether one state is using, or threatening to use, more than its equitable share of the benefits of a stream, all the factors which create equities in favor of one state or the other must be weighed *as of the date when the controversy is mooted.*" [Italics ours.]

The Court concluded that Kansas had not sustained her allegation that Colorado had materially increased her use of the River and that such increase had worked a serious detriment to the substantial interests of Kansas.

The case of *Nebraska* v. *Wyoming* (325 U. S. 588), involving the North Platte River, is the latest case in which the question of jurisdiction was raised. Colorado in that case claimed that she was not injuring Nebraska, because there was

a surplus of water in the River, but the Court denied the motion, and in doing so said:

"What we have then is a situation where three States assert against a river, whose dependable natural flow during the irrigation season has long been over appropriated, claims based not only on present uses but on projected additional uses as well. The various statistics with which the record abounds are inconclusive in showing the existence or extent of actual damage to Nebraska. But we know that deprivation of water in arid or semiarid regions cannot help but be injurious. That was the basis for the apportionment of water made by the Court in *Wyoming* v. *Colorado*, supra (259 U. S. 419). In that case no jurisdictional question was raised. There the only showing of injury or threat of injury was the inadequacy of the supply of water to meet all appropriative rights. As much if not more is shown here. If this were an equity suit to enjoin threatened injury, the showing made by Nebraska might possibly be insufficient. But *Wyoming* v. *Colorado*, supra, indicates that where the claims to the water of a river exceed the supply a controversy exists appropriate for judicial determination. If there were a surplus of unappropriated water, different considerations would be applicable. Cf. *Arizona* v. *California* (298 U. S. 558, 80 L. Ed. 1331, 56 S. Ct. 848). But where there is not enough water in the river to satisfy the claims asserted against it, the situation is not basically different from that where two or more persons claim the right to the same parcel of land. The preesnt claimants being States we think the clash of interests to be that character and dignity which makes the controversy a justiciable one under our original jurisdiction."

Three judges dissented, because they did not consider that the facts disclosed any present injury which would justify the court assuming jurisdiction.

We have considered these cases in detail, not that any new principle is announced in them. On the contrary, the same principle is reaffirmed in them all, including this latest decision, namely, there must be a present existing controversy between the partes. If that exists, it suffices, although it may be strengthened if in addition, there is a threatened additional injury, as in the last case, the construction of the Kendrick dam in Wyoming, which had been authorized by Congress.

The question, then, is whether the facts as to the Colorado River bring it within the case of *Nebraska* v. *Wyoming* or *Kansas* v. *Colorado;* in other words, whether there is any present controversy of such a character relating to the River that the Supreme Court will assume jurisdiction of it.

It will be observed that all the cases cited involve claimed controversies between States except one, namely, the *United States* v. *West Virginia*, cited supra. However, the language in the Constitution is precisely the same with respect to the jurisdiction of the Court in suits between States and those between the United States and a State, and consequently the Court holds precisely the same in both classes of suits. The following language from the case is pertinent:

"But there is presented here, as respects the State, no case of an actual or threatened interference with the authority of the United States. At most, the bill states a difference of opinion between the officials of two governments, whether the rivers are navigable and, consequently whether there is power and authority in the federal government to control their navigation, and particularly to prevent or control the construction of the Hawkes Nest Dam, and hence whether a license of the Federal Power Commission is prerequisite to its construction. There is no support for the contention that the judicial power extends to the adjudication of such differences of opinion. Only when they become the subject of controversy in the constitutional sense are they susceptible of judicial determination. See *Nashville, C. & St. L. R. Co.* v. *Wallace* (288 U. S. 249, 259, 77 L. ed. 730, 733, 53 S. Ct. 345, 87 A. L. R. 1191). Until the right asserted is threatened with invasion by acts of the State, which serve both to define the controversy and to establish its existence in the judicial sense, there is no question presented which is justiciable by a federal court. See *Fairchild* v. *Hughes* (258 U. S. 126, 129, 130, 66 L. ed. 499, 504, 505, 42 S. Ct. 274); *Texas* v. *Interstate Commerce Commission* (258 U. S. 158, 162, 66 L. ed. 531, 537, 42 S. Ct. 261); *Massachusetts* v. *Mellon*, supra (262 U. S. 483, 485, 67 L. ed. 1063, 1084, 43 S. Ct. 597); *New Jersey* v. *Sargent*, supra (269 U. S. 328, 339, 340, 70 L. ed. 289, 294, 295, 46 S. Ct. 122).

"General allegations that the State challenges the claim of the United States that the rivers are navigable, and asserts a right superior to that of the United States to license their use for power production, raise an issue too vague and ill-

defined to admit of judicial determination. They afford no basis for an injunction perpetually restraining the State from asserting any interest superior or adverse to that of the United States in any dam on the rivers, or in hydroelectric plants in connection with them, or in the production and sale of hydroelectric power. The bill fails to disclose any existing controversy within the range of judicial power. See *New Jersey* v. *Sargeant*, supra (339, 340)."

The Resolution, as heretofore herein pointed out, not only instructs the Attorney General to bring a suit, but it specifies the particular form of the suit. It is to be one in the nature of an interpleader, thus expressly conceding as is done in the Nevada-California Brief, that a bill in interpleader would not lie, because the United States cannot say it has no interest in the Colorado River. As shown by the Nevada-California Brief, the proponents of the Resolution seized upon the decision of the Supreme Court in the case of *Texas* v. *Florida* (306 U. S. 398). The proponents, we think, have done exactly what Justice Frankfurter in his dissenting opinion, in which Justice Black concurred, predicted would be done. He said:

"The authority which the Constitution has committed to this Court over 'Controversies between two or more States,' serves important ends in the working of our federalism. But there are practical limits to the efficacy of the adjudicatory process in the adjustment of interstate controversies. The limitations of litigation—its episodic character, its necessarily restricted scope of inquiry, its confined regard for considerations of policy, its dependence on the contingencies of a particular record, and other circumscribing factors—often denature and even mutilate the actualities of a problem and thereby render the litigious process unsuited for its solution. Considerations such as these have from time to time led this Court or some of its most distinguished members either to deprecate resort to this Court by States for settlement of their controversies (see *New York* v. *New Jersey*, 256 U. S. 296, 313, 65 L. ed. 937, 945, 41 S. Ct. 492), or to oppose assumption of jurisdiction (see Mr. Chief Justice Taney in *Pennsylvania* v. *Wheeling & B. Bridge Co.*, 13 How. 518, 579, 592, 14 L. ed. 249, 274, 280, in connection with the Act of August 31, 1852 (10 Stat. at L. 112, Chap. 112) and *Pennsylvania* v. *Wheeling & B. Bridge Co.*, 18 How. 421, 15 L. ed. 435; Mr. Justice Brandeis in *Pennsylvania* v. *West Virginia*, 262 U. S. 553, 605, 67 L. ed. 1117, 1135, 43 S. Ct. 658, 32 A. L. R. 300)."

He further said:

"Jurisdictional doubts inevitably lose force once leave has been given to file a bill, a master has been appointed, long hearings have been held, and a weighty report has been submitted. And so, were this the last as well as the first assumption of jurisdiction by this Court of a controversy like the present, even serious doubts about it might well go unexpressed. But if experience is any guide, the present decision will give momentum to kindred litigation and reliance upon it beyond the scope of the special facts of this case. To be sure, the Court's opinion endeavors to circumscribe carefully the bounds of jurisdiction now exercised. But legal doctrines have, in an odd kind of way, the faculty of self-generating extension. Therefore, in picking out the lines of future development of what is new doctrine, the importance of these issues may make it not inappropriate to indicate difficulties which I have not been able to overcome and potential abuses to which the doctrine is not unlikely to give rise."

In that case the State of Texas, claiming the right to impose death taxes on the estate of the decedent Green because of his domicile in that State, brought a suit against the States of Florida, New York, and Massachusetts, alleging that each of them made similar claims to that of Texas, the total of which would exceed the assets of the estate after paying the Federal estate tax, and that suits might be brought in the other States which would be binding upon the estate, and bring about the entire depletion as to whether the Court had jurisdiction of the cause and answered its own query as follows:

"The peculiarity of the strict bill of interpleader was that the plaintiff asserted no interest in the debt or fund, the amount of which he placed at the disposal of the court and asked that the rival claimants be required to settle in the equity suit the ownership of the claim among themselves. But as the sole ground for equitable relief is the danger of injury because of the risk of multiple suits when the liability is single (*Farley* v. *Blood*, 30 N. H. 354, 361; *Bedell* v. *Hoffman*, 2 Paige, 199, 200; *Mohawk & H. River R. Co.* v. *Clute*, 4 Paige, 384, 392; *Atkinson* v. *Manks*, 1 Cow. 691, 703; *Story*, Eq. Pl. 10th ed. Secs. 291, 292), and as plaintiffs who are not mere stakeholders may be exposed to that risk, equity extended its jurisdiction to such cases by the bill in the nature of interpleader. The essential of the bill in the nature of interpleader is that it calls upon the court

to exercise its jurisdiction to guard against the risks of loss from the prosecution in independent suits of rival claims where the plaintiff himself claims an interest in the property or fund which is subjected to the risk. The object and ground of the jurisdiction are to guard against the consequent depletion of the fund at the expense of the plaintiff's interest in it and to protect him and the other parties to the suit from the jeopardy resulting from the prosecution of numerous demands, to only one of which the fund is subject. While in point of law or fact only one party is entitled to succeed, there is danger that recovery may be allowed in more than one suit. Equity avoids the danger by requiring the rival claimants to litigate before it the decisive issue, and will not withhold its aid where the plaintiff's interest is either not denied or he does not assert any claim adverse to that of the other parties, other than the single claim, determination of which is decisive of the rights of all." (Citing cases.)

"When by appropriate procedure, a court possessing equity powers is in such circumstances asked to prevent the loss which might otherwise result from the independent prosecution of rival but mutually exclusive claims, a justiciable issue is presented for adjudication which, because it is a recognized subject of the equity procedure which we have inherited from England, is a 'case' or 'controversy' within the meaning of the Constitutional provision; and when the case is one prosecuted between states, which are the rival claimants, and the risk of loss is shown to be real and substantial, the case is within the original jurisdiction of this Court conferred by the Judiciary Article." (Citing cases.)

It is impossible to conceive how there could from any point of view under the situation presented as to the Colorado River, be a multiplicity of suits which is the only ground upon which the jurisdiction of the Court was predicated in the case of *Texas* v. *Florida*. Whatever suit be brought, and by either the United States or a State, any State whose rights are affected would either be parties or would have to voluntarily appear to protect their interests therein, and so there would be only the one suit. But we prefer to rest our opposition to the resolution upon a more fundamental basis, namely, that there is no existing justiciable controversy between the United States and the States of the Lower Colorado Basin, or any State in it or in the entire Basin, which would enable the Attorney General to invoke the original jurisdiction of the Supreme Court, because if there is no such controversy that fact would prevent the bringing of the suit, whatever the form of action.

2. There is no present justiciable controversy between the United States and the Colorado River Basin States, or any of them, or between any of said States.

It will not be disputed that the adoption of the Resolution by the Congress will not give the Court jurisdiction which the Constitution does not vest in the Court, for as illustrated in the opinion in the case of *Texas* v. *Florida*, supra, the Court itself will determine whether it has jurisdiction.

We may assume, we take it, that the California-Nevada Brief states the case as strongly for the proponents of the Resolution as it could be stated, and the only claim made therein is that "Arizona is asking the Secretary of the Interior to approve S. 1175 (the Central Arizona Project, which would entail the delivery of over 1,000,000 acre-feet of water from Lake Mead) now pending before the Congress.

Well, what of it? Suppose the Secretary of the Interior is of opinion S. 1175 should be enacted, or that it should not be, or is doubtful about the matter or has no opinion at all. Does that opinion rise to the dignity of an existing justifiable controversy? Obviously not, and his opinion is precisely in the same category as the opinions in the case of *United States* v. *West Virginia*, which the Court held did not rise to the dignity of a controversy, because whatever be his opinion, he can take no action until the Congress acts. It may act unfavorably on the bill, then there could be no controversy even at that time, much less now. Suppose it should act favorably, and the bill should become law, would the United States then want to become the moving instrumentality by which California might assert that Congress should not have passed the law? We submit not. It should require California to move to assert its right by bringing an action against Arizona, and assert that it was being injured in its rights by virtue of the authorized project. In view of the fact that California is not now using, and will not probably at that time be using the entire quantity of water, the right to which is allocated to her by the Colorado River Compact, the Boulder Canyon Project Act, and the California Limitation Act, namely, 4,400,000 acre-feet per annum, it is doubtful that California could state a justiciable controversy between her and the State of Arizona, but if she could then there is no reason why she should not bring the action. But, California will say, as is said

in the California-Nevada Brief, that she can't bring such an action, because the United States would be an indispensable party to the suit, and without its consent the United States cannot be sued, and in support of that contention relies upon the case of *Arizona* v. *California et al.* (298 U. S. 558).

In that case Arizona sought to file a bill of complaint against California and the other basin states to have "the quantities of Arizona's equitable share of water flowing in the Colorado River fixed * * * and that petitioner's title thereto be quieted." All of the defendants filed motions to dismiss upon the ground, amongst others, that the United States was an indispensable party. The Court, however, did discuss the question as to whether the bill, which asked that Arizona's share in the future of the unappropriated water of the River be determined, stated a justiciable controversy, which is the reason why the Court in the case of *Nebraska* v. *Wyoming, supra*, referred to this case in the above-quoted portion of the opinion as follows:

"If there were a surplus of unappropriated water, different consideration would be applicable." Cf. *Arizona* v. *California.*

In other words, in the case of *Nebraska* v. *Wyoming*, the sole basis of the Court's decision that it had jurisdiction to determine the rights of the States in the North Platte River was that there was not enough water in he River at the time the suit was brought to satisfy the existing rights of the interested States in the River—that is what made a justiciable controversy, but where, as in the case of the Colorado River there is at this time a surplus over and above the present rights of the users, there cannot now be a justiciable controversy.

But the reason why this case is important, in this particular phase of our discussion is whether, assuming that the Central Arizona Project has been authorized, and assuming that at that time California and Nevada could state a justiciable controversy in a suit against Arizona, would the United States be an indispensable party? It will be noted that in such a suit the issues would be limited to whether Arizona on the one side and California and Nevada on the other have as between them certain rights in the River, and under such circumstances it would not seem that the United States would be an indispensable party, as the Court held was the case in the cited case, because in that case to determine what her future rights would be as against all the other States and the United States, all the States and the United States would be indispensable parties. But if it should be determined otherwise, all that California would be entitled to ask at that time is that the United States consent to be sued, not that in advance of those contingencies the United States initiate litigation that would throw the whole River in litigation.

On April 5th of this year the Supreme Court of the United States rendered a decision in the case of *Peggy Shade*, a full-blood Cherokee Indian, Roll No. 14147, v. *Lucy Downing, Now Foster, Nancy Downing, Now Taylor, and Polly Downing, Now Williams* (68 S. Ct. 702) which clearly points out the circumstances under which the United States is an indispensable party. This case was before the Court on Certificate from the United States Circuit Court of Appeals from the Tenth Circuit, and was an action to determine the heirship of a Cherokee Indian. In that case the Supreme Court referred to a case entitled "*United States* v. *Hellard*" (322 U. S. 363, 365), as follows:

"We held in *United States* v. *Hellard*, supra, that the United States is a necessary party to partition proceedings brought under Section 2 of that Act. That holding was based upon the direct and important interests of the government in the course and outcome of partition proceedings, interests flowing from the statutory restrictions on alienation of allotted lands. Lands partitioned in kind to full-blood Indians remain restricted under Section 2. Thus the United States, as guardian of the Indians, is directly interested in obtaining a partition in kind, where that course conforms to its policy of preserving restricted lands for the Indians, or, if a sale is desirable, in insuring that the best possible price is obtained. Moreover, if the lands are both restricted and tax-exempt, it has an interest in the reinvestment of the proceeds of the sale in similarly tax-exempt and restricted lands (Act of June 30, 1932, 47 Stat. 474, 25 U. S. C., Sec. 409a). And there is a further interest in protecting the preferential right of the Secretary of the Interior to purchase the land for another Indian under Sec. 2 of the Act of June 26, 1936 (49 Stat. 1967). For these reasons we held in *United States* v. *Hellard*, supra, that the United States was a necessary party to the partition proceedings, even absent a statutory requirement to that effect.

"Heirship proceedings, however, present quite different considerations. They involve no governmental interests of the dignity of those involved in partition

proceedings. Restrictions on alienation do not prevent inheritance (*United States* v. *Hellard*, supra, p. 365). Death of the allottee operates to remove the statutory restrictions on alienation and the determination of heirship does not of itself involve a sale of land. The heirship proceeding involves only a 'determination of the question of fact as to who are the heirs of any deceased citizen allottee of the Five Civilized Tribes.' As such, it is little more than an identification of those who by law are entitled to the lands in question and does not directly affect the restrictions on the land or the land itself. Important as these proceedings may be to the stability of Indian Land titles, they are of primary interest only to the immediate parties. The United States is, indeed, hardly more than a stakeholder in the litigation.

"That is the distinction between partition and heirship proceedings which we recognized in *United States* v. *Hellard*, supra (365–366). We adhere to it. Accordingly the question certified is answered 'No'."

This is pertinent in the present situation for two reasons. First, an action between the State of California and the State of Arizona which only involves the rights between them is not such an action that requires the United States to be made party, and, secondly, the doctrine announced in the *Hellard* and *Shade* cases means that, no matter what the form of action, in the *Hellard* case it was an action in partition, the United States in order to invoke the jurisdiction of the Supreme Court must have a direct and immediate interest in the controversy, or, in other words, it must state a justicable controversy and there is not, and cannot be, as we have pointed out, any present justiciable controversy between the United States and any of the Basin States.

As we have shown there is not only now no controversy between the United States and all or any of the Colorado River Basin States suggested by the California-Nevada Brief, but there are in fact none, nor could there be, because those rights were protected in the Colorado River Compact, as herein heretofore in our preliminary statement of facts pointed out and they are not and could not be now questioned by any of the Basin States.

And here, so far as the legal phases of the problem are concerned, the Brief might end were it not for the fact that the California-Nevada Brief claims certain disputes to exist between those States and the State of Arizona, and that because of them the United States should bring the suit contemplated by the Resolution. As we have already argued, such disputes would not justify such a suit by the United States as is contemplated by the Resolution even if such disputes were of such a character as to constitute them justiciable controversies, but we also say that none of them are of such a character.

The California-Nevada Brief states that "no problems requiring present disposition are believed to exist between the 'Upper and Lower Basin'." This is a cautious statement. It implies that in the future California and Nevada may be able to dig up some, but it suffices to show what is the fact, that there are no existing justiciable controversies between the two Basins. That lets out all of Colorado and Wyoming and those portions of Arizona, Utah, and New Mexico in the "Upper Basin." The Brief says "No specific question is known to exist relative to the claims of Nevada, Utah, and New Mexico." Here again the same caution. But it suffices because it lets out the rest of Utah and New Mexico. and that is the fact, because those portions of Utah and New Mexico must receive their water out of the 2,800,000 acre-feet allocated to Arizona by the contract between the United States and that State, and there is no controversy between Utah and New Mexico and Arizona on that score.

It also lets out Nevada, so the question arises as to why Nevada joins California in proposing the Resolution and joins in the Brief. Notwithstanding they contradict the earlier statement, this is attempted to be answered by three later paragraphs of the Brief, which out of the 73 pages of the Brief set forth Nevada's claims. In them it is again stated that Nevada's share of water—the 300,000 acre-feet contracted for between the United States and Nevada—have never been questioned by either California or Arizona yet "Nevada is seriously concerned as to the effect of political processes upon the stimulation of projects and development in the other States, with consequent repercussions as to Nevada's allotment." If that is a definition of what constitutes a present justiciable controversy, then all the decisions of the Supreme Court cited above will have to be reversed.

Then follows the one and only claim of grievance which Nevada asserts, and again it is that same S. 1175, which is California's sole grievance, that Congress

may authorize the Central Arizona Project. Nevada is concerned because, as the Brief says, that project contemplates the operation of a power plant at the proposed Bridge Canyon Dam (located immediately above Lake Mead), and its operation will have the effect of reducing the power available to Nevada at the Hoover Dam, from which Nevada gets its power under contract with the United States through the Secretary of the Interior, and the project also contemplates "*ultimately*" diverting over a million acre-feet, which will reduce the quantity of water at Hoover Dam available for power purposes and thereby affect the quantity and cost of power to Nevada thereat. Our answer to the claim of Nevada is precisely the same as that already made to the claim of California with respect to S. 1175, heretofore herein set out, and which we do not think needs repeating here, except to add that, as pointed out in our preliminary statement of facts, under the Colorado River Compact, power is subservient to the right to use the water of the Colorado River for irrigation and domestic purposes, and therefore the incidental loss of water available for the generation of power by projects necessary for the uses of the States other than Nevada for irrigation and domestic uses is a matter as to which neither California or Nevada has a right to object, nor has either a right to anticipate that the Congress will authorize projects which will violate that Compact, which is binding alike upon the United States as well as all the States parties to it.

The entire remainder of the California-Nevada Brief is devoted to claims exclusively between California and Arizona, and the conclusion is irresistible that those disputes are really all there are between any of the States in the Basin. They are stated to be three in number, exclusive "a variety of more or less minor or detailed divergencies of opinion," otherwise not specified in the Brief, which surely it could not be claimed rise to the dignity of a justiciable controversy. The first is as to what it meant by what is called in the Colorado River Compact "III (b) water," or the million acre-feet, which is in addition to the water allocated to the Lower Basin in III (a), an interest in which the Brief claims California did not renounce in its Limitation Act. Notwithstanding the language of the Compact, which to us clearly enough indicates that the 1,000,000 acre-feet is apportioned water, and notwithstanding that clarity is strengthened if it needed any strengthening by (c) of Article III, which refers to the contemplated Treaty with Mexico, and says Mexico's rights shall be supplied first from waters which are surplus over and above the water specified in (a) and (b), which places III (b) water along with (a) and (c) water in the water that is apportioned, and says that the unapportioned water is water other than (a), (b), and (c), and in spite of the fact that (f), which determines how unapportioned water is to be disposed of, (a) and (b) water are both referred to as apportioned water, California argues that the 1,000,000 acre-feet is unapportioned or surplus water.

It is to be noted that in the Brief (f) is referred to as relating to the waters which may be allocated to Mexico, but it does not. It relates to that water which is apportioned and that which is not.

The Brief commences the argument by saying: "In any event, the matter being one of contract law, we are concerned with the intent of the parties to the contract in the use of the words."

The brief then seeks to show that intent by quoting from the Report of Mr. Delph E. Carpenter, who was the Commissioner from Colorado, on the Commission which drafted the Compact, and various statements made by various Senators at a later date when the Boulder Canyon Project Act was before the Senate, and by quotations from the Brief of the attorneys for Arizona in the case of *Arizona* v. *California* (283 U. S. 423), none of which when examined will be found to sustain the contentions made in the Brief. But if we are to take the writers of the Brief at their word and we are to seek what is meant by "III (b) water," by evidence outside the instrument itself, which assumes that there is some ambiguity in that language, which, as we have already shown there is not, then the Brief omits the most significant evidence there is.

When the Compact was ready for signature Arizona refused to sign because she did not consider that she was protected in her rights in the Gila River, and so the provision as to "III (b) water," the million acre-feet was added. After it was signed, Herbert Hoover, who, as already stated, was Chairman of the Commission, wrote a letter to Mr. W. S. Norviel, the Commissioner representing Arizona, which reads as follows:

"DEPARTMENT OF COMMERCE

"OFFICE OF THE SECRETARY

"Washington

"LOS ANGELES, CALIF., *November 26, 1922.*

"Mr. W. S. NORVIEL,
"State Engineer, Phoenix, Ariz.

"MY DEAR NORVIEL: This is just by way of registering again my feelings of admiration for the best fighter on the commission. Arizona should erect a monument to you and entitle it 'One million acre-feet.'

"I am sending you herewith a photograph which does not purport to be a likeness but it is a better-looking fellow than the one you have, and I send it as an excuse for writing this letter expressing my personal appreciation of this fine association which we have had.

"Faithfully yours,

"HERBERT HOOVER."

The photograph of Mr. Hoover which he enclosed in the letter has this in his own handwriting "W. S. Norviel from Herbert Hoover in tribute to a million acre-feet and a fine associate."

Herbert Hoover has been charged with making many mistakes, but surely he did not make the mistake as claimed in the California-Nevada Brief of wanting to inscribe on a monument "One Million Acre-Feet" when it should have been "One-Half Million Acre-Feet." (Hearings before the Committee on Irrigation and Reclamation, House of Representatives, Seventy-ninth Congress, Second Session, on H. R. 5434, a Bill authorizing the Gila Federal Project and For Other Purposes, Part 2, July 8, 1946, Page 370.)

The argument then shifts to a consideration of the meaning of Section 4a of the Boulder Canyon Project Act, and California's Limitation Act, which the Brief claims shows that III (b) water is unapportioned. After providing in the first paragraph for the limitation by California to the use of 4,400,000 acre-feet per annum of the Colorado River water, the second paragraph reads as follows:

"The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of Article III of the Colorado River Compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona, 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River Compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico but if, as provided in paragraph (c) of Article III of the Colorado River compact, it shall become necessary to supply water to the United States of Mexico from waters over and above the quantities which are surplus as defined by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply, out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin, and (5) that the State of California shall and will further mutually agree with the States of Arizona and Nevada that none of said three States shall withhold water and none shall require the delivery of water, which cannot reasonably be applied to domestic and agricultural uses, and (6) that all of the provisions of said tri-State agreement shall be subject in all particulars to the provisions of the Colorado River compact, and (7) said agreement to take effect upon the ratification of the Colorado River compact by Arizona, California, and Nevada."

In the light of what we have said at least from the point of view of the United States, this disposes of the contention of Nevada and California as to III (b) water, for (3) of the paragraph says that the "State of Arizona shall have the exclusive beneficial consumptive use of the Gila River within the boundaries of said state" and it explains why III (b) water was separated from III (a) water, a separation which disturbs the writers of the Nevada-California Brief if it is

apportioned water. It was because it had nothing to do with the division of water between the Upper and Lower Basin. It was Arizona's because the Gila River was Arizona's. But apart from all this argument as to III (b) water, it presents no present justiciable controversy between Arizona and California, because it does not jeopardize any of California's present use of the river's water. Indeed, the argument that III (b) water is unapportioned or surplus water goes too far. If it be such, then it is water which comes within III (f) and III (g) of the Compact, and thereby California agreed that there shall be no division of unapportioned or surplus water until after 1963 and then only "if and when either Basin shall have reached its total beneficial consumptive use, as set out in paragraphs (a) and (b)," which conclusively demonstrates there could be no justiciable controversy over such water at least until 1963.

Indeed, the question as to whether or not III (b) is apportioned water under the contract is set at rest by the decision of the United States Supreme Court in the case of *Arizona* v. *California* (292 U. S. 341 at page 742 of 54 St. Ct.) by the following statement of the Court:

"Sixth. The considerations to which Arizona calls attention do not show that theer is any ambiguity in article III (b) of the compact. Doubtless the anticipated physical sources of the waters which combine to make the total of 8,500,000 acre-feet are as Arizona contends, but neither article III (a) nor (b) deal with the waters on the basis of their source. Paragraph (a) apportions waters 'from the Colorado River system,' i. e., the Colorado and its tributaries, and (b) permits an additional use 'of such waters.' The compact makes an apportionment only between the upper and lower basin; the apportionment among the states in each basin being left to later agreement. Arizona is one of the states of the lower basin, and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the states of the lower basin and not specifically to Arizona alone. It may be that, in apportioning among the states the 8,500,000 acre-feet allotted to the lower basin, Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her; but that is a matter entirely outside the scope of the compact."

The next alleged dispute is stated to be "the charge against III (a) water on account of Gila uses." Says the Nevada-California Brief:

"The Gila River, in its lower reaches, was, in a state of nature, a wasting stream. In the last one hundred miles above the point where it disembogues in the Colorado, its bed is wide, sandy, flat, and subject to the intense heat of the desert. As a result, although an average of about 2,300,000 acre-feet of water per annum flows into the Phoenix area in Central Arizona from the mountainous watershed of the Gila and its tributaries, it has been estimated by the Bureau of Reclamation that, in a state of nature, before any water was put to use in Central Arizona, an average of only approximately 1,300,000 acre-feet per annum flowed from the Gila, at its mouth, into the Colorado. The rest was lost by evaporation, deep seepage, and transpiration. Arizona argues that it is chargeable, for its use of Gila water, only to the extent it 'depletes' the flow of the main stream of the Colorado below the quantity which would have flowed in it in a state of nature. California contends that that view is a distortion of the measure of charge specified in the compact, namely, 'beneficial consumptive use.' By construction of an extensive system of impounding reservoirs in the mountains east of Phoenix and batteries of pumps in the lowlands, Arizona projects have accomplished the capture and utilization of substantially all of the 2,300,000 acre-feet. All of that water supply is actually being beneficially and consumptively used in Arizona and produces crops. One way of expressing the problem is, therefore; 'Is a state or project entitled to salvage, by conversion works, water which in a state of nature was wasted, and not be charged under the compact for water so salvaged?'"

The short answer to this contention is, as we have already pointed out, this water in question is not III (a) water, but III (b) water, and that Arizona is entitled to all the water of the Gila River, and that therefore what is meant by "consumptive beneficial use" in the Compact becomes immaterial.

Indeed, from the point of the United States, 4a of the Boulder Canyon Project Act disposes of both the first and the second alleged disputes between Arizona and California. It not only says that the State of Arizona is entitled to the beneficial consumptive use of the Gila River. That takes care of the III (b), the million acre-feet. That also takes care of the definition of the term "beneficial

consumptive use in perpetuity." Then it says that Arizona is entitled to 2,800,000 acre-feet per annum "for exclusive beneficial consumptive use," which obviously is in addition to the Gila River. The United States is in no position, having by legislative enactment determined these matters and its administrative officers having acted thereon ever since, now to reverse that determination and to lend any aid to California or any other Basin State to try and change that determination.

Moreover, and here again, this is our fundamental answer, the interpretation of the meaning of the term, does not create any present justiciable controversy between California and Arizona even if it might in the future, because however it be interpreted, it does not jeopardize California's present use of the waters of the River.

The third claimed dispute between California and Arizona is whether California's 4,400,000 acre-feet per annum of the River is subject to its proportionate share of the losses in Lake Mead, as it is stated Arizona contends. In other words, does the 4,400,000 acre-feet per annum mean a "net limitation," or is it to be lessened by proportioned reservoir losses? Well, again, what of it? It may become important in the future, but it cannot be now, because whether it be 4,400,000 acre-feet net, or a lesser amount even by the 600,000 acre-feet suggested in the Brief as California's proportionate share of Lake Mead losses, California's present use of the water of the Colorado River is not in jeopardy.

Finally, what sort of disputes are these three claimed disputes? They are as to the meaning of certain provisions of the documents constituting the law of the River, which may or may not become important in the future but are not now, because they do not jeopardize any present use by California of the water of the River. They are, first: What is meant by "III (b)" water as used in the Compact? As to that, it is claimed Arizona has one opinion and California another. Second, what is the meaning of the term "beneficial consumptive use of water" as used in the Compact? As to that it is claimed the opinions of California differ from those of Arizona. Third, what is the interpretation to be given to the limit on California's use of the River, the 4,400,000 acre-feet per annum? California says that means without losses. Arizona says, so the Brief claims, it means subject to losses. This demonstrates that what California really wants is a definition of these words and terms for future guidance. That can only be done by agreement or by a declaratory judgment of a court. She knows that the Supreme Court has decided it will not render declaratory judgments in the exercise of its original jurisdiction because of the constitutional limitation upon it. She cannot bring an action or suit to have their meaning fixed. So, what she proposes is that the United States shall bring the suit or action and thus indirectly give color of jurisdiction which would otherwise not exist. We say that the attempt would eventually be futile, because color of jurisdiction does not suffice. It must be existent. We say that if the bill of complaint which was filed would state all the three claimed disputes of California against Arizona as stated in the Brief, and as we have shown that is all there is on the River, and then state the facts as to present use of the water of the River, and what is going to waste, it would not state a justiciable cause of action. If it went further, then it would state more than California has asked or has a right to ask.

This brings us to the questions of policy apart from the legal questions involved in the adoption of this Resolution. Should the United States for the supposed benefit of California, attempt to do for her what she can't do for herself, especially if it be to the detriment of the other States, as we shall now show it would be?

3. The Upper Colorado River Basin States are now negotiating a compact to allocate between them the waters apportioned to them by the Colorado River Compact. The allocation among the Lower Basin States is substantially settled by the law of the river.

As shown by the quotations hereinbefore made from decisions of the Supreme Court of the United States and the opinions of its judges, disputes between states, for the reasons better stated therein than we could state, should be settled by compact rather than by litigation before it.

The states of the Upper Basin, through a Compact Commission, are now engaged in an attempt to divide the waters allocated to them by the Colorado River Compact. The California-Nevada Brief says with respect to those negotiations "the Upper Basin States, Wyoming, Utah, Colorado, and New Mexico

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and, as to a trifling interest, Arizona, have for a year or more been engaged in negotiations for a compact to divide the upper basin water aming them. It is believed that this effort will be effectual." Whether California is sincere in this statement we shall later discuss, but it suffices now to state that we concur and, indeed, there is every reason to believe that before the end of the year such a compact will be entered into so as to submit the same to the interested states when their legislatures meet at the beginning of next year and to the Congress for ratification.

So far as the Lower Basin States are concerned, as we have already shown, the United States by the enactment of the Boulder Canyon Project Act has already determined that two out of the three principal contentions now made by California cannot be successfully made and that the United States cannot now countenance California making them. So far as the United States is concerned they are settled as fully and completely as if there were an express compact as to them between the Lower Basin States and the United States and between those states. By virtue of Section IV (a) of the Boulder Canyon Project Act these are:

"(1) That of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of Article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico."

As already pointed out, these provisions of IV (a) dispose completely of California's contention with respect to III (b) water and what is meant by the beneficial consumptive use of water so far as the Gila River is concerned. Taking into consideration that Arizona is entitled to all the use of the Gila River as set out in this paragraph, this necessarily means that Arizona is entitled in addition thereto to 2,800,000 acre-feet per annum which means, further, that there is ample water for the Central Arizona Project because California does not and cannot assert that that project will take more water than that. In other words, by virtue of Section IV (a) of the Boulder Canyon Project Act the United States has said to the Lower Basin States that these four items are so settled that there need be no compact concerning them, and if you do make any compact as to any other differences there may be between you, if any such exist, such compact must contain these provisions and be subject to these limitations. This so far as the Nevada-California brief is concerned, and as we have before stated, it must be assumed that that brief states as strongly as can be stated California's position, leaves only one dispute of any consequence as between California and Arizona, namely, whether California shall be required to bear its proportionate share of the evaporation loss in Lake Mead.

As we have already shown, that cannot now give rise to a justiciable controversy before the Court, and even if it could it would only be a dispute as between California and Arizona but, of course, it can now be settled by compact and such settlement would not in anywise affect the Central Arizona Project or any other project for the development of the Upper Colorado River so as to jeopardize the rights under the compact of those states. Surely, if the Upper States can settle their differences by the division of the water allotted to them under the compact, why can't Arizona and California settle this one remaining dispute between them? The California-Nevada brief says they can't, because Arizona refuses even to meet with Nevada and California, and in support of that statement have appended to the brief as appendices, certain letters passing between the Governors of the respective States. That the correspondence be complete, we attach the remainder of it. We submit that an analysis of the entire correspondence does not disclose a refusal by Arizona to meet, and that instead of trying to help California to air its disputes with Arizona by the adoption of the proposed Resolution in the Courts, the Congress should advise California and Nevada to do what the Supreme Court has advised be done, what the Upper Basin States are doing, namely to negotiate with respect to that one remaining dispute. If the States which formed the Union could resolve their differences by the adoption of the Constitution under which we live, surely Cali-

fornia and Arizona ought to resolve this one remaining difference of opinion between them by a compact authorized by that same constitution. The President and Congress by the enactment of the Boulder Canyon Project Act have pointed the way and fixed the manner of traveling it. (Section IV (a) hereinbefore quoted.) California does not like to travel that way but it would be inconsistent for the United States now not to insist that California follow it, especially, as litigation contemplated by the proposed Resolution will have the effect of greatly delaying the development of the Colorado River, and particularly in the Upper Basin as we shall now proceed to show.

4. The adoption of the proposed resolution will delay the development of the river.

In the opinion of Justice Frankfurter heretofore quoted, upon the filing of a bill of complaint in the Supreme Court, the practice of the Court is pointed out, and that practice is to appoint a Master or Commissioner to take the testimony which is usually voluminous and in its taking a long period of time is consumed. Then the Master or Commissioner has to make his Report and Findings and it is only then that the case comes to the Supreme Court for decision. The case of *Nebraska* v. *Wyoming* (325 U. S. 589), involving the North Platte River, was commenced in 1934, and was completed in 1945. The litigation over the Arkansas River was commenced in 1901 (*Kansas* v. *Colorado*, 206 U. S. 46, and *Colorado* v. *Kansas*, 320 U. S. 381), and ended in 1943. The Laramie River case was commenced in 1911 (*Wyoming* v. *Colorado*, 259 U. S. 419, 309 U. S. 572) and decided in 1940. The result of the adoption of the Resolution, and the commencement of the action, pursuant thereto, instead of expediting the development of the Colorado River Basin as claimed in the Resolution, will greatly delay it. The writer or writers of the California-Nevada Brief are cognizant of the long delays in water litigation between States in the Supreme Court of the United States, but they claim that the issues in this case will be merely "interpretations of statutes and other documents," and therefore this case will differ from all previous water litigations. That statement but reinforces our claim that that is the extent of their claims, that they want these statutes and documents now construed solely for future guidance. That they cannot do as the decisions of the Supreme Court stand now, because uniformly that Court has refused to render declaratory judgments. Apparently they have not the courage to ask the Supreme Court to reverse those decisions, and parenthetically we may say they have been criticized, and so they ask the United States to pull their chestnuts, which may exist sometime, although they do not now exist, out of the fire which is not yet burning. They hope that the Attorney General, if the Resolution passes, can camouflage an action to declare the meaning of certain "statutes and documents" into a justiciable controversy, or at least be the intermediary by which they will be able to do it. We submit it would be a breach of faith to all the other Basin States for the United States to lend California any aid or comfort in such an undertaking and to bring an action which would throw the rights of all the Basin States and of the United States in the River in litigation which it will take many years to conclude. In other words, the inconsistency of the Brief and the Resolution is this: The Brief claims that the disputes are confined to interpretations of instruments affecting only the rights in the River between Arizona and California. The Resolution attempts to put in issue all the claims of all the States. Meantime California will endeavor to use the water to which the other States are entitled and will oppose any projects of the Upper River, as she is opposing the Central Arizona project, including the Central Utah Project now pending in Congress (S. 2095, H. R. 5233), and we can now hear her reresentatives shout, "Why appropriate any of the money of the United States so needed for other projects to construct this project on the Colorado River when that River is in litigation before the Supreme Court of the United States, and it will be years and years before it will be determined whether there will be any water available for the project?" When reduced to the ultimate, this Resolution is nothing but a flank attack upon the Central Arizona Project. But it will undoubtedly be followed—if it is adopted that the contemplated suit is brought—by frontal attacks upon every project for the development of the River. Putting it bluntly, California, having already received all the major projects needed by her to enable her to use not only the water to which she is entitled, but an amount greatly in excess thereof, wants to be in a position to use those excess waters which the other Basin States are entitled to use but have not the facilities to enable them to so use.

Then, after she has used them, she will raise the cry that she must not be deprived of them because it will ruin the wondrous civilization which has been

builded upon their use. Indeed, this cry, while somewhat vague and feeble, is nevertheless audible in the Resolution and in the Brief. In the Resolution it is intimated "engineering, economic, and other facts" are factors to be considered in determining the rights of the Basin States in the River. In the Brief the immense amount of water involved is stressed. The number of people it will serve with domestic water is heralded—5,000,000 people. But vague and feeble though it now be, it will become a lusty yell once California is using water which really belongs to the other States for 5,000,000 people, or some such number. Thus. are the rights of the other States in the River to be sacrificed upon the altar of California's alleged economic needs? We submit the United States ought not to kindle the fire that will enable California to make that sacrifice and that is the purpose of the Resolution and will be its effect if it is adopted and pursuant to it, the suit is brought.

5. The adoption of the resolution will hamper the consummation and ratification of the compact between the Upper Basin States, and the failure of the Upper Basin States to enter into a compact will delay the development of the river.

As pointed out, the States of the Upper Basin are engaged in formulating a Compact which will divide the waters of the Colorado River to which they are entitled between those States. If the rights of all the Basin States are thrown into litigation, as provided for in the resolution, naturally of what use will it be for the Upper Basin States to continue their negotiations when their rights are in litigation? True it is, the Commissioners may be so confident that California's claims will ultimately be determined to be fanciful, to be distorted interpretations of words and phrases in documents, to be utterly unsound, as we are, and therefore will courageously proceed, but even should they do so, it would be practically impossible to procure ratification of any compact formulated, because it cannot be presumed that the members of the Legislatures will have the same convictions that the Commissioners have because of their years of studies of the questions.

So, if the Upper Basin States should fail to consummate a Compact, or if it should fail of ratification in any one State, there will be another excuse for delay in the development of the upper River, and again the United States will be adding fagots to California's sacrificial fire.

Why should the United States thus play into California's hands when none of its rights are in any jeopardy, when none of its rights are in any wise threatened by any Basin State, including California?

We respectfully submit that the United States should not; that the Department of the Interior should not recommend the adoption of the Resolution, involving as it does, the United States suing all the Basin States, not only for the reason that there are no rights of the United States involved or threatened, but because all of the contracts the Department has entered into have been based upon a denial of the only claims California has or can make, and in harmony with the second paragraph of 4a of the Boulder Canyon Project Act, and to take a different position now would be inconsistent; on the contrary to be consistent it should recommend that the Resolution be not adopted; that the Department of Justice should not recommend the adoption of the Resolution, because it must necessarily depend for its facts upon the Department of the Interior, because that Department is charged with the responsibility of determining them, and we submit that no facts can be furnished by the Department of the Interior that will show a present justiciable controversy between the United States and any of the States; that on the contrary, if it be convinced by both the California-Nevada Brief and this Brief, as we submit it must be, that the only controversy that exists is the difference of opinion between Arizona and California as to the meaning of the documents as set out in both briefs, the Department should recommend that the Resolution be not adopted, because the authority of the Attorney General's office to institute suits in behalf of the United States ought not to be used to give either California or Nevada the means of resolving such differences of opinion, but the burden of instituting such a suit should be cast upon the State asserting such differences, the Attorney General knowing full well he can intervene if he deems the interests of the United States involved, as he has done before in other suits; that the Congress should not adopt the Resolution and thereby instruct the Attorney General to bring a suit against all the Basin States, not only because the Congress would thereby determine for the Attorney General that there is a legal basis for the suit, when in fact none exists, but because it should not be the policy of the United States, when none of its own interests are involved, to take the side of one State in a dispute it has with

another, or with others, especially when as here, as we have shown, it will be to the disadvantage of the other State or States, and particularly when, as here, the State is making contentions contrary to what the Congress has determined by legislation, and contrary to the acts of the administrative officers of the United States pursuant to that legislation.

SUMMARY

The position of the Colorado River Basin States Committee, and of the States of Colorado, Wyoming, Utah, New Mexico, and Arizona, which are members of that committee, can be summarized thus:

1. Jurisdiction of the United States Supreme Court in controversies between states is determined by the constitution of the United States and may not be enlarged or diminished by act of Congress.

2. The Supreme Court has, by a long and consistent line of decisions, established the rule that a suit may not be maintained against a state by another state or by the United States unless the complainant has suffered or is immediately threatened with an injury of serious magnitude.

3. The proposed suit by the United States against certain Colorado River Basin states does not come within the stated rule because there is no injury or threat of injury. This conclusively appears from the following irrefutable facts:

(*a*) Every Colorado River Basin state is now using water in an amount substantially less than that to which it is fairly and equitably entitled under the documents which constitute the law of the river.

(*b*) No project has been constructed, is under construction, or has been authorized for construction in any state which threatens to diminish the supply of water which admittedly is available to each other state under the documents constituting the law of the river.

(*c*) Very large amounts of Colorado River water are flowing unused across the international boundary into Mexico and there is no claim that within the immediate future those amounts will be so substantially reduced as to interfere with the availability of water necessary to supply the admitted share of the proponents of the resolution.

(*d*) There is no suggestion of any projects for development of Colorado River water which might interfere with the claimed rights of any state except projects which are of such magnitude that federal financing is essential. Projects of that character must be authorized by Congress and financed by congressional appropriations. The availability of water for those projects is a proper concern for Congress when considering the necessary legislation. Under our constitution and applicable decisions of the Supreme Court, Congress cannot avoid that responsibility or obtain assistance by requesting declaratory or advisory opinions of the Supreme Court.

4. The Colorado River Basin States Committee, and the states composing that committee, affirm that they recognize as valid and binding instruments and legislation and as the law of the river the Colorado River Compact, the Boulder Canyon Project Act, the California Self-Limitation Act, the Boulder Canyon Project Adjustment Act, the Mexican Water Treaty of 1944, and the various water use contracts executed by the Secretary of the Interior. Any assertion to the contrary by the proponents of Supreme Court litigation is without foundation and constitutes a deliberate distortion of the truth.

5. It is reasonable to assume that any Supreme Court litigation, such as that proposed, will require a period of years before ultimate determination by the Court. The practice of the Court in interstate cases involving disputes as to facts is to appoint a master or commissioner for the taking of testimony. Experience has shown that this process is long-drawn-out and costly. Assertions to the contrary are misleading as they are based upon cases determined on objections to the filing of a bill. While the status of the pleadings in any litigation such as is proposed may not be forecast with any accuracy, it is reasonable to believe that there will be issues of fact. It is within the power of any state, including those states proposing this legislation, to create such issues of fact. There is and can be no assurance from the sovereign states involved, either individually or as a group, that factual questions will not be raised.

6. The effect of the proposed litigation can only result in delay in the development of the river. Congressional authorization of projects or appropriations for construction of projects will be contested upon the ground that until the decision of the Court the availability of a water supply is uncertain.

7. The consummation, ratification, and approval of a compact between the

states of the Upper Basin will be embarrassed and handicapped by the proposed litigation. The case, if filed, will raise questions as to the interpretation and applicability of the Colorado River Compact. A compact between the upper basin states must conform to the Colorado River Compact. The pendency of litigation over that basic compact will be used as the basis for arguments that an Upper Basin Compact should not be made while such litigation is pending. This will delay the development of the upper basin by federally financed projects as the Department of the Interior and the Bureau of the Budget have ruled that new federal projects will not be authorized in the upper basin until an allocation of the water available for use in the upper basin is made between the states located therein.

8. The proposed legislation is unnecessary as it must be assumed that the attorney general of the United States and the responsible officials of each state will do their duty and institute whatever litigation is necessary to protect the rights of their respective governments.

9. The assertion that the legislation is necessary because the United States is an indispensable party to litigation involving the issues presented is without merit because (a) the mere presence of the United States in the suit does not create a justiciable controversy, (b) there is no justiciable controversy and hence legislation giving the consent of the United States to suit is unnecessary, (c) if any state believes and can establish that it is being injured or threatened with injury by another state, a suit by such injured state may not be defeated by the assertion that the United States is an indispensable party and (d) whenever in the future some controversy, as yet undefined either as to issues or parties, arises and in connection with such litigation it is proper for the United States to be a defendant, then will be the time for Congress to give consideration to legislation involving consent to be sued therein.

10. Congress should not infringe upon the duties, rights, and prerogatives of the executive and judicial branches of the government of the United States by directing the institution and maintenance of unnecessary litigation. Congress can and should make its own determination as to each and every project submitted to it. If any state disagrees with such congressional determination, our constitution affords method of redress.

For the reasons assigned it is asserted that the proposed legislation does not merit favorable consideration.

Respectfully submitted.

The Colorado River Basin States Committee:

State of Colorado: Clifford H. Stone, Chairman; Frank Delaney.
State of Wyoming: L. C. Bishop, H. Melvin Rollins.
State of Utah: W. R. Wallace, Grover A. Giles.
State of New Mexico: Fred E. Wilson, John H. Bliss.
State of Arizona: Nellie T. Bush, Charles A. Carson.

Subcommittee to Oppose Litigation:

State of Utah: J. A. Howell, Chairman; Grover A. Giles.
State of New Mexico: Fred E. Wilson, Martin A. Threet.
State of Wyoming: Norman B. Gray, Attorney General; H. Melvin Rollins.
State of Colorado: Clifford H. Stone, Jean S. Breitenstein.
State of Arizona: Nellie T. Bush, Charles A. Carson.

APPENDIX

Correspondence between the Governor of California and the Governor of Arizona omitted from the California-Nevada Brief.

STATE OF CALIFORNIA,
GOVERNOR'S OFFICE,
Sacramento, May 16, 1947.

The Honorable SIDNEY P. OSBORN,
Governor of Arizona, Phoenix, Arizona.

DEAR GOVERNOR OSBORN: I did not bother you during the time you were ill in our State concerning my suggestions for settling the differences of opinion of Arizona and California regarding their respective rights to the use of the water of the Colorado River. However, now that you have recovered sufficiently to return to your home, I would like to discuss your letter of March 12, 1947, and the accompanying copy of your letter to William E. Warne, Acting Commissioner of the Bureau of Reclamation, dated November 22, 1946.

I gather from these two letters that you believe it is unnecessary to try to

write a compact between the lower-basin states or to have your respective claims arbitrated, because you consider the existing statutes, contracts, etc., have so settled the rights of Arizona, California, and Nevada in the Colorado River that there are no substantial differences between the states. It may well be that the suggestions of a compact and arbitration are not feasible at this late date, but I am of the opinion that there are such basic divergencies of interpretation of the statutes and documents mentioned above, particularly between Arizona and California, that without an authoritative determination as to which state is right, it is impossible for anyone to know what quantity of water either state is entitled to. If our states are to plan for their futures, they must know with certainty how much water is eventually to be made available to them, because everyone recognizes that there is not enough water in the river to fully serve the legitimate aspirations of both our states.

It seems to me that a suit in the Supreme Court of the United States, to which the lower-basin states and the United States are parties, is essential to supply the necessary answer. This would, of course, require a jurisdictional act of Congress authorizing the United States to be made a party of such suit. Governor Pittman, of Nevada, has expressed a similar opinion in a letter to me dated March 6, a copy of which is enclosed. I am sure that such a procedure will eventually redound to the benefit of both of our states.

With best wishes for the continued improvement of your health, I am,

Sincerely,

EARL WARREN, *Governor.*

EXECUTIVE OFFICE, STATE HOUSE,
Phoenix, Ariz., May 23, 1947.

Honorable EARL WARREN,
Governor of California, State Capitol, Sacramento, California.

MY DEAR GOVERNOR WARREN: I have received your letter of May sixteenth and appreciate your personal good wishes.

In my letter to you of March twelfth and in my letter to William E. Warne, Acting Commissioner of the Bureau of Reclamation, of November 22, 1946, a copy of which I sent to you, I clearly stated the facts and the reasoning which, in my opinion, lead to the inescapable conclusion that the quantities of apportioned water available for use in Arizona, California, and Nevada, respectively, from the Colorado River are already determined.

If you do not agree with such facts and reasoning and my conclusions, it is regrettable that you do not specify wherein you disagree.

On Page 8 of "The Views and Recommendations of the State of California on Proposed Report of the Secretary of the Interior entitled 'The Colorado River'" there purports to be a list of relevant statutes, decisions, and instruments affecting the Colorado River, but no mention is made of the California self-limitation act, Chapter 16, California Statutes, 1929.

I discussed the California self-limitation act, as well as the other relevant compact, statutes, contracts, and reports in my letters, but in your letters to me you take no exception to any statements in my letters, nor do you set forth any statement of any facts, reasoning, or conclusions as to what claim to water of the Colorado River you intend to assert for California nor the basis for such claim.

California has unconditionally and irrevocably limited herself forever to the quantity of water set out in the California self-limitation act. Arizona has by contract recognized the right of California to the quantity of water set out in that act, and Arizona does not intend to and will not attempt to utilize water to which California is entitled.

Arizona respects her commitments.

Any aspiration entertained in California to use water in excess of that limitation appears to be illegitimate. If California would be content with the use of the quantity of the water to which she has by solemn statutory agreement unconditionally and irrevocably limited herself forever, all occasion for any feeling that any further compact, any arbitration, or litigation is advisable would disappear.

I am sure if you will review my letters and the compact, statutes, contracts, and reports therein mentioned, you will recognize that the only thing required for cooperation between our great states in developing the use of the waters of the Colorado River to which they are respectively entitled for their mutual benefit

and for the benefit of the southwest and the nation is for your great state to respect the agreements your state has already made.

I request that you again review my letters, and if, in your opinion, there is any error in the facts, reasoning, or conclusions stated in my letters, I will appreciate your advising me concerning the same.

With all good wishes, I am,

Sincerely,

SIDNEY P. OSBORN, *Governor.*

EXECUTIVE OFFICE, STATE HOUSE,
Phoenix, Ariz., October 10, 1947.

Honorable EARL WARREN,
Governor, State of California, Sacramento, California.

MY DEAR GOVERNOR WARREN: In my letter to you of March twelfth, 1947, in reply to your letter to me of March third, 1947, I extended to you an invitation in the following words. I quote the last two paragraphs of my letter to you of March twelfth, 1947:

"However, I will be glad to meet and discuss with you and the Governors of the other Colorado River Basin States, jointly or severally, any matters of common interest, and if at such conference or conferences it should develop that there are any substantial differences, we can consider and perhaps resolve such differences; and if it should develop that anything further is necessary, we can consider the proper course to pursue.

"During your incumbency we in Arizona have not had the pleasure of a visit from you. We would like to see you over in our state, and I will greatly appreciate it if you can arrange to come to Phoenix as soon as possible, either alone or with Governor Pittman, or with such other Governors of the basin states as you may desire to have present, in order that any matters which you may desire to further discuss can be gone into fully and thoroughly."

To date you have neither accepted nor declined that invitation.

I note that in the public press there are appearing statements to the effect that I refused to meet with you.

Of course, you and I know that such is not the case, but in order to clear up any possible misunderstanding I herewith repeat the above quoted invitation. I will be glad to meet with you and with the Governors of other Colorado River Basin states, jointly or severally, at any time to discuss matters of common interest.

I suggest you arrange to come to Phoenix before Christmas, giving me twenty days advance notice of the date of your arrival, and the names of the other Governors and advisors who will attend, so that I may make the necessary hotel reservations and arrangements.

With all good wishes, I am

Sincerely,

SIDNEY P. OSBORN, *Governor.*

STATE OF CALIFORNIA,
GOVERNOR'S OFFICE,
Sacramento, October 16, 1947.

The Honorable SIDNEY P. OSBORN,
Governor of Arizona, State House, Phoenix, Ariz.

MY DEAR GOVERNOR: I have your letter of October 10 concerning items in the public press relative to our Colorado River problems. I have not seen the items that you mention but if there is any statement in them to the effect that you have refused to meet and discuss matters with me, they are wholly without foundation. No one has been more willing to discuss our mutual problems than yourself, and I am sure you know that I would never make any expression to the contrary.

The subject of the correspondence to which the press item must have had reference could not have applied to conferences, because innumerable conferences have been held during recent years without reconciling differences of opinion. In addressing you and Governor Pittman on the subject I merely proposed the only three methods that occurred to my mind as being able to lead to a final solution.

1. A compact between the three States, making a determination of all the issues.
2. Arbitration.
3. Judicial determination.

I merely suggested that California was willing to use any of these three methods that is agreeable to Arizona and Nevada. If I could have thought of any other practical method I would have incorporated it also.

Thanking you for calling the matter to my attention and with best wishes, I am

Sincerely,

EARL WARREN, *Governor.*

Mr. HOWELL. Also, I desire at this time to present a supplemental brief which relates only to one question. It was brought about by reason of the fact that the hearing before the Senate committee developed the question by Senator Millikin that a brief be prepared, as I understood it, by both sides, on the question as to whether or not the adoption of this resolution would constitute an encroachment upon the executive branch of the Government and we have prepared such a brief and I have now sufficient copies to file with the committee.

I also have copies here for those who are representing the proponents of the resolution and I ask that that supplemental brief be made a part of the record.

Mr. CASE. That may be done.

(The supplemental brief referred to is as follows:)

SUPPLEMENTAL BRIEF AND ARGUMENT OF THE COLORADO RIVER BASIN STATES COMMITTEE REPRESENTING THE STATES OF WYOMING, COLORADO, NEW MEXICO, ARIZONA, AND UTAH

S. J. RES. 145 PROPOSES AN UNCONSTITUTIONAL ENCROACHMENT BY THE CONGRESS ON THE EXECUTIVE BRANCH OF THE FEDERAL GOVERNMENT

A consideration of S. J. Res. 145 directs the Attorney General of the United States to commence a suit in the Supreme Court of the United States in the nature of interpleader against five named parties, to wit: Arizona, California, Nevada, New Mexico, and Utah.

It is suggested in the joint brief filed on behalf of the Colorado River Basin States Committee that in directing a suit of a specific nature against specific named parties Congress would be encroaching upon the powers of the executive department of the President and more particularly on the executive powers of the Attorney General of the United States, who is the executive officer charged with the responsibility of determining the necessity of legal action, the type of proceeding to be filed, and the parties to be made defendants whenever it shall appear to him that the interests of the United States are involved.

S. J. Res. 145 raises the specific question as to whether the determination of such matters as set forth therein are within the discretion of the legislative department or executive department of our Government.

The answer to this question must of necessity be determined by a consideration of specific constitutional provisions and powers and by a consideration of those legal authorities which interpret those provisions. It is important, therefore, to consider the duties of the Attorney General of the United States.

In 5 Am. Jur., page 236, Section 7, is a discussion of the general nature of the duties of the Attorney General of the United States from which we quote:

"While the Federal statutes which establish and regulate the Department of Justice provide that 'there shall be at the seat of government an executive department to be known as the Department of Justice, and an Attorney General, who shall be the head thereof,' they contain no specific statement of the general duties of the Attorney General; * * *

"While there is no specific statement in the enactments of Congress enumerating the general duties of the office, it is held that as the Constitution contemplates the existence of an officer of the government to determine when the United States shall sue, to decide for what it shall sue, and to be responsible for the conduct of suits, Congress, in creating the office of attorney general and in using that term in other statutes has reference to the similar office under the English law, and therefore have impliedly conferred upon him authority, and made it his duty, to supervise the conduct of all suits brought by or against the United States. * * *"

In 1854 Attorney General Caleb Cushing rendered an opinion to the President of the United States in which he set forth a brief exposition of the history of the office of the Attorney General and from which we quote:

"*Exposition of the early establishment of executive departments.*—The Constitution does not specify the subordinate, ministerial, or administrative functionaries, by whose agency or counsels the details of the public business are transacted. It recognizes the existence of such official agents and advisers, but leaves the number and organization of those departments to be determined by Congress. In the exercise of this duty, the constitutional Congress proceeded at an early day of its first session (July 27, 1789, 1 Stat. 28, c. 4) to establish the 'department of foreign affairs,' with 'a principal officer therein to be called the secretary for the department of foreign affairs.' * * * At the same session (Sept. 24, 1789, 1 Stat. 73) followed 'An Act to establish the judicial courts of the United States,' wherein, by section 35 of said Act, provision was made for the appointment of an attorney general * * *. Such was the original basis of the executive organization of the government. The Secretary of State for political and foreign affairs, the Secretary of War for military and naval matters, the Secretary of the Treasury for those of finance, and the Attorney General for judicial and legal affairs—these were the immediate superior ministerial officers of the President, as well as his constitutional counselors during the whole period of the administration of the first President of the United States" ((1854) 6 Op. Atty. Gen. 326).

The leading case concerning the power of the Attorney General of the United States to initiate a suit in its behalf is the case of *United States* v. *San Jacinto Tin Co.* ((Cal. 1888) 125 U. S. 273, 8 S. Ct. 850, 31 L. Ed. 747). In this case suit was brought by the Attorney General of the United States in behalf of the United States to cancel a patent for land on the ground that it was obtained by fraud or mistake. The Court held that the initial consideration of such a suit lies with the Attorney General as head of one of the executive departments. As this is the leading authority, we desire to quote at length therefrom. Mr. Justice Miller in speaking for the Court said, in 8 S. Ct. 850, at page 853:

"Another question, however, is raised by counsel for the defendant, which is earnestly insisted upon by them, and which received the serious consideration of the judges in the circuit court; namely, the right of the attorney general of the United States to institute this suit. * * * *It is denied that the attorney general has any general authority under the constitution and laws of the United States to commence a suit in the name of the United States to set aside a patent,* or other solemn instrument issued by proper authority. It is quite true that the Revised Statutes, in the title which establishes and regulates the department of justice, simply declares, in section 236, that 'there shall be at the seat of government an executive department, to be known as the Department of Justice, and an attorney general, who shall be the head thereof.' There is no very specific statement of the general duties of the attorney general, but it is seen from the whole chapter referred to that he has the authority, and it is made his duty, to supervise the conduct of all suits brought by or against the United States, and to give advice to the president and the heads of the other departments of the government. There is no express authority vested in him to authorize suits to be brought against the debtors of the government, or upon bonds, or to begin criminal prosecutions, or to institute proceedings in any of the numerous cases in which the United States is plaintiff; and yet he is invested with the general superintendence of all such suits, and all the district attorneys who do bring them in the various courts in the country are placed under his immediate direction and control. * * * If the United States, in any particular case, has a just cause for calling upon the judiciary of the country, in any of its courts, for relief by setting aside or annulling any of its contracts, its obligations, or its most solemn instruments, the question of the appeal to the judicial tribunals of the country must primarily be decided by the attorney general of the United States. * * * *There must, then, be an officer or officers of the government to determine when the United States shall sue, to decide for what it shall sue, and to be responsible that such suits shall be brought in appropriate cases.* * * * The judiciary act of 1789, in its third section, which first created the office of attorney general, without any very accurate definition of his powers, in using the words that 'there shall be appointed a meet person, learned in the law, to act as attorney general for the United States' (1 U. S. St. at Large, 93) must have had reference to the similar office with the same designation existing under the English law; and, though it has been said that there is no common law of the United States, it is still quite true that when acts of congress use words which are familiar in the law of England, they are

supposed to be used with reference to their meaning in that law. *In all this, however, the attorney general acts as the head of one of the executive departments, representing the authority of the president in the class of subjects within the domain of that department, and under his control.*" [Emphasis supplied.]

The only applicable case decided by the U. S. Supreme Court prior to the *United States* v. *San Jacinto Tin Co., supra,* is the case of *United States* v. *Hughes* (11 How. 552), which also involved cancellation of a patent. In this case it was held that it was proper for the Attorney General to file an information on behalf of the United States to cancel the patent.

In another case, *United States* v. *Beebe* (127 U. S. 228, 8 Ct. 1083), decided at the same term of court, the Attorney General's action in bringing a suit in behalf of the United States to cancel a patent was approved.

Since the decision in *United States* v. *San Jacinto Tin Co., supra,* there have been innumerable cases in both the Supreme Court of the United States and in the lower federal courts in which it has been held that the Attorney General in initiating a suit in behalf of the United States is exercising an executive function. Among those cases are the following:

Sanitary District of Chicago v. *United States* (45 S. Ct. 176, 266 U. S. 405, 69 L. Ed. 352);

New York v. *New Jersey* (41 S. Ct. 492, 256, U. S. 296, 65 L. Ed. 937);

United States v. *American Bond & Mortgage Co.* (31 F. (2d) 448, Aff. 52. F. (2d) 318; certiorari denied 52 S. Ct. 311, 285 U. S. 538, 76 L. Ed. 931);

North Dakota-Montana Wheat Growers Ass'n v. *United States* (66 F. (2d) 573, 92 A. L. R. 1484, writ of certiorari denied in 291 U. S. 672, 78 L. Ed. 1061, 54 S. Ct. 457);

United States v. *American Bell Telephone Co.* (128 U. S. 315, 367, 9 S. Ct. 90, 32 L. Ed. 450);

Application of Texas Company (27 F. Supp. 847);

United States v. *Koleno,* 226 F. 180, 141 C. C. A. 178;

In re Debs., 158 U. S. 564, 15 S. Ct. 900, 906, 39 L. Ed. 1092.

In the case of *Sanitary District of Chicago* v. *U. S., supra,* Mr. Justice Holmes said at 45 S. Ct. 177:

"This is not a controversy between equals. The United States is asserting its sovereign power to regulate commerce and to control the navigable waters within its jurisdiction. It has a standing in this suit not only to remove obstruction to interstate and foreign commerce, the main ground, which we will deal with last, but also to carry out treaty obligations to a foreign power bordering upon some of the Lakes concerned, and, it may be, also on the footing of an ultimate sovereign interest in the Lakes. *The Attorney General by virtue of his office may bring this proceeding and no statute is necessary to authorize the suit. United States* v. *San Jacinto Tin Co.* (125 U. S. 273, 8 S. Ct. 850, 31 L. Ed. 747)." [Emphasis supplied.]

It was held in *United States* v. *American Bond & Mortgage Co., supra,* that the Attorney General by virtue of his office might bring suit in behalf of the United States to enjoin radio broadcasting without a license under Radio Act, 1927 (44 Stat. 1162), as amended March 29, 1928 (45 Stat. 373).

It was held in *North Dakota-Montana Wheat Growers Ass'n* v. *United States, supra,* that the Attorney General of the United States was authorized to institute a suit by the United States to foreclose a mortgage given by the cooperative association to the Farm Board under the Agricultural Marketing Act (7 U. S. C. A. Sections 521–535; 5 U. S. C. A. Sections 291–339), the Court said at page 577:

"The moneys advanced by the Farm Board under the Act of Congress providing a revolving fund of $500,000,000 were government funds to be devoted to the advancement of a public purpose. By this suit the right to have the money of the government loaned for a public purpose returned to it is being asserted. The argument is not at all appealing that the government had no authority to bring this action merely because the Agricultural Marketing Act did not so provide, and that it must be brought by the Farm Board. We have pointed out that the Farm Board had no such authority. The government being the proper party to bring the suit, *it follows that the Attorney General, the head of the Department of Justice with broad powers and responsibilities in respect to all legal matters of the government* (sections 291–339, chapter 5, title 5, USCA) had *authority to initiate this action. United States* v. *San Jacinto Tin Co.* (125 U. S. 273, 8 S. Ct. 850, 31 L. Ed. 747)." [Emphasis supplied.]

It is crystal clear from consideration of these authorities that the power to initiate suits, determine the type of action to be followed, and to select the parties to be sued is within the executive power of the United States and more

particularly is vested in the President of the United States and his subordinate officers by virtue of Article II, Section 3, of the United States Constitution which provides "He (President) shall take care that the laws be faithfully executed."

On the other hand, it is plain that S. J. Res. 145, directing the Attorney General of the United States to file a suit of a particular nature against particular named parties, would constitute an encroachment upon the executive power by Congress and therefore is unconstitutional.

There is no doctrine in American Constitutional Law better known than that of the separation of powers. There is little need for citing voluminous authorities relating to this doctrine. It is well recognized that the Constitution divides the powers among the three great departments—the legislative, the executive, and the judiciary—and that, insofar as the powers are expressly divided, the departments are independent of each other and not subject to encroachment from either of the others or both. As it is plain from consideration of the authorities heretofore cited that the Attorney General in instituting a suit in behalf of the United States is exercising an executive power specifically provided for in Article II, Section 3, of the Federal Constitution, to wit: to execute the laws, it is obvious that S. J. Res. 145 is an encroachment.

Nowhere in the Constitution is there any authority granted to Congress to execute the laws. Its duty is to enact the laws. *Springer* v. *The Government of the Philippine Islands* (48 S. Ct. 480, 277 U. S. 189, 72 L. Ed. 845).

A review of the elementary principles of our form of government is contained in the opinion of the United States District Judge of the District of Illinois in the case of *Application of Texas Company* (27 F. Supp. 847 at 849). In substance the Court reviews these well-known principles concerning the division of powers and states that the function of Congress is to make laws, the function of the Supreme Court is to interpret laws, and the function of the executive department is to execute laws. It is only because there has been a blending of powers in certain instances that there has been any confusion.

An example of the blending of powers is found in the power of the President to approve or disapprove legislation. This, however, is a limited participation in the legislative function by the President authorized by the Constitution. The performance of such an act by the President is legislative rather than executive in character.

Senate Document 232, 74th Congress, 2d Session, entitled "The Constitution of the United States of America, Annotated," (1938) page 101, contains this language:

Encroachment by the Executive: "The doctrine of separation of power is, of course, applicable to the Executive and to Congress, except insofar as the Constitution authorizes the President to veto legislation, to inform Congress on the state of the Union, to conduct foreign affairs, etc.

"The exercise of the Presidential 'pocket veto' after Congress adjourns is not an encroachment on legislative prerogatives. He has 10 days in which to indicate his approval or disapproval; if Congress adjourns in the interim, it thereby prevents a return of the bill."[1]

The power of the President to approve or disapprove legislation passed by Congress is contained in article I of the Constitution covering the "legislative department." (Article I, section 7, clause 2, of the Constitution.)

The question of separation of powers and encroachment by one department on another was the subject of a series of articles appearing in the Federalist and written by either Madison or Hamilton. These articles in the Federalist are XLVII, XLVIII, XLIX, L, and LI. Madison points out in the first of these articles a fact which is familiar to most of us, that Montesquieu was the originator of "the doctrine of separation of powers." In referring to Montesquieu, Madison says:

"His meaning, as his own words import, and still more conclusively as illustrated by the example in his eye, can amount to no more than this, that where the whole power of one department is exercised by the same hands which possess the whole power of another department, the fundamental principles of a free constitution are subverted."

In discussing the question of legislative encroachment Madison says:

"The legislative department derives a superiority in our government from other circumstances. Its constitutional power being at once more extensive, and less susceptible of precise limits, it can, with the greater facility, mask,

[1] *Okagogan Indians* v. *United States* (pocket veto case), 279 U. S. 655 (1929).

under complicated and indirect measures, the encroachments which it makes on the coordinate departments. It is not infrequently a question of real nicety in legislative bodies, whether the operation of a particular measure will, or will not, extend beyond the legislative sphere. On the other side, the executive power being restrained within a narrower compass, and being more simple in its nature, and the judiciary being described by landmarks still less uncertain projects of usurpation by either of these departments would immediately betray and defeat themselves. Nor is this all; as the legislative department alone has access to the pockets of the people, and in some constitutions full discretion, and in all a prevailing influence, over the pecuniary rewards of those who fill the other departments, a dependence is thus created in the latter, which gives still greater facility to encroachments of the former.

Madison then quotes Jefferson's Notes on the State of Virginia, page 195:

"All the powers of government, legislative, executive, and judiciary, result to the legislative body. The concentrating there in the same hands, is precisely the definition of despotic government. It will be no alleviation, that these powers will be exercised by a plurality of hands, and not by a single one. One hundred and seventy-three despots would surely be as oppressive as one. Let those who doubt it, turn their eyes on the republic of Venice. As little will it avail us, that they are chosen by ourselves. An elective despotism was not the government we fought for; but one which should not only be founded on free principles, but in which the powers of government should be so divided and balanced among several bodies of magistracy, as that no one could transcend their legal limits, without being effectually checked and restrained by the others. For this reason, that convention which passed the ordinance of government, laid its foundation in this basis, that the legislative, executive, and judicial departments should be separate and distinct, so that no person should exercise the powers of more than one of them at a time. *But no barrier was provided between these several powers,* [Italics supplied.]

"The judiciary and the executive members were left dependent in the legislative for their subsistence in office, and some of them for their continuance in it. *If, therefore, the legislature assumes executive and judiciary powers, no opposition is likely to be made; nor, if made, can be effectual; because in that case they may put their proceedings into the form of acts of Assembly, which will render them obligatory on the other branches.* They have accordingly in many instances, decided rights which should have been left to judiciary controversy, and the direction of the executive, during the whole time of their session, is being habitual and familiar." [Italics supplied.]

This series of articles on the question of separation of powers is concluded with Federalist LI, in which Madison states that as all the exterior provisions are inadequate to prevent encroachment, the defect must be supplied from within the interior structure of the Government itself, and that the several departments of the Government may by their mutual relations be the means of keeping each other in their proper places.

The case of *Marbury* v. *Madison* is particularly in point in considering S. J. Res. 145. It is unnecessary to detail the familiar facts in this great case. However, it is most helpful to consider language from the opinion. At page 175 thereof we find the following:

"This original and supreme will organizes the government, and assigns to different departments their respective powers. It may either stop here, or establish certain limits not to be transcended by those departments.

"The government of the United States is of the latter description. The powers of the legislature are defined and limited; and that those limits may not be mistaken, or forgotten, the constitution is written. To what purpose are powers limited, and to what purpose is that limitation committed to writing, if these limits may, at any time, be passed by those intended to be restrained? The distinction between a government with limited and unlimited powers is abolished, if those limits do not confine the persons on whom they are imposed, and if acts prohibited and acts allowed, are of equal obligation. *It is a proposition too plain to be contested, that the constitution controls any legislative act repugnant to it;* or that the legislature may alter the constitution by an ordinary act.

"Between these alternatives there is no middle ground. The constitution is either a superior paramount law, unchangeable by ordinary means, or it is on a level with ordinary legislative acts, and, like other acts, is alterable when the legislature shall please to alter it.

"If the former part of the alternative be true, then a legislative act contrary to the constitution is not law; if the latter part be true, then written constitutions

are absurd attempts, on the part of the people, to limit a power in its own nature illimitable.

"Certainly all those who have framed written constitutions contemplate them as forming the fundamental and paramount law of the nation, and, consequently, the theory of every such government must be that an act of the legislature, repugnant to the constitution, is void.

"This theory is essentially attached to a written constitution, and is, consequently, to be considered, by this court, as one of the fundamental principles of our society. It is not therefore to be lost sight of in the further consideration of this subject.

"If an act of the legislature, repugnant to the constitution, is void, does it, notwithstanding its invalidity, bind the courts, and oblige them to give it effect? Or, in other words, though it be not law, does it constitute a rule as operative as if it was a law? This would be to overthrow in fact what was established in theory; and would seem, at first view, an absurdity too gross to be insisted on. It shall, however, receive a more attentive consideration." [Emphasis supplied.]

And at page 165 thereof we find the following:

"By the constitution of the United States, the President is invested with certain important political powers, in the exercise of which he is to use his own discretion, and is accountable only to his country in his political character and to his own conscience. To aid him in the performance of these duties, he is authorized to appoint certain officers, who act by his authority, and in conformity with his orders.

"In such cases, their acts are his acts; and whatever opinion may be entertained of the manner in which executive discretion may be used, *still there exists, and can exist, no power to control that discretion.* The subjects are political. They respect the nation, not individual rights, and being intrusted to the executive, the decision of the executive is conclusive. The application of this remark will be perceived by adverting to the act of congress for establishing the department of foreign affairs. This officer, as his duties were prescribed by that act, is to conform precisely to the will of the President. He is the mere organ by whom that will is communicated. The acts of such an officer, as an officer, can never be examinable by the courts.

"But when the legislature proceeds to impose on that officer other duties; when he is directed peremptorily to perform certain acts; when the rights of individuals are dependent on the performance of those acts, he is so far the officer of the law, is amenable to the laws for his conduct, and cannot at his discretion sport away the vested rights of others.

"*The conclusion from this reasoning is, that where the heads of departments are the political or confidential agents of the executive, merely to execute the will of the President, or rather to act in cases in which the executive possesses a constitutional or legal discretion, nothing can be more perfectly clear than that their acts are only politically examinable.* But where a specific duty is assigned by law, and individual rights depend upon the performance of that duty, it seems equally clear that the individual who considers himself injured, has a right to resort to the laws of his country for a remedy." [Emphasis supplied.]

It is obvious from a consideration of *Marbury* v. *Madison*, supra, above quoted, that there are two types of power which are normally exercised by the head of an executive department. The one is ministerial, and undoubtedly Congress has authority under the Constitution to require an executive officer to perform a ministerial duty. The other is within the constitutional executive discretion. It is at once apparent from the authorities cited in this memorandum that the Attorney General in initiating suits in the name of the United States is acting within his constitutional executive discretion and is not subject to the control of Congress. He is acting in a case in which the executive possesses a constitutional or legal discretion by virtue of the constitution itself—in this case under the authority of Article II.

It is further submitted that if Congress has the power, as suggested by S. J. Res. 145, to say what suits shall be filed and against whom, and for what purpose, then by the same token it would have the right to say what suits are not to be filed, and such an exercise of power would clearly be an usurpation on the part of Congress of the whole power vested in the President by Article II, Section 3, to see that the laws are faithfully executed.

Heretofore the proponents of this resolution presented to this Committee a number of congressional statutes for the purpose of showing that Congress has the authority to enact legislation such as S. J. Res. 145. An analysis of these

statutes shows: first, in every statute but one a discretion as to whether or not an action should be filed, was left to the Attorney General of the United States, where it clearly belongs under the Constitution; second, in each of these statutes there is a definite well-defined interest of the United States in the public lands to be protected and it was therefore perhaps proper under U. S. Constitution, Art. IV, Sec. 3, cl. 2, for the Congress to enact the particular law; third, the question of legislative encroachment upon executive power was apparently never raised in connection with any of these statutes, and had it been, it is submitted an attempt to deny the executive department its constitutional discretion would be a violation of the constitution.

CONCLUSIONS

The conclusions reached by the Colorado River Basin States Committee, and of the States of Colorado, Wyoming, Utah, New Mexico, and Arizona, which are members of that Committee, may be summarized as follows:

1. The powers of the general government are divided by the Constitution among the legislative, the executive, and the judicial departments and insofar as the powers are expressly divided, the several departments are independent of each other and not subject to encroachment.

2. The Attorney General of the United States in commencing a suit or action on behalf of the United States is carrying out an executive power and duty vested in the President of the United States by Article II of the United States Constitution.

3. The President of the United States in the exercise of this executive power has a complete discretion; to aid him he has the Attorney General of the United States, the head of the Department of Justice, who acts by his authority and executes his will in exercising this constitutional and legal discretion; and no other branch of the Government can control this discretion or usurp this power.

4. The approval or disapproval by the President of legislation passed by Congress is the performance, under a specific provision of the Constitution, of a function legislative rather than executive in character.

5. The Congress of the United States by the passage of Senate Joint Resolution 145, would be encroaching upon the executive power of the President in directing the Attorney General of the United States to commence an action of a specific nature against specific named parties as this determination is within the constitutional discretion of the President and the Attorney General, pursuant to Article II of the United States Constitution.

Respectfully submitted.

The Colorado River Basin States Committee:
State of Colorado: Clifford H. Stone, chairman; Frank Delaney.
State of Wyoming: L. C. Bishop, H. Melvin Rollins.
State of New Mexico: Fred E. Wilson, John H. Bliss.
State of Arizona: Nellie T. Bush, Charles A. Carson.
State of Utah: W. R. Wallace, Grover A. Giles.

Subcommittee to Oppose Litigation:
State of Utah: J. A. Howell, chairman; Grover A. Giles.
State of New Mexico: Fred E. Wilson, Martin A. Threet.
State of Colorado: Clifford H. Stone, Jean S. Breitenstein.
State of Arizona: Nellie T. Bush, Charles A. Carson.
State of Wyoming: Norman B. Gray, Attorney General; H. Melvin Rollins.

Mr. MURDOCK. Also we have present today Mr. Thornton Jones, of Arizona, who has waited several days to present his statement. I regret, Mr. Jones, that we cannot take the time today to hear your statement read, but if you will submit it for the record, we should appreciate it.

(The statement referred to is as follows:)

STATEMENT OF A. T. (THORNTON) JONES, BUCKEYE, ARIZ.

My name is A. T. (Thornton) Jones and I live at Buckeye, Ariz. I have resided in the State since 1918 and since January 1935 have been associated with the Buckeye Irrigation Co. During this employment I have served as secretary-treasurer and later as manager of the company. I also own and operate a 120-acre irrigated farm.

For about 10 years of my employment with the irrigation district, at least one-

half of my time was taken up with negotiations to settle differences between the Buckeye project and upstream users over a diminishing water supply and a constantly increasing salt content of the reduced supply.

Because of the location of Buckeye in reference to the irrigated empire of central Arizona, and the large number of defendants involved, including Federal projects, Judge Clifford H. Stone, of Denver, Colo., was appointed by the Secretary of Interior to serve as mediator in the negotiations and Mr. R. J. Tipton, also of Denver, served as engineering adviser to Judge Stone.

This mediation settled an important phase of a controversy which had been in the courts for almost 20 years.

In these present hearings I wish to tell you something of the needs of the presently irrigated lands lying west of the Agua Fria River and along the Gila River proper, west of the junction of the Agua Fria with the Gila.

The problems of this area are twofold, one being an inadequate water supply; the other, an excess quantity of salt.

A tabulation of irrigated acreages and districts in the area is attached, showing a total acreage of about 153,000. This acreage can be classified in two divisions because of different needs. The first division, amounting to about 63,150 acres is primarily in need of additional water. The latter, amounting to about 89,850 acres being in need of additional water and also in need of relief from the high salt content of the water now being used.

FIRST DIVISION

The Agua Fria River rises in the mountains of Arizona slightly north and west of the geographic center of the State. Its flow is almost directly south to where it joins the Gila River about 15 miles west of Phoenix and about 3 miles west of the junction of the Salt with the Gila.

The Carl Pleasant Dam of 178,000 acre-feet capacity impounds the floodwaters of the Agua Fria River for the benefit of some 31,500 acres of land which is organized as the Maricopa County municipal water conservation district No. 1.

The gravity flow of the river, however, is not sufficient for an adequate water supply and amounts to only about 50 percent of the district's needs. There are long periods of time when, on an annual basis, the supply drops to 10 to 15 percent of the requirements. The district has irrigation wells to supplement this supply. This well supply is adequate for only about 50 percent, leaving a shortage in low river years. The pumping level is deep, ranging from 260 to 380 feet and averaging about 300 feet over the district. The constant pumping of the past 8 years has lowered the water table about 60 feet. The quality of water, however, has held up in this lowering.

The private pump lands are lower and nearer the Agua Fria River. The pumping depth ranges from 250 to 300 feet. This area has had a lowering of water table likewise of about 60 feet during the same time. Some change, however, in the quality of this pumped water in the area on the west side of the Agua Fria is beginning to show an increasing salt content. This is due to the lowering of this table pulling in water from the east of a higher salt content, which is from under the Salt River project lands.

The Goodyear and the Adaman municipal areas are lower in elevation and the average pumping table ranges from 160 to 250 feet. The drop in table ranged about 50 feet in the like period. It also is showing some increase in salt content due to the same reason as above.

The private pump lands, the Goodyear Farms and the Adaman Municipal Water Co. lands are dependent on pumps alone.

Most of the area listed above in division I, west of the Agua Fria River, is proven land for citrus, vegetables and melons, as well as cotton and other general farm crops. It needs additional water, however, to prevent the water table dropping below economic limits, and to prevent the encroachment of the higher salt water from the easterly areas.

SECOND DIVISION

The second division of about 89,850 acres is in need of additional water but its principal need is sweet water to correct salt concentrations.

The Roosevelt irrigation district of 38,000 acres is dependent entirely upon pumps. It pumps about 75 percent of its water from the lower side of the Salt River Valley lands along the Gila River from Phoenix to the Agua Fria River, and the balance from pumps on its own land. This water being from the low side of the major irrigated area of the valley, and principally seepage from

the irrigated lands above it, is high in salt content—ranging from 1,200 to 2,800 parts per million. The water table along the lower Salt River Valley has not lowered appreciably. As it is in the seepage drainage from the higher lands, the salt content has and is increasing. The wells on the west of the Agua Fria River on the district lands have lowered, and also increased in salt content.

The land of the Gillespie Land & Irrigation Co. is served by a diversion dam about 30 miles west of the lower end of the Salt River Valley on the Gila River, and now to a large extent from wells. The wells lying some distance from the river are of fair quality water, seemingly drawing much of this water from the area to the east. The water diverted from the river is principally effluent seepage water from the valley in intermittent quantities, not dependable for stable operation. This water is generally very high in salt content, at times in excess of 4,000 parts per million.

The Enterprise Ranch, consisting of approximately 1,000 acres, just across the river from the Gillespie project, has one well and pump but gets most of its water from the Gila River and Gillespie Dam.

Now I wish to talk about the Buckeye and Arlington districts, the projects with which I am most familiar.

The Buckeye district comprises about 20,000 acres of land beginning about 20 miles west of Phoenix and extending another 20 miles along the north bank of the Gila River.

The Arlington district comprises about 4,000 acres extending beyond and downstream from the Buckeye district.

In the early years of the projects, lands in the Arlington district were served with gravity water by extending the Buckeye canal. It was noted, however, that in low-flow periods when all available water of the river was being diverted in the Buckeye canal, there was additional water flowing in the river opposite the Arlington lands, this water having risen below the Buckeye diversion. Because of this condition Arlington proceeded to install its own diversion works, and service through the Buckeye canal was discontinued.

The irrigation works serving the Buckeye district with water is owned and operated by a mutual association of farmers, organized as a corporation. Each share of stock is inseparably attached to 1 acre of land and a transfer of title to the land carries with it a transfer of the stock; the stock cannot be transferred apart from the land. The average size of each farm is 80 acres, principally operated by home owners.

The headworks of the district are located at about the 900-foot elevation, at the outflow of an alluvial plain which begins where the Gila River and its various tributaries emerge from the mountains.

Except for the Santa Cruz River, these streams leave the mountains in the neighborhood of the 1,600-foot elevation and enter the alluvial plain or valley fill, one tributary, the Agua Fria, entering about 30 miles north from the Buckeye heading, another, the Salt River, 40 miles to the east, and the Gila River proper 70 miles to the southeast.

Through this slightly elongated plain of about 3,000 square miles the main stem of the Gila River and its several tributaries have meandered back and forth through the ages, depositing layers of coarse and permeable detrital from which enormous quantities of water have been and are being pumped for irrigation purposes.

The Buckeye district has no storage facilities and since 1887, has diverted surface flow of the Gila River by means of a low diversion dam located about 18 miles west of Phoenix and 3 miles below the junction of the Salt and Gila Rivers.

According to reports of the early settlers, when the whites first came to this desert area, the Gila River had a narrow flood channel, in many places not more than 100 feet wide, with an extensive flood plain covered with heavy vegetation which nature consistently irrigated with every freshet. It was the return flow from this flood plain and from these freshets that furnished the Buckeye project with a constant water supply during the early years of its existence.

With the increase of irrigation above Buckeye, seepage and return flow from irrigation for a time continued to furnish the Buckeye canal with a passable water supply until heavy pumping from the boulder beds underlying the flood plain intercepted the return flow and diminished the supply.

The Roosevelt Dam on the Salt River was the first storage dam built on the river system and the increased application of water resulting from that storage

increased the low-flow water in the river at the Buckeye head until pumping for the irrigation of new lands intercepted this return flow.

A tabulated list is attached showing the names of the various canals diverting water from the streams in central Arizona prior to 1909, as disclosed by three separate court decrees establishing dates of priority and before there was any storage development on any of the State streams. Also, the acreage of each canal, except that the Indian canals on the Gila Indian Reservation are not included.

Prior to the effective dates of these decrees it was common practice among the various canals to divert all the water reaching their respective heads during low flow, and each canal could divert only the amount of water which rose in the river between its own headworks and the works of the next canal above. In times of flood, however, considerable excess water was diverted which found its way back to the stream as return flow.

It was in this manner that man-made irrigation in the Gila flood plain similated nature's irrigation in the same flood plain before the white man's advent, and man-made return flow into the river similated nature's return flow which natural floods had created in the river in its natural stage. Also, man-made crops came to use some of the same water that natural vegetation had previously used under natural conditions.

There were six of these small canals immediately above the Buckeye head within a distance of 20 miles but at the present time the river is entirely dry at five of the headings, and except for floods has been dry for several years. All of these six headings have been abandoned and the lands are now being supplied with pumped water.

Except in times of flood, Buckeye has always, during summer months, diverted all the water reaching its head. Down stream below Buckeye the Arlington canal does the same, and still further down stream the Gillespie canal has, since 1923, diverted all the summer flow at its heading except in flood time.

Between the years 1909 and 1939 a total of seven storage dams have been built on the Agua Fria, Gila, and Salt Rivers above the Buckeye heading, and the flood flow of all these streams which had previously furnished water to Buckeye was impounded.

The impounding of flood waters plus extensive pumping progressively reduced the supply of water available to Buckeye and in 1930 it became necessary for Buckeye to install pumps to keep her lands in cultivation.

The reduction in stream flow, however, was not the only damage which Buckeye suffered. Salt in varying quantities is present in most of the central Arizona area. Because of the hot and arid conditions, salt residue is left along the stream banks by heavy evaporation and plant growth.

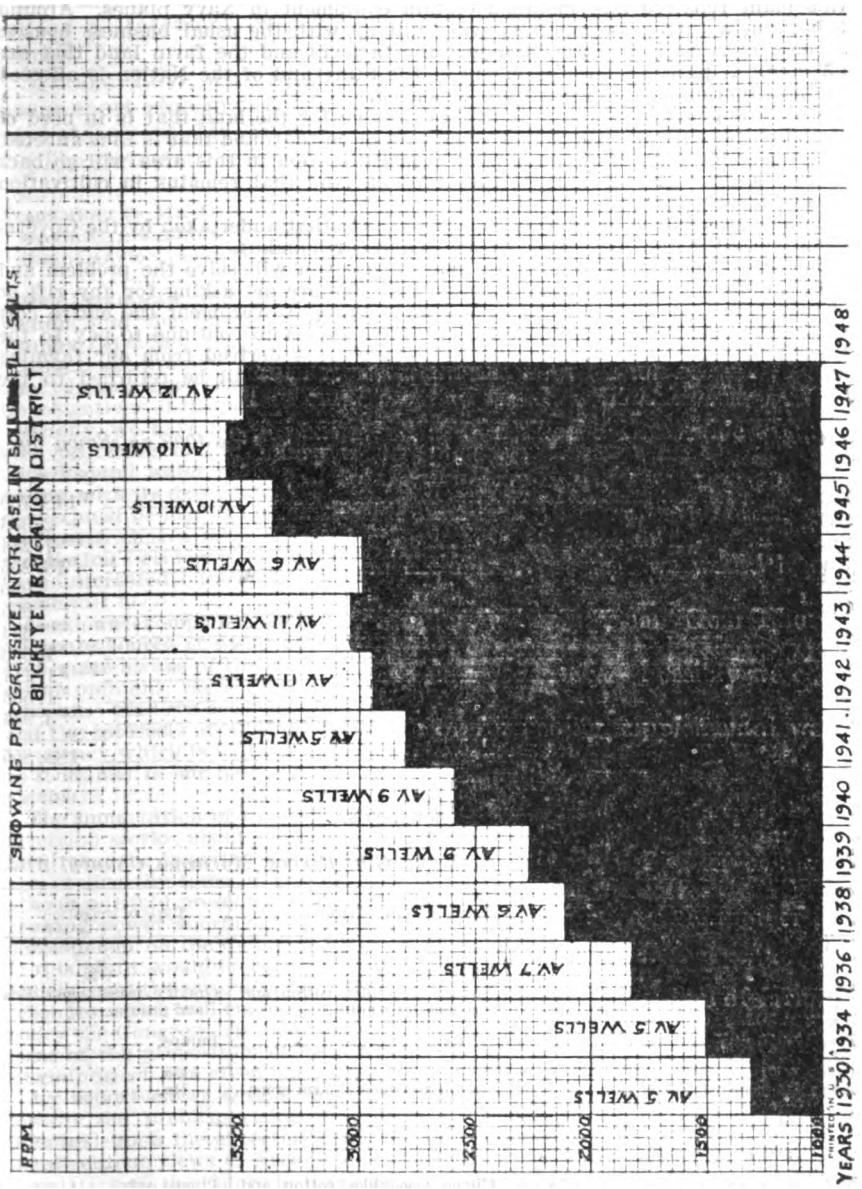
Before the impounding of floodwaters this salt residue was diluted and carried away by each successive flood and the accumulations of salt were held to a reasonable balance. With the building of each storage dam, however, the flood flow was reduced and the salt content of the water available for Buckeye began to rise. While the flood flow itself was always low in salt content the average low flow in the river rose from about 2,000 parts per million in the year 1900 to about 3,000 parts per million in the year 1930 at which time the Buckeye wells were installed. Since 1930 the salt content has been still further increased till the low flow is now almost 4,000 parts of salt per million.

The Buckeye wells have shown an even more marked increase in salt content. An accompanying chart shows the progressive increase in salt content of these wells from an average of a little over 1,300 parts per million in 1930 to about 3,500 parts in 1947.

This increase in salt in the wells is due to the use and reuse of the water reaching Buckeye wells from the underground flow. Part of the water diverted and used by the Salt River project is pumped and reused by that project. It is then captured by the pumps of other users and used a third time and Buckeye pumps make the same water available a fourth time for irrigation use. Some of this same water is used a fifth time when it is captured by Arlington, Gillespie, and other users below Buckeye.

The use of such saline water limits the grower to the raising of such crops as are tolerant of salt, and even the tolerant crops are dwarfed in yield.

The Bureau of Reclamation in its report on the central Arizona project discusses this salt problem with the conclusion that it will be necessary to discharge approximately 376,000 acre-feet of water from the project area each year in order to maintain the salt balance.



In this over-all area that I have talked to you about as being west of the Agua Fria River, people have built their homes and carried on their farming operations. In the majority of cases their whole economic existence is at stake. The matter goes further than that, however. Not only are farm homes and farm investments at stake but in this area are located five towns and other rural communities. Business houses, banks, stores, service stations, etc., are now in existence in these towns and communities. Schools have been built, both grade and high. Bond have been issued to pay for these schools and other public buildings and investments.

A plant known as the Goodyear Air Craft Corp. was built on the Goodyear holdings during the last war at a cost of several million dollars. During the war

this plant repaired and installed certain equipment in Navy planes. Around this plant a thriving community was built up with the usual business houses, schools, etc. So it is more than just the farmers and the farm land that are affected. A portion of the economy of the State and of the Nation is affected by the situation that now confronts this area.

Unless supplemental water is made available for the land that is in need of it and unless the salt situation is taken care of on that land that is thus affected, a considerable portion of the land now in cultivation in this area will go back to the desert and the value of the crops on land that remains in cultivation will be greatly reduced.

This is just as much a rescue proposition as is that undertaken by the Government when disasters are caused by floods and earthquakes.

The enactment of the legislation now before you will solve the problem and save this farm land and these communities. We are not asking for any gift or charity. We expect to repay to the United States Government the entire cost of the project. While we are repaying it we expect to continue to pay to the United States Government, income and other taxes derived from our farming and business operations. In the ultimate end there will be returned to the Government many times the cost of the project.

Canals diverting water from Gila and tributaries prior to 1909 as shown by certain court decrees

Salt River project	[1] 148,750
Salt River Indian Reservation	[1] 2,333
San Carlos District	[2] 7,284
Buckeye District	[2] 16,255
McCallom ditch	[2] 990
Peninsula ditch	[2] 955
Horowitz ditch	[2] 654
Maricopa Indian ditch	[2] 1,080
New State ditch	[2] 1,117
St. Johns ditch	[2] 1,503
Arlington ditch	[2] 3,934
Total acres	184,855

[1] Kent decree, 1910, Maricopa County, Ariz.
[2] Lockwood decree, 1915, Pinal County, Ariz.
[3] Benson-Allison decree, 1917, Maricopa County, Ariz.

Irrigated land west of the Agua Fria and Gila Rivers, Maricopa County, Ariz.

West of Agua Fria River	Acres	Type of crops	Type of irrigation
FIRST DIVISION			
Maricopa County municipal water conservation district No. 1.	31,500	Citrus, vegetables, cotton and general farm crops.	Gravity from Agua Fria and pumps.
Private pump farms north of Luke Field.	20,650	do	Pumps.
Goodyear Farms Co	8,500	do	Do.
Adaman Municipal Water Co	2,500	Cotton and general farm crops	Do.
Total	63,150		
SECOND DIVISION			
Roosevelt irrigation district	38,000	Citrus, vegetables, cotton, and general farm crops.	Pumps only.
Buckeye water conservation and drainage district.	16,200	General farm crops	Gravity and pumps.
Arlington Canal Co	4,000	General forage crops	Do.
Gillespie Land and Irrigation Co.	20,000	Cotton and general farm crops	Do.
Enterprise Canal Co	1,000	General forage crops	Do.
Narramore lands	2,300	General farm crops	Do.
Private farms along Gila River below Enterprise Canal, including Dendora.	8,350	Cotton and general farm crops	Do.
Total	89,850		
Grand total	153,000		

Mr. MURDOCK. We have with us Mr. Sidney Kartus who has submitted a statement, which will be included in the appendix of the record.

We also have with us Mr. E. A. Moritz from Boulder City, who has a short statement. Mr. Moritz must get away. Would you file your statement, Mr. Moritz?

(The statement referred to is as follows:)

STATEMENT OF MR. E. A. MORITZ, REGIONAL DIRECTOR, REGION 3, BUREAU OF RECLAMATION, HEARINGS BEFORE THE HOUSE SUBCOMMITTEE ON IRRIGATION AND RECLAMATION, EIGHTY-FIRST CONGRESS, ON H. R. 934 AND H. R. 935

MR. CHAIRMAN AND GENTLEMEN: I am E. A. Moritz, Regional Director of Region 3 of the Bureau of Reclamation. Headquarters of Region 3 are in Boulder City, Nev.

I shall not present a detailed description of this project now under consideration. I shall leave that to Mr. Larson, who has been in immediate charge of our investigations of the project.

Briefly, we have been convinced that the irrigation farming economy of the area centering in Phoenix cannot permanently depend upon "mining" of its underground water resources. That economy must shrink to a magnitude consistent with its dependable water supply, or in the alternative, its water requirements must be met. Comments on our report have not altered our fundamental conclusion that a large share of Arizona's economy, and a substantial unit of the Nation's economy, is threatened. As a conservation agency, we necessarily have interested ourselves in seeking means to preserve the existing economy whole.

Local water supplies, wholly developed, would be quite inadequate. The only adequate source of water physically available is the Colorado River. We have been quite aware of the conflicting claims to Colorado River water. Under one set of opinions, there could be no Colorado River water imported into central Arizona. Had we accepted those opinions, no report could have been prepared, and the interests of Arizona would thereby have been improperly prejudiced by an agency which is without authority to adjudicate the controversy. The report as it stands is our best effort to avoid the prejudicing of the interests of any parties.

The importation of Colorado River water requires, in addition to canals and diversion works, about 1,500,000,000 kilowatt-hours of electrical energy annually for lifting the imported water to a height from which it can flow to the Phoenix area under the force of gravity. There is no source from which such a block of energy could presently be secured; rather, there is an immediate serious and growing power shortage in our region. Our plan contemplates a major power development on the Colorado River, at Bridge Canyon. One-third of the output of this plant would be used for project purposes, the balance would be available to help meet the serious power shortages in the area, and to provide those surplus revenues which will enable power to be the "paying partner," consistent with the policy the Congress has endorsed many times. I can assure you that my endorsement of the proposition of dedicating a major hydroelectric potentiality to this single project was given only after most careful consideration.

My report closes with a set of recommendations as to sound Federal policy toward the problem rising in central Arizona. Those recommendations are premised upon the expectation that the Congress will give full consideration to the divergent views of Arizona and California as to their respective interests in the waters of the Colorado River before providing funds for the construction of those project features which depend for the full realization of their objectives upon Arizona's claims being held valid.

In those recommendations, I suggest for your consideration certain criteria as to nonreimbursable allocations of cost to correlative functions of the project, such as preservation and propagation of fish and wildlife, recreation, general salinity control, silt control, and flood control. I suggested also formulae for securing repayment of those project costs assigned to the direct beneficiaries of the project. The bill under consideration does not follow those criteria and formulae precisely. Studies by my staff indicate that the provisions of this bill do not alter significantly the showing of economic justification for the proposed

project, nor do they change in material degree the repayment obligations of the water and power users.

To assure full realization of the objectives of the project plan, and to place a part of the repayment obligation upon those who would benefit secondarily from the project, I placed certain qualifications upon my recommendations. I proposed that before the physical works which would carry Colorado River to central Arizona be constructed:

(*a*) Arizona enact legislation which would assure nonrepetition of the mining of groundwater;

(*b*) There be established an organization in the central Arizona area, in the nature of a conservancy district, with the power to levy taxes, and to contract with the United States for payment of reimbursable project costs allocated to irrigation, municipal water, and miscellaneous purposes; and

(*c*) That such organization provide satisfactory assurance that the exchanges of Colorado River water for Salt River water, and of Salt River water for Gila River water, will be effected.

These qualifications would place upon Arizona necessary responsibilities which only Arizona can assume. The present bill does not require that Arizona assume these responsibilities, and to that extent provides a lesser assurance of project success than seems warranted. I should like to see consideration given to amendments which would place these responsibilities upon Arizona.

Mr. J. G. WILL. Mr. Chairman, may I at the same time file a brief statement by Commissioner Straus who regrets his inability to be here?

Mr. MURDOCK. Without objection, the statement will be received.

(The statement referred to is as follows:)

STATEMENT OF MICHAEL W. STRAUS, COMMISSIONER OF RECLAMATION AT HEARINGS BEFORE THE SUBCOMMITTEE ON IRRIGATION AND RECLAMATION OF THE PUBLIC LANDS COMMITTEE OF THE HOUSE OF REPRESENTATIVES ON H. R. 934

The Bureau of Reclamation has prepared a report entitled, "Report on Central Arizona Project." That report has been transmitted to the various Federal agencies and to affected States in accordance with the Flood Control Act of 1944 (58 Stat. 887), the act of August 14, 1946 (60 Stat. 1080), and departmental regulations. The Secretary of the Interior has adopted and appproved the report and has transmitted it to the Congress together with comments of the affected States and Federal agencies in accordance with those acts and regulations. The bill, H. R. 934, which you are now considering, would authorize the project described in the Report.

It is not my intent to describe in detail the central Arizona project as visualized by the Bureau. I shall leave that for Mr. E. A. Moritz, Regional Director of the Bureau of Reclamation of Boulder City, Nev., who is here, and Mr. V. E. Larson, of the Phoenix office of the Bureau, who is in charge of the central Arizona studies. Both will testify later.

The central Arizona project area lies in the valleys and flood plains of the Gila River system in Arizona and New Mexico upstream from the vicinity of Gila Bend, Ariz. Archeologists tell us that these fertile valleys were first irrigated by the prehistoric Indians called the Hohokam. Notes made at the time of the explorations by the Spanish in the sixteenth century tell us that the Pima Indians were then irrigating land in the same area. From the time of the arrival of the first padres to the present, irrigation has continued to develop in the project area.

Americans began the development of irrigation from normal stream flows in this region in the latter part of the nineteenth century. By 1900 the need for storage of floodwaters and regulation of stream flows had become obvious. The first such river regulation in the area here under consideration was accomplished by Roosevelt Dam on the Salt River. That dam, one of the first to be started by the Bureau of Reclamation, was completed in 1911.

Subsequently, three other storage dams were built by the Salt River Valley Water Users' Association on the Salt River downstream from Roosevelt Dam. Two storage reservoirs were formed by dams built on the Verde River, one on the Agua Fria, and one reservoir on the main stem of the Gila River.

The continuing increase in the irrigated areas has led to the almost complete development of the surface flows of the Gila River system, and exhaustive development of ground waters. Structures contemplated under the central Arizona project would conserve small additional flows that are susceptible of conservation and provide for maximum utilization of the flow of the Gila River system. This

additional conservation, however, would not provide adequate supplemental water for the area. Additional water must be obtained from some other source if the present agricultural development in the irrigated area that is encompassed by the proposed central Arizona project is to be maintained.

The only remaining source of substantial quantities of water that might be used in the State of Arizona is the Colorado River. Over 30 years ago, when Arizona had been a State but 5 or 6 years, the people of Arizona were discussing plans to divert Colorado River water to central Arizona. Many organizations in the State have advocated one plan or another to accomplish the needed diversion. At first the plans were somewhat vague. Later, the State appointed commissions to study the problem, resulting in more concrete proposals for the development. Then the Bureau of Reclamation was asked to investigate the project under a cooperative agreement with the State of Arizona.

These studies have provided data for the preparation of three reports. The first report, entitled "Comparison of Diversion Routes, Central Arizona Project, Arizona," was issued in September 1945. That report provided the basis for narrowing consideration of alternatives to two general plans, one employing the bridge-canyon or "gravity" route, the other being the Parker or "pumping" route. In February 1947, there was issued a preliminary draft of a report entitled "Report on Feasibility, Bridge Canyon Route, Central Arizona Project," with a supplemental memorandum on the Parker route, and a comparison of the two routes. This report provided the basis for a recommendation that detailed studies be concentrated on the plan employing the Parker route. The third report, issued December 1947, is entitled "Report on Central Arizona Project." It has been prepared in accordance with law; and, together with copies of comments of the interested Federal agencies and States, has been transmited by the Secretary through the President to the Congress. The report sets forth the plans for development of the central Arizona project under the Parker route.

The people of Arizona have long believed that the future of agriculture in Arizona, and thus the basic support of their economy, was directly linked to the Colorado River and the use of its water on lands of the State. Six States, in addition to Arizona, and the United Mexican States, have interests in the Colorado River and its water. A compact has been entered into by the States. A treaty has been entered into between the United States of America and the United Mexican States. Contracts have been entered into between the United States and several States. These documents, as is frequently the case with contracts, are subject to varying interpretations. It is neither the prerogative nor the intent of the Bureau of Reclamation, or Department of the Interior, to adjudicate controversies arising thereunder. In our studies of the central Arizona project, we have used, as a basis for our calculations of available water, the interpretations by officials of the State of Arizona. The State of California challenges the validity of Arizona's claims. It is assumed that the Congress, in considering this proposed project, will give this conflict the full consideration it deserves. The submission of this report is not intended in any way to prejudice full consideration of this controversial matter.

Available water supplies in the central part of Arizona have been greatly overdeveloped. Unless supplemental water is made available, about one-third of the productive capacity of the agricultural land within the potential project area will be lost. Agriculture is the basic support of the economy of the States; the problem, therefore, is serious. Water is needed to replace present overdrafts on the ground-water basin to supplement present surface-water supplies, to provide for replacement of salt-laden waters, and to allow for reactivation of some acreage that is presently idle because of lack of water.

In the Southwest area, consisting of southern California, Arizona, and southern Nevada, there is a pressing need for more electrical energy. Our reserve generating capacity in the Southwest is dangerously low at the present time. A sudden increase in the power demand, such as we experienced during World War II, could not be met. Unless hydro energy can be made available, steam developments must be expanded. This would result in a further drain upon our limited supplies of natural gas and oil which should be conserved wherever possible. The utilization of our available and feasible hydro power potentialities is sound conservation. At the beginning of World War II we had a substantial reserve generating capacity and large storage tanks full of oil. The picture is much different now.

In addition to supplying supplemental water for irrigation and generation of large quantities of electrical energy, the potential project would provide for silt

retention, flood control, river regulation, municipal water supply, recreation, and fish and wildlife propagation.

In view of the urgent need for supplemental irrigation water and domestic water supplies in central Arizona and for additional electrical energy in the Southwest area, we favor authorization of the project, assuming, of course, that it will have a dependable water supply.

Mr. MURDOCK. Now, Mr. Engle, if 15 minutes would suffice, we should be glad to hear you at this time.

Mr. ENGLE. It will, Mr. Chairman.

STATEMENT OF HON. CLAIR ENGLE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA, AND A MEMBER OF THE COMMITTEE ON PUBLIC LANDS

Mr. ENGLE. First, Mr. Chairman, I should like to submit for the record my prepared statement, following which I shall summarize it for the benefit of those who are present this morning.

(The statement referred to is as follows:)

STATEMENT BY CLAIR ENGLE, MEMBER OF CONGRESS FROM CALIFORNIA

Mr. Chairman, as you know, I was forced to leave this committee yesterday while Mr. Knapp was in the midst of his statement. When I left, I understood that Mr. Knapp would be available for me to ask him some questions about certain of the material in his statement. I am now informed that Mr. Knapp has left the city and will not again appear before this committee. Hence, I desire to call the attention of the chairman and of this committee, to certain matters which I would have developed had I had the opportunity to question Mr. Knapp.

Mr. Knapp appeared before us with the identification that he is a very prominent lawyer in Arizona, and I recognize, of course, that he appeared before this committee as an advocate for Arizona and in support of its position in the matter before us. While Mr. Knapp stated that he was not representing the State of Arizona, the entire purport of his statement was in support of Arizona's position.

On page 3 of his statement Mr. Knapp says:

"B. When the division point between the upper and lower basins was agreed upon—to wit, Lee Ferry— the virgin flow of the river at that point was proposed to be apportioned 7,500,000 acre-feet to the upper basin and 7,500,000 acre-feet annually to the lower basin."

Mr. Knapp surely knows that he has not clearly stated what the commissioners and the compact apportioned. I call the committee's attention to the following provisions of the Colorado River Compact, signed at Santa Fe, N. Mex., on November 24, 1922. Article II (a) says:

"The term 'Colorado River system' means that portion of the Colorado River and its tributaries within the United States of America."

Article III (a) reads as follows:

"There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist."

Hence, it appears, Mr. Chairman, and I am sure that Mr. Knapp would not deny it if he were here, that it was not the virgin flow of the river at Lee Ferry that was apportioned. On the contrary, it was the use of the waters of the system—the main stream and its tributaries—that was apportioned. It is important to keep this in mind, Mr. Chairman and gentlemen of the committee, and it is important to remember that the Gila River is a tributary of the Colorado River and is therefore a part of the system, and the use of its waters was a part of the apportionment to the lower basin.

I call your attention to the final words in article III (a) of the compact: "which shall include all water necessary for the supply of any rights which may now exist." There is nobody from Arizona that will deny that full use of the waters of the Gila River was being made prior to the time the compact was signed in 1922. As a matter of fact, two attorneys general of the State of

Arizona in their formal complaints and briefs filed with the United States Supreme Court, one in the case of *Arizona* v. *California* (283 U. S. 423), filed in 1930, and the other *Arizona* v. *California* (298 U. S. 558), filed in 1935, told the Supreme Court that approximately 2,900,000 acre-feet of the waters of the Gila River had prior to 1932 been appropriated and had been put to full consumptive use. So, Mr. Chairman, the closing language in article III (a) of the compact which I have quoted was intended to include the uses that Arizona was then making of the Gila waters at the time the compact was signed. No other conclusion can be arrived at.

In his subdivision C, on page 3 of his statement, Mr. Knapp says:

"* * * it was decided that an additional million acre-feet should be apportioned to the lower basin ostensibly for the purpose of taking care of uses already being made of the Gila River in Arizona."

Whatever may be the reason for that, Mr. Chairman, article III (b) of the compact reads, as follows:

"In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by one million acre-feet per annum."

Search as you will, Mr. Chairman, you will not find the words "there is hereby apportioned," nor the words "in perpetuity" in that subparagraph. And, as you know, it is the language that was used in that article III (b) which is the source of one of the points of controversy between Arizona and California. Arizona contends that this million acre-feet was "apportioned" and California claims that "it was unapportioned."

Now you will note, Mr. Chairman, that the "right to increase" set out in article III (b) of the compact was to the lower basin and not to any individual State. I direct your attention—and if Mr. Knapp were here, I would have made him admit—that in 1934 Arizona filed another case in the United States Supreme Court entitled "*Arizona* v. *California et al.*" The decision of the Court is reported in 292 United States 341. In that case Arizona sought leave of the United States Supreme Court to perpetuate the testimony of certain persons to the effect that it was the intention of article III (b) of the compact to apportion that million acre-feet to Arizona exclusively, the basis being that the commissioners who signed the compact had agreed that the million acre-feet was intended for and should go to Arizona to compensate for the waters of the Gila River and its tributaries being included within the definition in the compact of the Colorado River "system." All of the contentions that are set out by Mr. Knapp on pages 7, 8, 9, 10, and 11 were before the Supreme Court, but what did that Court say? I'll tell you what it said. It denied the right of Arizona to perpetuate the testimony saying on page 358 of the decision:

"The considerations to which Arizona calls attention do not show that there is any ambiguity in Article III (b) of the Compact. Doubtless the anticipated physical sources of the waters which combine to make the total of 8,500,000 acre-feet are as Arizona contends, but neither Article III (a) nor (b) deals with the waters on the basis of their source. Paragraph (a) apportions waters 'from the Colorado River System'—i. e., the Colorado and its tributaries—and (b) permits an additional use 'of such waters'. The Compact makes an apportionment only between the upper and lower basin; the apportionment among the states in each basin being left to later agreement. Arizona is one of the states of the lower basin, and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) *to apportion* the 1,000,000 acre-feet to the states of the lower basin and *not specifically to Arizona alone*. It may be that, in apportioning among the states the 8,500,000 acre-feet allotted to the lower basin, Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her; but that is a matter entirely outside the scope of the Compact."

There you have it, Mr. Chairman, in very plain language. Anybody can understand that the Supreme Court is saying there that the million acre-feet are not for Arizona exclusively but are for all of the States of the lower basin, and that Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her, which means, Mr. Chairman—and Mr. Knapp would have admitted it if I had been able to ask him—that the Supreme Court has said that Arizona's share of the

uses of main-stream waters must of necessity be affected by her uses of the Gila River waters.

Notwithstanding the plain language of the United States Supreme Court that I have quoted above, Mr. Knapp says on page 5 of his statement that:

"Arizona contends the said 1,000,000 acre-feet was apportioned for the sole benefit of Arizona and in recognition of uses and established rights by Arizona over a period of years in the waters of the Gila and its tributaries."

Now, Mr. Chairman, let's be fair about this and I ask that the members of this committee read the decision of the United States Supreme Court from which I have quoted, if there is any question in their minds about what I have said, and then they will see just how much value there is in Arizona's contention that the million acre-feet in article III (b) of the compact was apportioned for her sole benefit and use.

Mr. Knapp, on pages 11 and 12 of his statement, attempts to show that Congress placed a construction on article III (b) of the compact—this same million acre-feet. If Mr. Knapp were here I would ask him to point out to me the language in the Project Act where Congress placed any construction on article III (b) of the compact. Remember, I have quoted to you what the Supreme Court has said—that article III (b) is not ambiguous. Now listen to some more language when the Supreme Court in that same case, on page 358 of the decision, said:

"The provision of article III (b), like that of article III (a) is entirely referable to the main intent of the compact which was to apportion the waters as between the upper and lower basins. The effect of article III (b) (at least in the event that the lower basin puts the 8,500,000 acre-feet to beneficial uses) is to preclude any claim by the upper basin that any part of the 7,500,000 acre-feet released at Lee Ferry to the lower basin may be considered 'surplus' because of Arizona waters which are available to the lower basin alone. *Congress apparently expected that a complete apportionment of the waters among the States of the lower basin would be made by the subcompact which it authorized Arizona, California, and Nevada to make.* If Arizona's rights are in doubt it is, in large part, because she has not entered into the Colorado River compact or into the suggested subcompact."

Now, Mr. Chairman, there is the language of the United States Supreme Court, not that Congress was apportioning any waters between any of the States, but that "Congress apparently expected" that a complete apportionment of the waters among the States of the lower basin would be made "by the subcompact which it authorized Arizona, California, and Nevada to make."

Mr. Knapp says on page 12 of his statement:

"It will be noted that Congress apportions 7,500,000 acre-feet annually to Arizona, California, and Navada out of the main stream, etc."

Mr. Knapp knows better than this. The compact apportions "system" waters between the upper and lower basins, and when Congress was suggesting a subcompact between the States of Arizona, California, and Nevada, it was suggesting a compact as to the uses of "system" waters and not main stream waters. Read it, if there is any question about it. The compact deals with "system" waters, article III (a) of the compact apportions "system" waters, and the language in the second paragraph of section 4 (a) of the Project Act starts out as follows:

"The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact, etc."

It is obvious that Congress was suggesting among the States that they enter into a compact as to lower basin "system" waters, and that Congress was not making any apportionment itself. Note the language of the United States Court which I repeat:

"Congress apparently expected that a complete apportionment of the waters among the States of the lower basin would be made by the subcompact which it authorized Arizona, California, and Nevada to make."

Congress was authorizing the States to make an apportionment between themselves. There is not one word in the Project Act which can lead to any other conclusion. Whatever anybody believes about it, the Project Act was approved on December 21, 1928, and in the decision that I have quoted from above the Supreme Court was speaking on May 21, 1934.

Mr. Knapp, on page 12 of his statement, refers to regulations promulgated by Ray Lyman Wilbur, Secretary of the Interior on February 7, 1933, to cover a proposed water-delivery contract between the United States and Arizona, and he

quotes from the contract proposed by the Secretary of the Interior to the effect that there will be delivered to Arizona so much water as may be necessary to enable the beneficial consumptive use in Arizona of not to exceed 2,800,000 acre-feet annually by all diversions effected from the Colorado River and its tributaries below Lee Ferry, and he quotes the words "but in addition to all uses from waters of the Gila River and its tributaries * * *." Mr. Knapp says that this is "recognition" that the Gila uses were solely for Arizona in addition to the apportionment from the Colorado itself. But he did not read far enough, Mr. Chairman. The very next paragraph in the contract "proposed" by the Secretary of the Interior, after the one that Mr. Knapp refers to, reads as follows:

"(a) This contract is without prejudice to the claims of the State of Arizona and States in the upper basin as to their respective rights in and to waters of the Colorado River, and relates only to water physically available for delivery in the lower basin under the terms hereof."

And a later paragraph says:

"(c) It is recognized by the parties hereto that differences of opinion may exist between the State of Arizona and other contractors *as to what part of the water contracted for by each falls within Article III (a) of the Colorado River compact*, what part within Article III (b) thereof, what part is surplus under said compact, what part is unaffected by said compact, and what part is affected by various provisions of section 4 (a) of the Boulder Canyon Project Act. Accordingly, while the United States undertakes to supply water from the regulated discharge of Hoover Dam waters in quantities stated by this contract as well as contracts hereto or hereafter made pursuant to regulations of April 23, 1930, amended September 28, 1931, *this contract is without prejudice to relative claims of priorities* as between the State of Arizona and other contractors within the United States, and shall not otherwise impair any contract heretofore authorized by said regulations."

In a later section of the "proposed" contract is was provided that the contract was made upon the express condition and with the express understanding that all rights thereunder should be subject to and controlled by the Colorado River compact "but is without prejudice to the respective contentions of the State of Arizona and of the parties to said compact, as to interpretation thereof."

Mr. Chairman, the contract "proposed" to be made by the Secretary of the Interior with the State of Arizona to which I have referred was never made. And Mr. Knapp knows it was never made, and, therefore, he cannot fairly say as he did say on page 13 that the "proposed" contract was "a recognition that the Gila water uses were solely for Arizona in addition to the apportionment from the Colorado itself."

Mr. Knapp refers to the contract as actually made by the United States and Arizona on February 9, 1944, and he refers particularly to section 7 (e) to the effect that the contract is for permanent service, etc. He does not tell you that that same contract executed by the United Staes and Arizona on February 9, 1944, in paragraph 7 (h) recites as follows:

"Arizona recognizes the right of the United States and agencies of the State of California to contract for storage and delivery of water from Lake Mead for beneficial consumptive use in California, provided that the aggregate of all such deliveries and uses in California from the Colorado River shall not exceed the limitation of such uses in that State required by the provisions of the Boulder Canyon Project Act and agreed to by the State of California by an act of its legislature (Ch. 16, Statute of California 1929) upon which limitation the State of Arizona expressly relies."

Nor does he tell you about article 10 of that very same contract which says:

"10. Neither article 7, nor any other provision of this contract, shall impair the right of Arizona and other States and the users of water therein to maintain, prosecute, or defend any action respecting, and is *without prejudice to*, any of the respective contentions of said States and water users as to (1) the intent, effect, meaning, and interpretation of said compact and said act; (2) what part, if any, of the water used or contracted for by any of them *falls within article III (a) of the Colorado River compact; (3) what part, if any, is within article III (b) thereof; (4) what part, if any, is excess or surplus waters unapportioned by said compact*; and (5) what limitations on use, rights of use, and relative priorities exist as to the waters of the Colorado River system; provided, however, that by these reservations there is no intent to disturb the apportionment made by article III (a) of the Colorado River compact between the upper basin and the lower basin."

I put it to you, Mr. Chairman and gentlemen, as to whether or not Arizona in

her existing contract, under which she claims the water necessary to serve the central Arizona project, has not reserved to the State of California, and all the other States of the lower basin, their respective contentions as to the intents, effects, meanings, and interpretations of the compact and of the project act.

As a matter of fact, it is a little difficult to follow Mr. Knapp. At the bottom of page 15 of his statement he refers to certain evidence given by Judge Clifford H. Stone of Colorado and he quotes Judge Stone as saying that in this case of *Arizona* v. *California* (292 U. S. 341) the Supreme Court did *not* sustain Arizona's claim that the million acre-feet was specifically apportioned to Arizona alone. After having quoted Judge Stone as he did, Mr. Knapp then goes ahead and submits (on page 16 of his statement) that the compact commission by adding the 1,000,000 acre-feet in article III (b) did so for the sole benefit of Arizona. As I have shown you above, the Supreme Court has passed on this matter and decided it adversely to Arizona.

Now, Mr. Chairman and gentlemen, what I am trying to show you is that there is a serious controversy before you, a controversy that this Congress cannot settle nor is it a controversy that has been already settled in favor of Arizona. As late as February 9, 1944, Arizona in the formal agreement wtih the United States hereinabove mentioned specifically reserved to California all of California's intents, and interpretations of these documents and laws that have been referred to as the "law of the river." I repeat: the Colorado River compact dealt with "system" waters; any and all apportionments in the compact were of "system" waters; the Gila River as a tributary of the Colorado River is a part of the "system;" and the Gila waters were intended to be, are and have been held by the Supreme Court of the United States to be a part of the "system" waters.

Mr. Knapp in his statement devoted considerable time in giving you his ideas as to what was meant by "beneficial consumptive use" and what the California Limitation Act really means. I submit, Mr. Chairman and gentlemen, that all that Mr. Knapp was doing was setting forth his own ideas and he was frank to admit to my colleague, Mr. Poulson, that it is the diverse interpretation by lawyers of documents before them that lead to lawsuits and that only the Court can determine those lawsuits. The dispute between Arizona and California as to "beneficial consumptive use"—what does it mean—and the extent to which California is bound by its limitation act are just as real as the other matters that I have already referred to. There is a real dispute between these States, and as the Secretary of the Interior has said, and I have already read you his words, if California's contentions are correct there is no water for the central Arizona project.

Mr. ENGLE. I regret, Mr. Chairman, to make my comments on Mr. Knapp's testimony in his absence. It is always better to comment on some other person's statements in his presence, so that he may have an opportunity to answer.

I have handed to each of the committee members a copy of my statement, which I have offered for the record. I do not intend to read it, but shall summarize it and call the committee's attention to some of the significant parts of it. Also I have handed to members of the committee a copy of Mr. Knapp's statement in order that they may follow my comments.

On page 3, paragraph B, Mr. Knapp makes the following statement:

> When the division point between the upper and lower basins was agreed upon, to-wit: Lee Ferry, the virgin flow of the river at that point was proposed to be apportioned 7,500,000 acre-feet to the upper basin, and 7,500,000 acre-feet annually to the lower basin.

The other day I pointed out to the committee that it was not the virgin or any flow in the river which was apportioned under the basin compact. It was the water in the river system, and as my authority for that, I cited the language of the compact itself. If you will turn to page 2 of my statement, at the top of the page, there is a quotation from article II (a) of the compact defining the term "Colorado River system." It says:

The term "Colorado River system" means that portion of the Colorado River and its tributaries within the United States of America.

Then article III (a) says:

There is hereby apportioned from the Colorado River system—

I call your attention to that, gentlemen. Article III (a) refers to the Colorado River system which was defined in article II (a) to be the Colorado River and its tributaries within the United States of America, and it is that system which is apportioned in perpetuity under article III (a) to the upper basin and the lower basin, respectively. The language is:

There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

In other words, Mr. Knapp's statement on page 3 that it is the virgin flow of the river at Lee Ferry which was apportioned 7,500,000 acre-feet to the lower and 7,500,000 acre-feet to the upper basin, is not correct and is not in conformity at all with the express provisions of the compact, which defines the Colorado River system and which makes a division of the beneficial use of the waters in the system, not in the main stream.

That may not seem to be very important or relevant now, but as your thinking on this subject develops I am sure that the significance of it will become more apparent.

Now we turn to page 5 of Mr. Knapp's statement, at the bottom of the page, where he says:

"Why did the Compact Commission increase the beneficial consumptive use by 1,000,000 acre-feet per annum to the lower basin, as provided in article III (b) of the compact?

"Arizona contends the said 1,000,000 acre-feet was apportioned for the sole benefit of Arizona and in recognition of uses and established rights by Arizona over a period of years in the waters of the Gila and its tributaries."

On page 6 of his statement, under contention 1 he repeats that statement saying with reference to the 1,000,000 acre-feet that it was apportioned solely for the benefit of Arizona and in recognition of uses and established rights by Arizona in the Gila River, and not surplus waters as California contends.

Then Mr. Knapp proceeds for some 15 pages to cite what he considers authority in support of that proposition.

Now I refer you to the bottom of page 15 of Mr. Knapp's statement where he quotes the Supreme Court of the United States against himself on that very proposition. At the bottom of the page he quotes Judge Stone as follows:

In *Arizona* v. *California* (292 U. S. 341), the Court did not sustain Arizona's claim that the million acre-feet covered by III (b) water was specifically apportioned to Arizona alone.

Now let us go back again and look at page 6 so we can tie the two together. On page 6, under contention 1 he states that it is apportioned waters in recognition solely of Arizona's uses and rights in the Gila River. Then on page 15 he cites the United States Supreme Court in diametric opposition to the very point that he is trying to

make. Then if you want to see complete incongruity in this statement, turn to page 16 and read the third paragraph under (a) in which he says this:

Arizona respectfully submits that the foregoing records show conclusively that:

(a) The Compact Commission, in adding III (b) 1,000,000 acre-feet to the compact, did so for the sole benefit of Arizona—

But if you go back to the preceding paragraph you find him saying, in *Arizona* v. *California* that the Court did not sustain Arizona's claim that the million acre-feet covered by III (b) water was specifically apportioned to Arizona.

Mr. MURDOCK. Will the gentlemen yield for just a moment? I do not want to interrupt the gentleman's statement, but I just wanted to flag this one thing; I see no inconsistency there and when further time permits I think it can be shown that the Supreme Court said that the water is not apportioned to Arizona, and Judge Knapp was not contending that it was apportioned to Arizona specifically, but was apportioned water, meaning apportioned to the lower basin.

I am sorry for the interruption.

Mr. ENGLE. Let us return to page 6 of Mr. Knapp's statement and I shall read it again.

It is apportioned water in recognition solely of Arizona's uses and rights in the Gila River—

And on page 5, at the bottom of the page, he says.

Arizona contends the said 1,000,000 acre-feet was apportioned for the sole benefit of Arizona and in recognition of uses and established rights by Arizona over a period of years—

Then after 16 pages of authority he cites the Supreme Court against himself on the proposition which he has been endeavoring in this brief to establish.

Now let us go back and find out what happened. Arizona brought a suit in the Supreme Court to perpetuate certain testimony; that is the testimony to which Mr. Knapp has alluded in those 15 pages, in support of the proposition that this was water apportioned for the sole benefit of Arizona. The Supreme Court not only did not sustain the position of Arizona but went on to say that the language of III (b) was perfectly clear and denied the right to perpetuate this testimony, which is cited in these 15 pages, on the ground that it was wholly irrelevant, in view of the fact that the language of the compact itself was clear and unambiguous and therefore not subject to interpretation by collateral testimony of any type.

Let me read to you the language of the Supreme Court in which it denied the right of Arizona to perpetuate this testimony which is set forth in these 15 pages of brief. I am quoting from page 385 of the decision, and you will find it on page 4 of my statement.

The considerations to which Arizona calls attention do not show that there is any ambiguity in article III (b) of the compact.

That is what I am talking about. They tried to perpetuate testimony for the purpose of explaining the reason for III (b) waters in the compact and the Court said that—

The considerations to which Arizona calls attention do not show that there is any ambiguity in article III (b) of the compact. Doubtless the anticipated

physical sources of the waters which combine to make the total of 8,500,000 acre-feet are as Arizona contends—

You will recall that I read you the other day from Mr. Acheson's brief on that subject.

but neither article III (a) nor (b) deals with the waters on the basis of their source. Paragraph (a) apportions waters "from the Colorado River System"—

That is just what I was talking about here a few mintue ago—

the Colorado and its tributaries and (b) permits an additional use "of such waters." The compact makes an apportionment only between the upper and lower basin;—

It is not an apportionment of the stream flow, virgin or otherwise, at Lee Ferry. As the Supreme Court says, it is an apportionment between the upper and lower basin of the stream's system, the Colorado River System, which is the Colorado River and its tributaries—

the apportionment among the States in each basin being left to later agreement. Arizona is one of the States of the lower basin and any waters useful to her are by that fact useful to the lower basin.

In other words, the additional 1,000,000 feet, useful to the basin, is useful to her.

But the fact that they are solely useful to Arizona—

Now, listen to this statement—

But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone.

Now, here is something very significant—

It may be that, in apportioning among the State the 8,500,000 acre-feet allotted to the lower basin, Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her—

That is the Gila River; it cannot refer to anything else.

but that is a matter entirely outside the cope of the compact.

Mr. REGAN. Will the gentleman yield there?

Mr. ENGLE. Yes.

Mr. REGAN. Was the apportionment of the 7,500,000 acre-feet of water based on the additional 1,000,000 feet of the Gila River? When you divide the water 4,400,000 against 2,800,000—my understanding is that that was the division—of the 7,500,000 acre-feet. It went 4,400,00 to California and 2,800,000 to Arizona and 300,000 to Nevada. The difference there would be 1,600,000 acre-feet. Was not the Gila River water given consideration in arriving at that division of water, of the 7,500,000 acre-feet in the Colorado?

Mr. ENGLE. I do not think so. I think that it may have had some bearing, but it was not the essential thing.

I have here before me a statement by Mr. Sloan, who was the legal adviser to the Colorado Compact Commission for Arizona, which was made in 1923, shortly after the compact was entered into and reprinted from the Arizona Mining Journal. As far as we know, there is no official statement made to the Arizona Legislature. But here is what he said. He said that the needs of each basin were arrived at and then 1,000,000 acre-feet added. I am quoting now from the

appendix page A–69, the statement of Sloan of Arizona, contained in a book entitled "The Hoover Dam Documents," which is House Document 717 of the Eightieth Congress. He says that:

The known requirements of the upper basin being placed at 6,500,000 acre-feet, a million acre-feet of margin gave the upper basin an allotment of 7,500,000 acre-feet. The known future requirements of the lower basin from the Colorado River proper were estimated at 5,100,000 acre-feet. To this, when the total possible consumptive use of 2,350,000 acre-feet from the Gila and its tributaries are added, gives a total of 7,450,000 acre-feet. In addition to this, upon the insistence of Mr. Norviel, 1,000,000 acre-feet was added as a margin of safety, bringing the total allotment for the lower basin up to 8,500,000 acre-feet.

In other words, they took the total uses of each basin and added a cushion of 1,000,000 acre-feet to each one. That is how they arrived at their figure.

I can make this available to you, if you want to read it; it is not a very long statement. But I should like to move along if I may.

Mr. Knapp proceeded then to discuss certain proposed contracts. He did not say what was in all of those contracts and you must remember that a proposed contract is not a contract. But when Arizona actually entered into a contract in 1944 with the Secretary of the Interior—and I ask you now to refer to page 9 of my statement where you will see what was written in article 7 and article 10 of this contract. There is a very specific reservation of all rights. It says:

Neither article 7, nor any other provision of this contract, shall impair the right of Arizona and other States and the users of water therein to maintain, prosecute or defend any action respecting, and is without prejudice to, any of the respective contentions of said States and water users as to (1) the intent, effect, meaning, and interpretation of said compact and said act; (2) what part, if any, of the water used or contracted for by any of them falls within article III (a) of the Colorado River compact; (3) what part, if any, is within article III (b) thereof—

And this is just what we are talking about—

(4) what part, if any, is excess or surplus waters unapportioned by said compact; and (5) what limitations on use, rights of use, and relative priorities exist as to the waters of the Colorado River system.

In other words, contrary to what Mr. Knapp says, that these contracts offered and finally entered into are any interpretation at all of the basic disagreements between California and Arizona, the contract finally entered into recognizes the conflict and respects the right of each side with respect to those disagreements.

Now, my time is running out and I want to add just one further proposition. Mr. Knapp devoted himself at some length to the discussion of the meaning of beneficial consumptive use.

I want to get into that a little later because I feel sure that my friend, Mr. Lemke, who is a very splendid lawyer, is somewhat confused.

I want to call the committee's attention to this, that on page 19 of Mr. Knapp's statement, he cites the upper basin States compact, approved by this committee as proof of their interpretation of the consumptive beneficial use of the water.

The members of this committee know that witness after witness got on the stand here and testified that the consent by Congress to this upper-basin States compact was in no sense an interpretation by the Congress as to the meaning of the upper basin compact. They were so sure on that point that they wrote it into the report in specific lan-

guage, and it was reiterated on the floor of the House and reiterated on the floor of the Senate. It was left out of the language of the compact itself for the reason that Mr. Breitenstein of Colorado contended that if there was any disclaimer in the bill it might be construed.

That is all I have to say with reference to that portion of Mr. Knapp's statement on this subject, except to say that his further arguments are just as specious as that one is. And within the knowledge of the committee the members know that it was not the intention of the Congress to give any such implication to the Colorado River compact in giving this consent to that compact.

Mr. Chairman, I could continue for much longer, but I have already taken 2 minutes more than I had intended to this morning, and I very much appreciate the attention you have given me.

Mr. MURDOCK. According to the agreement made at the beginning of the session we will adjourn at this hour, because this is the hour set for the funeral of our former chairman of this committee. The committee will stand adjourned subject to the call of the chairman, but later than the Easter recess.

(At 10:32 a. m. the committee adjourned subject to the call of the chairman.)

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THE CENTRAL ARIZONA PROJECT

WEDNESDAY, APRIL 27, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION OF
THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 10 a. m., in room 223, House Office Building, the Honorable John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. I believe the subcommittee is ready to proceed now, although I wish we had a full attendance this morning.

We will proceed with the hearing on H. R. 934, after the Easter recess. Our next division of testimony will be the affirmative presentation of the matter by the Bureau of Reclamation.

I might say for the benefit of the press that there are two other subcommittees besides this subcommittee of the Public Lands Committee meeting this morning, which illustrates how crowded we are for time and space. I hope all may be comfortable.

Furthermore, this subcommittee must adjourn to the main committee room at 11:40 this morning to meet with the full committee for a few minutes before the House convenes today.

With that understanding, and with regret that we do not have more room and a larger attendance to hear this important testimony, I will call on Mr. V. E. Larson, assistant planning engineer of the Bureau of Reclamation in region III.

Mr. Larson, before you begin your statement may I say that thus far we have stressed the need of water in central Arizona, which we felt was basic in support of this legislation. Several members of the committee have said to me that they are convinced of the need, and they would prefer from now on to hear the testimony concerning the availability of water for the project, the physical availability, and of course the legal availability.

We have with us the engineer, who can, I presume and I hope discuss the physical availability, Mr. Larson.

STATEMENT OF V. E. LARSON, ASSISTANT REGIONAL PLANNING ENGINEER FOR REGION III, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR

Mr. LARSON. Mr. Chairman and members of the committee, my name is V. E. Larson, assistant regional planning engineer for region III of the Bureau of Reclamation in immediate charge of investigations of the central Arizona project for the Bureau.

The findings and recommendations of the Bureau of Reclamation

resulting from the investigations of the central Arizona project have been outlined briefly in the statement presented for the record by the Commissioner and regional director. I will expand on these informative statements by presenting factual data compiled by the Bureau.

The potential central Arizona project, when viewed in the light of all the facilities required to make it an effective development, embraces an area that extends to all boundaries of the State of Arizona as can be observed from a glance at the general location map. There are copies of the maps and charts attached to these statements. There is a general location map prepared by Arizona. We do not have a copy of our general location map. I imagine it is over in the other committee room, but this shows the location of all potential developments.

Mr. MURDOCK. Off the record.

(Discussion off the record.)

Mr. MURDOCK. Proceed, Mr. Larson.

Mr. LARSON. In two cases, however, the project features extend beyond these borders into the States of Utah and New Mexico.

Relative to the prime purpose of the project, irrigation, the area embraced, as generally discussed, consists of approximately 672,000 acres of highly fertile and productive farm land on the flood plains and in the valleys of the Gila River system extending upstream from the vicinity of Gila Bend. These lands are represented by the shaded portions of the agricultural area map included in the report. This area represents 80 percent of the land irrigated in Arizona. Due to the existence of favorable temperatures, diversified cropping is practiced throughout the year.

Events responsible for the advancement of this investigation to its current status stem from the decline of irrigation water supplies as related to a growing agricultural economy in the project area. For the past 25 years, a number of plans have been advanced by various groups for the diversion of Colorado River water to central Arizona. The Bureau of Reclamation initiated preliminary investigations of a potential diversion route late in 1940.

In February 1944 the Arizona State Legislature, mindful of the growing water shortage in central Arizona, appropriated $200,000 to be used in cooperation with the Bureau of Reclamation to make surveys, investigations, and compilations of the water resources of the State and their potential development. A like sum for the same purpose was allocated by the Bureau, from its investigation funds, and a formal agreement on procedure was executed July 31, 1944.

The purpose of these specific investigations has been to develop the best means by which Colorado River water could be diverted to central Arizona to alleviate a mounting and critical shortage of water. The Colorado River is the only remaining source of water within the State capable of meeting these shortages. Concurrently with this concentrated study, other investigations have been conducted relating to improvement in the utilization of existing water supplies in the project area.

On the basis of previously accumulated data, the Bureau, in 1944, selected three plans for diversion of water from the Colorado River which merited further investigation. On the general location map

they are designated as the Marble Canyon, Bridge Canyon, and Parker routes. That is the second map.

Investigations by the Bureau of Reclamation indicate that under present conditions the Parker route is the most economical, therefore, this route was adopted and made a part of the plan of development as presented in the report on the central Arizona project, copies of which have been made available to this committee. This report has come to the Congress through proper channels in accordance with the Flood Control Act of 1944.

The investigation of any multiple-purpose reclamation project involves the analysis of four fundamental elements. They are: (*a*) Need for the project; (*b*) available water supply; (*c*) plan of development to serve the needs; and (*d*) economic feasibility of the project. My testimony will treat these elements in that order.

Need for the project: Farming in the project area is impossible without irrigation. Rainfall in the vicinity of Phoenix averages about 8 inches annually. In addition to rainfall, the optimum irrigation requirement is an average delivery to the farm of 4 acre-feet of water per acre per year.

The first canal built by white men in the area was constructed in 1867. Other canals were completed later, although it was not until the enactment of the Reclamation Act in 1902 by the Congress, and the completion thereunder in 1911 of Roosevelt Dam on the Salt River, that the present-day agricultural economy was established. Closely following developments on the Salt River were similar developments in various locations on the middle and upper Gila River system. Practically all of the surface run-off in the area is now regulated and utilized for irrigation.

Some years ago a drainage problem developed in the lower reaches of the project area. It was found that this drainage problem could be corrected by drilling wells and pumping water from the ground-water basin. This pumped water was satisfactory for irrigation and during the ensuing period pumped water has represented an increasing percentage of the annual irrigation supply. The stage has been reached where agricultural development has expanded beyond the water supply now available and people of the area are looking to the last source of supply, the Colorado River. For the past 25 years representatives of the State of Arizona, local organizations and individuals have made investigations looking to diversion of Colorado River water into the area at such time as that source of supply was needed. That requirement has now been reached. In fact, without Colorado River water about one-third of the productive capacity of the agricultural development will be lost which will result in large scale abandonment and migration. Agriculture is the basic support for the existing economic structure in the State of Arizona. The possibility of losing a third of this support naturally presents a grave problem to the State.

The need of additional water for irrigation in the central Arizona project area is fourfold. Additional water is needed (1) to relieve the ovedraft on the ground-water basins; (2) to provide a supplemental supply to lands now in production, but not adequately irrigated; (3) to permit the drainage of excess salts out of the area and maintain a salt balance; and (4) to provide water for land irrigated in the past but now idle for the lack of water.

For the period of 1940 to 1944, the pumping overdraft is estimated from available information to have averaged about 468,000 acre-feet a year. This period is representative of the long-time water-supply conditions in the area; therefore, it is believed that this estimate of overdraft is within reasonable limits.

Many acres of land now in cultivation receive a deficient supply of water. This results in a reduction of the crop yield and in some cases has resulted in crop failures. When the delivery of water is less than optimum, the productive capacity of the land is reduced.

When irrigation water is applied to the land a large part is consumed in plant growth, transpiration, and evaporation, leaving practically all its mineral salts concentrated in the water percolating to the ground-water supply. With each successive reuse by pumping, the salt content is further concentrated. In some localities the water is becoming concentrated with mineral salts toward the point where the water is toxic to vegetation. Such areas will spread through the ground-water basin unless the progress in salt concentration is stopped. Surface waters diverted to the area each year are estimated to contain 846,000 tons of mineral salt. Local experience indicates that water containing concentrations in excess of 5½ tons of salt in an acre-foot of water is detrimental to crops. To maintain a favorable salt balance it then becomes necessary to release from the area an annual flow of 154,000 acre-feet of salt-charged water.

The maximum acreage that has ever been irrigated in the central Arizona project area, up to 1945, is about 672,000 acres. Because of water shortages in the area a portion of that acreage lies idle. The average acreage irrigated during the period 1940–44 was about 566,000 or 106,000 acres below the maximum. Additional water is required if this acreage or a portion thereof is to be returned to a productive status.

Municipal water supply: The growth of the city of Tucson and adjacent residential areas has developed a critical problem of domestic water supply. The ground-water basin now serving this city is overdrawn and supplemental supplies from other sources must be developed. It is estimated that a diversion of 12,000 acre-feet a year would be required to furnish the city of Tucson with an adequate municipal water supply.

Electrical-energy requirements: There is an urgent and measurable need for additional electrical energy in Arizona, southern California, southern Utah, and southern Nevada. This area has experienced a critcal power shortage during recent years and appropriate indexes indicate a rapidly expanding demand in the future. The situation is illustrated by the chart labeled "Estimated energy requirements and supply." A copy of that chart is also attached.

Present power developments in this power market area range from large hydroelectric and fuel-burning plants to small power plants in isolated camps and towns. Hoover and Parker plants on the Colorado River constitute a large source of low-cost power for southern California, southern Nevada, and Arizona. When generating units, in the area, now under construction or authorized have been completed, the total installed capacity available to the power market area will exceed 3,000,000 kilowatts.

The population of the power market area is in excess of 4,500,000

and the average annual per capita consumption is 2,400 kilowatt-hours. Total annual power consumption has grown from 1.5 billion kilowatt-hours in 1920 to an annual usage of almost 14 billion kilowatt-hours in 1947.

At the present time approximately 58 percent of the electrical energy consumed in the referenced area is supplied by fuel-burning plants. The fuel consists mainly of oil and natural gas. The availability in the area of these natural resources is limited and the need of greater conservation is a reality. Utilization of hydropower potentialities where economically feasible would result in a considerable saving of these national resources.

Available water supply—General: The central Arizona project contemplates further use of the waters of the Verde, the Gila, and the San Pedro Rivers, together with importation of water from the Colorado River.

Colorado River water: In the determination of the amount of water available for diversion to the central Arizona project from the Colorado River, consideration must be given to the over-all amount of water available in the stream. The Colorado River compact apportioned waters of the Colorado River between the upper and lower basins, designating "Lee Ferry," on the Colorado River, 1 mile below the mouth of the Paria River, as the point of division. The apportionment of Colorado River waters by the Colorado River compact is from the virgin or undepleted flow of the stream, that is, from the stream as would be in the absence of any development. The following table presents for the period 1897–1943, inclusive, the estimated average annual virgin flow at Lee Ferry and other points downstream to the international boundary.

Average annual flows for 1897 to 1943, inclusive, under virgin conditions: Flow at Lee Ferry, 16,270,000 acre-feet. Gain, Lee Ferry to Hoover Dam, 1,060,000 acre-feet. Flow at Hoover Dam, 17,330,000 acre-feet. Tributary inflow, Hoover Dam to international boundary: Williams River and minor washes, 150,000 acre-feet. Gila River at mouth, 1,270,000 acre-feet. Subtotal, 1,420,000 acre-feet. Less natural main stream channel losses, 1,030,000 acre-feet. Gain, Hoover Dam to international boundary, 390,000 acre-feet. Colorado River at international boundary, 17,720,000 acre-feet.

Potential projects in the upper basin could, apparently, fully utilize the 7,500,000 acre-feet apportioned to the upper basin by the Colorado River compact. It is also quite possible that the upper basin could utilize that part of the surplus flows which could be apportioned to the upper basin under provisions of article III (f) of the compact. Conservatism in making any determination of the availability of water under ultimate conditions requires that it be assumed that the average anual flow of the Colorado River at Lee Ferry will be decreased by 7,500,000 acre-feet plus any water apportioned to the upper basin under article III (f) of the compact. The following tabulation has been prepared to present an analysis of the present apportionment of the waters of the Colorado River:

Virgin flow, Colorado River at international boundary, 17,720,000 acre-feet. Apportioned to upper basin by article III (a) of the Colorado River compact, 7,500,000 acre-feet. Apportioned to lower basin by article III (a) of compact, 7,500,000 acre-feet. Apportioned

or allocated to lower basin by article III (b) of compact, 1,000,000 acre-feet. Estimated delivery to Mexico pursuant to treaty, 1,500,000 acre-feet. Total apportioned and/or allocated water, 17,500,000 acre-feet. Indicated surplus water, 220,000 acre-feet.

In the absence of a compact as to the division of water among the various States involved, the determination of Colorado River water available for diversion to the central Arizona project herein presented is based upon interpretations by responsible officials of the State of Arizona. This presentation is not intended to be prejudicial to the claims of the States challenging Arizona's interpretations. The Bureau of Reclamation recognizes these differences of opinion, but, as has been stated in our report, the Bureau cannot authoritatively resolve those differences.

Arizona contends that 8,500,000 acre-feet of water are apportioned to the lower basin in the Colorado River compact, of which California may use not to exceed 4,400,000 acre-feet of water under its Limitation Act of March 4, 1929. Nevada has a contract for the use of 300,000 acre-feet of apportioned water, which is adequate for her potential developments. That would leave 3,800,000 acre-feet of apportioned water for use by Arizona.

Arizona officials recognize the rights of Utah and New Mexico to the use of waters in the lower basin, such use to be deducted from that portion allocated to Arizona. It is estimated that ultimate development by New Mexico will deplete the Little Colorado River by 13,000 acre-feet and the Gila River by 16,000 acre-feet. Under ultimate development, it is estimated that Utah will deplete the Virginia River by 94,000 acre-feet and Kanab Creek by 7,000 acre-feet. Ultimate depletions in the lower basin by these States are thus 29,000 by New Mexico and 101,000 by Utah, or a total of 130,000 acre-feet.

As provided in article III (f) of the compact, further equitable apportionment of the unapportioned water of the Colorado River will be made after October 1, 1963. The unapportioned water is estimated as 220,000 acre-feet a year. It is assumed that one-fourth of the unapportioned water, or 55,000 acre-feet, will be made available to Arizona.

On the basis of these assumptions, Arizona's share of the Colorado River under ultimate conditions is summarized as follows:

Water from article III (a) and (b), 3,800,000 acre-feet. Less use by New Mexico and Utah in lower basin, 130,000 acre-feet. Net water available from article III (a) and (b), 3,670,000 acre-feet. One-fourth share of surplus water, 55,000 acre-feet. Total available for Arizona, 3,725,000 acre-feet. Of this 3,725,000 acre-feet of water, the central Arizona project can utilize the part that remains after deducting the amount now being utilized, the amount that will be utilized in the future by other projects elsewhere in the State, and main-stream reservoir losses chargeable to Arizona.

Evaporation losses from the surfaces of the reservoirs required for the complete utilization of the water resources of the Colorado River will represent a material depletion in the flow of the river. It is estimated that under ultimate conditions about 900,000 acre-feet of water will be lost annually to evaporation from main-stream reservoir surfaces in the lower basin. This amount is in addition to the quantities lost from the same areas prior to the creation of any reservoirs. In-

asmuch as these losses represent a depletion of the water supply of the lower basin as a whole, Arizona assumes that these losses would be apportioned between the various States of the lower basin on an equitable basis. It is the contention of Arizona that a just method of apportionment would be to charge California, Nevada, and Arizona with these main-stream reservoir losses in the ratio that these States receive water from the Colorado River, exclusive of uses of tributaries in the lower basin.

On this basis, with main-stream reservoir losses of 900,000 acre-feet, Arizona would be charged with 313,000 acre-feet a year.

In addition to present depletions by Arizona, there are potential irrigation projects other than the central Arizona project which would utilize a part of Arizona's share of the Colorado River water. These potential developments and contemplated expansion of projects now in a construction stage are recognized as potential units in a basin-wide plan of development.

Under ultimate development, it will be necessary to release water from the central Arizona project area to carry out excess salts and maintain a salt balance. The net effect of such release would increase the annual return to the Colorado River about 123,000 acre-feet.

The following table has been prepared to summarize the present and future depletions and reservoir losses chargeable to the State of Arizona and to aid in computing the amount of water available for the central Arizona project: Total available for Arizona, 3,725,000 acre-feet: Less: Main-stream reservoir losses (present and future), 313,000 acre-feet. Present depletions: Gila River Basin, 1,135,000 acre-feet; Little Colorado River Basin, 59,000 acre-feet; Virgin River and Kanab Creek, 5,000 acre-feet; Williams River Basin, 3,000 acre-feet: Colorado River below Parker Dam, 206,000 acre-feet; subtotal, 1,408,000 acre-feet.

Future depletions: Gila River Basin, 20,000 acre-feet; Little Colorado River Basin, 10,000 acre-feet; Virgin River, 12,000 acre-feet; Colorado River below Parker Dam, 851,000 acre-feet; unassigned water, 34,000 acre-feet; subtotal, 927,000 acre-feet; 2,648,000 acre-feet.

Potential depletion by central Arizona project, 1,077,000 acre-feet. Plus increase in return to Colorado River through Gila River by reason of central Arizona project development, 123,000 acre-feet. Available for diversion to central Arizona project, 1,200,000 acre-feet.

Additional Gila Basin water: The enlargement of Horseshoe Reservoir on the Verde River from its present capacity of 68,000 acre-feet to a capacity of 298,000 acre-feet would impound floodwaters which cannot now be put to beneficial use. The enlarged capacity would provide an additional average yield from the Verde Reservoir system of 42,000 acre-feet a year.

The construction of Buttes Dam on the Gila River would impound floodwater and tributary inflow below Coolidge Dam which cannot now be put to beneficial use in the middle Gila area. Buttes Reservoir would provide an additional average yield of 64,000 acre-feet annually for use in the middle Gila area.

Developments could be provided in the upper Gila area which would permit more efficient irrigation practices. The net effect of these developments would be to provide 19,000 acre-feet of supplemental water for this area.

A dam could be constructed at the Charleston site on the San Pedro River to provide regulation of the stream. Stored water would provide a supplemental irrigation supply for the area and a municipal water supply for the city of Tucson. It is estimated that this development would conserve 7,000 acre-feet of water which otherwise would be lost in the river channel.

Total new water: The following table has been prepared to summarize the new water developed under the central Arizona project: Colorado River, 1,200,000 acre-feet. Less aqueduct losses, 250,000 acre-feet. Balance, 950,000 acre-feet. Developed on Verde River by Horseshoe Dam enlargement, 42,000 acre-feet. Developed on Gila River: Buttes Dam, 64,000 acre-feet. Developed in upper Gila area, 19,000 acre-feet. Total 83,000 acre-feet. Developed on San Pedro River by Charleston Dam, 7,000 acre-feet. Total new water developed 1,082,000 acre-feet.

On the basis of the above analysis 1,082,000 acre-feet of new or additional water would be available for utilization in the potential central Arizona project.

Plan of development to serve the needs—Project features: Primarily the central Arizona project would provide Colorado River water to the central part of the State. This would be accomplished by pumping from Lake Havasu behind Parker Dam, into a canal which would extend to the existing Granite Reef Dam located about 3 miles below the junction of the Verde and Salt Rivers. In order to effect full development for the area, a number of works would be constructed in the States of Arizona, Utah, and New Mexico.

For convenience in discussion, the central Arizona project has been segregated into 17 units, or features, listed as follows:

1. Bluff Dam.
2. Coconino Dam.
3. Bridge Canyon Dam and power plant.
4. Havasu pumping plants.
5. Granite Reef aqueduct.
6. McDowell pumping plant and canal.
7. McDowell Dam and power plant.
8. Horseshoe Dam enlargement and power plant.
9. Salt-Gila aqueduct.
10. Buttes Dam and power plant.
11. Charleston Dam.
12. Tucson aqueduct.
13. Safford Valley improvements.
14. Hooker Dam.
15. Irrigation distribution system.
16. Drainage system for salinity control.
17. Power transmission system.

The necessity for all of these features may not be apparent at first; let us, therefore, consider their relationship. Approximately 1.5 billion kilowatt-hours of energy will be required annually for project pumping. There is no surplus energy presently available in the area, and certainly no prospect of private development involving output of this magnitude. Accordingly, Bridge Canyon Dam and power plant would be constructed on the Colorado River, 117½ miles upstream from Hoover Dam. Roughly one-third of the power developed at this

site would be utilized to operate the pumping plants needed to raise the water from Havasu Lake for delivery to central Arizona. The remainder would be sold to the power market at a rate sufficient to provide revenue to repay the costs of this power development and a portion of the costs of the irrigation developments needed under the central Arizona project.

Located in a deep canyon, the Bridge Canyon Reservoir would have a comparatively small capacity, totaling 3,720,000 acre-feet. Silt inflow to this reservoir would amount to about 127,000 acre-feet a year. Unless preventive measures were taken, this silt would infringe on the active storage capacity of the reservoir. In addition, the capacity of Bridge Canyon Reservoir would be so limited that it appears desirable to provide upstream river regulation to permit maximum utilization of this site. Studies of stream flow at the Bridge Canyon site, when considered in conjunction with design costs, indicate that upstream flood-control storage would be highly desirable in order to reduce the costs of spillway construction at the Bridge Canyon Dam.

For the foregoing reasons, two upstream reservoirs have been considered as essential adjuncts to the Bridge Canyon Dam. The farthest upstream of these is Bluff Dam, on the San Juan River. This dam would be located about 12 miles downstream from Bluff, Utah. It would be tripurpose, in that it would provide flood control, silt retention, and regulation of stream flow. The San Juan River now contributes about 23 percent of the total silt load of the Colorado River at the Bridge Canyon Dam site.

A dam at the Coconino site on the Little Colorado River would be constructed about 49 miles upstream from the mouth of that stream as a second adjunct to the Bridge Canyon development. This structure would impound 22 percent of the silt load of the Colorado River at the Bridge Canyon Dam site, and, in addition, would provide flood-control storage capacity.

As previously stated, part of the power generated at the Bridge Canyon development would provide energy to operate the Havasu pumping plants. These pumping plants would be located along the extreme western 20 miles of the Granite Reef aqueduct. Four in number, they would raise the water, by a series of lifts, a total of 985 feet.

Granite Reef aqueduct would consist of approximately 241 miles of open concrete-lined canal, leading from Lake Havasu to Granite Reef Dam. The westernmost 25 miles of the aqueduct would traverse extremely rugged terrain. The remainder of the canal would be located in typical desert country, skirting occasional small mountain ranges. Major siphon crossings would be required at Cunningham Wash, Centennial Wash, and the Hassayampa, Agua Fria, and New Rivers. The aqueduct would terminate in the pool above the existing Granite Reef diversion dam. Diversions would be made from the aqueduct as needed to supply requirements on lands located in the western portion of the project area.

The achievement of maximum efficiency necessitates operation of the Havasu pumping plants and Granite Reef aqueduct at a continuous rate in order that a minimum design capacity may be adopted. For this reason, these features would be designed to operate at a capacity of 1,800 cubic feet per second at all times except for 1 month

each year, at which time diversion could be entirely discontinued to allow for maintenance and repairs to the canal and pumping plants. Under such a system, deliveries to the project area would exceed irrigation demands during the winter months. During this period, the excess water delivered to Granite Reef Dam would be raised 88 feet by the McDowell pumping plant, and delivered by the McDowell pump canal to the proposed McDowell Reservoir for storage until required.

McDowell Reservoir would be created by the construction of a dam just below the confluence of the Salt and Verde Rivers. As previously described it would be used to impound water of the Colorado River delivered during the winter months when irrigation demands are light. Other uses would be the regulation of releases from upstream dams and the provision of flood control storage for the protection of downstream developments. A power plant would be installed to utilize the available head.

As a part of the central Arizona project, the existing Horseshoe Dam on the Verde River would be increased 40 feet in height, to provide a normal storage capacity of 298,000 acre-feet, in place of the 68,000 acre-feet now existing. A power plant installed at this dam would utilize Verde River water for energy production.

By an exchange of Colorado River water for Salt River water it would be possible to divert Salt River water from Sahuaro Lake behind Stewart Mountain Dam. The water thus diverted would flow by gravity through the potential Salt-Gila aqueduct to lands in the flood plain off the middle Gila and lower Santa Cruz Rivers. The aqueduct would have an over-all length of about 74 miles, most of which would be open concrete-lined canal, and would terminate in the existing Picacho Reservoir, south of Coolidge. Deliveries through this aqueduct would not only meet the supplemental water requirements of the area served, but would provide additional water as a basis for exchange which would permit increased diversions by upstream users.

The following three developments were investigated and reported on by the United States engineer office of Los Angeles, Calif., in their "Report on Survey—Flood Control—Gila River and tributaries above Salt River—December 1945." Data pertaining to these developments have been used with the consent and cooperation of that office. These developments have been incorporated in this project because they would serve a definite purpose in the over-all plan of development.

Construction of the Buttes Dam and power plant on the Gila River, approximately 62 miles below Coolidge Dam, would conserve a large part of the flood flows which enter the Gila River below Coolidge Dam. By utilizing the power head available at the Buttes site, energy would be provided for local irrigation pumping and commercial load. In addition, the Buttes Reservoir would provide control of floods for the protection of downstream lands. It would also impound silt which is contained in large quantities in the waters which are now diverted to the irrigated lands during the summer months, and which presents a serious problem to farmers of the area.

With water from the Salt River provided to lands in the middle Gila area as a basis for exchange, construction of a dam at the Charles-

ton site on the San Pedro River could be accomplished without infringement on the rights of downstream water users. This dam would be located about one-half mile north of Charleston, Ariz. It would provide flood control for the protection of downstream developments. In addition, it would regulate the erratic flows of the San Pedro River and facilitate diversions to land now irrigated along the river.

In addition, the Charleston Dam would serve as a diversion structure for the Tucson aqueduct. The Tucson aqueduct would consist of approximately 70 miles of closed conduit through which water would be conveyed to the city of Tucson. As a part of the aqueduct, a pumping plant would be installed to lift the water 300 feet for delivery to the aqueduct.

As a part of the central Arizona project, certain developments above San Carlos Reservoir would be required to meet the needs of the upstream irrigated areas. Numerous plans of development have been proposed for these upper lands. In general there appear to be four areas in need of additional development, namely, the Safford Valley, the Duncan-Virden Valley, the Red Rock Valley, and the Cliff Valley.

The principal function of the Safford Valley improvements would be to conserve and utilize the existing water supply to best advantage, and to consolidate the existing distribution system. A permanent diversion structure at the upper end of the Safford Valley to supply a high line canal would be included as a part of this development. This canal would extend along the south side of the valley, and a branch canal would cross the Gila River near Safford to serve the north side. Ground water in the area would be further developed to supplement the available surface water.

Construction of a dam at the Hooker site about 7 miles northeast of Cliff, N. Mex., is considered as a potential development to serve requirements of areas along the upper reaches of the Gila River. A dam at this site would provide partial flood control and silt retention for the benefit of downstream irrigators. It would also regulate the flood flows of the river, for use at a time when the normal flow of the river would be insufficient to meet irrigation requirements. Lands in the Cliff Valley, the Red Rock Valley, the Duncan-Virden Valley, and the Safford Valley, would all be benefited by this regulation.

Some of the districts included under the central Arizona project maintain their own distribution systems. However, many of those areas which are irrigated by pump water do not. In addition, some areas irrigated by surface water have inadequate distribution facilities. Under the central Arizona project, additions to the irrigation distribution system would be required for the delivery of water.

Despite water shortages throughout the major part of the central Arizona project, some of the lower-lying lands are faced with the problem of waterlogging. The central Arizona project would include a drainage system for salinity control. Open gravity drains would be used where possible. Other drainage, as required, would be accomplished by pumping from wells.

Under this project a power transmission system would be needed to convey power from Bridge Canyon power plant to the Havasu pumping plants, and from the various power plants throughout the project to the power market areas.

In discussing these various features, the primary purposes of each have been outlined. In addition to those enumerated, each of the features would have secondary purposes or provide incidental benefits which, considered in the aggregate, are of considerable importance. Possibly the most important of these is the recreational value of the various dams and reservoirs. Bridge Canyon Dam and Reservoir would afford a scenic attraction comparable to Hoover Dam and Lake Mead.

The importance of this may be more fully realized when it is recalled that 354,500 visitors were conducted through the powerhouse at Hoover Dam during 1946, 424,175 in 1947, and 407,980 in 1948. During this period more than 1,000,000 persons visited the Lake Mead recreational area each year. Thousands of visitors could enjoy the recreational facilities which would be provided by the Bridge Canyon Reservoir. In an arid country, such as that in which the central Arizona project is located, the importance of lakes for recreational uses is of far greater significance than commonly realized by residents of more humid climates.

Fish and wildlife propagation would be another important purpose served by each of the reservoirs to be created under the central Arizona project.

How the development would serve the needs: Water for irrigation and municipal requirements could be provided under the proposed plan of development. As previously outlined, the needs consist of replacement of the present overdraft on the ground-water basins, a supplemental supply for lands now in production, provision for drainage of excess salts out of the area to maintain a salt balance, increasing the water supply for the city of Tucson, and provision for the irrigation of land formerly irrigated but now idle for the lack of water.

As previously outlined in my testimony, it is estimated that 1,082,000 acre-feet of water could be made available under the proposed plan. Utilization of this water is outlined in the following table: New surface water at district headgates, 1,082,000 acre-feet. Supplemental water needed for lands now irrigated and to replace the necessary reduction in pumping and provide release for salt balance, 652,000 acre-feet. Required for municipal water supply, 12,000 acre-feet. Water remaining available for lands formerly irrigated but now idle for lack of water, 418,000 acre-feet.

In addition to providing 12,000 acre-feet of water for municipal requirements the project would provide supplemental water for 640,000 acres of the 672,000 acres irrigated at some time prior to 1945. Without the project 414,000 acres could be served an adequate water supply. This would indicate a loss of about one-third of the productive capacity of the irrigated area. Actually, the impending loss would be greater because continuation of the existing circumstances will result in less and less economical farming; those with substantial reserves will hang on, and one by one those individuals with the least reserves will be squeezed out until stability has been reached. That stable point will be one at which a bare profit can be made out of the irrigation enterprises—competition will keep it so.

The losses and distress to the individual enterprises during the adjustment period will be tremendous. The correlative interests—the loaning agencies, the local and State governments, and the Nation—

will suffer revenue and economic losses. Business houses will lose accounts, some will be forced out of business; mortgages will be foreclosed; farms will be taken over for taxes; and local, county, State, and Federal tax revenues will shrink.

Power development features of the project would contribute substantially to the increasing needs for electrical energy in the area. These features include one major power plant on the Colorado River at Bridge Canyon and small plants on the Salt, Verde, and Gila Rivers at McDowell, Horseshoe, and Buttes Dams, respectively. The potential Bridge Canyon power plan would be a logical step toward the ultimate development of the power resources of the lower Colorado River Basin. Under this development it has been assumed that provisions would be made for coordinated and integrated operation of all Government power plants on the lower Colorado River. These plants would be those at Bridge Canyon, Hoover, Davis, and Parker Dams. Coordinated operation would result in the production of greater amounts of firm energy and a more effective utilization of water than if the power plants were operated independently of each other.

The power market for the energy thus developed would consist of the State of Arizona, southern California, southern Utah, and southern Nevada. This area corresponds roughly to power supply areas 47 and 48 as designated by the Federal Power Commission.

Reservoir operation studies for power production have been made by the Bureau of Reclamation on the basis of full coordination and integration of the Government plants on the lower Colorado River. It has been assumed that Davis power plant would be completed and that the full designed capacity would be installed in Hoover power plant at the time that Bridge Canyon power plant was completed. In all studies, the amount of water available for power generation has been that incidental to river regulation, flood control, and irrigation releases and storage.

Coordinated operation of all power plants produces the largest possible amount of firm power. Under this system the plants with small reservoirs would generate a greater percentage of the total power produced during periods of high run-off, than they would in low run-off periods. Concurrently the plants with large reservoir capacity could reduce their output and store all possible water for use in low run-off periods. With this system of operation it is possible to produce a higher total system firm energy than under independent operation.

In the studies of reservoir operation for power, river flows for the years 1923 to 1942, inclusive, were used. These years represent a period of run-off for the Colorado River in which the average yearly flow is about 90 percent of the estimated long-time yearly average. The period 1931 to 1940, inclusive, is taken as a period of low flow of the river and is assumed as the critical period for the reservoir operation studies. These studies were computed for initial conditions of project development. Additional studies were made to determine the firm energy production under ultimate development.

Virgin stream flows were depleted for conditions estimated as representative of the above conditions of project development and were then used in the reservoir operation studies.

In order to present the studies of the various power plants under

different conditions of operation, and yet on comparable bases, certain fundamental concepts were adhered to in all studies. These concepts were (1) all reservoirs were full or at required flood-control levels at the start and finish of all reservoir operation studies; (2) irrigation demands governed the amount of water available for power; (2) under coordinated operation the firm-power production credited to Hoover power plant was equal to the amount which that plant could produce under independent operation; (4) minimum reservoir content of Lake Mead was held to the same level as would be experienced under independent operation; (5) all power plants under coordinated operation produced their average yearly credited amounts of firm power over the 10-year critical period; and (6) for comparative purposes Hoover and Bridge Canyon power plants were operated both independently and integrated in order to show the national benefits under coordinated operation.

The potential output of the Colorado River plants under the coordinated operation previously mentioned and at initial conditions is 10,725,000,000 kilowatt-hours of firm energy annually. Of this amount Bridge Canyon is credited with 4,675,000,000 kilowatt-hours, Hoover with 4,500,000,000 kilowatt-hours, and Davis and Parker with a combined total of 1,550,000,000 kilowatt-hours. The other power plants of the central Arizona project are credited with an annual production of 98,000,000 kilowatt-hours of firm energy annually.

The following table shows the generation of central Arizona project for the three stages of development studies.

For each of the potential power plants the table shows the installed capacity, the average gross power head feet, and the annual firm energy in million kilowatt-hours under initial conditions, average conditions, and ultimate conditions.

The chart shows the Stewart Mountain replacements, and the power required between Havasu and McDowell pumping plants is shown, with each condition, and the net energy production available for the commercial market.

(The document is as follows:)

Summary of power plants

Power plants	Installed capacity	Average gross power head feet	Annual firm energy in million kilowatt-hours		
			Initial conditions	Average conditions	Ultimate conditions
Bridge Canyon	750,000	612	4,675	4,395	4,114
McDowell	4,100	54	23	21	19
Horseshoe	10,000	141	40	40	40
Buttes	6,000	144	35	35	35
Total	770,100		4,773	4,491	4,208
Stewart Mountain replacements			25	28	31
Total			4,748	4,463	4,177
Pumping requirements, Havasu and McDowell			1,154	1,393	1,633
Net energy production			3,594	3,070	2,544

Mr. LARSON. Other needs of the area would be served by multiple-purpose features of the project through incidental benefits, such as

flood control, silt retention, salinity control, recreation, and fish and wildlife propagation. Although these benefits are considered incidental to the primary purpose of the project, they are significant.

Economic feasibility of the project: The last major element to be considered in the investigation of a project is economic feasibility. Will the project pay out? Will the returns equal the cost? Do the benefits exceed the cost?

Estimated construction costs are presented in table A–5, entitled "Summary of costs." Annual costs are presented in table B–5, entitled "Summary of annual costs." Cost estimates by the Bureau of Reclamation were completed on the basis of construction cost-levels prevailing in July 1947. Estimates and costs for Buttes and Charleston Dams, Tucson aqueduct, and Safford Valley improvements were prepared by the United States engineer office, Los Angeles, Calif. These estimates were based on prices prevailing in 1939 and were adjusted by the Bureau of Reclamation to reflect construction-cost levels prevailing in July 1947. All costs include allowances for engineering and contingencies.

It will be recognized that the Bureau's report had anticipated somewhat different provisions as to repayment requirements than are presented in the bill under consideration by this committee. The discussions which follow reflect the provisions of the bill now under consideration. Tables A–5 and B–5 show the allocation of construction costs and annual costs, respectively, that have been made to the several items for which allocable costs would be authorized in the bill. Incidentally copies of those tables are also attached to this report. The studies allocate construction and annual costs to irrigation, power, municipal water supply, flood control, silt control, recreation, fish and wildlife conservation and propagation, and salinity control. The first three items are considered reimbursable, the last five are considered nonreimbursable. Costs allocated to irrigation and municipal water supply are considered repayable without interest. The construction costs allocated to power are considered as interest-bearing. An interest rate of 3 percent has been applied and the interest component has been used to assist in repayment of the irrigation obligation which is beyond the ability of the water users to repay.

Annual costs of the project shown on table B–5 include operation and maintenance and replacement reserve. Other annual costs include the annual payments on the reimbursable portion of the construction cost.

Allocation of construction costs to the various functions were computed by two methods—the alternate justifiable expenditure method and the proportionate use method. The method chosen for use on any one feature was that which was most suitable.

Direct returns would accrue to the project from the sale of irrigation water, municipal water, and electric energy. The estimated average annual returns from these items would be (1) from irrigation water, $3,147,900; (2) from municipal water $527,900; (3) from power, $12,635,000. These returns are sufficient to repay the full reimbursable project construction cost, annual operation and maintenance expenses, and establish the necessary replacement reserve.

A charge to the farmer of $3.30 an acre-foot at the district headgates which corresponds to a charge of $4.75 at the farm headgate

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was used as the basis for computing annual returns from the sale of irrigation water. This price is predicated upon repayment ability studies made of the project area, based on 1939 to 1944 average values of crops at the farm.

A study of municipal water rates in various cities in the West indicates that the city of Tucson could pay for its municipal water at the rate of $0.15 per 1,000 gallons at the intake of its distribution system.

The rate at which electrical energy would be sold was determined on the basis of providing revenues adequate to assure full payment of all reimbursable costs after the revenues from irrigation and municipal water had been credited to the account. The rate determined is 4.65 mills per kilowatt-hour at the load centers.

As outlined above the project would pay out; and the returns would equal the costs in accordance with the repayment provisions of the bill under consideration.

Benefits accrue not only to direct beneficiaries, such as the initial purchasers of irrigation water, municipal water, and electrical energy, but there are innumerable indirect beneficiaries whose income and livelihood are dependend upon or substantially affected by the creation of raw materials on the irrigated lands and the production of electric energy. Nor are the benefits limited to those arising out of irrigation and municipal water, and out of the use of electrical energy. The central Arizona project would be a multiple-purpose development which would also furnish public benefits from flood control, silt control, fish and wildlife conservation, salinity control, and recreation. The following analysis compares total or national benefits with total or national costs.

Benefits from the project have been divided into two categories. The first comprises those tangible benefits upon which monetary values have been placed. The second includes intangible benefits, which cannot be evaluated in monetary terms, and a few tangible benefits not evaluated.

Tangible benefits from irrigation are estimated to have an average annual value of $25,268,000. In arriving at this estimate two general types of tangible irrigation benefits from the project have been evaluated. The first is composed of benefits accruing directly to farmers and indirectly to others from the production of a larger volume of agricultural products than would be produced without additional irrigation water. The second is comprised of benefits accruing directly to farmers from the reduced pump lift that would result from elimination of the overdraft of ground water.

The sum of tangible benefits accruing to direct and indirect beneficiaries that would result from the production of additional farm products will average $23,579,000 annually. These benefits are calculated as the increase in the gross value of crops at the farm, based on a price level equivalent to that occurring during the years 1939 to 1944 which is substantially less than occurred during the past few years. The benefits from savings in the cost of pumping irrigation water will average $1,689,000 annually, which represents the difference between the deteriorated conditions that will occur if supplemental water is not forthcoming, and the improved conditions that would accompany the furnishing of additional water.

The $25,268,000 of annual irrigation benefits is considered as a

measure of the net effects of producing, processing, and handling in commercial channels the greater volume of agricultural products emanating from the project area. It is, therefore, assumed to represent the net benefits from irrigation. These include such benefits as the stimulation of business activities associated directly and indirectly with this larger volume of production. As an example, the farmers grow more lettuce; the truckers, packers, and railways handle more lettuce; and the business activity of restaurants, retail stores, personal services, and many others improves. All make greater net returns because of the greater volume of lettuce. The converse will occur with a decreased volume of agricultural products. Maintenance and even expansion of public facilities without increasing State and local tax rates would be possible with increased supplemental water, in contrast to the prospective retrenchment that would accompany the reduced agricultural production without it. All benefits of this type are included in the irrigation benefits which are used in the benefit-cost ratio.

Power benefits resulting from consummation of the central Arizona project would pyramid into a volume far above the sale value of the actual energy produced. A monetary value of benefits has not been determined but, in lieu thereof, the computed sales value of the power has been used as a conservative estimate of the minimum benefit. Average annual power benefits are, therefore, assumed as being measured by the sale of electrical energy at a unit price of 4.65 mills per kilowatt-hour. The annual return would aggregate $12,635,000. In computing these returns, the accumulative effect of upstream depletions resulting in a corresponding gradual reduction in power output, has been reflected.

Municipal water supply benefits, like those of power, are so widely distributed that they cannot be fully evaluated. In lieu of a more accurate determination they have been considered as being equal to the estimated revenue derived from the sale of water. Such consideration reflects utmost conservatism. Municipal water supply returns are computed at $528,000 annually. This amount was derived from the application of a unit sales price of $0.15 per 1,000 gallons to 10,800 acre-feet of water delivered annually to the municipal distribution system of Tucson.

Silt control benefits are estimated to have an annual value of $1,350,000 during the project repayment period. This total includes the value of protecting the Boulder Canyon project, the value of this protection being based on the replacement cost of a proportionate part of Lake Mead storage. It also includes the benefits associated with Buttes and Hooker Reservoirs. These benefits from the latter two reservoirs were derived from data furnished by the United States engineer office, Los Angeles, Calif.

Recreation benefits have been estimated by the National Park Service on the basis of travel value per car, the recreational value per visitor, periodic value of visitors, and a general value which represents a gross profit to local business. The annual benefit is estimated at $1,482,000 annually.

Fish and wildlife benefits of $145,000 have been estimated by the Fish and Wildlife Service. This net annual benefit represents the minimum that may be expected from operation of the project as

presently contemplated. The estimated annual value covers fish, large and small game, fur-bearing animals, and waterfowl.

Flood-control benefits are computed at $316,000 annually. Five of the features included in the central Arizona project would provide flood control. Such benefits at Buttes, Charleston, and Hooker Dams, and the Safford Valley improvements were evaluated by the United States engineer office on the basis of 1939 levels. The benefits determined by that office were subsequently adjusted by the Bureau of Reclamation to reflect the higher price levels that, it is believed, will occur during the repayment period. Flood-control benefits at McDowell Dam were determined on the basis of preliminary studies made by the Bureau of Reclamation.

Benefits accruing because of the salinity control provided by the project drainage system have been estimated to amount to $256,000 annually. This benefit results from the use of the drainage system for the release of water from the project area which contains accumulations of various salts in harmful quantities.

In evaluating annual costs for determining a benefit-cost ratio, all construction costs are assumed to be amortized with interest as a measure of the actual national cost, regardless of the legal aspects of reimbursability or interest-free allocations. Annual amortization costs have been computed on the basis of retiring all project construction costs over a 70-year period at an assumed national interest charge of 2 percent on the unpaid balance of the debt. This annual charge has been computed to be $19,691,600.

Operation and maintenance costs have been estimated for each of the various features included in the potential project development. The total of these costs would average $4,551,200 annually during the repayment period.

Reserve for replacement is provided in accordance with the estimated requirements for the various features of the project development. It is estimated that payments totaling $2,212,400 annually would be required to provide the necessary reserve.

The relationship between project benefits and costs is outlined in the following table:

COMPARISON OF BENEFITS AND COSTS

Average annual benefits: irrigation, $25,268,000; power, $12,635,000; silt control, $1,350,000; recreation, $1,482,000; municipal water supply, $528,000; flood control, $316,000; fish and wildlife conservation, $145,000; salinity control $256,000; total, $41,980,000.

Average annual costs: operation and maintenance, $4,551,200; reserve for replacement, $2,212,400; amortization of all project construction costs at 2 percent, $19,691,600; total, $26,455,200. Ratio of annual benefits to annual costs equal 1.59 to 1.

Intangible benefits of the project are many but are of such complexity that they have not been evaluated in monetary terms.

The serious consequences that would result from a retrenchment in the economy of the area, including a probable enforced migration of many rural and urban families would be averted. Instead, much additional employment would result, both during construction and as a result of operating the project and project lands. The increased production of electric energy would encourage industrial expansion

far beyond the borders of the project and even beyond the boundaries of Arizona. Increased productive capacity and the wider use of electric energy for domestic use would improve living standards. Such benefits and many similar ones add to the desirability of the development.

Summary: On the basis of the investigations completed on the central Arizona project by the Bureau of Reclamation, the analysis of the four fundamental elements can be summarized as follows:

(*a*) There is a definite need for supplemental water for irrigation of lands now under cultivation within the project area. All of the potential supply of water is needed by lands that have been farmed. Unless supplemental water is made available approximately one-third of the productive capacity of the agricultural development will be lost resulting in a serious economic problem to the State of Arizona. The city of Tucson is in need of a supplemental supply of water to meet the growing requirements. There is a critical power shortage in the southwest area at the present time. Unless hydro-power potentialities are utilized, requirements must be met by expanding steam developments which will result in further consumption of limited irreplaceable natural resources. All of the potential power output of the project could be utilized immediately.

(*b*) Practically all of the potential water supply for the project must come from the Colorado River. Compacts, and contracts have been entered into by the States and the United States. There is a wide difference in the interpretation of these documents by officials of the States of Arizona and California. The project water supply from the Colorado River is dependent on the validity of the interpretations by officials of Arizona.

(*c*) The potential development, as outlined, would serve the needs of the area to the full extent of Arizona's asserted entitlement. The supplemental irrigation water made available in Arizona would prevent a one-third loss of the productive capacity of the farm land that has been in cultivation. Domestic water supplies would be improved. The hydro power that could be made available would result in a saving of about 6,000,000 barrels of oil annually. Many other needs would be served or supplemented by the potential development.

(*d*) Under provisions of the bill now under consideration the project would pay out. The benefits exceed the costs by a ratio of more than 1.59. Experience and history have proven that the strengthening of a weak unit of our national economy adds to the strength of the whole, both in normal times and in emergencies; the central Arizona project has been designed for such purpose.

Mr. MURDOCK. Thank you, Mr. Larson. This thought runs through my mind, though it is not a question but just a statement of fact: In our Public Lands Committee many times we have to do with arid countries in the West for grazing purposes, and I have pointed out frequently that the possession of a water hole by stockmen, although it may be only a small water hole, controls a vast surrounding area, and makes the total area profitable. Somehow the matter comes to mind as I have listened to the discussion. I mean a comparatively small amount of water will firm up the economy of a whole large State. Because Utah and New Mexico are interested and Governor Miles is here, I think we ought to call on him for any questions, comments, or statements he may have.

Mr. MILES. I do not believe I have any at this time.

Mr. MURDOCK. We want to adjourn to go to a meeting of the full committee in a few minutes. You will be available tomorrow, I presume, Mr. Larson?

Mr. LARSON. Yes, sir.

Mr. ENGLE. Mr. Chairman, I have some questions to ask. I wonder if I could initiate the questioning.

Mr. MURDOCK. Yes, go ahead, Mr. Engle. Let us confine this session to about 10 minutes as a starter.

Mr. ENGLE. Mr. Larson, I want to direct your attention to page 8 of your statement. The second sentence on page 8 says:

> The Colorado River compact apportioned waters of the Colorado River between the upper and lower basins, designating "Lee Ferry," on the Colorado River, 1 mile below the mouth of the Paria River, as the point of division. The apportionment of Colorado River waters by the Colorado River compact is from the virgin or undepleted flow of the stream, that is, from the stream as would be in the absence of any development.

Now, I have before me a copy of the Colorado River compact. That is section III (a).

I am reading from article II (a) of the Colorado River compact which says:

> The term "Colorado River system" means that portion of the Colorado River and its tributaries within the United States of America.

Article III (a) reads as follows:

> There is hereby apportioned from the Colorado River System in perpetuity to the upper basin and to the lower basin respectively the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum which shall include all water necessary for the supply of any rights which may now exist.

I want to ask you how you reconcile that quotation from the Colorado River compact with your statement that the "Colorado River compact apportions the waters of the Colorado River."

Mr. LARSON. As I see it, it would be apportioned from the virgin flow, but the apportioned water would include any existing uses.

Mr. ENGLE. Can you show me anywhere in this compact where it uses the word "virgin"? I do not believe it is there, Mr. Larson, and I bring up the point to emphasize the proposition that for a proper understanding of the differences of opinion it is essential for the committee to understand that the Colorado River compact does not divide waters of the Colorado River but allocates the beneficial consumptive use of water of the Colorado River system in the upper and lower basins.

Now I assume, Mr. Larson, that the statement which you have made here is predicated to some extent at least—inevitably it must be—upon the contentions of Arizona. I believe you say that. That is, if Arizona's contentions are not correct there is no water for this project, is that right?

Mr. LARSON. That is right. That is the way the report is set up.

Mr. ENGLE. In other words as Mr. Straus said on January 26, 1948, and I am reading from his statement:

> If the contentions of California are correct there will be no dependable water supply available from the Colorado River for this diversion.

Now, in order to point the matter up a little more specifically, I would like to have you refer to page 11 of your statement. On page 11

of your statement, in the next to the last paragraph, on the basis of these assumptions, which are the assumptions of Arizona, you have indicated what Arizona's share of the Colorado River would be, and I am quoting from your statement:

Water from article III (a) and III (b), 3,800,000 acre-feet.

Since that includes the III (b) water I assume that it includes all the III (b) water which would be 1,000,000 acre-feet. Is that correct?

Mr. LARSON. That is correct.

Mr. ENGLE. But if California's contention is correct there would be deducted from that one-half million acre-feet or 500,000 acre-feet?

Mr. LARSON. That is right.

Mr. ENGLE. That is correct.

Now, going over to page 13 of your statement, in the middle of the page, you indicate the present depletions, and give the Gila River Basin depletion at 1,135,000 acre-feet. However, on California's theory of beneficial consumptive use that should be 2,300,000 acre-feet?

Mr. LARSON. My understanding is California's contention is that Arizona should be charged for the amount of water they are using on the Gila River for beneficial consumptive use.

Mr. ENGLE. That is correct, and in that instance, then, you would have to add to the Gila River Basin depletion 1,000,000 acre-feet of water, is that not right?

Mr. LARSON. Not under the term "depletions."

Mr. ENGLE. What do you mean by that?

Mr. LARSON. As I stated. In other words, the depletions of the Gila River, speaking of the flow at the mouth, are given. Throughout our statement we refer to depletions at Lee Ferry and at the Mexican boundary.

Mr. ENGLE. I know what you mean. It is perfectly correct that if you adopt Arizona's theory of depletions the depletion is 1,135,000 acre-feet. That is what you are saying, is it not?

Mr. LARSON. That is the amount that Arizona's use of water would deplete the flow of the Gila River at the mouth.

Mr. ENGLE. On the contrary, if you accept California's theory and charge Arizona with the beneficial consumptive use in the Gila River Basin, then that beneficial consumptive use would be 2,300,000 acre-feet approximately, is that correct?

Mr. LARSON. It would be something less than that. It would be whatever the virgin flow was, less the amount of water now flowing out of that area.

Mr. ENGLE. You used the words "virgin flow" again. That is a matter of interpretation, also, is it not, inasmuch as the word "virgin" itself does not appear in the compact? I do not want to argue about the particular amount of water. The point I want to bring out is that if California's theory is correct these figures have to be reshuffled.

Mr. LARSON. That is correct. They would have to be readjusted.

Mr. ENGLE. In addition to that, there is one other item. That is the matter of the main stream reservoir losses which are set here at 313,000 acre-feet. Now, if California is correct that the 4,400,000 acre-feet allowed California under its limitation act is net for use in California, then California would not be chargeable with evaporation losses on the Lake Mead Reservoir; is that correct?

Mr. LARSON. That is correct under California's interpretation.

Mr. ENGLE. That would give California that much more water. Under those circumstances there would be, as Mr. Straus says, no available water supply for this project, or no available firm water supply; I will put it that way; is that correct?

Mr. LARSON. That is right. In other words, that was brought out in the statment, I think.

Mr. ENGLE. I believe it was, but I just wanted to emphasize it.

Now, I return to page 2 of your statement, and I read here in the last sentence of the next to the last paragraph:

A like sum—

referring to $200,000—

for the same purpose was allocated by the Bureau, from its investigation funds, and a formal agreement on procedure was executed July 31, 1944.

Why would the Bureau of Reclamation spend $200,000 of the taxpayers' money investigating a project for which there was no firm water supply?

Mr. LARSON. In investigating projects it has always been the policy of the Bureau of Reclamation to match our funds with contributed money.

Mr. ENGLE. Well, I agree with that, but is it not true that if this case goes finally to the Supreme Court and is adjudicated—I think that is the only way it can be adjudicated—and it develops that Arizona is not correct in its contentions, all of them, then the $200,000 you have spent or presumably will have spent on these investigations will have been wasted?

Mr. LARSON. Well, that may be true in many other cases. For example, until a project is investigated very little is known with regard to its feasibility, water supply or anything else. That is the purpose of the investigation.

Mr. ENGLE. The purpose of your investigation, Mr. Larson, is not to determine the correctness of California's contentions. As a matter of fact, in your own statement here you have emphasized the proposition, and I am reading from page 10:

This presentation is not intended to be prejudicial to the claims of the States challenging Arizona's interpretations. The Bureau of Reclamation recognizes these differences of opinion, but, as has been stated in our report, the Bureau cannot authoritatively resolve those differences.

The point I am making is, and it may not be particularly important, why in the world would the Bureau of Reclamation spend $200,000 of the taxpayers' money investigating the economic and engineering feasibility of a project without first knowing something about the solution of these problems which it admits exists. If they are determined adversely to Arizona then $200,000 is wasted, is it not?

Mr. LARSON. Well, Congressman, the same thing would apply to developments in California. Why investigate land classification on the east and west mesa, for example? That would be money thrown away on the same basis.

Mr. ENGLE. I think there is a very clear difference, Mr. Larson, between investigating economic and engineering feasibility of a project and launching upon an investigation costing $200,000 of the taxpayers' money when it is well known that there are legal questions

involving the source of water. That is like doing the engineering on construction of a building before you have title to the lot.

Mr. MURDOCK. Would my colleague yield for a question?

Mr. ENGLE. Yes.

Mr. MURDOCK. We have a general investigation fund on the part of the Bureau of Reclamation. It is included each year in the appropriation bill for the Department of the Interior. One item in it amounts to $500,000, to carry on investigations in the Colorado River Basin. Since the whole basin of the Colorado River is in question in your mind, have we not been wasting $500,000 annually in that appropriation? More than 100 projects in the Colorado River Basin have been listed.

Mr. ENGLE. Well, I think, Mr. Murdock, that it is apparent that some projects sometime or other are going to be adopted. This is a specific allocation of $200,000 to the study of the economic and engineering feasibility of a project predicated upon assumptions of a legal title which are not known to exist. It would seem to me to have been much more logical to determine the legal questions involved in this matter and then spend the money. If you wasted it then it would be because of the engineering and economic feasibility, which did not work out, but not because there was a basic legal question which was not solved beforehand.

Mr. POULSON. Will my colleague yield?

Mr. ENGLE. Yes.

Mr. POULSON. That is further summarized in your statement on page 37, in article (b) where it says:

> Practically all of the potential water supply for the project must come from the Colorado River. Compacts, and contracts have been entered into by the States and the United States. There is a wide difference in the interpretation of these documents by officials of the States of Arizona and California.

Here he summarizes the crux of the whole matter, as you brought out:

> The project water supply from the Colorado River is dependent on the validity of the interpretations by officials of Arizona.

It is not the officials of any other State, but "officials of Arizona." That summarizes the crux of the whole matter, as you brought out.

Mr. ENGLE. Mr. Chairman, I know our time is up. I have some questions I want to ask about the economic feasibility of this project which will take some time. I assume Mr. Larson will be available tomorrow?

Mr. LARSON. That is right.

Mr. MURDOCK. He will be available tomorrow at 10 o'clock.

In view of the fact that the full committee is meeting for a few minutes just before 12 o'clock, the subcommittee will stand adjourned until 10 o'clock tomorrow morning.

(Thereupon, at 11:42 a. m., Wednesday, April 27, 1949, an adjournment was taken until 10 a. m., Thursday, April 28, 1949.)

THE CENTRAL ARIZONA PROJECT

THURSDAY, APRIL 28, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 10 a. m., in the anteroom of the committee room of the House Committee on Public Lands, New House Office Building, the Honorable John R. Murdock (chairman of the subcommittee), presiding.

Mr. MURDOCK. The subcommittee will please come to order.

We will continue our hearings this morning on H. R. 934. At our session yesterday in a small committee room we were unable to have a full attendance. I hope that we may be favored with a larger attendance from now on.

At our session yesterday we heard from Mr. Larson, a representative of the Bureau of Reclamation. I do not know that I told him so, but I think this is a good presentation. It appealed to me, as sponsor of the bill, because it shows the comprehensive plan that is involved here and the far-reaching effects. The Bureau of Reclamation has evidently looked into this matter from top to bottom and has gone clear out to the twig ends of the matter to show its effect not only upon the entire State of Arizona, but upon the neighboring States of Utah and New Mexico, also.

Mr. Larson had just completed his statement about 10 minutes before we adjourned, and we had taken up the matter of questioning. Mr. Engle had the floor on the matter of questioning.

Mr. Larson is with us.

May I ask: Was there any other member of the Department to give us further information on this? Were you, Mr. Nielsen?

Mr. NIELSEN. No.

STATEMENT OF V. E. LARSON, ASSISTANT REGIONAL PLANNING ENGINEER, REGION III, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR—Resumed

Mr. ENGLE. Mr. Chairman, yesterday I indicated I wanted to ask Mr. Larson some questions relating to the showing of financial feasibility of this project.

Mr. Larson, I have before me the letter from the Bureau of the Budget of February 4, 1949, in which Mr. Pace says that this project is not in accord with the program of the President. Have you seen that letter?

Mr. LARSON. Yes; I have.

Mr. ENGLE. I am reading from the fourth paragraph on the first page, in which Mr. Pace says, and I quote:

> It is the opinion of the regional director of the Bureau of Reclamation that the "project has engineering feasibility in the sense that there are no physical obstacles * * * that could not be overcome."

Now, that phrase intrigued me a little. Does that mean that the project is engineeringly feasible if you are willing to spend enough money to overcome the physical obstacles? Is that correct?

Mr. LARSON. The project can be built from an engineering standpoint. There is nothing we have found that could not be overcome. On the basis of our analyses the project would pay out and sell power at a very attractive rate.

Mr. ENGLE. Well, I was wondering why the regional director of the Bureau of Reclamation, whom I assume to be the man in charge of the region in which this project is located, should qualify the engineering feasibility to such engineering feasibility in the sense that there are no physical obstacles that could not be overcome. That seemed rather odd language to me. Is that the usual language in reporting on a project of this sort?

Mr. LARSON. That is often included in the language.

Mr. ENGLE. The regional director, as quoted by the Bureau of the Budget, further states, and I am reading from page 2:

> Financial feasibility of the project is more difficult to determine.

Did you recognize any difficulty in determining financial feasibility?

Mr. LARSON. Well, as I said on the basis of our analyses the project would pay out, by selling power at a rate of 4.65 mills per kilowatt-hour delivered at the load center.

Mr. ENGLE. You and the regional director of the Bureau then are not in disagreement; is that correct?

Mr. LARSON. That is correct.

Mr. ENGLE. You do then concede that it has been difficult to determine financial feasibility, but it can be done; is that right?

Mr. LARSON. No; I do not recognize that it is difficult to determine the financial feasibility. I maintain that financial feasibility has been determined and shown in the report, as well as in the statement that I presented yesterday.

Mr. ENGLE. How do you reconcile that with the regional director's statement that "financial feasibility of the project is more difficult to determine"?

Mr. WELCH. Who is the regional director, may I ask?

Mr. ENGLE. What is his name?

Mr. LARSON. Mr. E. A. Moritz.

Mr. WELCH. Where is he located? Where is his headquarters?

Mr. LARSON. Boulder City, Nev.

Mr. ENGLE. How do you reconcile your clear statement, your unequivocal statement with regard to financial feasibility, with the statement made by the regional director that determining economic feasibility has been difficult, if you can?

Mr. LARSON. Well, it is true that it is an expensive project; on the basis of selling the irrigation water at $4.75 an acre-foot delivered to the farm head gate, and municipal water at 15 cents per 1,000 gallons, and power at 4.65 mills per kilowatt-hour delivered at the load center the reimbursable costs would be returned to the Federal Treasury.

Mr. ENGLE. This report goes on to say, referring to the report of the Bureau of Reclamation:

It is pointed out in the report that the project as proposed is economically infeasible under existing reclamation laws.

You have had to change the reclamation laws, have you not, or to expand the present reclamation laws to make this a feasible project; is that not true?

Mr. LARSON. Only in this sense: That all costs would be repaid within a 50-year period.

Mr. ENGLE. You do not mean——

Mr. LARSON. Excuse me. Or, if power could be sold for 6.22 mills at the load center the project would be feasible under the reclamation law.

Mr. ENGLE. Well, now, you have in fact, though, extended the repayment period in this project to 70 or 78 years; is that not true?

Mr. LARSON. Seventy years.

Mr. ENGLE. The report by the Bureau of Reclamation sets this project up on a 78-year basis, does it not?

Mr. LARSON. Well, the report set it up on a 78-year basis, and one reason for the 78 years is that at the time we were working on the report the Rockwell bill was under consideration and had been considered for some time. In that bill a 78-year repayment period was set up. That is the reason for that odd number of years.

Mr. ENGLE. But in addition to being required to change the existing reclamation laws with respect to the period of time for a project to pay out, if you will refer to page 36 of the statement, I believe you have included an addition in the annual benefits which are nonreimbursable in the current law; is that not correct?

Mr. LARSON. That is correct, but instead of selling power at 6.22 mills power could be sold at 4.65 mills under the provisions of the bill that is now under consideration.

Mr. ENGLE. Is that a competitive rate?

Mr. LARSON. 4.65?

Mr. ENGLE. No; 6.22.

Mr. LARSON. Well, I believe it probably could be sold unless there is some change in costs as they are at the present time. An analysis of the costs of power in the Los Angeles area, based upon studies completed by the Bureau of Reclamation, run as follows: If oil costs $2.25 a barrel, the power would cost 8.74 mills per kilowatt-hour assuming 5 percent interest on the bonds; at 4-percent interest the cost would be 8.52; at 3 percent on the investment it would be 8.29; and at 2 percent on your bonds it would be 8.1.

Mr. ENGLE. What I am trying to get at, Mr. Larson, is the particulars in which existing reclamation law will have to be changed to make this project economically feasible, because I assume that the statement made in the budget report that this project is economically infeasible under existing reclamation law is correct.

We have agreed that the repayment period is extended. On page 36 of your statement you put in recreation, silt control, and salinity control as additional nonreimbursable features, do you not?

Mr. LARSON. That is correct, but in the Bureau of the Budget statement that is based upon the opinion that power could not be marketed at 6.22 mills.

Mr. ENGLE. In other words, you put in the additional nonreimbursables because of the statement that the power could not be sold at the higher price; is that correct?

Mr. LARSON. No; we put in the nonreimbursable provisions in accordance with the bill we were requested to report on.

Mr. ENGLE. In other words, this bill does change the existing reclamation law to add certain nonreimbursable features?

Mr. LARSON. That is correct.

Mr. ENGLE. The addition of these nonreimbursable features plus the extension of time are the changes which are made in existing reclamation law in order to make this project feasible under your report; is that correct?

Mr. LARSON. It would have to be qualified to this extent: Power could not be sold at 6.22 mills. If power could be sold at 6.22 mills the project would be feasible under the existing reclamation law.

Mr. ENGLE. Can you do it?

Mr. LARSON. Well, I just read you the costs.

Mr. ENGLE. Then why did you not do it?

Mr. LARSON. That is a possibility.

Mr. ENGLE. But you have not figured it on that basis?

Mr. LARSON. We have figured it on several bases. We figured it on the basis of the reclamation law, on the Rockwell bill that was being considered.

Mr. ENGLE. That is not the law, of course.

Mr. LARSON. That is right, but there are several possibilities. The answers to all of these possibilities, of course, are contained in the report.

Mr. ENGLE. Well, I want to deal with that report in a few minutes; but, without taking too much time, we can agree—can we not?—that this statement of yours is predicated upon two changes in existing law: an extension of time plus the addition of these nonreimbursables which are not now in the law, mentioned on page 36. Is that right?

Mr. LARSON. This statement I presented yesterday is based upon the provisions of the bill you are now considering.

Mr. ENGLE. Referring your attention again to this Bureau of the Budget report to which I have previously alluded, I notice that on page 3, quoting from the first paragraph, it is stated:

> The comments of the several affected State governments and interested Federal agencies with respect to his report contain a number of objections and reservations with respect to the proposed project. Specifically, the Department of Agriculture questions whether the benefits actually exceed the costs.

Your statement indicates you have given a cost-benefit ratio of 1 to 1.59. Is that correct?

Mr. LARSON. That is correct.

Mr. ENGLE. You have then found that you do have a favorable cost-to-benefit ratio; but the Secretary of Agriculture, in his comment upon the report which was filed, says that he doubts that.

> It questions, as it has on numerous other occasions in commenting on proposed reclamation projects, the use of the gross- rather than the net-crop-return method of computing benefits.

Have you used the gross crop returns?

Mr. LARSON. We have used the gross crop returns as a measure of the irrigation benefits.

Mr. ENGLE. How do you justify that?

Mr. LARSON. That is a method that we have used for several years. We have made attempts to improve that method, and at the present time or at the time we worked on this particular project we did not have a method available that would reflect all the benefits from irrigation as does the gross crop income.

Mr. ENGLE. For instance, referring to page 32 of your statement, I observe that you have credited as tangible benefits from irrigation an annual value of $25,268,000. You say:

> Tangible benefits from irrigation are estimated to have an average annual value of $25,268,000.

That means, according to my thinking, that you have taken the gross agricultural revenues and found them to be $25,268,000. Is that correct?

Mr. LARSON. $23,579,000. The $1,689,000 is from the reduced pumping.

Mr. ENGLE. Yes. I want to comment on that in a minute.

Mr. LARSON. Yes.

Mr. ENGLE. Last year, for instance, I had a plum grower out in my district who had a plum crop which grossed about $80,000, but he took $10,000 of red ink on his books in producing the crop and selling it. Under those circumstances, if you had that occur in a crop in Arizona under this project, would you nevertheless credit that $80,000 to the benefits?

Mr. LARSON. Well, gross crop income is a basis of measuring of benefits from the production of these crops. For example, by producing lettuce, you furnish labor to the fellows planting and harvesting the lettuce. When the lettuce is harvested, it goes to the packing shed and again furnishes labor. This lettuce must be iced, which furnishes labor to men working in an ice plant. Then the lettuce is shipped to the markets. It again furnishes labor to men working on the railroads, and revenues to the railroads.

We have recently worked with a revised method to measure all these benefits, and on some of the projects where that method has been applied it shows that the national benefits exceed the gross crop income for the average crops grown.

Mr. ENGLE. Well, I am a little puzzled how you can take the gross crop without counting the cost of production, and say that that is the benefit to irrigation.

Now, I notice that the Deparment of Agriculture, in its comment of May 5, 1948, says, and I am quoting:

> In the estimation of benefits, gross rather than net crop values have been used in the calculation of irrigation benefits.

Then they go on to say:

> In the present report it is indicated that this cost of production is assumed to equal the indirect benefits accruing to the project, but in our opinion this is not a valid way of estimating indirect benefits.

In other words, the Department of Agriculture objects both to the method of determining direct benefits in your report and to the method of determining indirect benefits.

As I understand it, you take the gross revenues which you anticipate

will occur, which, of course, is based on certain assumptions, and then you double that and say that is the direct and indirect benefits.

Mr. LARSON. Not double it. Take the gross crop income.

Mr. ENGLE. How do you get the indirect benefits?

Mr. LARSON. We have not measured the indirect benefits. That is the intangible indirect benefits. We have assumed that the indirect benefits to the Nation are equal to the gross crop income.

Mr. ENGLE. That is just exactly what I said; is that not right?

Mr. LARSON. That is right, but I understood you to say that you take the gross crop income and then double it as a measure of these benefits.

Mr. ENGLE. Both direct and indirect from irrigation.

Mr. LARSON. No. For example, in expressing the benefit from irrigation as $23,579,000, that is equal to the gross crop income.

Mr. ENGLE. That is right.

Mr. LARSON. Not doubled.

Mr. ENGLE. But that is the direct benefit.

Mr. LARSON. That is the indirect benefit.

Mr. ENGLE. The Department of Agriculture says you ought to take the net rather than the gross. Is that not right?

Mr. LARSON. If you take the net profit, you might say, from crop production, then you could not stop there because there are other benefits beyond that. In producing this raw material, there are many direct and indirect benefits to the Nation beyond the net benefits to the farmer.

Mr. ENGLE. I know, but they are highly intangible. In other words, we might go down here to Baltimore and have the Government set up a shoe factory. You could claim that the gross income to the shoe factory was a benefit to the Nation, just the same as you could go down to Arizona and build a $738,000,000 project and claim that that creates a benefit to the Nation.

Let me ask you this question: If you did not use the gross returns on agricultural production, would this project be feasible?

Mr. LARSON. How would you express feasibility then? On the basis of paying out?

Mr. ENGLE. You mean you could make a cost-to-benefit ratio of 1.59 without using this $23,579,000 figure for irrigation benefits?

Mr. LARSON. The total reimbursable costs to be returned to the Government could be realized.

Mr. ENGLE. How would you justify it if you did not use that kind of return? If you used a net return rather than a gross return, would that not make your project economically infeasible?

Mr. LARSON. What would be the measure of feasibility? If the project would pay out, would it be feasible? Is that what you have in mind?

Mr. ENGLE. I am trying to determine what would happen if you used a net rather than a gross figure in your feasibility report. In other words, if you followed the suggestion of the Secretary of Agriculture, what would happen to this project? Would it be economically infeasible?

He says here:

Frankly, we are unable to determine from your report whether or not the benefits actually would exceed the cost and that the benefits exceed the cost is a necessary prerequisite to having any economically feasible project.

He says that he cannot figure it out because, in estimating the benefits, gross rather than net crop values have been used.

I want you to assume for the moment that you are going to use the theory of the Secretary of Agriculture. That is, to use the net crop returns rather than the gross crop returns. Would the project then be economically feasible?

Mr. LARSON. From the standpoint of national benefits, I do not see how you can stop with net returns from the crops.

Mr. ENGLE. I am not arguing that. The Secretary of Agriculture may be wrong. What I am asking you to do is to assume for the purpose of this question that he is right. If he is right and if you take the net returns rather than the gross returns, would this project be economically feasible?

Mr. LARSON. In other words, you want to set up a hypothetical condition and ask me to answer the result under that hypothetical condition. Is that right?

Mr. ENGLE. That is right. In other words, assume for the purpose of this question, that you are applying a net crop return rather than a gross crop return as the Secretary of Agriculture contends should be done. Would the project then be economically infeasible?

Mr. LARSON. I would like to ask this question along that line: Does the Secretary of Agriculture say it stops at net benefit, or net return from the crop?

Mr. ENGLE. No; he does not say that. He says, "In this connection we want to make it clear that we are not questioning the propriety of using indirect benefits in justifying the project, but merely pointing out that an incorrect procedure has been used in estimating these benefits."

What I am trying to determine is the effect of using net returns rather than gross returns in determining economic feasiblity on this particular project.

If you assume that method, would that not throw this project into the economic-infeasibility class?

Mr. LARSON. If we set this project up on the basis of benefits to the Nation, not based upon gross crop return, but followed the benefits to the Nation all the way through, in my opinion it would be feasible because the method that we are now working on to use all costs as well as benefits all the way along the line, it shows that the national benefit exceeds the gross crop income.

Mr. ENGLE. Well, I do not want to ask you a question based on an assumption that you do not feel you can make, and which now, without proper study, you could not answer, but what I am trying to determine is whether or not, if you accepted the theory of the Department of Agriculture that net crop returns rather than gross crop returns should be taken, the project would be economically feasible, without making any other assumption?

Mr. LARSON. Congressman, that would be just like asking me, if we could sell half the power and the other half could not be disposed of, would the project be feasible? Under a qualified statement like that, naturally I would probably have to answer "Yes."

Mr. ENGLE. That is what I wanted to know.

Now on page 32 of your statement I notice that you have added $1,689,000 annually, which over the life of this project will amount to

over $100,000,000, which represents the difference between the deteriorated conditions that will occur if supplemental water is not forthcoming and the improved conditions that would accompany the furnishing of additional water.

How do you arrive at that?

Mr. LARSON. During the period 1940 to 1944 they were pumping a little over double the safe recharge. During the past 2 years they pumped about three times the safe recharge.

The water table is constantly dropping. That condition will continue as long as they can possibly make a profit, which means they will pump from a greater depth.

Mr. ENGLE. What you are in fact saying is this: That you give the farmers in that area $1,600,000 benefits because they will not have to pump if this project goes into effect.

Mr. LARSON. They will have to pump, but they will pump from a lesser depth.

Mr. ENGLE. Do you charge, though, these farmers for the power which will be necessary to lift the water 985 feet, to bring it to them?

Mr. LARSON. Yes; we do. That is part of the irrigation cost.

Mr. ENGLE. Is the capital outlay on that charged?

Mr. LARSON. Yes, sir.

Mr. ENGLE. And the maintenance and operation?

Mr. LARSON. That is right. If you notice on this table A–5, you will note that under irrigation—do you see that column?

Mr. ENGLE. It is the third column.

Mr. LARSON. Yes. Bluff Dam, Coconino Dam, Bridge Canyon Dam, and Bridge Canyon Power Plant are considered as a unit in producing that power. Thirty-one percent of the power will be required to lift the water the 985 feet, so that $6,954,000 of Bluff Dam has been allocated to irrigation; $977,000 of Coconino Dam; $50,189,000 of Bridge Canyon Dam, and $18,762,000 of the power plant at Bridge Canyon.

Down in the last item, "Transmission system," $21,408,000 of the transmission system is allocated to irrigation.

Mr. ENGLE. Where is that?

Mr. LARSON. That is the last item on that sheet.

Mr. ENGLE. You charge this to irrigation; is that right?

Mr. LARSON. That is correct.

Mr. ENGLE. But how is it going to be paid?

Mr. LARSON. Well, the total costs allocated to irrigation amount to $399,424,000. Now, a part of that—the greater part of it, in fact—will be paid by revenues from the sale of electrical energy.

Mr. ENGLE. That is what I am getting at. The power is going to carry—is it not—all that lift cost? In other words, when you get right down to it, although you have allocated it to irrigation, you are, in fact, making power revenues pay it, and the irrigators are not paying for it. Is that right?

Mr. LARSON. The power will carry a large part of the cost; that is true, but that is the same principle we use on all irrigation projects of the multiple-purpose type. The revenue from the sale of electrical energy is used to assist irrigation.

Mr. ENGLE. I am aware of that, but the thing I cannot reconcile is counting the saving in pump lift a benefit, and putting it on the

credit side of the ledger to the tune of, as I say, over 78 years, well over $100,000,000, and at the same time not charging irrigation with that. In other words, it would seem to me that you would have to deduct that from the benefits, or rather add it to the power cost. You cannot claim benefits on both sides for it; can you?

Mr. LARSON. I do not see that we are. In other words, the cost of lifting the water is taken into consideration, and by bringing that water in it would permit pumping from a lesser depth simply because part of their needs could be met by supplemental water.

Mr. ENGLE. But all of the water lift, which takes practically one-third of the power in this project, is to be paid for by power revenues; is it not?

Mr. LARSON. That depends on what portion you want to assign. If you say that the revenues from irrigation would be used to pay part of the aqueduct cost or of the operation and maintenance cost, or of the reserve for replacement, that is probably true.

You will also notice over here on table B–5 that irrigation again is charged with a large part of reserve for replacement and operation and maintenance cost at Bridge Canyon Dam and power plant.

Mr. ENGLE. Well, my impression is that the irrigators in this project are not going to retire any part of the capital investment. Is that correct?

Mr. LARSON. That is correct in one sense, but they are paying, for example, $295,200 of the operation and maintenance cost at Bridge Canyon Dam.

Mr. ENGLE. How much?

Mr. LARSON. $295,200 annually.

Mr. ENGLE. I have here, according to Mr. Straus' statement filed in this report on January 26, 1948, a statement that irrigation carries $250,828,500 and that the irrigation costs of operation and maintenance and replacement costs over a 78-year period run $242,112,000, which would mean that the irrigation payments just about balance off the cost of operation and maintenance and replacement cost over a period of 78 years. Is that not right?

Mr. LARSON. Yes; but, as part of that operation and maintenance costs, there is $295,000 of the operation and maintenance costs for Bridge Canyon power plant alone, which is charged to irrigation, and they pay that part of it.

Mr. ENGLE. $295,000?

Mr. LARSON. $295,200 annually. Added in to their operation and maintenance cost is $229,500 of reserve for replacement at Bridge Canyon power plant.

Mr. ENGLE. Assuming that is true, does it not boil down to this: That the irrigators in this project will barely pay for the maintenance and operation of this project over the period of 78 years, and a little more?

Mr. LARSON. They will pay just a little more; that is right, but they are paying their proportionate share of the maintenance and operation of Bridge Canyon Dam and power plant, Coconino Dam, Bluff Dam, and the transmission system that is required to make power available for their pumping plants.

Mr. ENGLE. Now you do give one-third of the total power in this project to that pump lift, do you not?

Mr. LARSON. That is right.

Mr. ENGLE. And you market the other two-thirds?

Mr. LARSON. That is correct.

Mr. ENGLE. Then the other two-thirds of the power which, according to Mr. Strauss' statement over a period of the life of the project, would run $243,000,000 is going to have to carry not only the capital investment of the whole project, but the power plus the irrigation features? Is that approximately correct?

Mr. LARSON. That is probably correct.

Mr. ENGLE. In other words, to put the matter another way: If the Federal Government gives Arizona this project costing $738,000,000, the Arizona farmers will just barely be able to pay for the cost of the operation and maintenance of the irrigation facilities?

Mr. LARSON. They will pay the operation and maintenance and a small amount on the construction cost. The assistance from power from the project will repay the balance. That same principle is true of other projects.

For example, among the other projects in the Bureau, in central Arizona there would be a subsidy from power of about 0.72 mill. In Central Valley the subsidy is 0.68 mill. In Colorado-Big Thompson there is an 0.89-mill subsidy. In Columbia Basin there is a 0.36-mill subsidy; and in the Missouri Basin the subsidy will be 2.47 mills to irrigation.

Mr. ENGLE. Are you saying that the subsidy from power to irrigation is less on this project than it is in some of these others?

Mr. LARSON. That is correct.

Mr. ENGLE. Maybe that is why some of these projects are so sour.

Mr. LARSON. Well——

Mr. ENGLE. I want to read further from this report.

The Department further says:

> The actual relation of benefits to costs is still further obscured by what appears to be a failure to use the market value of power in estimating for evaluation purposes, the cost of pumping the water supply. Market value must be used in economic evaluation because the power has alternative uses.

I assume that what the Department of Agriculture means is that this one-third of the power which is being used to make this power lift of 985 feet is not valued in this report at market levels; is that right? What does the Department of Agriculture mean by that?

Mr. LARSON. The value of the power under any reclamation project is not valued at the market value. It is not on your Central Valley project. It is not on any of them.

On multiple-purpose projects the power that is required for project use, for pumping water, is charged to the project on the basis of the actual cost to the project. That is a principle that has been used in reclamation projects throughout its history.

Mr. ENGLE. You have done that in this instance?

Mr. LARSON. That is right.

Mr. ENGLE. In other words, the power that is going to be used to pump the water out of the Colorado River and put it in the aqueduct is charged against the project at the actual cost; is that right?

Mr. LARSON. That is correct.

Mr. ENGLE. But the power revenues themselves will carry the major part of that; is that right?

Mr. LARSON. That is right.

Mr. ENGLE. Commenting further on benefits, the Secretary of Agriculture states:

While it is necessary that benefits exceed costs if a project is to be considered economically justified, this alone is not sufficient. Sound economics and common sense require, first, the consideration of possible alternatives, and, second, the choice of that alternative yielding the largest return on the investment.

Do you agree with that?

Mr. LARSON. I think that is correct.

Mr. ENGLE. Have the possible alternatives been considered in this instance?

Mr. LARSON. Within the State?

Mr. ENGLE. I mean within the area, the basin.

Mr. LARSON. No, and the reason is that under the Colorado River compact the water has been divided and the State rights for use of their waters must be recognized.

Mr. ENGLE. Now, as an illustration, if you would offer to lift water, for instance, 985 feet for Nevada, they could use more than 300,000 acre-feet, could they not? Nevada could use more than 300,000 acre-feet, could they not, in your opinion?

Mr. LARSON. Included in the potential projects in Nevada, for the use of 300,000 acre-feet of water, there is one project that contemplates a maximum lift of 1,100 feet in the Las Vegas area.

Mr. ENGLE. Is that true, also, for New Mexico?

Mr. LARSON. I am not familiar with what the pump lifts are in New Mexico.

Mr. ENGLE. What I am saying is that if we are going to make this power lift for Arizona why should not everybody else be considered on an equal basis, to get a slice of that power for the same purpose? Is that not fair?

Mr. LARSON. Well, under these multiple-purpose projects there is no difference in principle applied here than is applied on others. Power will assist the irrigators. That same principle has been applied on other projects. There is nothing different about it.

Mr. ENGLE. I think that is true. It is just a matter of degree.

The Federal Power Commission points out that there is no essential physical relationship between the Bridge Canyon power project and the Central Arizona diversion project, but that the two are linked together in the report because of the need for subsidies from electric-power income to help finance the irrigation improvement. It also indicates that the burden of the irrigation costs are considerable, and that the proposed charges for electric power consequently approach a level where such power cannot be classed as "low-cost" in this region.

Is that right?

Mr. LARSON. I class it as low-cost. For example, if the alternative cost of producing power runs from 6 to 8 mills, and this power can be disposed of at 4.65 mills, I would certainly class it as being well within the competitive range of cheap power.

Mr. ENGLE. In other words, you disagree with the Federal Power Commission, and I assume you do?

Mr. LARSON. On the basis of the figures we have, I would class it as cheap power.

Mr. ENGLE. Here is another point, reading from page 3:

The State of Nevada says, "There is a grave question regarding the availability of water to Arizona to supply the project. * * * Studies have been made by

California and Nevada engineers which show there will be little or no water for the central Arizona project. * * * Investigations and reports should be held up or be only preliminary in character where there is a question as to availability of water." The State of Nevada further says that some engineers have expressed an opinion that the Bridge Canyon Dam and Reservoir cannot be utilized properly and to its full extent as a power project because of the limited storage behind the dam which in a few years would fill with silt and power service would depend on natural fluctuating river flow. They raise questions as to whether it would not be desirable to construct Glen Canyon, which would provide much additional storage capacity, at the same time as Bridge Canyon.

Now, is it a fact that these three dams will silt up so fast that they will not last the life of this project?

Mr. LARSON. No, that is entirely untrue. For example, the power that could be made available from Bridge Canyon could be absorbed within the market area immediately. The next potential development would be Glen Canyon. We have completed the field investigation on Glen Canyon, and in the study on this particular report we assumed that Glen Canyon would be built within 15 years, and probably sooner. Therefore, the life of Bridge Canyon Reservoir would be indefinite.

Mr. ENGLE. Are you predicating this favorable report on the assumption that Glen Canyon will be built within the next 15 years?

Mr. LARSON. Assuming the silt benefit, we only considered 15 years for Bridge Canyon. That is in crediting Bridge Canyon with silt benefit. Beyond the 15-year period that credit, of course, would go to Glen Canyon.

Mr. ENGLE. In other words, what you are going to have to do, in order to really make this project work for the life of the project, is to build Glen Canyon, is that not true?

Mr. LARSON. We assume Glen Canyon will be built within a period of 15 years.

Mr. ENGLE. Is that assumption a necessary assumption for this project to be economically feasible?

Mr. LARSON. Not entirely.

Mr. ENGLE. Are you sure about that?

Mr. LARSON. The power possibility may be reduced some within a 70-year period without Glen Canyon.

Mr. ENGLE. Well, I understand that those dams will silt up in as little as 40 or 50 years.

Mr. LARSON. That may be true if you assume the silt inflow and base it only upon the storage capacity of a reservoir. For example, as a silt delta forms at the upper end of the reservoir, it will slope upstream at least 1 foot per mile, and probably 1½ feet. Therefore, the quantity of silt that will be deposited in a reservoir before the life of that reservoir is lost will far exceed the capacity of the reservoir.

Mr. ENGLE. How much will this Glen Canyon project cost?

Mr. LARSON. We do not have an estimate on Glen Canyon at the present time.

Mr. ENGLE. Well, it would cost as much as $200,000,000, would it not?

Mr. LARSON. Glen Canyon would be an entirely different project. It would have to stand on its own. The power revenues from Glen Canyon would pay the entire cost. It would not be a burden or cost to the central Arizona project.

Mr. ENGLE. I realize that, but I am thinking in terms of these other projects silting up, and your having to build Glen Canyon in order to extend the life of them. If these dam sites will silt up in 40 or 50 years, and the life of this project is 78 years, you are going to have to have something to balance out those dam sites for some 20 or 25 years prior to the time this project would pay out.

Mr. LARSON. Glen Canyon would be built to supply power to the market area and not to keep silt out of these dams. The power demanded in the area is sufficiently great to require that at the present time.

Mr. ENGLE. I notice that Mr. Straus, in his statement, predicated his figures upon $4.50 per acre for this water, but you in your report predicted your economic feasibility on $4.75. How does it happen that you made that change?

Mr. LARSON. We used $4.50 in our original studies. It was suggested in the Commissioner's office that we use $4.75. You will note in the Commissioner's letter to the Secretary he proposed that change. Therefore, in the statement that I presented yesterday we also used $4.75.

Mr. ENGLE. I notice further that on page 31 of your statement you say:

> This price is predicated upon repayment ability studies made of the project area, based on 1939 to 1944 average values of crops at the farm.

It would seem to me that you are being extremely optimistic to adopt the highest farm prices, practically, in the history of the country, to determine the economic feasibility of this project.

Mr. LARSON. No, we have not. In other words, we have shown the costs of this project based on the costs as of July 1947. The costs of construction are about double those of 1940, or approximately four times the costs as of 1910.

Now, then, on the benefits that we have used for irrigation, it is about 20 percent above the 1923 to 1943 gross value of crops. In other words, we have just about doubled the costs of construction and we have increased the value of the crops by 20 percent in showing the cost of the project.

Mr. ENGLE. I know; but you are still being a little optimistic, are you not, to assume that agricultural crops will maintain the same high level that they had in 1939 to 1944?

Mr. LARSON. Well, I believe that any resulting difference would be offset in the operation and maintenance costs we have set up, and also in a lesser construction cost. If the value of farm products goes down, undoubtedly the cost of construction will also go down. I think one would offset the other.

Mr. ENGLE. That is not the point. What if you build this project at the present cost, and 10 years from now your agricultural prices are half what they were then? You would go broke, would you not?

Mr. LARSON. I think that is beyond the realm of possibility.

For example, it would probably take 10 or 15 years to build the project, so if you have a drop in prices of farm products you would certainly realize a benefit from the decrease in construction costs as well.

Mr. ENGLE. Not so soon. The point I am getting at is that you

have to predicate your construction costs on what the costs are today, but when you are building a 78-year project you have to anticipate your agricultural returns on a long-range basis. Certainly picking out 1939 to 1944 as your agricultural price is the height of optimism.

Mr. LARSON. I do not believe it is. The estimated future returns from agriculture was decided on after a long study made by the Bureau of Reclamation, Department of Agriculture, and the Bureau of the Budget. It is a period adopted by those agencies. I do not believe it is optimistic.

Mr. ENGLE. That does not sanctify it. I am sure that to the average fellow, thinking in terms of a business program extending over a period of 78 years, he would want to be pretty cautious about predicating a successful business venture, based on agricultural production on prices which were the highest in the history of American agriculture.

Mr. LARSON. On the basis of present trends of costs, I do not believe so, Congressman. The trends have always been upward. With a small percentage, as used in the value of those crops, I do not think that is unreasonable at all.

This may be of some interest in connection with construction-cost trends, which shows what happens: You will notice back in the period 1905 to 1910 the indexes is about 100. During the First World War it went up to about 250, and then leveled back in the 1930's to about 200. In the Second World War War we were up to above 400 percent. Undoubtedly it will level off some, but the general trend is nevertheless an upward trend.

Mr. ENGLE. I will agree with you on construction costs.

Mr. BARRETT. Excuse me just a moment. Those are very interesting facts. Let me see that for just a moment.

Do I understand that starting before the First World War it was at 100, and then it went up to 200?

Mr. LARSON. Up to about 250.

Mr. BARRETT. And then it went back to 200?

Mr. LARSON. It went back to about 200.

Mr. BARRETT. And then doubled that?

Mr. LARSON. In the Second World War it went over 400.

Mr. BARRETT. It seems that just before the First World War the indexes doubled, from 100 to 200-plus, then receded to 200, and doubled to 400 during the second war, is that right?

Mr. LARSON. Yes, sir.

Mr. BARRETT. If they came back on the same proposition, that would bring them back about how far?

Mr. LARSON. If you take the 1939 to 1944, that would be in this period [indicating] so that you would have to drop back to about 300.

Mr. BARRETT. That would be about the same proportion that it dropped back before, from 400 back to 300?

Mr. LARSON. That is right.

Mr. ENGLE. Do you have a long-range graph on agricultural prices which would reflect a similar trend? Do you have one in your book?

Mr. LARSON. I do not have one in the book. However, I think I could furnish the committee one.

Mr. ENGLE. It would be very interesting, because as I say, it is one

thing to talk about construction costs which will accrue in a relatively short time, and another thing to talk about agricultural returns which are predicated on a 78-year average of prices equaling the 1939 to 1944 level.

Mr. LARSON. I can safely say that the trend for the agricultural products is upward. They probably will not parallel construction costs, but the trend will be the same.

Mr. WELCH. Mr. Chairman?

Mr. MURDOCK. Will you yield to Mr. Welch?

Mr. ENGLE. Yes; I will yield.

Mr. WELCH. I would like to ask my colleague from California what particular point he aims to develop through the witnesses? Is this the financial feasibility or infeasibility of the project?

Mr. ENGLE. That is correct. The Department of Agriculture, Mr. Welch, in its comment on the report of the Bureau of Reclamation, made the statement that it has grave doubts about this project being economically feasible. Specifically, the Department of Agriculture questions that the benefits actually exceed the costs.

The Secretary of Agriculture raises certain very pertinent questions on that score, so I am trying to determine how the Bureau arrived at these figures and whether or not the Secretary of Agriculture's viewpoint is to be given very much consideration. At least, I would like to have the Bureau's comment on it. That is what Mr. Larson is doing. He is commenting on how he arrived at these figures.

These questions which I have raised are questions which have been raised by these agencies in one form or another.

Mr. LARSON. In regard to your question on agricultural prices, Congressman, I was furnished this information from data available to the Bureau office: From 1910 to 1914 the index is 100. From 1920 to 1940, 123. From 1939 to 1944, 143.

Mr. ENGLE. Do you know how that corresponds with the rise in construction costs?

Mr. LARSON. That would be less. In other words, 1939 to 1944 would be about 143, in comparison to about 300 in the construction costs.

Mr. ENGLE. I notice on page 33 of your statement, at the bottom of the page, you say:

> In lieu of a more accurate determination they have been considered as being equal to the estimated revenue derived from the sale of water.

You are referring, there, to municipal water supply benefits.

The thing that impresses me throughout this entire presentation, Mr. Larson, is that the costs are known and are pretty fairly and accurately estimated.

Mr. LARSON. That is right.

Mr. ENGLE. But when you start estimating the benefits and the indirect benefits for the purpose of showing economic feasibility, all of them are based more or less upon vague guesses. This is an illustration of it:

> In lieu of a more accurate determination they have been considered as being equal to the estimated revenue derived from the sale of water.

Why do you say, "In lieu of a more accurate determination they have been considered as being equal"? Why should you do that?

Mr. LARSON. I would say that is the very minimum benefit. I be-

lieve it could be proven that it would be much greater. The benefit from the sale of that water should be worth at least the sale price of the water.

Mr. ENGLE. Another illustration is on page 34 of your statement, where you refer to the recreation benefits.

When we had H. R. 1770 before our committee I raised some questions about how to determine recreation benefits.

In this statement you say that the recreation benefits have been estimated at $1,482,000 a year, which over the life of this project, would run over $100,000,000, or approximately one-seventh of the project cost. How in the world do you determine the recreation benefits?

Mr. LARSON. We, as the Bureau, did not determine the benefits for recreation. The estimated benefits were determined by the National Park Service.

Mr. ENGLE. But you did not just take their word for it, when you are going to be responsible for this project, did you?

Mr. LARSON. I am not entirely familiar with their methods of determining that benefit.

Mr. ENGLE. That would certainly be a very interesting matter. I would like to know how you figure out these benefits, and how these benefits are figured with regard to the construction cost. How are these benefits figured, the recreational benefits of $37,459,000; the fish and wildlife benefits of $3,129,000; and the salinity control at $4,986,000? That is shown on your construction costs. Those are all intangibles which go to make up that 1.59 benefit to cost ratio, are they not?

Mr. LARSON. That is right. Those benefits have been determined on the basis of national benefit.

Mr. ENGLE. Can you tell me how they arrive at it?

Mr. LARSON. On the basis of the number of visitors that would visit the projects, and what the value of that travel would be from a national standpoint. A man takes a vacation, for example, and goes out to one of those dams. He buys gasoline along the way, tires, lodging, and so forth. That is a benefit to the Nation.

Mr. ENGLE. But if he did not go there he would go some place else.

Mr. LARSON. Possibly.

Mr. ENGLE. Then the benefit will occur to the Nation, anyway, one way or the other.

Mr. LARSON. It may or may not.

Mr. ENGLE. I think he would probably go down to Lake Mead, if this one were not there. In other words, when you start saying that the benefits from recreation are those which result from the expenditure of money because the recreation facilities are there for visitors, you are assuming that in the absence of those facilities that money would not be spent, whereas that is not the ordinary assumption, is it?

Mr. LARSON. As I say, Congressman, I am not fully familiar with the methods they used, but it is something along that line. However, we have to remember this: With our increasing population unless there are additional recreation attractions, the people will not travel. Even now you run into people that have made trips to Yellowstone Park or other parks. They are very much disappointed because they

think of going to a park where they at least have elbow room, and they often find crowded conditions at the existing parks.

Mr. ENGLE. I can also say this: If the recreation and fish and wildlife and silt control and salinity control are written into these projects on such a substantial basis as nonreimbursable features, there just is not any project that you cannot say is feasible. They will all be feasible if you put enough in.

Mr. LARSON. I would like to add this: On these projects that you are thinking about or mentioned, probably they would not accommodate many more people without having crowded conditions. I think it is very safe to estimate that at least 500,000 people annually would visit Bridge Canyon recreational area.

Mr. ENGLE. It is my point that if they did not go there they would go some place else; and if they did not spend the money for recreation they would spend the money to buy shoes, or maybe to buy cigars, and the result to the national income would be the same. The expenditure of the total amount of the consumers' money in the country will not be increased, and any assumption of benefits predicated on that is false.

Mr. WELCH. May I say something off the record.

(Discussion off the record.)

Mr. ENGLE. I now refer to page 4 of the statement of the Bureau of the Budget, their letter of February 4, 1949, adversely reporting on this project, where it is stated and I quote:

> The State of Nevada, in commenting on the economic justification of the project—

By the way, I think the record should show that Nevada is opposed to this project also; California is not alone—

> computes the net irrigation construction costs on the acreage which will be salvaged by the project at $1,469 per acre and questions the justification of such costs in the face of an estimated farm land value with irrigation of $300 per acre.

Do you have any comment to make on that?

Mr. LARSON. Yes; the costs on the basis of the per-acre figure, as I would see it, would be $625.

Mr. ENGLE. How do you arrive at that?

Mr. LARSON. $399,000,000 is allocated to irrigation to furnish supplemental water. That supplemental water will benefit 640,000 acres; not 226,000 but 640,000 because all of the area within the project boundary requires supplemental water.

Mr. ENGLE. Tell me this: How many acres will go out of production if this project is not built?

Mr. LARSON. How would it be possible to take land out of production in that sense? They have been pumping at least double the recharge. In fact, at the present time, they are pumping about three times the recharge to the ground-water basin. The ground-water basin is being depleted and it is a case of survival of the fittest. I do not know how you could actually go in and take out a certain area of the land.

Mr. ENGLE. Let us just assume that this project is not built. How many acres will go out of production which are now in production?

Mr. LARSON. There will be continual competition for water as long as it is available, which means that they will greatly deplete their ground-water supply, so that when land does go out of production

there will be considerably more than the 226,000. Until the groundwater has a chance to come back up again, large areas would remain out of production and that would be a rather long period of time.

Mr. ENGLE. I think the way to arrive at the net land benefited is to say how much land which is now susceptible to irrigation will not be irrigated if the project is not built. That brings us right to the real crux of the question. My information is that about 150,000 acres would go out of production if this project is not built. Is that a fair estimate?

Mr. LARSON. Some land is not in production now because of water shortage.

Mr. ENGLE. How many acres will get a full supply?

Mr. LARSON. Six hundred and forty thousand.

Mr. ENGLE. That is, including the land which will get a supplemental supply, is it not?

Mr. LARSON. All the water would be required for supplemental needs.

Mr. ENGLE. You mean to say there is no land which is not now being irrigated which will be irrigated if this project goes through?

Mr. LARSON. All of the land that would be furnished water has been farmed and irrigated at one time.

Mr. ENGLE. I agree with that. How much of that land will be abandoned if this project does not go through?

Mr. LARSON. In my opinion, at least one-third of it would eventually go out of production.

Mr. ENGLE. That would be about 200,000 acres, then?

Mr. LARSON. About 230,000 on that basis.

Mr. ENGLE. How much is that per acre on the capital investment of this project?

Mr. LARSON. There, again, the loss to the area would be considerably greater than the cost of that land. For example, the land that would go out of production would supply the source of income for the livelihood of many beyond the farm.

Mr. ENGLE. Just to take an easy figure, if there are 300,000 acres which will go out, you will have $1,345, approximately, in capital investment on this project per acre, is that about right?

Mr. ASPINALL. Mr. Chairman, will the gentleman from California yield for a moment?

Mr. ENGLE. Yes.

Mr. ASPINALL. Are you assuming full production on the balance? Your question, without that assumption is open to question.

Mr. ENGLE. I am just taking the witness' statement that one-third would go out of production. I think, probably, the witness will say there will be some of the remaining two-thirds which would not have full water, is that not correct?

Mr. LARSON. On that hypothetical condition that is correct.

Mr. ENGLE. Does that answer your question?

Mr. ASPINALL. Yes.

Mr. ENGLE. This is just an approximation.

How many acres will make a family-sized farm?

Mr. LARSON. One hundred and sixty acres.

Mr. ENGLE. One hundred and sixty?

Mr. LARSON. That is the limit under the reclamation law.

Mr. ENGLE. You do not need that much, do you? If you considered it 100 acres you would have $134,500 in capital investment out of this project on every family-sized farm. That is a lot of money.

Mr. LARSON. Continue on from there. Agriculture in the area is the basic support of their economy. So, for example, when you wipe out one-third of the irrigated land what about the one-third of their general economy? The grocery man, the banker, the fellow who sells gasoline, and so forth; all of those people are depending upon the economy of that area. If you wiped out one-third of the irrigated land you certainly affect the economy beyond that of the farmers.

Mr. ENGLE. I would certainly agree with you on that, but the point I am making is that if for every 100-acre farm you have in that area the Federal Government has to put in the sum of $134,500 in capital outlay, to get water on that land, you have spent a lot of money, have you not?

What I am driving at is this: Is Nevada correct, or at least approximately correct, in its assumption, mentioned by the Bureau of the Budget in its letter on this project?

Mr. LARSON. No. When they look to the cost of the project per acre, I do not think it is correct because it is a supplemental water supply and it affects the entire acreage, not any hypothetical portion of it.

Mr. ENGLE. If it is even approximately correct, it is a staggering figure, it seems to me.

Mr. POULSON. Will my colleague yield?

Mr. ENGLE. Yes.

Mr. POULSON. It looks like the water they are using to prime the pump is as much or more than the water they are getting from the pump.

Mr. ENGLE. It is not quite that, Mr. Poulson, but it means that the Federal Government is putting up a huge amount of money in capital investment to keep lands in irrigation.

Mr. POULSON. Yes.

Mr. ENGLE. There is one other question I have and then I will quit. I have taken longer than I intended to.

On page 38 of your statement you say:

> Under provisions of the bill now under consideration the project would pay out.

Is that right?

Mr. LARSON. That is right.

Mr. ENGLE. I am reading from page 2 of the bill, line 12, which states as follows:

> (2) A related system of main conduits and canals, including a tunnel and main canal from the reservoir above the dam at Bridge Canyon to the Salt River above Granite Reef Dam—

This is part of the authorization in this bill. Does that relate to the 79½-mile tunnel from Bridge Canyon?

Mr. LARSON. That has reference to the Bridge Canyon tunnel.

Mr. ENGLE. That is the bill we have under consideration, is it not, Mr. Chairman, H. R. 934?

Mr. MURDOCK. That is right.

Mr. LARSON. Read on further and it says that would be deferred until such time as the value of the power used in pumping would justify constructing the tunnel.

Mr. ENGLE. The point I am getting at is that this bill authorizes the canal and transfers then from this committee to the Appropriations Committee the determination of feasibility; is that not right?

If we pass this bill in this form, it takes out of the hands of this committee the right to determine economic feasibility, does it not?

Mr. LARSON. I do not know. I would not attempt to answer that question.

Mr. ENGLE. The Bureau of Reclamation filed a report which is, as I figure it, about 8 pounds of material, but in looking over your figures I find they are different from those figures submitted by that report. Every figure in the list has been changed.

I refer you to the back part of your statement, which is one of the exhibits here, the allocation of costs which I believe is A–5. It is my impression that every figure submitted in your table, except the first and the last is different from the figures submitted by the Bureau of Reclamation in its report on this project.

For instance, I have noticed that on recreation nonreimbursables, which I have mentioned before, you give $32,943,000, whereas Mr. Straus in his report puts that at $37,000,000. Other figures also vary. Is that correct?

Mr. LARSON. The reason for that is in the repayment provisions of the various cases cited. For example, as you pointed out in the report under the reclamation law, we used a repayment period of 50 years. Under the Rockwell bill or a combination of the Rockwell bill and S. 1175 it was a 78-year period. Under S. 1175 it was a 78-year period. Under the figures I have included in my statement yesterday it is a 70-year repayment period. That would account for a difference in those allocations of cost, because you are repaying the cost in a different period of time.

Mr. ENGLE. I agree with you that your figures are different. The point I want to make is that the figures submitted here have never been formally reported on with substantiating data, is that not correct?

In other words, your report which you read yesterday, Mr. Larson, is wholly at variance in its break-down with the figures in the report, and the substantiating data which has been submitted by the Bureau of Reclamation. Therefore, this committee and the interested States have never had an opportunity to examine those figures and the substantiating data in the same fashion as they had with the submission of this report, is that not correct?

Mr. LARSON. Congressman, you speak as though the figures I have used here are entirely different. The figures in that report are exactly the same as we used in this, with the exception of the effects upon the repayment provisions which are slightly modified in this bill which we are called to report upon.

Now, for example, if we were called on to report on S. 1175, or repayment provisions exactly the same as S. 1175 they would be contained in there. The repayment provisions of this bill are slightly different from any previous bill.

Naturally, we had to make some changes and figure out the repayment ability on the provisions of this bill which we are called to report upon.

Mr. ENGLE. I am not criticizing you for it. You were perfectly justified in making a report on the bill on which you were asked to

report. The point I am making is that the other parties have not had an opportunity to examine those figures and the report predicated upon those figures has not been circulated to the State authorities, as required by the Flood Control Act of 1944.

Mr. LARSON. You will find this, Congressman, if you compare the figures in that report in accordance with the repayment provisions of S. 1175: They will be very close to the ones we have with this exception, that the repayment period is 78 years, and the power would sell for 4.48 mills instead of 4.65 mills.

Mr. ENGLE. I am not going to question that at all. The point I am making, which I think is true, is that the figures you have submitted have never been submitted with substantiating data such as is contained in this 8-pound report.

Mr. LARSON. That is correct.

Mr. ENGLE. That is all, Mr. Chairman.

Mr. MURDOCK. We have asked permission to bring up under unanimous consent an important bill today which needs to be passed today or sometime this week, so that we may get it enacted before May 1. I would like for the committee to adjourn perhaps 10 minutes before 12, so that we may go over to the House on time and back this bill up. It is H. R. 4152, and it is highly important that we get the bill which this committee reported out unanimously enacted, if possible.

Mr. WELCH. That is the so-called omnibus bill?

Mr. MURDOCK. That is right.

Mr. ENGLE. Off the record.

(Discussion off the record.)

Mr. MURDOCK. The Chair wishes to recognize all gentlemen in order. We are not going to have time to go very much into this from now on this morning. You will be available tomorrow morning for questioning, will you not, Mr. Larson?

Mr. LARSON. That is right.

Mr. MURDOCK. The Chair would like to ask Congressman Engle a question, since our time is so short, but before doing so, wishes to state that Congressman Engle has now taken 1 hour and 20 minutes, and quite properly so, if such is his viewpoint, to show that the report which we received yesterday from the Department is not a very good report. I felt, myself, that it was a good report.

Numerous authorities have been quoted. One of the highest authorities of which I have any knowledge says this: "Where there is no vision the people perish." I should like to enter that as one of the authorities in our planning here.

A good deal has been said just recently in the colloquy regarding the cost per acre. The total report, as given by Mr. Larson's testimony shows that the entire State of Arizona, with portions of two neighboring States, will be beneficially affected by this program.

There are 73 million acres of land in the State of Arizona, and you might just as well divide the total cost of this water project by 73 million, as by the smaller divisor which was used in the testimony a moment ago.

I want this larger benefit to be pointed out with reference to the fact that "where there is no vision the people perish." If we have no vision of the 17 Western States we are going to be in hard circumstances, beginning immediately and throughout the coming years.

I noticed when we had H. R. 1770 before our committee, Congressman Welch very emphatically brought out this fact, and that is that if we do not use the interest component, if we do not use hydroelectric power as a paying partner, some irrigation cannot be had. I want to read just a statement by Congressman Welch:

May I ask the Commissioner if this power aid to irrigation were removed from legislation and irrigators in the Central Valley of California were required to pay directly the full amount of the capital invested allocated to irrigation, is it not a fact that they would have to pay approximately 3 times as much for water?

The Commissioner said they would have to pay about 3 times as much if they were able and he went ahead to explain that under those conditions there would be less irrigation in the Central Valley of California and elsewhere.

Did I understand, Mr. Larson, from your testimony, that the computed subsidy of power in the central Arizona project is less than some other projects?

Mr. LARSON. It is less than some of the projects.

Mr. MURDOCK. Can you state what other projects?

Mr. LARSON. Well, in the Missouri Basin it is 2.47 mills, as compared to 0.72 mill in the central Arizona project. Or, in the Colorado Big Thompson, it is 0.89 mills.

Mr. MURDOCK. The question I wanted to ask Mr. Engle—I will not take quite that much time to ask it—is this: Congressman Engle, there were two things. You were inclined to ask whether they had not exceeded their authority when they went ahead and spent $200,000 to investigate this project under which there is, in your mind, a shadow of legal doubt.

Mr. Larson, I wanted to ask you, has the Department, to your knowledge, the Bureau of Reclamation, been asked by the city of San Diego, to make any studies for further development of its water supply?

Mr. LARSON. Yes, the Bureau of Reclamation has been asked to investigate the second barrel of the San Diego aqueduct in which there is also a questionable water supply.

Mr. POULSON. Would the gentleman yield at that point?

In building that main aqueduct which went over there from the metropolitan aqueduct, the State of California paid for it, did they not, the main aqueduct? The Government did not pay for it.

Mr. MURDOCK. We are not talking about the main aqueduct to Los Angeles.

Mr. POULSON. I am just bringing it in at this point, about the difference between the two projects, if you are going to make a comparison.

Mr. MURDOCK. I am making no comparison at this time of the costs of aqueducts. The point I want to make is that the city of San Diego has asked the Bureau to make this investigation of it. Therefore, the same criticism applies. I do not criticize it.

Mr. POULSON. I am not questioning any investigation, but I want to bring up at this point that when we have an aqueduct over in California that we paid for our aqueduct.

Mr. MURDOCK. We are going to hear a lot more about that aqueduct. I take off my hat to the people of Los Angeles, who paid upward of $200,000,000 for such an aqueduct. I have nothing to criticize on the engineering phase of it.

The only thing I say now with regard to that magnificent aqueduct is that that is being put up as a front to fight my bill when it has no relationship, no important direct relationship to the bill before us. I shall certainly expose these questionable ethics later.

The point I want to make is that I think Congressman Engle went out of his way a little too much, yesterday, by stating that the Department had no business spending $200,000 of the taxpayers' money to carry on this investigation of the Central Arizona project. We know very well, according to that 8-pound report which you have there, the Bureau took into consideration every possible project that might be had in the Colorado Basin, and there are 134 of them. It takes no genius to figure out that more than half of those can never be realized. But we do not economize by failing to investigate a probable worthy one.

This great Department, with vision in reshaping the 17 Western States, has to consider every possibility, and we have to spend some money. Congress has been appropriating annually $500,000 to carry on these investigations, some of them in the lower basin, and right now most of them in the upper basin, but the investigations have to be carried on.

I wanted that point clearly made for the record.

Mr. ENGLE. Would the gentleman yield?

Mr. MURDOCK. Yes; I would be glad to.

Mr. ENGLE. I did not question the legal authority of the Bureau to spend the money. I questioned the good judgment of spending the money. I questioned, also, the propriety, as I did in the beginning of this proceeding, of taking time and spending money in the consideration of a project for which there is no assured water supply.

In other words, my point is, Mr. Chairman, that so long as there is a legal question about the water supply that should be determined first. I have always felt that, and I have felt if it were determined it would immensely lighten the burden on Arizona, so far as this project is concerned, if Arizona happens to be successful in the litigation. I said this yesterday with respect to the expenditure of $200,000, plus $200,000 put up by Arizona.

If it develops, after this case goes to court that Arizona is in error in its contentions, or any of them, the money will be wholly wasted. It, to me, is comparable to undertaking an engineering survey on the building of a $738,000,000 skyscraper on a lot on which there is a legal controversy as to the title. The thing to do is to settle the controversy as to the title first.

Mr. MURDOCK. Did the gentleman take that same stand in 1927 and 1928 before the passage of the Boulder Canyon Project Act?

Mr. ENGLE. We agreed on the Boulder Canyon Project Act, in order to get a concurrence.

Mr. MURDOCK. The Supreme Court did not declare California's portion. There was no settlement by court prior to the passage of the Boulder Canyon Project Act. Congress did it.

Mr. ENGLE. But we came to Congress and got an authorization, and agreed to the Self-Limitation Act. We passed the Self-Limitation Act. In other words, we accepted the imposition of terms prescribed by the National Congress in that Self-Limitation Act.

Mr. MURDOCK. Just exactly what H. R. 934 is attempting to do, to

get an authorization act. There was a lawsuit after the act of 1928 was passed, and the act was upheld. Let us have an authorization act, and then you can get before the Supreme Court. Now you have no justiciable issue. Only delay, tragic to Arizona, would result.

Of course, we will fight this out also in another committee.

Mr. ENGLE. The question is which came first, the hen or the egg.

Mr. MILES. Let me say something off the record.

Mr. MURDOCK. Put it on the record. We want to hear you, Governor.

Mr. MILES. There is a great deal of interest here by all concerned. Let us bear with each other and one another very patiently and very calmly and very sincerely. I can realize that there is a great deal of interest here, and sometimes one word may cause an eruption which would not be to the interest of all of us. Let us do bear that in mind.

Mr. MURDOCK. You are a very wise man, Governor.

Chairman Welch, have you any questions to ask?

Mr. WELCH. No questions.

Mr. MURDOCK. Congressman Poulson?

Mr. POULSON. I have a lot of questions. I would prefer to start tomorrow.

Mr. MURDOCK. Perhaps you had better start tomorrow, then.

With that understanding the committee will be adjourned until 10 o'clock tomorrow morning.

(Thereupon, at 11:42 a. m., Thursday, April 28, 1949, an adjournment was taken until 10 a. m., Friday, April 29, 1949.)

THE CENTRAL ARIZONA PROJECT

THURSDAY, MAY 5, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 9:30 a. m., in the anteroom of the Committee Room of the House Committee on Public Lands, the Honorable John R. Murdock (chairman of the subcommittee), presiding.

Mr. MURDOCK. The subcommittee will come to order, please.

At the last session of the subcommittee considering H. R. 934 we had a representative of the Bureau of Reclamation on the stand, Mr. Larson, who had made his statement and who was being questioned by members of the committee.

Mr. Larson, will you take the stand, please. I was hoping that we could raise our questions with Mr. Larson, so that he can get away. He is from out West, and he has official duties that are being neglected by his attendance at these sessions. Both are quite important.

STATEMENT OF V. E. LARSON, ASSISTANT REGIONAL PLANNING ENGINEER FOR REGION III, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR—Resumed

Mr. LARSON. Mr. Chairman, with your permission I have some charts prepared that I think would be of some interest.

I believe possibly some of the Members would like to see those. They have been prepared in connection with the questions that came up at the last hearing in regard to the base period used in determining the value of the farm crops in relation to the present value, and the indexes we used in determining construction costs of this project.

As was stated the other day, we use a base period of 1939–44 in estimating the value of the farm products.

As shown on this chart, it is considerably below the present value or the value of recent years. For example, the heavy line shown as the 1939–44 farm product average is far below the indexes we used in determining the construction costs.

Mr. MURDOCK. The question raised, I believe, at the last session was this: Have you not erred in using those figures? Your answer here is that there has been an upward trend which may be expected to remain, not as high as it is now, but high during the immediate future; is that correct?

Mr. LARSON. It appears very probable that the future value of farm products would be above the 1939–44 base period that we had used. In other words, it seems that we have been ultraconservative in using the base period we have used.

Mr. MURDOCK. Some question was raised the other day about the use of the gross farm receipts or farm returns. What other method could be used, if any?

Mr. LARSON. We are now working on a method to determine the net benefits resulting from the growing and sale of farm products. Although that method has not been perfected as yet, by applying that method to some of the smaller projects it has indicated the net benefit will exceed the gross crop income. So there, again, it appears that by using the gross crop income as a measure of benefits the net benefit would probably exceed that figure.

Mr. MURDOCK. While I have many questions, our time is going to be limited this morning.

We adjourned the other day with the understanding that Mr. Poulson would have the privilege of asking questions first.

Mr. D'EWART. Would you yield to me to ask one question?

Mr. POULSON. Yes.

Mr. D'EWART. To me this chart indicates that your engineering people have not been as effective in applying efficient operations to their method since 1920 as the farm operations. Perhaps you need a little more study of efficiency methods in engineering work.

Mr. LARSON. I do not think it is in the engineering. The basis of this trend is pretty much determined by the cost of construction. It is influenced by the prices bid by contractors to construct the works.

Mr. D'EWART. That depends on their efficiency in operation?

Mr. LARSON. That is right.

Mr. D'EWART. Including overhead. This graph certainly indicates that the farmers have been doing a better job along that line than the engineers.

Mr. LEMKE. That is perfectly natural. Will you yield for a question?

Mr. POULSON. Yes.

Mr. LEMKE. Your testimony is with regard to the Bridge Canyon project? I was not here the last time. What is this testimony on?

Mr. LARSON. The question came up in regard to the base period we used in determining the gross crop income on this particular project.

Mr. LEMKE. That is the Bridge Canyon project?

Mr. LARSON. That is right. The Central Arizona project.

Mr. LEMKE. Can you tell me about what the charges will be per acre? I am asking that because I have a lot of letters on the subject. Some claim it will be as high as $1.700, and others claim otherwise. Can you tell me roughly what it will be?

Mr. LARSON. By dividing the costs allocated to the irrigation by the number of acres that would be supplied supplemental water supply it would amount to $625 an acre.

Mr. LEMKE. Thank you. That is all.

Mr. POULSON. Mr. Chairman, I have the time at 12 minutes until 10. Do we meet at 10 o'clock?

Mr. MURDOCK. We meet at 10:45 with the full committee.

Mr. POULSON. When do we quit in this committee?

Mr. MURDOCK. Ten forty-five. We go into a full committee session at 10:45.

Mr. POULSON. I see.

Now, Mr. Larson, in your report, in the opening of the report, you bring out in several places and also summarize in your conclusions the statement and the fact that this entire report of yours is predicated

on the basis that Arizona's contentions of the amount of water they are entitled to is correct; is that right?

Mr. LARSON. That is correct.

Mr. POULSON. In other words, if their contentions are not correct this report would not be of great value; is that right? That is, so far as putting in the project is concerned.

Mr. LARSON. Well, it may be to some extent. However, I think the report would probably be of some value.

Mr. POULSON. I mean, as far as a real basis for authorizing the project is concerned.

Mr. LARSON. That may be true. However, we must remember that several features are included in this report that could be constructed, regardless of the outcome of the question over the water rights.

Mr. POULSON. You have not set up any separate bill to set out those particular portions of the project which could be utilized regardless, if the water rights are not taken into consideration, have you?

Mr. LARSON. They have not been set out in this report. However, on the basis that there was a difference in the interpretation of water rights the information available at this time could be used in considering other alternatives.

Mr. POULSON. I might just call to your attention the report which was issued by the Department, page R–23, and repeat again what it says here:

> Because these are legal questions which cannot be arbitrarily settled by the Bureau of Reclamation, it is impossible to determine with finality the amount of water available to the State of Arizona from the Colorado River. The interpretations of all compacts and contracts as used for a basis of computation in this report are those of responsible officials of the State of Arizona. The interpretations thus expressed are not necessarily those of the Bureau of Reclamation or of all other States of the Colorado River Basin.

It is clear when we start out that this is entirely upon the contention that Arizona is correct.

Now, in your report, under the 1944 Flood Control Act, you are to submit to the States various reports. This is the report that was submitted?

Mr. LARSON. That is correct.

Mr. POULSON. The report which you have submitted does not, in its entirety, conform with the report issued by the Secretary of the Interior. You have taken other phases in there and have brought up different points, have you not? You have a different report.

Mr. LARSON. I do not quite understand.

Mr. POULSON. This one is different?

Mr. LARSON. You mean my statement?

Mr. POULSON. Your statement.

Mr. LARSON. The difference is very minor, Congressman Poulson.

Mr. POULSON. For instance, we will go into some of the minor parts.

Mr. LARSON. All right.

Mr. POULSON. Does your report cover, in its entirety, this bill which you are supposed to report on, and which you are asking Congress to pass?

Mr. LARSON. I do not believe the flood control bill actually requires that our report must conform with any particular bill. We are supposed to report on the project, and we have done that.

Mr. POULSON. Does your report conform with this bill in its entirety?

Mr. LARSON. Not entirely, but almost so.

Mr. POULSON. Almost so. Can you tell me where it includes this tunnel on page 2:

Including a tunnel and main canal from the reservoir above the dam at Bridge Canyon to the Salt River above Granite Reef Dam—

Can you tell me where it shows the cost, and where it complies there?

Mr. LARSON. We have shown that in a previous report.

Mr. POULSON. I am speaking about the report that you are appearing before the committee with, and asking us to pass this bill on the basis of your report. Can you show me in your report where that appears?

Mr. LARSON. Other than——

Mr. POULSON. You have set up your figures there showing that they are going to have a return for every dollar we put in of about $1.50. That is based almost entirely on the high prices of today. That is not a good venture, but that is the basis. You have your costs.

Can you tell me how much that Granite Reef Dam will cost?

Mr. LARSON. The Granite Reef Dam?

Mr. POULSON. Yes.

Mr. LARSON. That is here.

Mr. POULSON. I mean the canal, rather.

Mr. LARSON. The Granite Reef aqueduct is $131,716,000.

Mr. POULSON. That is included in there?

Mr. LARSON. Yes, sir.

Mr. POULSON. What about the tunnel?

Mr. LARSON. In the report we indicate that various routes were considered, naming each route, and that we have selected the pumping route as the most feasible.

Mr. POULSON. But you have asked for authority to be authorized a tunnel and a main canal?

Mr. LARSON. If you read down through here, construction of the tunnel is deferred until such time as it would be economically justified.

Mr. POULSON. But you have asked for us to authorize it at this time.

Mr. LARSON. No; I have not.

Mr. POULSON. The bill does.

Mr. LARSON. Probably the bill does.

Mr. POULSON. Your report is not carrying this. In other words, to say it bluntly, you are fooling us. You are not giving us the true picture. You are coming in here to testify on this bill, as well as on the report. You are not including all of the things which you are asking us to authorize.

Mr. LARSON. Excuse me. I missed your question, Congressman.

Mr. POULSON. Well, I said that, bluntly, you are not giving us a true picture. You are really, to speak very bluntly, fooling Congress because you are coming in and talking about subjects that are not in this bill, or, there are subjects in the bill which you are not discussing.

You are asking us to authorize other things. For instance, complete plants, transmission lines, and the fullest economic development of the electric energy. You have a term so wide you allow yourselves to do everything, but you have not discussed these item by item in your report.

We are listening to you as an authority in interpreting what is in this bill. Now you say that your report does not include everything.

As an authority representing the Department, we are looking to you for the honest information about this.

Mr. LARSON. I think our report has shown everything, Congressman. This is not the only report that has been made available in connection with this project.

Mr. POULSON. Why not combine it in one report? You will always come back afterward and say, "It is in another report." You are up here testifying on the project in the bill. You are up here in support of this bill before the committee at this time. In your report should you not have everything that is included in this bill?

Mr. LARSON. I am here to report upon the bill. If there are any questions that you may have in connection with the engineering part of this project I will be glad to try to answer them.

Mr. POULSON. For this authorization of this tunnel, how much is it going to cost?

Mr. LARSON. About $400,000,000.

Mr. POULSON. $400,000,000 in addition to the $800,000,000 you have shown here?

Mr. LARSON. The cost of the tunnel is about $400,000,000.

Mr. POULSON. You are asking us to give you authorization to put that in?

Mr. LARSON. Construction of the tunnel is to be deferred.

Mr. POULSON. But you are still asking for authorization for it?

Mr. LARSON. I am not asking for authorization for it.

Mr. POULSON. The bill is asking for authorization for it.

Mr. LARSON. I am reporting on the engineering aspects.

Mr. POULSON. The bill asks for authorization, does it not?

Mr. LARSON. It asks for authorization and to defer construction until such time as it is economically feasible.

Mr. POULSON. Yes; but it asks authorization.

Mr. LARSON. Let me finish my statement, please.

Mr. POULSON. We are giving you the authorization for it if we pass this bill.

Mr. MURDOCK. Please finish your statement, Mr. Larson, and give the reference to the bill, please.

Mr. LARSON. I beg your pardon?

Mr. MURDOCK. You will find at page 3, beginning with line 20, the reference. Complete your answer and cite the bill at this point to confirm it, if you please.

Mr. LARSON. On line 20:

Provided, however, That construction of the tunnel and that portion of the canal hereinabove described from the reservoir above the dam at Bridge Canyon to a junction with the aqueduct hereinafter authorized shall be deferred until Congress by making appropriation expressly therefor has determined that economic conditions justify its construction, and in order to provide a means of diversion of water from the Colorado River to the main canal pending the construction of said tunnel and said portion of the canal and for use thereafter as supplemental and stand-by works the Secretary is authorized to construct, maintain, and operate from appropriations authorized by this act—

the Havasu plant, and so forth.

Mr. POULSON. It says here—

hereinafter authorized shall be deferred until Congress by making appropriation.

In other words, you are bypassing this committee. We are giving you a blanket authorization, and when you go before the Appropria-

tions Committee the Appropriations Committee is going to decide the feasibility and the economic feasibility.

Mr. D'EWART. Will you yield?

Mr. POULSON. Yes.

Mr. D'EWART. I wonder if such procedure would not be subject to a point of order?

Mr. POULSON. You have brought up a very good point. I think it would.

However, the point I am bringing out, also, Mr. D'Ewart, is the fact that in this bill there are all these blanket authorizations which would absolutely build up the equal to or probably more power than even an authority.

You put in all of these additional authorizations and generalize them without being specific in any way, shape, or form.

How much would this pump lift cost at Lake Havasu? I believe it is about $26,000,000, is it not?

Mr. LARSON. The pumping plant?

Mr. POULSON. Yes.

Mr. LARSON. A little over $25,000,000.

Mr. POULSON. $25,973,000?

Mr. LARSON. That is right.

Mr. POULSON. That is closer to $26,000,000 than a little over $25,000,000, I think.

That would have to be abandoned after you built the canal, would it not?

Mr. LARSON. That is correct.

Mr. POULSON. How much land in this project was under irrigation in 1939?

Mr. LARSON. I do not have the figures for 1939. I can give you 1940 and from then on. In 1940 it was 526,000 acres.

Mr. POULSON. How much in 1945?

Mr. LARSON. 588,000 acres.

Mr. POULSON. 42,000 acres of war-speculation land you want to reclaim, also; is that not right?

Mr. LARSON. No; that is not correct.

Mr. POULSON. According to the report, it says that about 4,000 farms would benefit from the additional water. Is that about right?

Mr. LARSON. During the period previous to 1940 a maximum of 672,000 acres had been irrigated. Some of this land—in fact, a large portion of it—has been out of production because of lack of water, because of lack of power to pump water, and similar reasons.

Mr. POULSON. With reference to these 4,000 farms, is that about the correct amount?

Mr. LARSON. In this particular area that is included within the boundaries of the central Arizona project between the period of 1940 and 1948 there has been an increase in acreage of about 40,000 acres.

Mr. POULSON. Let me get that again.

Mr. LARSON. In the area outlined by the central Arizona project, within that area, there has been approximately a 40,000-acre increase.

Mr. POULSON. Yes. You gave me the figure of 588,000 and 526,000. The difference is 62,000.

Mr. LARSON. Both figures you used there, Congressman——

Mr. POULSON. You gave me 526,000 and then 588,000.

Mr. LARSON. In other words, in 1940 that is one of the lowest run-off periods on record. There was a bad water shortage there at that time.

Mr. POULSON. That still makes 62,000.

Mr. LARSON. But I would not class it as war speculation acreage.

Mr. POULSON. That is when these acres went into operation, though, is it not?

Mr. LARSON. During the war.

Mr. POULSON. You can put your own interpretation on it. About how many farms are there?

Mr. LARSON. I beg your pardon?

Mr. POULSON. Have you the number of farms?

Mr. LARSON. No; I do not have that figure with me.

Mr. POULSON. Are there large holdings in some of these farms?

Mr. LARSON. There are in some.

Mr. POULSON. I saw somewhere in here a statement that said around 4,000 farms were going to be benefited. At that rate, with the project costing about $400,000,000, that would make a cost of $100,000 per farm. That does not look to be in line.

Now, one-third of this power is to be used for the cost. That is, one-third of it is to be used to pay for part of the project. You say that it takes 70 years to pay it out on that basis; is that right?

Mr. LARSON. It requires 70 years to pay out on the basis of selling power at 4.65 mills per kilowatt hour.

Mr. POULSON. What is the market price?

Mr. LARSON. If power is sold for a higher rate it could, naturally, pay out in a much shorter period of time.

Mr. POULSON. What is the market price there now?

Mr. LARSON. For power?

Mr. POULSON. Yes.

Mr. LARSON. On the basis of oil——

Mr. POULSON. What are you paying for it now? What is the market price?

Mr. LARSON. That varies.

For example, some of the new plants which are now being built and are purchasing oil at $2.25 a barrel, if they are paying 5 percent interest on that investment their power will cost 8.74 mills.

If they pay 4 percent on their investment it would cost 8.52 mills.

If it is 3 percent on the investment it would be 8.29 mills.

At a rate of 2 percent on the investment, it will be 8.1 mills.

Now, if they are able to purchase oil at $1.75 per barrel and pay 5 percent on their investment, the power would cost 7.76 mills.

Mr. D'EWART. Might I ask: Whom do you mean by "they"? Is that the private utilities around Phoenix?

Mr. LARSON. It is the utilities in the Southwest area.

In other words, if they pay 5 percent interest on their investment and $1.75 per barrel for oil it would cost them 7.76 mills per kilowatt-hour for power.

Mr. D'EWART. Do they have a sliding-scale rate, depending on all these factors?

Mr. LARSON. That is the average rate for firm energy.

Mr. D'EWART. Yes.

Mr. LARSON. If they pay 4 percent on the investment it would be 7.54 mills.

If they pay 3 percent on the investment it would be 7.3 mills.

If they pay 2 percent on the investment it would be 7.12 mills.

Mr. WELCH. How many plants are generating power through the use of oil?

Mr. LARSON. How many?

Mr. WELCH. Yes.

Mr. LARSON. As I recall it, about 58 percent of the electrical energy made available to the Southwest area is produced by fuel-burning plants. I do not know, but I would be of the opinion that probably 75 percent of the fuel-burning plants use oil.

Mr. WELCH. In what particular section of the country?

Mr. LARSON. In the Southwest. That is southern California, all of Arizona, and the southern tip of Nevada.

Mr. WELCH. Have you any idea how many barrels of oil are being used in the generation or development of electric energy?

Mr. LARSON. Offhand I do not have that figure, Congressman.

Mr. WELCH. I was wondering what is going to happen when our oil supply is exhausted.

According to the best figures available California's oil supply, at the rate we are using it, will not last 10 years.

Mr. POULSON. I think some of the fields change later.

I just want to say now, Mr. Welch, that I am not opposing the power project of this to be used for the power for the people in Arizona and California and other places. The main thing that I am objecting to is that they are taking water from the river, using it for irrigation, which is water which we claim belongs to California in great portion. Naturally, they admit throughout their reports and contentions that there is a dispute. It is a dispute that cannot be settled by the Department or by the Bureau of Reclamation.

I agree with you that there is a power shortage throughout the country, and we should be utilizing that power.

However, because of that necessity, because there is a shortage, one which we will all admit and which we all realize, and we know we should utilize all the power we have because we are going to use our oil up and all these things, because of that Arizona is attempting to take advantage of the crucial situation and wants to put over that project which everybody is in accord with but, at the same time, to take this water out of the river and irrigate this land, these 4,000 acres over in Arizona.

Of course, that means that that becomes the big bone of contention.

When you come to this other subject here, it takes one-third of the power, Mr. Welch, one-third of the power that is developed in that project to just pump the water and take it over there and deliver it. There is one-third of the power. If you put a price on that, how much would it amount to?

Mr. MURDOCK. Just one moment before that is answered. I would like to ask Mr. Poulson a question.

You are in favor of the building of the Bridge Canyon Dam and other dams to produce power, then, as power dams?

Mr. POULSON. I am in favor of utilizing the power of that great Colorado River.

Mr. MURDOCK. Of course, there will be other sites and other dams to be built, also. You make it clear for the record, then, that the Southwest needs the power, and to save our fuel, as Mr. Welch indicates, we ought to build these dams; so that you are unqualifiedly in favor of building the Bridge Canyon Dam?

Mr. POULSON. I said I am in favor of building hydroelectric dams on the great Colorado River. Now, I am not going to allow you, Mr. Chairman, to put me down on any one particular spot, any one

particular site, which you will attempt to use to say that I am for the Central Arizona project.

Mr. MURDOCK. I did not ask you that.

Mr. POULSON. I am for the full development of all of the sources of development of the hydroelectric power on the Columbia River and the Colorado River and all places. We have to conserve our natural resources. I am for that.

Mr. MURDOCK. We are speaking now about the Colorado River. You are in favor of building dams and producing hydroelectric power along the Colorado River?

Mr. POULSON. Yes.

Mr. MURDOCK. Which would, of course, include the Bridge Canyon Dam.

Mr. WELCH. May I ask a question, Mr. Chairman?

Mr. MURDOCK. Yes, Mr. Welch. However, Mr. Poulson has the floor.

Mr. WELCH. Will you yield to me, Mr. Poulson?

Mr. POULSON. Surely.

Mr. WELCH. Of course, hydroelectric power is very important to our national security and our peacetime economy.

Mr. Larson, are you in a position to tell the committee what the potential hydroelectric power possibilites are in that section of the Southwest described by you?

Mr. LARSON. In general I can, as far as the Colorado River is concerned.

Mr. WELCH. Do you have to confine it to the Colorado River?

Mr. LARSON. I am not familiar with all the other possibilities. However, I can say that the other hydro potentialities are rather minor. In that connection, the estimated firm output at Bridge Canyon is approximately 4½ billion kilowatt-hours. At Glen Canyon it would be about the same. At Marble Canyon, Kanab Creek development, the output would be approximately 7,000,000,000 kilowatt-hours.

Mr. WELCH. That is hydroelectric power?

Mr. LARSON. That is hydroelectric on the main Colorado River that could be marketed in the lower basin.

Mr. WELCH. If the potential power development in that section of the country were brought to its maximum use, how much oil would be saved as a result?

Mr. LARSON. Possibly 32,000,000 barrels, annually.

Mr. WELCH. 32,000,000 barrels, annually?

Mr. LARSON. Yes, sir.

Mr. POULSON. Mr. Welch, I am very, very happy that you brought that question up.

Will you yield to me at this time?

Mr. WELCH. I did not bring the question up except to bring out the imperative necessity of conservation of the Nation's natural resources.

Mr. POULSON. I think that is a very, very potent question and a very important one.

Mr. WELCH. I brought the question up with regard to oil.

Mr. POULSON. It is a good question.

Mr. WELCH. I wanted to develop the fact that every barrel of oil taken from the earth is gone forever, whereas hydroelectric power will last forever, or as long as the streams flow, the rains fall, and the snows melt.

Mr. MURDOCK. I am glad to hear you state that again and again. We understand and appreciate your attitude, and I agree with it absolutely. I think many others do on the committee, but you cannot overemphasize it, Mr. Welch.

Mr. POULSON. Now, if I have the floor I would like to finish my questions.

On this basis that we are operating now, two-thirds of the power, approximately, is paying for the project, is that right, in round terms?

Mr. LARSON. I would say it is assisting to pay for it. You also collect from the irrigators.

Mr. POULSON. All right. That would be about how many millions?

Mr. LARSON. That you collect from the sale of power?

Mr. POULSON. Over the 70-year period?

Mr. LARSON. Annually, or over the period?

Mr. POULSON. Over the period.

Mr. LARSON. About $884,000,000.

Mr. POULSON. $884,000,000. That $884,000,000 is the amount received from two-thirds of the power.

Now, one-third of the power developed, which is an intangible value, you are not selling, but you are still using the one-third of that power development to promote this irrigation project. That would be another $400,000,000.

In the question that Mr. Welch brought up, 16,000,000 gallons of oil is what we are using, the equivalent of, in giving to Arizona this power to promote this development.

That is, we build a project to save 32,000,000 barrels of oil a year. We are still using it. We are not saving it, because we are saving it in the oil, but in dollars and in the intangible value we are turning around and giving it to Arizona, because one-third of that, which is one-half of the two-thirds, is $400,000,000, which you have not included in this, which is the value of that power, except for the maintenance and operation.

That is the value of the power which could be sold, which is going to Arizona, and that is not included.

Mr. WELCH. It should be remembered, however, that water used for the development of hydroelectric power is not necessarily wasted.

Mr. POULSON. Yes; I appreciate that, Mr. Welch, but they cannot still sell that one-third of the power. If they did, they would get for the Government about $400,000,000 for one-third of the power. They are giving that to Arizona.

Mr. LARSON. Congressman, let us look at it from that approach. At the present time Hoover energy is being delivered into southern California for approximately 3¼ mills.

I showed you from the costs here that it runs up as high as 8.75 mills to produce power now. So, on your basis of analysis you could say at the present time the value of 5 mills per kilowatt-hour of Hoover energy is pouring into southern California. At the present time they are passing almost 5,000,000,000 kilowatt-hours into that area. You then multiply that 5 by 5, and there is $25,000,000 annually that is pouring in.

You might say that is going in to subsidize manufacturing now.

Mr. POULSON. We could reduce that price down, and even take the same price you are figuring, but there are still millions of dollars being given to Arizona on that basis.

Mr. LARSON. Let me follow this just a little further, Congressman. Under the Reclamation Act we use power to assist in developing the water resources. In other words, it makes these irrigation projects possible. That is a part of the Reclamation Act.

In any of these projects where power is available, part of that power is used for project pumping. The sale of the power, the revenue from the sale of the energy, is used to assist irrigation.

Now, your question, as I interpret it, was to the effect that part of this power is being tied up for the benefit of irrigation. This very committee authorized a project yesterday that had two alternatives. One is a gravity canal and the other one with pumping plants.

Mr. POULSON. And that cost $2 something per acre, as compared to what here?

Mr. LARSON. All of the costs are not included. The pumping plant and main canal——

Mr. POULSON. But one of your men made a misstatement then, because he gave us the figures of what it would cost.

Mr. LARSON. To the canal siding, Congressman. There is nothing in that bill that covers distribution or the drainage system.

Mr. POULSON. Then do you mean to say it is not complete?

Mr. LARSON. Let me finish my statement.

Mr. POULSON. You are admitting that you have come before the committee and asked for something on which you have not shown the whole picture.

Mr. LARSON. I say we have shown the whole picture.

Mr. POULSON. I mean about that bill yesterday. I am speaking about that bill now.

Mr. LARSON. What they gave you was correct. If you stop and say that the sale price of water at the canal siding is a certain price, that is correct.

Under this particular project I would like to point out the difference. We have figured the cost of this water up to each individual's farm. Not only the distribution system is added in here, but a drainage system that will have to be built some time over a period of 50 years.

In other words, the point I want to make, Congressman, is that we have included every item in here and when you compare the sale price of water under that project and the sale price under this, the price under the project you authorized yesterday is at the canal siding. The cost for water under this project is delivered to the individual's headgate. There is quite a difference.

Mr. POULSON. How much difference is there? This bill has not been passed yet. I would like to find out, if you have these things. You are supposed to come here from the standpoint of giving the true facts to the committee, instead of as a salesman's game of just giving us the salable factors and not coming up with the whole story. You are telling us that you did not give the whole story yesterday.

Mr. LARSON. The true facts are given. Do you want the cost of the water at the canal siding? Do you want it to the individual farm? How do you want it?

Mr. POULSON. What is the difference in the price? Make a comparison between what it costs to the farmer in the project we authorized yesterday and what it is costing the farmer in this project.

Mr. LARSON. I am not familiar with the details of that project.

Mr. POULSON. If you are going to make a comparison you should be familiar all the way through, I think.

Now, you brought up the Hoover Dam or the Boulder Canyon project. Since you started a comparison, let us compare the cost of the Boulder Canyon project with the cost of this project. We are starting to make comparisons of what they sell the power for. That was sold on the basis of what they paid in cost at the time. Let us give the committee the comparison in cost.

Mr. LARSON. The comparison in cost naturally is much higher, as I show on the indices.

Mr. POULSON. Tell us how much.

Mr. LARSON. The cost of Boulder was about $160,000,000.

Mr. POULSON. And this is around $800,000,000. Are you getting four times as much for your power? No.

Mr. LARSON. The cost of the same type of construction now is about 2½ times what it was at the time Boulder was constructed.

Mr. POULON. But you are not getting four times as much for your power, are you?

Mr. LARSON. No.

Mr. POULSON. You started comparing them. Let us have the whole picture of the comparison. You have come back to this comparison. From the standpoint of the Government is it not true that the Government will pay out, which you have attempted to take into your consideration, $724,000,000 in interest, together with the money to finance this project? We have to pay interest on all the money we get, is that not true, in round terms?

Mr. LARSON. Pay how much?

Mr. POULSON. Around $724,000,000. That is the amount of interest that the Government pays. The Government has to pay on the money which they put up to finance this project, is that not right?

Mr. LARSON. On a 2-percent basis it would amount to about $740,000,000.

Mr. POULSON. $740,000.000. Well, I missed it $16,000,000.

You also made a statement in the committee the other day that the cost would probably be a benefit in the future years, from the prices of construction, and so forth, if they go down. Is that right? You made a statement like that to Mr. Engle?

Mr. LARSON. That is correct.

Mr. POULSON. I thought when they started out on these projects, the big ones, that they made contracts with the contractors, and that it was a fixed fee. I did not know that you could get contractors to enter into contracts on that basis, where they take a chance if it goes up, and they will give you the benefit if the prices go down. You generally have to contract years ahead for these projects, do you not?

Mr. LARSON. That may be true, provided——

Mr. POULSON. Is it true?

Mr. LARSON. Only this way: Provided you awarded contracts for every item in the project. However, the construction period for a project of this kind would spread over a period of at least 10 or 15 years. Many of the contracts would not be let for several years.

For example, under an aqueduct, probably just a short section would be let as one contract. Another section would be let as another contract. So you take the construction period of 10 or 15 or 20 years, whatever it might be, and you would realize the benefit of a decrease in construction costs.

Mr. POULSON. Since you are saying that we are going to have lower prices, maybe, and that in the future you may get the benefit of that, let us give that further consideration. You are talking from the standpoint of what it is going to cost you, and you are giving a ray of hope.

Following that line of thinking, I ask you to consider all the possibilities. When you show the benefits by establishing prices under our high level, as you have shown here on page 36 of your report, have you taken into consideration everything? You have the irrigation benefits of $25,000,000, which subject has been thoroughly discussed between you and Mr. Engle, where he brought out the fact that the Department of Agriculture criticized your contention that the benefits should be determined by taking the gross amount that the farmer receives, because they state in their report specifically that the Department of Agriculture questions whether the benefits actually exceed costs. It is a question, as on numerous other occasions, in commenting on the proposed reclamation projects, of the use of gross rather than net crop return method of computing benefits.

That goes to show that there is a serious question by highly responsible authorities in our Government as to whether the benefits can be taken on a gross method or on a net method. You have taken the one that is favorable to your cause, by taking the gross method.

Mr. LARSON. Congressman, I disagree with that.

Mr. POULSON. Pardon me. I will finish this. You have taken that contention that the gross increase is of benefit, and then you add the power. Then you have taken silt control, which is not included, as I understand it, in the set-up for feasibility. In figuring the feasible program that is not a part of the cost. Then you have taken recreation. As Mr. Engle very ably brought out, how can you figure that people are going to have $1,482,000 extra to spend on recreation?

In other words, if they are going to spend it, are they not taking it out of some other park or some other locality? We do have just so much, you know.

However, you have taken a figure to show that it is going to benefit, by $1,482,000, and you have taken salinity control, which is also an item which is not to be considered in feasibility.

You have taken these hypothetical intangible figures to show the benefits. Then after you have reached in the air and got everything that you could imagine, you still only show that for every dollar there is only a return of $1.59, and you come back to show us that. A businessman would not approach it on a basis like that, with the uncertainties, because the expenses are fixed. They are just like an overhead. You have them fixed, such as operation and maintenance, amortization of the project, interest, and the like. Those are fixed items. They are going to remain the same, but here you have taken the advantage of a boom time and have used those figures for the other side.

On the basis of just the 1.59 to 1, in itself, that is something that should raise the eyebrows of most of the Congressmen, when they want to put in $800,000,000 with the right to authorize another $400,000,000.

In other words, a project that will cost one-billion-two-hundred-million-and-some-odd dollars is quite a large project.

Now, I want to know if you have any ideas of backing up the contentions other than those which you gave Mr. Engle when he ably asked you those questions?

Mr. LARSON. First, I would like to say, Congressman, that the statement you made that we selected the method which shows the greatest benefits, I thoroughly disagree with. I will tell you why.

At the time we worked on this particular project—you will recall that the report was completed in 1947—the best method we had of determining the benefits from irrigation was the gross crop income. That is why we used it.

Since that time progress has been made in developing a method of determining benefits that is, net benefits. On the basis of determining net benefits of projects the increase over gross crop income is about 140 percent.

Now, if that same formula was applied to this project the irrigation benefits would be much higher than we have shown here.

Secondly, the benefit from power, as we have shown, is the sale price of power.

Mr. POULSON. I would like to have you go into detail. You are saying that you can do it. How can you tell what these costs to these farmers are going to be? What kind of chart do you have? Let us see your working papers, analyzing how you are going to get this additional revenue, and how they are going to make their net income. Do you have those figures?

Mr. LARSON. Yes; it is on this chart.

Mr. POULSON. How much of it is hypothetical? How much of it is based on fact? It is a theory, is it not? Is it not a theory?

Mr. LARSON. That gross crop income is a measure of the irrigation benefit?

Mr. POULSON. Are not all these items you have here a theory?

Mr. LARSON. No, sir.

Mr. POULSON. Do you mean to say that these are factual? Do you mean to say that you can show the amount of $1,482,000 more that the people are going to spend? Do you mean that you can show that in factual basis?

Mr. LARSON. I do not say that it is theory. That particular item you have pointed out is the benefits as determined by the National Park Service. The irrigation benefits we determined.

Mr. POULSON. By the National Park Service?

Mr. LARSON. That is right.

Mr. POULSON. Did they say that people in the country are going to spend $1,482,000 more than they spent heretofore?

Mr. LARSON. They say, from a national standpoint the recreational facilities would be worth that. That is the benefit from a national standpoint.

Mr. POULSON. That is their theory now? How do they arrive at that?

Mr. LARSON. I am not familiar with the details of computing those benefits.

Mr. POULSON. Then it is still a hypothetical thing. They have not any factual data. You know it is going to cost $26,000,000. That you know, do you not?

Mr. LARSON. That is correct, as near as we can estimate it.

Mr. POULSON. That is right. However, that is based on actual cost. This other is on a theory. This other is building up a hypothetical theory where you figure that if people do this tomorrow and do not do that the next day, and things like that, that is what will happen; is that not right?

Mr. LARSON. In my opinion the benefit to the Nation is much greater than we have shown.

For example, what is the benefit from power to the Nation? Is it the value of the sale price of that power?

Mr. POULSON. We are not arguing about power. I am for the power. I am talking about the benefits to the farmers.

Mr. LARSON. That is right, and you were referring to this 1.59 to 1. When we spend $1 to get $1.59 back, you add them all in to get $1.59. You talk about one, and I talk about another, but they all add up to $1.59.

Mr. POULSON. If you begin to take off some of these, that $1.59 will go down below $1. When you subtract that always cuts it down.

Mr. LARSON. That is right. If you add to the other it goes up.

Mr. POULSON. That is right, of course. You are taking the power. The power is for the whole country. You are speaking about Arizona. The power could be sold and it would be still greater. This is the project which takes the power out.

Mr. LARSON. Assume that the power was used in Arizona.

Mr. POULSON. Well, that would not make any difference that way.

Mr. LARSON. In other words, the benefit would still be there. It does not make any difference where it is used. What is the value, for example, of municipal water? I think you would agree that the sale of municipal water in the vicinity of Tucson, for example, would exceed 15 cents a thousand gallons, as far as benefit is concerned.

Mr. POULSON. It is pretty dry out there. I know that.

Mr. ENGLE. Will the gentleman yield to me?

Mr. POULSON. Yes.

Mr. ENGLE. Mr. Larson, has it not been the practice to consider recreational benefits as the cost equal to the benefits, and to have the additional benefits zero, in other projects?

Mr. LARSON. The cost of recreational facilities equals zero?

Mr. ENGLE. Equals the benefits, and therefore you do not add or subtract either way.

Mr. LARSON. I do not see how you could figure it that way.

Mr. POULSON. He very ably brought out the last time that the people do not have that much money to spend.

Mr. ENGLE. I do not see why you do not make the recreation benefits $2,800,000 instead of $1,400,000, if it is an arbitrary figure that you reach up and grab out of the sky.

Mr. LARSON. I do not think the Park Service grabbed it out of the sky.

Mr. ENGLE. If you folks are taking the responsibility for justifying this project, you ought to know how it is figured out and how you arrive at the figures. I am very much disturbed about that whole proposition, because it is my view that if these nonreimbursables are spread out far enough, you can cover anything. We have a bill now that is waiting over before the Rules Committee on that subject, and if these nonreimbursables are as elastic as they appear to be, there is not any project that cannot be justified by putting enough nonreimbursables in.

Mr. D'EWART. Will you yield to me?

Mr. POULSON. Yes.

Mr. D'EWART. That is the point we tried to make on H. R. 1770, a method of figuring what should be the items of nonreimbursables.

I made the point in the committee that the amount charged as nonreimbursables should not exceed the total amount invested by the Gov-

ernment for that purpose. In other words, the amount of nonreimbursable items for recreation should not be capitalized in the public benefit, but should be capitalized only as to the amount it cost the Treasury of the United States.

I still think that is a sound basis of nonreimbursability of an item in any project. That is not referring to this particular project.

Mr. ENGLE. I am not so sure that is correct.

Mr. D'EWART. Mr. Engle did not agree in the committee. I will admit that.

Mr. ENGLE. Here is my point: Let us take transportation, for instance. We put transportation in and charge off a certain amount of benefit as nonreimbursable, as a transportation benefit to the Nation.

You could say that the transportation benefit is the additional cost where you put in a road across the top of the dam, or you could say that the transportation benefit is the cost that would be required to build a bridge in the same place if the dam were not built. Either one of those extremes seems to me to be the wrong way to look at it.

However, I do agree with the gentleman from Montana that in figuring these nonreimbursables we are going to get into serious trouble in our reclamation program in the West unless we can get the thing down to a more definite basis, and have the witnesses for the Reclamation Bureau come in here without saying, "Well, somebody else figured it, and therefore, it must be right."

Mr. MURDOCK. We are going to have to adjourn in just a few minutes. I believe that the witness has not had a chance to answer your questions.

Mr. D'EWART. I would like to make one more point.

This very thing is discussed in the Hoover report, and it brings out seven different methods of figuring nonreimbursable items, and it is worth reading.

Mr. MARSHALL. Will the gentleman yield? You are talking about a figure of $1,000,000 something, approximately?

Mr. POULSON. We just used that as an example, going on to show some of the points.

Mr. MARSHALL. If that were a zero in this particular project, how much would that change this $1.59.

Mr. POULSON. That is true, also, but we could go on to these other items. We have salinity control. They start showing figures that are going to be a benefit, and they are hypothetical.

We realize that there can be some benefits. Maybe they consider it a benefit that the people over in that district spend $350 for a vacation and do not pay it on some debt which they have. That probably is considered a benefit, to their way of thinking, but it is hypothetical.

Mr. MURDOCK. It appears to the Chair that there have been a good many questions asked that really were not questions, and furthermore the witness has had little time to answer those asked.

I will ask the witness: Do you recall a direct question that you have an answer for which you have not been able to give?

Mr. LARSON. Well, one question in connection with Congressman Poulson's questioning, with regard to the recreational benefits. If, for example, you eliminate the item of nonreimbursable benefit to recreation, that would mean, that power would have to sell for 4.8 mills instead of 4.65 mills. In other words, it amounts to less than two-tenths of a mill. It is about fifteen one-hundredths mills difference in the power rate.

Mr. ENGLE. Mr. Larson, you have given some benefits for salinity control.

Does this project give you any salinity control which is not normal to the ordinary flushing of the land, and, therefore, incident, really, to the project in its maintenance and operation?

Mr. LARSON. The silt-control benefit for Buttes Dam and any of the developments on the Gila River were computed by the Corps of Engineers and through an agreement with them, they have permitted us to use their figure and the plan of development in that particular area.

I do not know as we have questioned their figure of determining that silt benefit any more than we questioned the method used by the Park Service in determining the recreational benefit.

Now, with regard to the silt benefit on the Colorado River, we determined the cost that would be involved to provide a silt-retention reservoir and to withhold the silt out of Lake Mead, the most economical development. On the basis of the cost of that structure over this repayment period to withhold silt for that period we determined the benefit on an acre-foot basis.

Mr. ENGLE. I know, but my recollection is that the Bureau of the Budget, in its statement, indicated that these dams would silt up before the end of the life of the project, and you would have to have some other silt control methods, either in the form of a dam at the other end of the canyon, or something else, in some 40 years; is that right?

Mr. LARSON. No. In my opinion the developments that we have set up in this project will not silt up within the repayment period.

Mr. ENGLE. You recall the statement in the Bureau of the Budget's message, do you not?

Mr. LARSON. Yes. I think that it was based upon rather hypothetical conditions. For example, I think we have fully shown in our report that there is a demand for all the potential power on the Colorado River in the lower basin within a very short period of time.

On this basis, we have assumed that Glen Canyon would go in within 15 years after Bridge Canyon is constructed. There, again, I think that period will be reduced because of the great power demand in the Southwest.

In connection with Coconino and Bluff, those silt reservoirs, as we have them set up in our report, will withhold silt for a considerably longer period than the 70-year repayment period that we have considered in the project.

Mr. ENGLE. Well, it may be that the Glen Canyon project would control the silt. That adds another couple of hundred million dollars to this project, does it not?

Mr. LARSON. I beg your pardon.

Mr. ENGLE. That adds more money to the project in 15 years, does it not? In other words, if the Glen Canyon project is an absolute essential to this project it should be considered in it and authorized at the same time, should it not?

Mr. LARSON. Glen Canyon is considered as an independent development but, Congressman, you will note from the features that we have set up that after Glen Canyon goes in it will be benefited by Bluff Dam, which is included as a cost to this project to the extent of $29,628,000. Glen Canyon will then receive the full benefit of that development which is charged as a cost to this project.

Mr. MURDOCK. Mr. Poulson, had you concluded your questioning?

Mr. POULSON. Yes. I think we are supposed to leave.

Mr. MURDOCK. We have a few more minutes. Did you have any other questions?

Mr. POULSON. No.

Mr. MURDOCK. Has any member of the committee any question to ask of Mr. Larson?

Mr. D'EWART. I would like to ask a question.

In that 8-mill rate you reflected as the average rate for the Southwest area, did that include all the costs at the bus bar, or was it delivered to the customer?

Mr. LARSON. You mean the cost by oil development?

Mr. D'EWART. You said the average rate of the sale of electric power in that area, where oil was used, was from 7 to 8 mills.

Mr. LARSON. That is the average cost of new developments at the plant.

Mr. D'EWART. At the plant?

Mr. LARSON. That is right.

Mr. D'EWART. Then they still have transmission?

Mr. LARSON. Of course, on some of the older developments if their efficiency is reasonably high and the construction costs were low it would be a little less than that.

Mr. D'EWART. I was not asking that in connection with this. I was just interested in the subject.

Then they still have the cost of transmission lines, distribution, and so on, on top of that. They reflect all of the costs, including taxes, up to the bus bar?

Mr. LARSON. That is correct.

Mr. MURDOCK. It is highly important that the members who are to appear before the Rules Committee at 11 o'clock do so, but we did want to hold a full committee meeting meanwhile.

Mr. D'EWART. What is before the Rules Committee?

Mr. MURDOCK. We are asking for a rule on H. R. 1770.

Were there any other questions that the members wanted to ask Mr. Larson?

Mr. REGAN. I would like to know, Mr. Larson, what the over-all cost of these nonreimbursable items amount to.

Mr. LARSON. Approximately 10 percent of the total.

Mr. REGAN. About 10 percent of the total?

Mr. D'EWART. That would be about $200,000,000.

Mr. LARSON. Would you like it in dollars?

Mr. REGAN. To save time, just the over-all amount.

Mr. LARSON. Ten percent of the total. Flood control, eight-tenths of a percent; silt control, 4 percent; recreation, 4 percent; fish and wildlife, ½ percent; salinity control, seven-tenths percent.

Mr. REGAN. It amounts to about 10 percent of the total?

Mr. LARSON. About 10 percent of the total.

Mr. MURDOCK. Shall we ask Mr. Larson to hold himself in readiness for our next meeting?

(No response.)

Mr. D'EWART. I might say, Mr. Chairman, I believe there are no more sessions of Congress this week after today, if you are interested.

Mr. MURDOCK. This subcommittee stands adjourned until 9:30 o'clock tomorrow morning. We will meet in the main committee room at that time. I urge a full attendance.

(Thereupon, at 10:50 a. m., Thursday, May 5, 1949, an adjournment was taken until 9:30 a. m., Friday, May 6, 1949.)

THE CENTRAL ARIZONA PROJECT

FRIDAY, MAY 6, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION OF THE
COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 9:30 a. m., in the committee room of the House Committee on Public Lands, the Honorable John R. Murdock (chairman of the subcommittee), presiding.

Mr. MURDOCK. The subcommittee will please come to order.

We will proceed with our further hearings on H. R. 934. We had Mr. Larson before us yesterday for further questioning. I thought at the time of the adjournment yesterday that probably we had asked him about all of the questions necessary, or had made comments in regard to his statement, by the members, and I told Mr. Larson that I felt that he might be dismissed; but he has stayed over.

Mr. Larson, would you step forward, please. Maybe we have some other questions to ask you, since you are here.

STATEMENT OF V. E. LARSON, ASSISTANT REGIONAL PLANNING ENGINEER, REGION III, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR—Resumed

Mr. LARSON. Yes, sir.

Mr. MURDOCK. Governor Miles, have you any further questions?

Mr. MILES. No, sir; I do not believe I do. He made such a good witness I would not want to question him.

Mr. MURDOCK. He is an engineer. Mr. Aspinall?

Mr. ASPINALL. No questions.

Mr. MURDOCK. I think, Mr. Larson, that I will not quiz you further.

You made the study under the direction of your chief, did you not, and on the general proposal of bringing water into central Arizona?

Mr. LARSON. That is correct.

Mr. MURDOCK. According to your studies, then, this is an engineeringly feasible project?

Mr. LARSON. Yes, sir; it is.

Mr. MURDOCK. That is the purport of your testimony. As I said to you the other day in the beginning, you have gone minutely into this matter showing the effects upon not only the State of Arizona, but the adjoining States involved. I feel that it is a very comprehensive report.

I wish to thank you, and to compliment you upon your statement. You may be excused.

Mr. LARSON. Thank you, sir.

Mr. MURDOCK. Our next witness is also an engineering witness, but before calling him I want to call attention to a few messages that I have just received.

One is a telegram from Phoenix signed by Charles H. Dunning, the director of the Department of Mineral Resources of Arizona.

This is what Director Dunning says:

> Statistical authorities report Arizona paid $83,000,000 in Federal taxes in 1948 besides other special Federal taxes. This was accomplished only by cashing in on our capital assets such as underground water. Such selling of capital assets cannot be maintained. And without Colorado water our contribution to the Nation will soon drop to less than half the above. That difference would pay the cost of the project in comparatively few years.
>
> Interpreting these facts into mining angles, which is where our Department is concerned, our mines now pay one-third of State taxes and greatest percentage Federal taxes. If our agricultural earnings are not maintained so much tax burden will accrue to mines that many marginal producers will be forced to close and a chain reaction of curtailment will be started.

That is signed by Charles H. Dunning, director, Department of Mineral Resources, Phoenix, Ariz.

My mail, as well as telegrams, brings me interesting documents. I have one which I am not going to read or put in the record, but I am merely going to refer to it.

This is a document from Los Angeles and in it is a form letter, a suggested letter to be sent to eastern businessmen and industrialists which they may sign and send to their Congressmen. We are all acquainted with that technique. This form letter has some very questionable statements purporting to be facts.

I was greatly pleased with a letter that I received a few days ago, however, which I may provide for this record. It shows the reaction of an eastern business executive quite unfavorable to this propaganda line.

It is a letter from President Maytag of the Maytag Co., one of our well-known American companies. In this letter President Maytag said he had just received a communication from Bullocks of Los Angeles and he indicated the nature of the communication concerning this water dispute.

President Maytag also indicated his unfavorable reply to the Los Angeles correspondence.

I merely allude to that to give the committee some idea of the correspondence that I am receiving. I presume other members of the committee also receive such correspondence.

Once more, before we call the next witness, Mr. Welch calls my attention to the fact that the Public Lands Committee has asked for a rule on H. R. 1770, and the rule has not yet been granted. He and I have twice appeared before the Rules Committee. I was hoping that the rule might be granted us on H. R. 1770 before this time, but I want to say to those members of the Public Lands Committee present that it would be well for us to consult with individual members of the Rules Committee in regard to that important bill.

Mr. Welch says that we do not have a report from the Bureau of the Budget and that that is one of the things that may be holding it up. We do have a favorable report on the bill, and did have it before we reported the bill out from the Department, with the statement that the report had been called for with dispatch and that time had not permitted it to clear through the Budget.

If Mr. Will of the Bureau of Reclamation, who is here, will take note of that, we will see if we can not hurry that matter along, also.

Our next witness is Mr. Lane, also a consulting engineer.

Mr. Lane, will you give your name to the reporter, and identify yourself for the record?

STATEMENT OF W. W. LANE, CONSULTING ENGINEER, PHOENIX, ARIZ.

Mr. LANE. My name is W. W. Lane. I am a consulting engineer from Phoenix, Ariz. I have been engaged in irrigation work in Arizona and the Southwest for the past 30 years, and for 15 years was associated with the development and operation of an irrigation district in the Central Valley near Phoenix, comprising 35,000 acres.

The purpose of my appearance before this committee is to present data with respect to the irrigation development in central Arizona, and its need for an additional supply if the civilization now existing there is to be fully sustained.

Central Arizona has become a large agricultural empire founded upon irrigation, and playing a considerable part in the economy of the Southwest.

Remains of irrigation facilities found by the early settlers, and those yet remaining, were and are evidence of an extensive prehistoric agricultural development. This prehistoric development was probably abandoned because of prolonged droughts and its effects.

With the coming of the white man into the Southwest, irrigation of lands was revived by small earth and brush dam diversions from the streams, and canals to the lowlands along the rivers. This, likewise, proved uncertain because in years of floods their diversion works washed out, and in dry years the available water in the rivers was insufficient.

With the turn of the present century and following the passage of the National Reclamation Act in 1902, the Roosevelt Dam on the Salt River was constructed. Subsequently, other dams were constructed, until now the waters of all of the principal streams in central Arizona are largely in use.

The land is highly productive with an adequate irrigation supply, but without such a supply it is totally nonproductive. It is valley land, of good soil less sandy than found in much of the Southwest. For this reason it holds to a high degree the moisture applied for the benefit of the plants. For full production it requires approximately 4 acre-feet applied to the land. To obtain this amount at the land from river supply it has been found necessary to divert approximately 5.7 acre-feet per year per acre, and for ground water pumping to pump

an average of 4.7 acre-feet at the well. (See table B–5, Bureau of Reclamation Report, central Arizona project.)

It is of interest to note that major irrigation projects, or modern irrigation as we now know it, is young, all of this century. When the Salt River project was started in the early days of the Bureau of Reclamation it was estimated that the annual per-acre requirement at the farm was 3 acre-feet for the general farming then prevailing and the project area was fixed accordingly. This was based upon general farming as was the practice in that area. Due, however, to the climatic conditions permitting long growing seasons and to the highly fertile soils in this area, it has been found to be particularly adapted to specialized crops and multiple crops per year. This provides fresh foods to the Nation at times they would not otherwise be available, but to do so it is now found that 4 acre-feet per acre at the farm is required to maintain such production, or one-third more water than was originally considered necessary.

The period from 1905 to 1921 was what may be termed a wet period. Before the end of this period subsurface drainage became necessary in the Salt River Valley. Also, during this period it was found that wells could be sunk almost anywhere in the alluvial filled valleys and produce large volumes of water with increasingly efficient deep well pumps. These conditions encouraged new stream storage projects, expansion of acreage under existing projects, and the progressive development of land with wells.

Following the above wet period there has been a decline in the precipitation and stream run-off within the State. Projects originally predicated upon river run-off installed wells to augment the river supply. Encouraged by the success of the early wells, landowners, without understanding the source or characteristics of underground water, and motivated only by a desire to develop their lands, installed wells progressively until at present about half of the total acres farmed in the central area is solely from pumps, and most all of the remaining land is dependent upon wells to a variable degree.

Underground water is not inexhaustible. On the contrary, such underground supply is very similar to a surface reservoir. It must have an average inflow equal to the average withdrawal to remain useful. With the progressive increased pumping that has occurred, the level of the underground water is rapidly receding, thereby increasing the depth it must be lifted, and is, in some instances, now reaching the depth that pumping can no longer be done economically and some fringe wells have gone dry. As such progressively occurs, lands must be returned to the desert from which it was reclaimed.

As a result of the development predicated upon early estimates of river water supply and belief of unlimited underground supply, 809,000 acres had been put under irrigation at the close of 1947 in Maricopa and Pinal Counties. This area includes all the land in irrigation districts though not fully irrigated because all included lands have equal water rights. From the records of the districts, companies and other official and unofficial records, the project and individual areas are estimated as follows:

TABLE 1

Maricopa County:		
Arcadia Water Co		1,550
Arlington Canal Co		4,480
Buckeye irrigation district		19,200
Broadacres, Lone Butte and Ocotilla Farms		8,175
Chandler Heights		1,290
Enterprise Canal Co		1,000
Gillespie Land & Cattle Co		20,800
Goodyear Farms and Adaman Municipal Water Co		13,450
Indian lands		7,640
Marinette Farms		9,000
Maricopa County municipal water conservation district		35,000
Peninsula, Horowitz and Champion and St. Johns irrigation district		3,730
Private pumps:		
East of Roosevelt water conservation district		5,000
North of Arizona canal		11,000
South Salt River project		16,920
West of Agua Fria River		20,600
Queen Creek area		16,080
Roosevelt irrigation district		38,000
Roosevelt water conservation district		39,500
Salt River Valley water users' project		242,000
Miscellaneous projects along lower Gila		7,950
Total		522,365
Pinal County:		
San Carlos irrigation and drainage district:		
White lands	50,000	
Indian lands	50,000	
		100,000
Queen Creek and Magma area		4,000
Electrical districts 2, 4, and 5 not included in San Carlos district		147,000
Stanfield district		35,000
Papago Indian lands		350
Total		286,351
Total Maricopa and Pinal Counties		808,716

Of the foregoing lands, the following projects have storage facilities:

TABLE 2

Salt River Valley projects, a Federal project with reservoirs on the Salt and Verde Rivers	242,000
Coolidge project, a Federal Indian Service project with a reservoir on the Gila River	100,000
Maricopa County municipal water conservation district No. 1, a municipal project, on Agua Fria River	35,000
Roosevelt water conservation district, a municipal district, with certain storage rights in Salt River system	39,500
Total having storage facilities	416,500

Other projects having stream diversions are as follows:

Buckeye irrigation project	19,200
Arlington Canal Co.	4,480
Gillespie Land & Cattle Co.	20,800
Indian lands	7,640
Enterprise Canal Co.	1,000
St. Johns irrigation district	3,730
Total	56,850
Total acres having stream diversions	473,350
Total relying entirely on wells	335,366
Total	808,716
Deducting 10 percent of the foregoing	80,872
Net irrigated lands in Maricopa and Pinal Counties	727,844

Normally up to 10 percent of farm lands are out of crops for farm building sites, roads, wastelands and so forth.

All of the foregoing projects and areas having river storage facilities and diversions also rely substantially upon wells—the amount pumped annually depending upon the annual water available from the river supply.

The 1947 Bulletin 211 of the Agricultural Experiment Station, University of Arizona, tabulates the acres actually in crop in 1947 for the foregoing areas as follows:

Maricopa County	430,145
Pinal County	195,550
Total	625,695

From the foregoing it is indicated there were 102,000 acres out of production in 1947.

Present water use: In the projects hereinbefore listed as having stream diversions, table B–1 in the Bureau of Reclamation report shows average diversions for the average 1940–44 in column (D) to be as follows:

TABLE 3

Maricopa County unit:		
Salt River project	907,200	
Roosevelt water conservation district	48,400	
Indian lands	27,800	
Total diverted at Granite Reef		984,400
Maricopa County municipal water conservation district Agua Fria River		54,200
Total		1,038,600
Rediversions or diversions from return flow:		
Arlington Canal Co	27,600	
Buckeye water conservation and drainage district	88,700	
Gillespie area	81,200	
Total diverted from return flow		197,500
Total diversions		1,236,100
Pinal County unit: San Carlos project Gila River		254,000

Bulletin 211 of the Agricultural Experiment Station, University of Arizona, above referred to, gives the acres in crop for these projects for 1947 as follows:

TABLE 4

Salt River Valley projects:		
Salt River Valley Water Users' Association	215,000	
Roosevelt water conservation district	32,000	
		247,000
Indian lands		6,700
San Carlos project:		
Gila River Indian Reservation	27,400	
San Carlos white lands	32,000	
		59,400
Other: Maricopa County municipal water conservation district		18,200
Total from Bulletin 211		331,300
Total acres in foregoing projects:		
Salt River Valley Water Users' Association	242,000	
Roosevelt water conservation district	39,500	
Indian lands	7,600	
San Carlos project	100,000	
Maricopa County municipal water conservation district	35,000	
Total	424,100	
Less 10 percent lay-out land	41,500	
Land laid out in 1947		50,400
Total	381,700	381,700

The above areas are irrigated by the initial diversions from the major streams as they enter the areas and normally almost wholly divert these streams, augmenting their supply by pumping from ground water. Their supply for 1940–44 averaged as follows:

River water (from table 3)

	Acre-feet
Salt River at Granite Reef	984,400
Agua Fria River	54,200
Gila River, for San Carlos project	254,000
Total	1,392,600
Area that can be irrigated at 5.7 acre-feet per acre—acres	227,200
Remainder of above area of 381,700 left to be supplied by pumping—acres	154,000
Pump water required at 4.7 acre-feet per acre—acre-feet	726,000

Although these projects are partially supplied from the principal streams of the Gila River system by surface diversions they would require from the underground water an average of approximately 726,000 acre-feet per year if they maintained their land in full crops each year. In some years of below average river supply, these dual source projects cannot maintain a full cropping—1947 was a year of below average river run-off.

The remaining projects as listed above in table 3 having stream diversions are in the lower valley section and generally have a fair river supply from the return flow from the lands above. They are required to pump to some extent about 100,000 acre-feet from relatively shallow depths, to stabilize their supply. Their water both from the stream and pumps is extremely salty, because it is carrying the salts from the upper lands. These waters are too salty now for many crops and is increasingly building up salts in the soil. This land must have a large quantity of fresher water, and better drainage to wash out the high saline concentration in its ground water which is now

exceeding 4,000 parts of salts per 1,000,000 parts of water, or it will be forced out of productive crops by the salts.

As shown above, there are 335,000 acres irrigated solely from pumps. Deducting 10 percent, or 33,000 acres, out for other farm use, leaves 302,000 acres. That is 4.7 acre-feet at the pump to supply 4 acre-feet at the land requires 1,420,000 acre-feet from the underground supply. The 1,420,000 plus the 726,000 acre-feet required by the projects the Salt River group, San Carlos, and Agua Fria diversions, plus the 100,000 acre-feet for the westerly projects having stream diversions, make a total of approximately 2,246,000 required from the underground and/or some other source.

A report of the United States Geological Survey entitled "Pumpage and Ground Water Levels in Arizona in 1947" by S. F. Turner and others, shows the pumpage in Maricopa and Pinal Counties for the years 1940–47 as follows:

Year	Maricopa County	Pinal County	Total
1940	943,000	372,000	1,315,000
1941	444,000	351,000	795,000
1942	1,040,000	500,000	1,540,000
1943	1,104,000	515,000	1,619,000
1944	1,017,000	530,000	1,547,000
1945	1,143,000	610,000	1,753,000
1946	1,398,800	660,000	2,058,800
1947	1,446,800	700,000	2,146,800

The year of 1941 was a fairly wet year, and the last wet year of the above period.

Safe average present water supply: Water pumped from underground must be fully recharged if it is to be depended upon for irrigation. In the report of the United States Geological Survey, entitled "Geology and Ground Water Resources of the Salt River Valley Area, Maricopa and Pinal Counties, Arizona" by McDonald, Wolcott, and Hem, issued February 4, 1947, pages 15 to 18 particularly treat with the Salt River Valley area. It summarizes the source of supply for the area as follows:

> Recharge to the aquifers of the region is derived from four main sources, listed in order of importance: (1) Irrigation and canal seepage, (2) stream flow, (3) underflow of major streams where they enter the region, and (4) rainfall.

The Pinal County area is discussed in the report of the United States Geological Survey, entitled "Ground Water Resources of Santa Cruz Basin, Arizona," pages 33 to 61. The following is quoted from page 34 of this report:

> In the Eloy area the main source of ground water is from underflow from the Avra area and from the Santa Cruz Valley. There is probably a small amount of recharge from flood losses in the small washes originating in the Sawtooth and Piccacho Mountains. It is very doubtful that seepage losses from irrigation occur in appreciable amounts.
>
> In the Maricopa area the recharge to the ground-water reservoir occurs chiefly as underflow from the Eloy area passing between the Silver Reef and Casa Grande Mountains and as underflow from the Casa Grande area passing between the Casa Grande and Sacaton Mountains. Minor amounts of underflow to the Maricopa area enter from the Santa Rosa, Vekol, and Jack Rabbit basins. Additional originating in the mountains surrounding the area, and possibly from fault springs.
>
> Recharge to the Casa Grande-Florence area is mainly from canal and irri-

gation seepage losses, from underflow of the Gila River, from seepage losses from the Gila River, and from washes originating in the Tortilla Mountains, particularly McClellan Wash.

As previously stated, underground water must have an inflow equal to its draft to enable sustained use. This sustaining inflow is generally referred to as the "safe yield."

A report has been made upon the areas of Maricopa and Pinal Counties by the United States Geological Survey, entitled "Safe Yield of Ground Water Reservoirs in the Drainage Basins of the Gila and Salt Rivers, near Phoenix, Arizona," by S. F. Turner, H. P. McDonald and R. L. Cushman—1945.

On pages 67 and 69 of this report, the safe yield for Pinal County area, inclusive of the Santa Cruz Basin, is given as 135,000 acre-feet annually. For the Maricopa County Area the foregoing report shows a tabulation on pages 6 to 15 of the computed safe yields for the years of 1935 to 1941, as given in the last column of the tabulation as being 579,000 acre-feet. The total, therefore, for the two counties, is 714,000 acre-feet.

Referring to the pumpage tabulation as given herein, it will be noted that there was 2,146,500 acre-feet pumped in 1947, or 1,432,500 acre-feet more than the foregoing estimated safe yield for the areas. Of the 2,146,500 acre-feet pumped in 1947, 700,000 acre-feet was pumped in Pinal County, and 1,446,500 was pumped in Maricopa County. But in spite of the excess pumping, many acres within these areas while classed as farmed did not have a full water supply, resulting in partial cropping and/or in lower yields. This acreage cannot be accurately estimated.

The underground supply can be drawn out in excess of its safe yield for a period of time, with lowering of its level as in a surface reservoir. But, like a surface reservoir there should be compensating periods of reduced pumping to less than the safe yield to permit the refilling.

The effect of the overpumping is clearly shown by a graph included in the United States Geological Survey report entitled "Maricopa County" by H. M. Babcock and others, as continued for 1947. The graph is entitled "Graph Showing Cumulative Net Change in Water Level and Water Pumped for Irrigation in Salt River Valley Area, Maricopa County, Arizona."

From the graph the composite lowering of underground water from 1930 through 1944 was approximately 12 feet, or an approximate average of 1 foot per year. For the 3 years of 1945 through 1947 the table lowered an additional 14 feet, or at an average rate of almost 5 feet per year, and in 1947 alone it dropped 6 feet of the 14. When the wells go dry, as some few have in the past year, or the level drops to the extent that the cost of pumping the water exceeds the ability of the land earnings to pay it, the lands must go out of operation.

Attached hereto on the last page hereof is a graph entitled "Maricopa County Water Use, Source, and Effect." This graph shows the relation between the amount of water diverted from storage reservoirs, and the amount of water pumped. Also, the relation between the amount of water pumped, and the safe yield from underground supply as estimated by the United States Geological Survey. Interposed on the upper part of the graph is a copy of the graph from the United States Geological Survey, as mentioned in the preceding paragraph, showing the change in the underground water level during

the same period. The graph so interposed is not directly correlated to the pumping, but does depict in a general way the relation between the variation in pumping and the effect upon the underground supply.

Lands out of crop, 1947: As previously shown herein, for the projects having storage facilities and pumps, there were 50,400 acres not cropped in 1947 after deducing for normal lay-outs of lands.

Of the 56,850 acres shown herein in projects, or areas having some stream diversions but no storage, less 10 percent leaves 51,000 net acres.

Mr. MURDOCK. May I ask you a question there, Mr. Lane?

Mr. LANE. Yes, sir.

Mr. MURDOCK. That information on page 13 applies to Pinal County, does it?

Mr. LANE. The tabulation?

Mr. MURDOCK. The information applies to Pinal County, where it dropped 1 foot per year for 12 years, and then 14 feet in 3 years? That is in Pinal County, is it not?

Mr. LANE. No, that is in Maricopa County. They did not have a chart worked up on Pinal County. That particular chart is only for Maricopa County.

The other chart I referred to, which includes the pumping and diversions, which is immediately below the chart first referred to, does include both Maricopa and Pinal Counties.

Mr. MURDOCK. That increase in the dropping of the underground water is almost in a geometric ratio, is it not?

Mr. LANE. If you will refer to that chart on the back of the Statement, Congressman, you get a pretty good idea of the direct relationship.

Mr. MURDOCK. Please go right ahead.

Mr. LANE. The foregoing mentioned Bulletin No. 211 of the University of Arizona, shows 37,100 acres in crops in 1947. Deducting the 37,000 acres from the 51,000 indicates approximately 14,000 acres were out of production.

Of the 335,000 acres listed herein as in areas supplied from wells only, 302,000 acres should be in crops with a normal 10 percent of idle lands, but the foregoing Bulletin No. 211 shows 273,965 acres in crops in 1947, indicating 33,000 acres of this land could not be farmed in 1947. This added to the 50,400 acres out of crop in the storage projects and the 14,000 in the lower river diversion projects would indicate 97,000 acres could not be farmed in 1947, for lack of water.

Upper Gila River Basins: The Bureau of Reclamation's report entitled "Central Arizona Project" appendixes 1947, page B–5, shows the average acres cultivated in the Upper Gila Valleys in Arizona and New Mexico as 45,640 acres. As these valleys are narrow and have been farmed for years, this is probably the maximum average for these areas.

On the San Pedro River Bulletin No. 211 of the University of Arizona, 1947, it shows 2,100 acres of land to be irrigated, or a total of 47,700 acres in the Upper Gila and San Pedro Basins.

These lands require some less water diversions per acre because of higher elevations, with less evaporation and with more rainfall. It is estimated the irrigation water consumed per acre is 2.74 acre-feet per year. This would require 5.2 acre-feet diverted from stream flow and 4 acre-feet at the pump to serve this land.

The surface water supply for the upper Gila Valleys as given by the Bureau of Reclamation's report, Central Arizona Project, appendixes, page B–8, is 182,000 acre-feet annually; and for the lands on the San Pedro River as 4,500 acre-feet annually; or a total of 186,500. The safe annual yield of underground water is given in the foregoing report, page B–84, for the upper Gila Valleys as 32,400 acre-feet, and for the San Pedro Valleys as 2,200 acre-feet, or 34,600 acre-feet. The acres given for these valleys are net, and no further deduction is made.

One of the major difficulties in these areas is the irregularity of the stream flows, there being no regulation of the streams as yet. When water is available in quantity, the farmers divert excessively in the endeavor to build up soil storage for the crops. This is effective to a degree but results in a higher diversion record than is usable for crop consumption, and during the drier periods of the year there is a shortage for the growing crops.

The summation of the total net acres in the central Arizona project is as follows:

Maricopa and Pinal Counties	728,000
Upper Gila and San Pedro Valleys	34,600
Total acres in project	726,600

Salt: Salt in the irrigation waters, if allowed to concentrate, will build up in the soil to the point of rendering the soil nonproductive for general crops. It is generally accepted that water having in excess of 4,000 parts of salts per 1,000,000 parts of water is the maximum salinity that may be used, and this for only certain crops. Crops such as vegetables, orchards, and many others begin to show distress with more than 1,500 parts of salts per 1,000,000. Also, it is necessary to increase the quantity of water for the crops as the salinity increases, to prevent the excessive concentration of salts at the plant roots.

The concentration of salts in the water is caused by rediversion of the water. As the water is used on the higher lands, the quantity of water is reduced by soil evaporation and plant use, and the remaining or unconsumed water is either pumped out or percolates through the soil to become return flow lower down in the stream. This return flow is still carrying most of the salt that was in the water at the first diversion thereof. In order to bring the salt ratio within tolerance limits for plant life, additional sweet water must be added. In times of water shortage, as is now prevailing within this area, there is no local source of additional water. The repeated repumping and rediversions is resulting in the spreading and intensification of salt concentration in the soils, surface, and underground waters with a start of abandonment in some areas.

The report of the Bureau of Reclamation entitled "Report on Central Arizona Project," appendixes, page B–15, shows 846,000 tons of salt is now brought into this area annually by the diverted water. Water having a salt concentration of 4,000 parts per million parts is equivalent to 5.5 tons of salt per acre-foot. In order to keep this salt moving out and not exceeding 4,000 parts per million of salts in the water will require approximately 154,000 acre-feet per annum of fully salted water to be taken out of the area, with a more rapid lowering of water tables.

Salvage water: Referring to pages 284 and 285 of the report of the Secretary of the Interior, The Colorado River, June 1947, sometimes called the Blue Book, we find that the average natural river losses in the Phoenix area for the period 1897–1943 were 527,000 acre-feet. This water was lost by evaporation from water surfaces and by percolation to adjacent bottom lands where it was evaporated by soils, trees, and other vegetation.

As the valley was settled, the greater part of the valley land subirrigated by the rivers was cleared for farming, much of the virgin growth was removed, and crops planted and irrigated. But the remaining areas which constituted the river channels retained their growths.

With the building of the storage dams and the added and more constant return flow, together with the low frequency of floods to flush out and maintain the channel ways, much of these remaining areas have become very dense with water-loving plants sometimes called phreatophytes. There are areas where such growth has become so dense and rank that there is practically no water channel, causing a very serious flood hazard for the adjacent lands, cities, and towns near the river. This condition must be relieved to prevent serious flood damage, as well as for the salvage of water.

Surveys are now in progress along the Salt River Channel looking to the correction of this condition.

While no accurate or authoritative estimate has been made of the water now being so consumed in these river areas because of the increased density, though lesser acres, than prevailed under virgin conditions, the losses now should be less than in the virgin stage but could easily be as much as 350,000 acre-feet per year. Rough estimates have approximated this amount.

It is not possible to eliminate all of this loss. Evaporation from water and soil will continue and, with effective clearing and reasonable maintenance, some growth will persist to consume some water. However, a considerable part to at least one-half of this loss may be salvaged.

It is estimated net salvage from clearing river channels of phreatophytes at least the above deficit.

In order to protect the underground supply from further depletion and prevent further expansion, the Arizona State Legislature has enacted an underground water code which is now in effect and is being put into operation.

I think the committee has had evidence already presented with respect to that.

It is evident that it will be impossible to use any of the water so proposed to be diverted from the Colorado River for new land without injury to the present irrigated lands, and it is not intended to do so.

The lands in the area are owned by thousands of individuals. There are hundreds of wells scattered over the area, serving mainly individually owned lands. Each owner has his fixed charges and living expenses he must earn to continue the ownership and live. It is therefore not so simple as to say, "Lay out sufficient land to balance the supply." Nor is it the question of considering the cost of a supplemental water supply as being applicable to the number of acres such a supply alone would irrigate. Such a supplemental supply means the

saving of thousands of acres owned by thousands of individuals with their all into the land to keep it from going out of production, and the difference between marginal and full productivity on the many thousands more.

Analysis of water available from all local sources and water needed from Colorado River

	Maricopa County	Pinal County	Total
REQUIREMENTS FOR IRRIGATION			
1. Land previously irrigated	470,000	258,000	728,000
2. Net consumptive use at 3.2 acre-feet per acre	1,504,000	826,000	2,330,000
SUPPLY WITHIN AREA			
3. From Gila River system:			
Salt River	724,000		724,000
Verde River	298,000		298,000
Gila River		311,000	311,000
Agua Fria River	54,000		54,000
4. Other unmeasured side streams: New River, Hassayampa River, Queen Creek, Santa Cruz, and other unnamed streams, excluding Agua Fria River	125,000	65,000	190,000
Total	1,201,000	376,000	1,577,000
5. Less required for salt balance	111,000	60,000	171,000
Net from system	1,090,000	316,000	1,406,000
Deficit	414,000	510,000	924,000
From Colorado River:			
Diversion, Lake Havasu			1,200,000
Less transmission loss to area			150,000
Delivered to area			1,050,000
Less release for salt balance			210,000
Net from Colorado River for irrigation			840,000
Deficit			84,000

NOTE.—This tabulation does not include the upper Gila Valleys, San Pedro Valley, and the city of Tucson Compensation made herein by allowing for the water withheld to serve these areas.

As these lands go out for lack of water or because the cost exceeds the income, it means farm families become destitute, and the loss of business in the area is proportionate, causing more destitution. The lands will be foreclosed for mortgages or sold for taxes. In time, due to the lack of pumping under these conditions, the underground water will rise. This will encourage new people to take up the lands; they and business will prosper for a period; and the process of gradual failures will be repeated. Therefore, a supplemental water supply for this area is a must if the civilization as now exists is maintained and if tragic losses and experience are prevented for the generations to come.

It is therefore evident that without the additional water from the Colorado River, being the only remaining source and found feasible by the report of the Bureau of Reclamation on the central Arizona project, and to which Arizona is justly entitled, the entire economy of the area must be seriously affected, and to the detriment of the national economy.

Mr. MURDOCK. Thank you, Mr. Lane. There will be questions to be asked, I think.

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Our usual practice is to begin on the seniority basis, but it occurs to me that we might reverse that this time.

Mr. Baring, have you any questions?

Mr. BARING. Mr. Chairman, I came in late. I would like to withhold my questions right now.

Mr. MURDOCK. Governor Miles?

Mr. MILES. No questions.

Mr. MURDOCK. Mr. Aspinall?

Mr. ASPINALL. I have a few questions I would like to ask, Mr. Chairman.

Mr. Lane, you made reference to a new underground water code of Arizona. What year was that enacted?

Mr. LANE. It was enacted in this year.

Mr. ASPINALL. This year?

Mr. LANE. About 7 months ago. The latter part of last year. It was a special session of the legislature.

Mr. ASPINALL. Up to this time had there been any State legislation to control those wells?

Mr. LANE. Up to the time of that act there had been no provision for it under law.

Mr. ASPINALL. What prompted the disuse of the wells?

Mr. LANE. The disuse?

Mr. ASPINALL. Yes.

Mr. LANE. The only thing that would prompt disuse of the wells is that they would go dry or the lift would become too deep and it would not be economic to use it.

Mr. ASPINALL. In other words, there was no legal restriction whatsoever?

Mr. LANE. No, sir.

Mr. ASPINALL. Do you have any case law in Arizona relative to the adjudication of underground water?

Mr. LANE. Within the State?

Mr. ASPINALL. Within the State.

Mr. LANE. I would have to defer that to a lawyer. I do not know.

Mr. ASPINALL. So far as you know?

Mr. LANE. I have never heard of one.

Mr. ASPINALL. You have made more or less reference in your statement to salts and salt content of water. Is there any variance in the quantity of salt in the depth of the wells used?

Mr. LANE. Well, generally the upper strata in the wells carry the larger quantity of salts. Quite frequently you can case off those upper strata and get fairly good water out of the well. You will not get as much. The upper strata carry a good quantity of water, but it is the higher salts.

Mr. ASPINALL. In your statement you suggest that you need 1.7 acre-feet of water over and above the required 3 acre-feet of water or in total 4 acre-feet of water for proper irrigation. What happens to that additional 1.7 acre-feet of water that you derive from the streams?

Mr. LANE. It is water that is not consumed by the plants and either percolates into the underground water or runs off the land as waste water and back into the stream.

Mr. ASPINALL. In other words, as I understand your statement now, you need an application of 5.7 acre-feet of water for the proper irrigation of this land; is that correct?

Mr. LANE. That is at the point of diversion, to get the 4 acre-feet to the land. That would include canal losses.

Mr. ASPINALL. In other words, the 1.7 acre-feet is loss from the point of diversion to the place of application?

Mr. LANE. The 1.7 is; yes.

Mr. ASPINALL. Why do you have to have seven-tenths of an acre-foot of water for loss from the place of pumping to the place of application?

Mr. LANE. Well, you have to run it into your farm ditches and your ditch system to get it to the point of use. That is the evaporation and principally the seepage loss in the canal system that you run it into, through to the point of diversion at the land.

Mr. ASPINALL. Do you have any cement-lined canals?

Mr. LANE. There are quite a few cement-lined canals, and those are being increased every year. The farmers are going into that more all the time.

Mr. ASPINALL. It seems to me that the loss of 1.7 acre-feet from the point of diversion to the place of application and seven-tenths of an acre-foot of water from the pump to the place of application is a rather heavy loss. Why is that?

Mr. LANE. Of course, a good deal of this water, Mr. Aspinall, is pumped by irrigation districts into the regular distribution system. That water is carried quite a distance, quite often, before the point of delivery. It is the same general type of loss as you have in gravity water from the point of diversion into the land. It is seepage mainly through your canal system.

Mr. ASPINALL. I have one other question: The wells are not necessarily placed upon the lands where the waters are to be applied, are they?

Mr. LANE. Well, in irrigation districts like the Salt River Valley project, for instance, and other irrigation districts they have a number of wells, that add to their river supply. Those wells, of course, are put at points where they can serve as much of the land as possible under these wells.

Consequently, in those particular areas that water is run some little distance.

Now, one of these wells costs around $30,000. A farmer has to have enough land to justify that well. That well will supply about 300 acres, where it is a private well. Naturally, he will have to run that a half mile or three-quarters of a mile to get down to the lower end of his area.

This 4.7 per acre-foot is the estimate as found by the Bureau of Reclamation in their study and in their report. That is the average of the amount of water required to be pumped to reach the 4 acre-feet at the land.

Mr. ASPINALL. Have you made any study on the question of the deposit of salt in water in reservoirs to see whether or not the water loses its salinity when it is in the reservoir?

Mr. LANE. No; it does not lose its salinity.

Mr. ASPINALL. It does not?

Mr. LANE. No. With evaporation losses it will slightly increase.

Mr. ASPINALL. Has it entered your mind that there might be an increase of salt content in the water in the Colorado River with the

additional usage of such waters by the upper basin States?

Mr. LANE. I think there will be some; yes.

Mr. ASPINALL. You do not think that will seriously handicap your usage of that water?

Mr. LANE. I do not think it will be that much. I think it will still be a rather low content of salt.

Mr. MURDOCK. If my colleague would yield at that point, I just want to make reference to the fact that nothing in the Santa Fe Compact has to do with the quality of water at Lee Ferry.

Mr. ASPINALL. In answer to my distinguished chairman, I think that is right, and personally, I am very glad that is the situation. Nevertheless, I think it will enter into the question of the delivery of water at Lee Ferry sooner or later.

Mr. MURDOCK. I think you are exactly right, but I wanted that fact to be noted in the record as my view.

Mr. Bentsen, do you have any questions?

Mr. BENTSEN. No questions.

Mr. WHITE. Mr. Chairman, I know we are honored with the presence of the junior Senator from the State of Arizona. I think out of courtesy to him and his interest in this committee that he should be permitted to take part in the proceedings and to ask questions and be accorded all the privileges of a member.

Mr. MURDOCK. I think you are exactly right about that, Mr. White, and we hereby extend to the junior Senator from Arizona not only the privilege of sitting with us, but also the privilege of entering into the discussion in the way indicated. We are mighty glad to have you, Senator McFarland.

Senator MCFARLAND. Thank you, sir.

Mr. MURDOCK. Dr. Miller?

Mr. MILLER. No questions.

Mr. MURDOCK. Mr. D'Ewart?

Mr. D'EWART. I was interested in the point which Mr. Aspinall brought up with regard to that 1.7 acre-feet loss in the pumping water between the well and the point of use. I agree with him that it seems to me that is an excessive amount in the short distance you transport the water there.

I think there is one more point he did not bring out, and that is that some of that goes into underground storage if it is lost.

Mr. LANE. Let me get one point straight on that, Mr. D'Ewart: On the pump water there is only seven-tenths lost.

Mr. D'EWART. Even that is large.

Mr. LANE. A large part of that does go in and contribute to the underground water.

Mr. D'EWART. I think you should be congratulated on this very complete report, and certainly on the underground storage in Arizona. It is about as good a paper on that subject as I have ever seen presented to this committee.

Mr. LANE. Thank you, sir.

Mr. D'EWART. I think it is a splendid effort.

Mr. LANE. Thank you.

Mr. D'EWART. If I understand the figures on page 16, you say that the total acreage in the project is 762,600. Do you mean by that the

present acres irrigated, or is that what is within the boundary of the project?

Mr. LANE. Those are acres that have been irrigated and would be irrigated if there were a full amount of water for them every year.

Mr. D'EWART. 762,600 acres?

Mr. LANE. Yes.

Mr. D'EWART. The facilities are there to irrigate this area and have been built and used at one time or another?

Mr. LANE. Yes. You see the situation that exists.

Well, we had a fairly wet year in 1940–41. We have had no run-off to speak of since until this year. The land has had to depend more and more on the pumps, and less on the gravity water.

Now, they do not have enough pump facilities to fully irrigate that land, and if they did it would just pull the underground water out that much faster.

Mr. D'EWART. Taking these figures and applying the availability of water, as shown on page 20, I gather from your study that the deficit for the 762,000 acres would be 924,000 acre-feet. I also gather that in order to take up this deficit you think a diversion from the Colorado River of 1,200,000 acre-feet is necessary. Even that would leave a deficit of 84,000 feet after you allow for stream loss, transmission loss, and for salt control; is that a correct interpretation of your figures?

Mr. LANE. That is correct.

Mr. D'EWART. In other words, in order to adequately serve these 762,600 acres you feel you would need to divert from the Colorado River 1,284,000 acre-feet?

Mr. LANE. Either that or to make up that deficit, which I think can be done, by cleaning up those river channels and salvaging some of the water now being used by that river growth.

Mr. D'EWART. Has any effort been made along that line?

Mr. LANE. There has been a good deal of consideration given it not only there but in other places. It is quite a problem to know just what is the best way to do it.

Mr. D'EWART. I know. In some places they are making a study of the use of chemicals, and killing that growth.

Mr. LANE. Yes. They have been doing some experimenting. It has only been on the experimental basis so far. They have to do something in that area, because this growth has grown so dense that the channels have all grown up. Something will have to be done to salvage water.

Mr. D'EWART. I have seen the same thing in other areas. I have also seen in some areas moss growing in channels when warm weather comes.

Mr. LANE. That is right.

Mr. D'EWART. This study, as I said, Mr. Chairman, is very adequate, and I think it is a splendid presentation.

Mr. LANE. Thank you.

Mr. MURDOCK. Mr. Morris, do you have any questions?

Mr. MORRIS. Mr. Chairman, I believe I have no questions. I was unavoidably delayed in attending the committee this morning, and I heard only a part of the statement of this witness, but I have read

his statement, supplementing the part that I heard; and I will say that this is one of the finest statements that I have ever seen and ever heard concerning the water situation there in Arizona.

I appreciate very much the time and effort which has gone into the preparation of this statement.

Mr. LANE. Thank you.

Mr. MORRIS. It certainly presents, in my judgment, a very clear picture of the water situation there.

Mr. MURDOCK. It is the culmination of pretty extensive studies carried on by the Geological Survey.

Mr. LANE. That is correct.

Mr. MURDOCK. From which you took a good deal of information?

Mr. LANE. Yes.

Mr. MURDOCK. I, too, want to compliment you on your statement. It reflects a critical situation.

Mr. Marshall, have you any questions?

Mr. MARSHALL. No questions.

Mr. MURDOCK. Do you have any further questions, Mr. Sanborn?

Mr. SANBORN. I have no questions.

Mr. MURDOCK. Mr. White, do you have any questions?

Mr. WHITE. Would you go to that relief map there and indicate to us where this district is? I think you called it Maricopa County. Is that the district you are speaking of?

Mr. LANE. This chart?

Mr. WHITE. I beg your pardon?

Mr. LANE. I did not quite understand your question, Mr. White.

Mr. WHITE. We have a relief map here of the great State of Arizona. I am wondering just where this place is located that you are talking about. Would you indicate it on the map?

Mr. MURDOCK. Maybe one of the gentlemen on the front row could help us to point the areas asked about.

Mr. LANE. This is the area [indicating] I have reference to, in green.

Mr. WHITE. In green. I thought that represented a reservoir.

How long a canal from the Colorado River would be necessary to bring water to that land?

Mr. LANE. I believe 234 miles.

Mr. WHITE. How much of a lift in the Colorado River?

Mr. LANE. 987 feet.

Mr. WHITE. I beg your pardon?

Mr. LANE. 987 feet.

Mr. WHITE. The lift is going to be a big factor in the cost of putting water on that land; is it not?

Mr. LANE. That is correct?

The Bureau of Reclamation has all of that information here, and I would rather refer that to them.

Mr. WHITE. In your paper, on page 18, I believe you speak of the underground storage. That is what we call the water table; is it not?

Mr. LANE. The underground storage?

Mr. WHITE. Yes.

Mr. LANE. Well, the USGS has estimated that the available water, what they call the safe yield from underground, would be about 714,000 acre-feet.

Mr. WHITE. That is what is called the water table?

Mr. LANE. That is usually a reference to the level of the water underground.

Mr. WHITE. That determines the depth of the well? There is more draft made from the water table, and then it subsides and the wells have to be dug deeper?

Mr. LANE. We have two water levels that we take into account. One is called the static level or the natural water table level. If you pump you draw that down to what we call the pumping level, which is the depth below the surface that you actually lift that water.

Mr. WHITE. However, is it practical, or economically feasible to lift the water from wells to irrigate lands from any depth?

Mr. LANE. That depends on two or three factors, Mr. White. One is, of course the power that you are using, whether it is fuel or electric power, and what the cost of it is, and the type of crops you are growing. It may cost you quite a different amount if you use electric power at one price or electric power at another price, or fuel oil. It makes quite a bit of difference in your cost. The economics is the controlling factor.

Mr. WHITE. That is a problem we have run into all over the United States.

Mr. LANE. That is right.

Mr. WHITE. If there is no diversion of stream flow the people resort to wells. The cost of electricity is a large factor in the economic feasibility of irrigating lands from wells.

Mr. LANE. That is right.

Mr. WHITE. You do not have any idea just what limitations could be put on this to make it economically feasible to bring up water out of wells?

Mr. LANE. As I say, it depends on so many of those factors of cost. Do you mean with reference to what power should cost for that?

Mr. WHITE. You go on at some length here in your statement about it.

Mr. LANE. I do not know that I understand your question.

Mr. WHITE. I see in the fourth line on page 18 that there is an estimated 527,000 acre-feet of losses in the Phoenix area for seepage. That is quite a volume of water.

Mr. LANE. That is quite a large area.

Mr. WHITE. An acre is about 208 feet square, and to cover it with an acre-foot of water is quite a volume of water.

Mr. LANE. That is right.

Mr. WHITE. If you multiply that by 527,000 times you get a lot of water. How big a stream would you estimate it would take to carry that water?

Mr. LANE. This water is spread over a very large area.

Mr. WHITE. I know, but you are talking about supply, and the leaking out of the bottom of the river, and going into the underground table. According to that figure it would be quite a large bit of the stream which escaped. How big a stream would 527,000 acre-feet be?

Mr. LANE. You mean running the whole year, to make the 527,000 acre-feet?

Mr. WHITE. That is what I imagine it is based on, a unit of a year.

Mr. LANE. It would not be such a tremendously large stream running 12 months.

Mr. WHITE. The water flowing in the river bed carries considerable silt, does it not?

Mr. LANE. In flood periods?

Mr. WHITE. Over the ages does not that silt have a tendency to stay in the river bed?

Mr. LANE. It does to some extent. Your subsequent floods will scour it out again, and you go through the same process again. I have measured in some cases where the absorption was around 1 acre-foot per acre per day in a flood in some of the streams there.

Mr. WHITE. Once that water escapes from the bed of the river through the percolation and establishes a water table that water table is not disturbed, is it? Is there a tendency to go in that direction any more?

Mr. LANE. That, of course, is one of the sources of your underground water supply.

Mr. WHITE. If you put down pumps and drain that water table then the water which escapes from the river will come in to stabilize the water table?

Mr. LANE. That is correct. One of our main sources of water supply.

Mr. WHITE. Could you give us any reason why the State of Arizona would pass a law regulating the use of underground water in this particular area?

Mr. LANE. Why they would pass a law?

Mr. WHITE. They did pass the law.

Mr. LANE. Yes.

Mr. WHITE. Some necessity made that necessary. What happened?

Mr. LANE. Because they were continuously increasing the number of wells when the water supply was already being overdrawn.

Mr. WHITE. They made such heavy drafts on this underground storage of the water table that it was receding and the wells were going dry, and some kind of control had to be exercised so that the supply would not be too scant to supply the people then using the water, is that the idea?

Mr. LANE. That is correct. Something had to be done to stop that expansion there, or they would all go out.

Mr. WHITE. Could you and I go into that area now and acquire a farm and want to put down a well and do it without getting permission of the State of Arizona?

Mr. LANE. On undeveloped land you could not.

Mr. WHITE. You could not on undeveloped land. Would they give us a permit at all to put down a well?

Mr. LANE. On undeveloped land not in the critical area.

Mr. WHITE. So far as undeveloped land is concerned it is useless, because they cannot put a well down?

Mr. LANE. That is right. That is the effect of the act.

Mr. WHITE. Have they put a limit on the use of the existing wells?

Mr. LANE. No, they have not limited those.

Mr. WHITE. I think that is all, Mr. Chairman.

Mr. MURDOCK. Mr. Poulson?

Mr. POULSON. Yes. I want to say for the record that I want to compliment Mr. Lane in that I think he has come here and tried to present an honest picture from his standpoint.

I am speaking as one who is violently opposing the project, but I say that because it is in so much contrast to the statements made yesterday by the reclamation engineer, Mr. Larson. Mr. Lane is putting out the picture.

First of all, I know I am not questioning the need, and I think the others from California are not questioning the need. I think you have presented the picture and have been showing the need and how the water is handled. I like that type of testimony much better than the testimony when a representative of the Government comes up and talks about a project, and has an interest in a bill asking for authorization for additional parts of the project which will cost, in his own terms, around $400,000,000, and still does not present it.

You have presented the whole picture, from your viewpoint, of the need, and on that basis I compliment you.

Mr. LANE. Thank you.

Mr. POULSON. Now, Mr. Chairman, I am going to leave. I understand that you are going to have another engineer, and Mr. Larson, and that you are going to meet tomorrow. I am not going to be here. I just want to say that I will want to have the opportunity after I have read the statements to make my answer, or else it will be made in rebuttal by some of our experts. I just wanted to state that.

Mr. MURDOCK. Off the record.

(Discussion off the record.)

Mr. BARING. I believe there was a question which was not quite answered before. The witness said he did not know the exact cost of the initial pumping lift. I have an approximate figure on that which I would like to put in the record at this time.

Mr. WHITE. I did not ask the cost. I asked the height.

Mr. BARING. The height?

Mr. WHITE. Yes; but I would like to have it for the record.

Mr. BARING. The initial part involving the Parker pumping route will cost over $750,000,000. That is the initial lift.

Mr. WHITE. You mean the cost of the installation.

Mr. MURDOCK. If there are no further questions, we might excuse the witness.

Senator McFarland, did you have any questions?

Senator MCFARLAND. No.

Mr. MURDOCK. I would like to make just two statements, before Mr. Poulson gets away.

Mr. POULSON. That might call for another statement from me, so I do not know.

Mr. MURDOCK. I want this for the record.

We have had now this witness and the preceding witness who have both been engineers. They have given engineering data on the bill, and Mr. Larson said yesterday quite distinctly—I assisted him in calling his attention to the part of the bill which indicated it—that the tunnel indicated in the bill was merely authorized and not a part of the computation.

Mr. POULSON. And they asked for authorization of a part of a project which they admitted today is not feasible. Is Congress going to set a precedent, where we give a blanket authorization and then whenever it becomes feasible, say, "Go ahead and do it"?

Mr. MURDOCK. We will leave that to the judgment of the committee, as to whether or not there is any deception.

Mr. POULSON. I am asking if that is what we are supposed to do.

Mr. MURDOCK. That is exactly what we are doing in this bill. We called attention to that fact yesterday. This tunnel is not computed in the cost, but it is authorized.

That is the point I want to emphasize before we get through with this. I wanted to call attention to the fact that there was no disposition on the part of the witness yesterday or at any previous time to hoodwink the committee by covering up anything. That is a feature of the bill I want emphasized.

Mr. POULSON. I would like to turn to page 3, Mr. Murdock. It starts out there and says:

Such appurtenant dams and incidental works, including interconnecting lines to effectuate coordination with other Federal projects, flood-protection works, desilting dams, or works above Bridge Canyon—

There were no costs shown on that. This is just another method of setting up an authority, because they have asked for everything in general terms that could ever be thought about for the development of the entire Colorado River.

"Or works above Bridge Canyon." A big dam is a works. We are giving them authorization to go ahead and do it.

Then they state back here, as was brought out yesterday, that these said works and whatever is not mentioned in his report, whenever they think it is feasible, are such that they can go to the Appropriations Committee and ask for the money.

Mr. MURDOCK. I think that is quite clear to the committee. I submit it to the committee, that when we authorized great works in the Central Valley of California, or in the Missouri Valley, or in the Columbia Valley, and so on, we did not spell out all the features. There are some features that must be left for future determination in a project that will take 50 or 100 years to build.

Mr. POULSON. But in those bills, Mr. Chairman, they never got the authorization. If you notice, we are coming back right along and asking for specific authorizations.

One of them the other day was before this committee, which the committee authorized. That was an addition to the Central Valley project.

The point is that you are asking for everything in this bill in a general way, so that they will not have to come back for those specific items.

It is my personal belief that the Congress and the committee should retain their prerogatives of deciding when and if these unnamed projects become feasible, and they should come in to the Congress with them and come before the committee, rather than our giving them a blanket authorization.

Mr. WHITE. Let me ask the gentleman from California a question.

Mr. POULSON. Yes.

Mr. WHITE. If the water from the Colorado is divided, and a part is allocated to Arizona, the gentleman would have no opposition to what Arizona did with its share of the water?

Mr. POULSON. You are right there. That is the crux of the whole thing, Mr. White. Our big argument is that this water does not belong to them.

I think Mr. Larson in his report, and in the Interior Department report, and all through, has mentioned that the project depends entirely upon Arizona's interpretation of the contract.

You are right, Mr. White, that I certainly would never think of trying to tell Arizona what she could do with her water. I have no intention of doing so.

I am starting out on the premise, first of all, that this is water definitely in dispute. It is not Arizona's water, and, therefore, we should not by an act of Congress give the water to them.

Mr. WHITE. The purpose of this authorization you are talking about is to provide a means for Arizona to utilize her share of the waters of the Colorado River.

Mr. POULSON. If it is her share.

Mr. WHITE. That will be determined.

Mr. POULSON. That is right. You have hit the nail on the head. Thank you.

Mr. MURDOCK. Mr. Marshall?

Mr. MARSHALL. I was going to say, Mr. Chairman, that these witnesses come from some little distance. So far as I am concerned, I am very interested in this. I realize, of course, that there is a difference of opinion between these two States; but that, perhaps, could be better ironed out in executive session, so as not to interfere with the witnesses whom we have here who are trying to express their opinions to help this committee arrive at a decision.

Mr. MURDOCK. That is a timely and appropriate comment, Mr. Marshall.

Mr. MARSHALL. Thank you.

Mr. MURDOCK. I simply wanted the record to show, however, that I take the evidence of these engineers at face value.

Mr. POULSON. And the record shows that I took Mr. Lane's testimony accordingly, quite apart from Mr. Larson's.

Mr. MURDOCK. It is submitted to the committee's judgment as to whether any preceding witness was trying to conceal anything by phony arithmetic or otherwise.

Thank you, Mr. Lane.

Mr. LANE. Mr. Chairman, there is just one point. I was asked what date the underground water code in Arizona was passed.

Mr. MURDOCK. Yes.

Mr. LANE. I have the exact date here. It was signed April 1, 1948.

Mr. MURDOCK. I would like to make one comment further before you leave, Mr. Lane.

You have indicated a splendid study which is a composite, of course. You have given credit to others who helped you in this. You have even gone to the point of showing how much water is lost by evaporation and also transpiration from this evil river growth and that sort of thing, with the suggestion, of course, that we ought to eliminate that. I concur with you heartily in it.

All of your testimony shows the vital necessity of this particular area, but it applies to all others in the Pacific Southwest, especially utilizing every drop of water, conserving and avoiding, as much as possible, losses through seepage and transpiration from plants and the like.

Mr. WHITE. Might I ask a question of the chairman at this point?

Mr. MURDOCK. Yes.

Mr. WHITE. What river do you have in mind? Is that Colorado River evaporation, or the Salt River, or the Gila River?

Mr. MURDOCK. I am thinking of the Colorado River, the Salt River, and the Gila River. All of those streams have plant growth in them which causes tremendous losses of water as well as the heavy evaporation losses. The witness has shown that the growth of salt cedar and that sort of thing along the Salt River and the Gila River is not only causing great loss of water, but that it constitutes a flood menace. I am glad to have him call that to our attention.

My own town, my own home, my own dwelling in Tempe is menaced, to a certain extent, by the growing salt cedar in the river bed. I fear great damage if it is not cleared out.

Mr. WHITE. Mr. Chairman, I understood from the discussion in the paper of the gentleman here that his remarks were limited to Arizona rivers, the Gila and Salt Rivers. I wonder if that is correct?

Mr. LANE. That is what I was dealing with.

Mr. WHITE. Were you talking about the Gila and the Salt Rivers?

Mr. LANE. I was talking about the Gila system.

Mr. D'EWART. Mr. Chairman, I have a question.

Mr. MURDOCK. Mr. D'Ewart.

Mr. D'EWART. There is one point I do not believe was covered.

Your investigation of this basin and subsurface storage leads you to believe that the strata are such that this water, if it is brought into the basin, would go into this underground storage and would be retained there?

Mr. LANE. Water not consumed by the plants would go into the underground waters and could be reused.

Mr. D'EWART. You think the strata underneath the surface are such that you believe it could be retained?

Mr. LANE. Yes, sir.

Mr. D'EWART. And it would answer that purpose?

Mr. LANE. Yes, sir.

Mr. WHITE. I have just one other question.

Would this land take in the Paradise Valley to the north of the Salt River Valley?

Mr. LANE. The acreage I was dealing with was all the acreage in that area.

Mr. WHITE. That would include the Paradise Valley?

Mr. LANE. Yes, sir.

Mr. MURDOCK. Senator McFarland, I believe you had a comment.

Senator MCFARLAND. I was just going to suggest that we might be able to answer the question in regard to the cases of the underground water. What was that question? I thought maybe we could give it to you now.

Mr. ASPINALL. Senator McFarland, I just asked whether or not there had been any case law developed in Arizona concerning underground water.

Senator MCFARLAND. We have had several cases in Arizona in regard to underground water, Congressman; but the cases have held that although you can appropriate underground waters, it must be the waters of an underground stream. The cases did not affect this percolating water.

For that reason there was not any way of controlling the underground water through the law as developed by the courts, so it was necessary for the legislature to pass this underground water law. That is the reason for it.

Mr. ASPINALL. That was the question I was going to ask. Thank you very much, Senator.

Mr. MURDOCK. Thank you, Mr. Lane.

Mr. LANE. Thank you, sir.

Mr. MURDOCK. Mr. Debler is our next witness.

(Discussion off the record.)

Mr. MURDOCK. Will you please give your name to the reporter?

STATEMENT OF E. B. DEBLER, CONSULTING ENGINEER FOR THE STATE OF ARIZONA

Mr. DEBLER. My name is E. B. Debler. I am a consulting engineer for the State of Arizona.

In the past I was with the Bureau of Reclamation for 28½ years. Most of that time I was in charge of project-planning work. Prior to that time I was in both the railroad and irrigation work for about 10 years, and have been in private practice for the past 2 years.

Mr. MURDOCK. You are well known to us and have a splendid reputation with us. You have had long experience, and that causes me to have a high regard for your statement before I hear it.

Mr. DEBLER. Mr. Chairman, I have here some maps which might help the committee members locate some of these places we talk about.

Mr. MURDOCK. I do not want to delay Mr. Debler, but I want to make note of this one thing: In considering legislation of this sort we have to consider alternatives. What if some such legislation is not enacted?

If Mr. Debler does not touch on that I hope some other witness does, and if some other witness does not, I will have to do so before we conclude the presentation.

You go right ahead, Mr. Debler.

Mr. DEBLER. This statement that I will present, Mr. Chairman, is a statement to show the availability of water for this project.

Mr. MURDOCK. I wish every member of the committee could be here to hear that, because that has been the question most frequently asked: Is there water? Of course, I presume you will be handling the physical availability.

Mr. DEBLER. I go into the physical availability on the basis of the interpretations of the applicable laws as they are particularly stressed by the State of Arizona.

They, however, are also in full agreement with my past opinions thereon.

Source: Water for the project is to be diverted from the Colorado River by pumping from Lake Havasu, impounded by Parker Dam built by the Bureau of Reclamation at the expense of the Metropolitan Water District of Los Angeles, to facilitate diversion by that district, and for other purposes.

Availability of water is controlled by the Colorado River compact, the Boulder Canyon Project Act, and the treaty with Mexico.

Colorado River compact: The Colorado River compact, signed at Santa Fe November 24, 1922, by representatives of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming, was approved by Congress in section 13 of the Boulder Canyon Project Act of December 21, 1928, with a waiver of that part of article XI requiring approval of the compact by all of the States, such approval by the Congress being conditional on acceptance of the waiver and approval of the compact by California and at least five other States. The States, except Arizona, complied promptly. Arizona ratified on February 24, 1944.

The compact provisions pertinent to the central Arizona project are as follows: Article III—

(a) There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

(b) In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

(c) If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River system, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraph (a) and (b); and if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be equally borne by the upper basin and the lower basin, and whenever necessary the States of the upper division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

(d) The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series beginning with the 1st day of October next succeeding the ratification of this compact.

(f) Further equitable apportionment of the beneficial uses of the waters of the Colorado River system unapportioned by paragraphs (a), (b), and (c) may be made in the manner provided in paragraph (g) at any time after October 1, 1963, if and when either basin shall have reached its total beneficial consumptive use as set out in paragraphs (a) and (b).

The compact (art. IIIa) apportions to each of the upper and lower basins in perpetuity a total of 7,500,000 acre-feet for beneficial consumptive use annually and (art. IIIb) grants the further right to the lower basin to increase its beneficial consumptive use by 1,000,000 acre-feet annually. While article IIIb does not use the word "apportionment" with respect to the 1,000,000 acre-feet, article IIIf clearly earmarks this as apportioned water by grouping it with the apportioned waters of IIIa and IIIc, and by designating as surplus waters available for further apportionment only the waters remaining after either basin shall have reached its total allowance under IIIa and IIIb. Article IIIc establishes the basis for supplying any right later recognized in Mexico and (art. IIIf) leaves the apportionment of any remaining surplus water to be made after October 1, 1963. By the terms of the compact (art. IIId), the States of the upper division cannot cause the flow of the Colorado River at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years, and in addition thereto must deliver one-half of the Mexico requirement not met from the surplus remaining beyond the apportionments of 16,000,000 acre-feet to the two basins.

The compact does not define "beneficial consumptive use," nor have the States acted under article VI of the compact to secure such clarification.

The compact in article IIId does place a limitation on such "beneficial consumptive use" with respect to the upper basin in periods of low run-off by designating a specified minimum 10-year delivery of water at Lee Ferry, the downstream limit of the upper basin. It appears only reasonable to conclude then that the intention in article IIIa was to permit the upper basin to deplete the flow of the Colorado

River at Lee Ferry by an average of 7,500,000 acre-feet per year, subject to the specified minimum delivery under article IIId. Likewise, it is concluded that it was the intention in article IIIa, IIIb, and IIIc to permit the lower basin and its component States to deplete the Colorado River at the International Boundary by an average of 8,500,000 acre-feet per year, with each basin to make up one-half the deficiency when remaining surplus waters are inadequate to supply Mexico the amount accorded that nation.

Boulder Canyon Project Act (ch. 42, 45 Stat. 1057): This act, approved December 21, 1928, in section 4 (a), contains the following provisions pertinent to the central Arizona project:

> This act shall not take effect * * * unless and until (1) the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming shall have ratified the Colorado River compact, * * * (2) if said States fail to ratify the said compact within 6 months from the date of the passage of this act then, until 6 of said States, including the State of California, shall ratify said compact * * * and, further until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, and Nevada, New Mexico, Utah, and Wyoming * * * that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this act and all water necessary for the supply of any rights which may now exist, shall not exceed 4,400,000 acre-feet of the waters apportioned to the lower basin States by paragraph (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.
>
> The St ates of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by an allowance of water which may be made by treaty or otherwise to the United States of Mexico, but if, as provided in paragraph (e) of article III of the Colorado River compact, it shall become necessary to supply water to the United States of Mexico from water over and above the quantities which are surplus as defined by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply, out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin * * *.

Mr. MURDOCK. From what law or document are you reading?

Mr. DEBLER. The Boulder Canyon Project Act of December 21, 1928.

The more important features of this section of the Boulder Canyon Project Act, are (1) limitation of use by California to a maximum of 4,400,000 acre-feet of IIIa water, plus one-half of any unapportioned water, which was accepted by California in a statute dated March 4, 1929, and (2) Arizona to have exclusive use of its Gila River waters, and (3) in case Mexico is not fully supplied from surplus waters unapportioned, requiring the lower basin to make up a deficiency, such deficiency will be borne equally by Arizona and California out of the main stream of the Colorado River. Again, it will be noted the Congress, only 6 years after the signing of the Colorado River compact and at a time when there was a full and frank discussion of the numerous contentions and interpretations of the compact, intended that

apportionments were to be based on their effect on Colorado River flows, for the upper basin at Lee Ferry, and for the lower basin at the international boundary where delivery is made to Mexico, since surplus waters available for use by Mexico could be measured only at the international boundary where delivery is made to Mexico.

Treaty with Mexico: A treaty relating to the division of the waters of the Rio Grande and of the Colorado and Tijuana Rivers was signed by representatives of the two Governments on February 3, 1944, and, together with the protocol signed November 14, 1944, and clarifying reservations, were ratified by the United States Senate on April 18, 1945, and by the Mexican Senate on September 27, 1945.

The treaty guarantees Mexico a delivery of 1,500,000 acre-feet annually collectively at a number of points on the international boundary in the vicinity of Yuma. This quantity may be reduced in time of extraordinary drought to the same degree that consumptive uses are reduced in the United States.

Mexico is also to receive, without acquiring a permanent right thereto, up to 200,000 acre-feet of additional water when a surplus exists in the supply for users in the United States.

Contract by the State of Arizona with the United States for water: By an agreement dated February 9, 1944, with the United States, Arizona contracted for the storage of water in Lake Mead and for the delivery thereof at points on the Colorado River to be agreed upon, for irrigation and domestic use. The portions of the contract particularly pertinent to the central Arizona project are as follows:

Subject to the availability thereof for use in Arizona under the provisions of the Colorado River compact and the Boulder Canyon Project Act, the United States shall deliver and Arizona, or agencies or water users therein, will accept under this contract each calendar year from storage in Lake Mead, at a point or point of diversion on the Colorado River approved by the Secretary, so much water as may be necessary for the beneficial consumptive use for irrigation and domestic uses in Arizona of a maximum of 2,800,000 acre-feet.

The United States also shall deliver from storage in Lake Mead for use in Arizona, at a point or points of diversion on the Colorado River approved by the Secretary, for the uses set forth in subdivision (a) of this article, one-half of any excess or surplus waters unapportioned by the Colorado River compact to the extent such water is available for use in Arizona under said compact and said act, less such excess or surplus water unapportioned by said compact as may be used in Nevada, New Mexico, and Utah in accordance with the rights of said States as stated in subdivisions (f) and (g) of this article.

The obligation to deliver water at or below Boulder Dam shall be diminished to the extent that consumptive uses now or hereafter existing in Arizona above Lake Mead diminish the flow into Lake Mead, and such obligation shall be subject to such reduction on account of evaporation, reservoir and river losses, as may be required to render this contract in conformity with said compact and said act.

Arizona recognizes the right of the United States and the State of Nevada to contract for the delivery from storage in Lake Mead for annual beneficial consumptive use within Nevada for agricultural and domestic uses of 300,000 acre-feet of the water apportioned to the lower basin by the Colorado River compact, and in addition thereto to make contract for like use of one twenty-fifth of any excess or surplus waters available in the lower basin and unapportioned by the Colorado River compact, which waters are subject to further equitable apportionment after October 1, 1963, as provided in article III (f) and article III (g) of the Colorado River compact.

Arizona recognizes the right of the United States and agencies of the State of California to contract for storage and delivery of water from Lake Mead for beneficial consumptive use in California, provided that the aggregate of all such deliveries and uses in California from the Colorado River shall not exceed the limitation of such uses in that State required by the provisions of the Boulder Canyon Project Act and agreed to by the State of California by an act of its

legislature (ch. 16, Statutes of California of 1929) upon which limitation the State of Arizona expressly relies.

Arizona share of apportioned waters: Arizona, California, and Nevada have not entered into a compact or agreement for a division of lower basin apportionments of water as authorized by sections 4 and 19 of the Boulder Canyon Project Act, nor are they in agreement on such a division.

In arriving at the Arizona share of available waters, the following factors have been taken into consideration:

(*a*) The compact permits the lower basin under articles IIIa and IIIb to deplete stream flow by 8,500,000 acre-feet as heretofore discussed.

(*b*) California, under the terms of section 4 (a) of the Boulder Canyon Project Act, and its conforming statute, is limited to an aggregate annual consumptive use (diversions less returns to the river) of 4,400,000 acre-feet plus one-half of any surplus that may be apportioned to the lower basin after October 1, 1963.

(*c*) Congress by section 4 (a) of the Boulder Canyon Project Act authorized an agreement by Arizona, California, and Nevada providing (1) for division of the 7,500,000 acre-feet of IIIa water, with Arizona apportioned 2,800,000 acre-feet and Nevada 300,000 acre-feet, (2) Arizona may use one-half of the unapportioned waters, (3) Arizona to have exclusive beneficial consumptive use of Gila Basin waters within its borders, and (4) no Gila waters subject to demand to meet Mexico requirements.

Since the California limitation statute limits that State to the use only of IIIa and surplus waters as yet unapportioned, it follows that the 8,500,000 acre-feet of Colorado River depletion apportioned to the lower basin by articles IIIa and IIIb, in the absence of a lower basin agreement, are available to the States as follows: To California not more than 4,400,000 acre-feet; to Arizona and other States, not less than 4,100,000 acre-feet. In the remainder of this statement in the interest of conservatism with respect to Arizona water supply, it is being assumed that the waters of the Colorado River would actually be so divided. Arizona by the water contract of February 9, 1944, recognizes the right of Nevada to a beneficial consumptive use of 300,000 acre-feet of apportioned water, and the rights of Utah and New Mexico to equitable shares of lower basin apportioned water. While the shares of these latter States have not been fixed by agreements, the report "The Colorado River" dated March 1946 by the Bureau of Reclamation, page 184, presents the estimated ultimate depletion by the lower basin portions of these States as follows:

	Acre-feet
New Mexico	37,000
Utah	101,000
Total	138,000

Nevada in the same report is estimated to be able to deplete the stream by 256,800 acre-feet annually, compared with an Arizona recognition in its contract with the United States, of 300,000 acre-feet.

The lack of synchronism in the high and low run-off periods of the Gila and Colorado Rivers, the exceedingly large ground storage capacity available in the Phoenix area to regulate Gila River run-off,

and the freedom of Gila River from water demands for Mexico use make it advisable to segregate the Arizona water allotment as between Gila River uses and uses of the Colorado River and its other tributaries. Arizona (and New Mexico) in most years will fully divert Gila River flows with an inflow to Colorado River of 70,000 acre-feet, being that part of the 166,000 acre-feet of Gila River waters to be released from the Phoenix area for a salt balance with ultimate development reaching the Colorado River. Operations in that area in 1941 showed an ability to reduce Gila River outflow from an estimated 3,700,000 acre-feet under natural conditions, appearing on page 285, March 1946, on Colorado River, United States Bureau of Reclamation, to 590,000 acre-feet. With the increased diversion and storage capacity contemplated within the Gila Basin, it is estimated that flood outflows would be limited to remnants of the 1905, 1916, and 1941 floods, with an average outflow of 64,000 acre-feet for the entire 47-year period. Depletion of Colorado River flows by Gila Basin development would then be as follows:

	Average annual (acre-feet)
Natural outflow from Gila River	1,272,000
Ultimate outflow of waters produced in Gila Basin:	
Return flow for salt balance	70,000
Flood waters	64,000
Total	134,000
The difference is a depletion of	1,138,000
Depletion by New Mexico	24,000
Depletion by Arizona	1,114,000

(In round numbers, 1,100,000 acre-feet.)

The following tabulations present the results of the applications of the compact and pertinent laws, as heretofore discussed.

In the following tabulation quantities are acre-feet per year:

Comparison of apportionments with long-time average flow

Long-time (1897–1943) average flow at international boundary		17,720,000
Taken from p. 12 of the "Blue Book" (March 1946 report, Bureau of Reclamation).		
Apportionments pursuant to the Colorado River compact:		
Upper basin by art. III (a)	7,500,000	
Lower basin by art. III (a) and III (b)	8,500,000	
Mexico by treaty pursuant to art. III (c)	1,500,000	
		17,500,000
Surplus, unapportioned and subject to apportionment after 1963, in accordance with art. III (f)		220,000

Division of lower basin apportionment authorized by Boulder Canyon Project Act

[Gila River, assigned entirely to Arizona with amount of water not stated but at the time generally assumed to be 1,000,000 acre-feet]

	Acre-feet	Percent
Main stream:		
Arizona	2,800,000	37½
California, by required Self-Limitation Act, a maximum of	4,400,000	58⅔
Nevada, main stream	300,000	4
Total	7,500,000	100
Utah and New Mexico, not mentioned in the Boulder Canyon Project Act, estimated in "Blue Book" at	138,000	----------

Division of lower basin available water: Since the Boulder Canyon Project Act in authorizing a lower-basin compact failed to designate any water for the States of Utah and New Mexico, the contemplated use by these States is herein deducted from the total supply ahead of the division between Arizona, California, and Nevada.

Evaporation losses from the main-stream reservoir is similarly deducted since all three States received benefits from these reservoirs by reason of regulation of their water supplies, diversion from the dams and reservoirs, and use of power produced at the dams.

Since Arizona and New Mexico will deplete Gila River by 1,138,000 acre-feet instead of the 1,000,000 acre-feet in mind in the Boulder Canyon Project Act, a suitable adjustment is made to avoid penalizing California and Nevada for this extra Gila River use.

The resulting division is—		*Acre-feet*
Apportioned to lower basin		8,500,000
Less Gila River use contemplated at the time of Boulder Canyon Project Act		1,000,000
Main-stream use contemplated by act		7,500,000
Less:		
Use by New Mexico above Hoover Dam	13,000	
Use by Utah above Hoover Dam	101,000	
Main stream reservoir evaporation	870,000	
		984,000
Available main-stream water for further use		6,516,000
Arizona share, 37½ percent of 6,516,000		2,432,000
Arizona utilization of Colorado River system:		
Available water after deduction for evaporation from main-stream reservoirs:		
Gila River depletion assumed in Boulder Canyon Project Act		1,000,000
Main-stream water		2,432,000
Total		3,432,000
Utilization there:		
First deduct contemplated Gila River depletion by Arizona and New Mexico		1,138,000
That leaves main stream water available for Arizona use of		2,294,000
Present use above Hoover Dam	64,000	
Present use on Williams River	3,000	
Parker Valley, Colorado River (Indian) project, authorized	250,000	
Gila project, authorized	600,000	
Yuma project	130,000	
Total present and authorized		1,047,000
Available for additional projects		1,247,000
Contemplated for central Arizona project:		
Diversion	1,200,000	
Return to Colorado River	88,000	
Net use		1,112,000
Balance for further projects		135,000

Low run-off period of 1930–46. That period is presented because it is the lowest long period of the 47-year period of records on the Colorado River.

Mainstream water:	
Minimum delivery at Lee Ferry	7,500,000
Net gain Lee Ferry to International Boundary exclusive of Gila River (small reduction in inflow offset by reduction in valley loss)	180,000
Gila River ultimate outflow	150,000
Total	7,830,000

Mr. MURDOCK. Do I understand that is the lowest 10 years of recorded history?

Mr. DEBLER. That is the lowest 17-year period. This low period extended through a period of 17 years. The length of that period is controlled by the fact that throughout that period the 7,500,000 acre-feet provision would particularly prevail.

Mr. MURDOCK. I am glad to be corrected on that. I was thinking of a provision in the compact, but you say this is the lowest 17 years of recorded river flow?

Mr. DEBLER. Yes. Throughout that period in practically every year some water would have to be drawn from storage at Lake Mead in order to fully satisfy the downstream requirements, the lower basin requirements.

Mr. MURDOCK. Thank you.

Mr. DEBLER. Lower basin long-time use 6,516,000.

Mainstream reservoirs, et cetera. I have put the et cetera in to represent the use at that time also of the States of Utah and New Mexico above Boulder Dam. Total 600,000.

Mexico 1,500,000. That makes a total of 8,616,000.

Deficiency to be secured by draw-down at Lake Mead 786,000.

Necessary total draw-down in 17-year period 13,362,000.

Available for draw-down 18,000,000.

Mr. WHITE. Is that 18,000,000 acre-feet altogether, or just Arizona's share?

Mr. DEBLER. That is the total amount that the reservoir could be drawn down from a full content, such as it would have at the beginning of this period, until you have drawn down to the point where you would seriously interfere with power production.

Mr. MURDOCK. We thank you, Mr. Debler, for that presentation. There are many questions arising in our minds. I would like to open up the matter a little in this way:

In the beginning you quoted from the Boulder Canyon Project Act, and also from the Santa Fe compact. Why did you make use of these documents?

Mr. DEBLER. I will go back. The Colorado River compact divides the waters between the basins only, and the ratification of that act required California to impose a limitation upon itself with regard to its maximum use of water. Nowhere in the compact is there anything further bearing on the division of water among the lower basin States.

That division of water, which I have here outlined, is the one that is presented in the Boulder Canyon Project Act. At the time that that act was passed there was a great deal of negotiation toward a lower basin compact.

I might say that that seemed to represent the compromise agreement that the lower basin States were to enter into, under which the

three States of Arizona, California, and Nevada would divide the main stream waters on the basis of 2,800,000, 4,400,000, and 300,000 acre-feet, respectively. In each case an acre-foot of water was the same in each State. Whatever burdens would fall on any 1 acre-foot would be the same kind of burden for any other State.

Mr. MURDOCK. Would you turn to your paper again, toward the bottom of page 10. [Reading:]

California, by required Self-Limitation Act, a maximum of 4,400,000—58⅔ percent.

of the total for the lower basin. Is that what you mean?

Mr. DEBLER. It is 58⅔ percent of the waters available from the main stream in the lower basin.

Mr. MURDOCK. That is the first time I have seen those broken down in that way. Arizona is 37½ percent?

Mr. DEBLER. That is right.

Mr. MURDOCK. Nevada, 4 percent?

Mr. DEBLER. Yes.

Mr. MURDOCK. I wish you would explain that phrase qualifying the middle item:

"California, by required Self-Limitation Act," I would like to have that stressed.

Mr. DEBLER. I think the easiest way to do that, Mr. Chairman, is to read from the Boulder Canyon Project Act, where that is contained.

Mr. MURDOCK. Yes, that is best. Read the law; and then you do not have to express an opinion.

Mr. DEBLER. That is right.

Mr. MURDOCK. That is reasonable.

Mr. WHITE. What page is that on? Where is California required to meet and by its legislature put a limitation upon itself?

Mr. DEBLER. That is right. I have here this 1948 volume, on the Hoover Dam Documents by Wilbur and Ely; and in that volume it is on page A215.

Mr. MURDOCK. You quoted it in your paper. Would you give us a page reference on your paper? Is it page 2?

Mr. DEBLER. It is also in my paper; that is true.

Mr. MURDOCK. Yes. It begins on page 3, I believe, and goes on to page 4.

Mr. DEBLER. It is on pages 3 and 4, right at the top of the page. That is probably the easiest place to get it.

* * * and, further until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, and Nevada, New Mexico, Utah, and Wyoming * * * that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this act and all water necessary for the supply of any rights which may now exist, shall not exceed 4,400,000 acre-feet of the waters apportioned to the lower basin States by paragraph (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

That limitation by California upon herself was required in order to secure approval of this compact by the United States.

California then proceeded to do that, using the very words that are in the Boulder Canyon Project Act, in its statute of March 4, 1929.

Mr. MURDOCK. Are you well enough acquainted with the history of that congressional act to explain why that provision was put in there? Can you explain how the younger States in the basin tried to protect themselves?

Mr. DEBLER. As I recall that, Mr. Chairman, it was primarily the upper basin that was afraid of excessive expansion of uses in California, and at a later time of the claim that California should be permitted to go ahead and have water for all the projects that they then had in mind.

Arizona was also a very interested State, of course, and one of the reasons that Arizona did not ratify the compact until 1944 was that from the time that the compact was signed in 1922 until the Boulder Canyon Project Act was really fully debated, about 1925 and 1926, there were negotiations between Arizona and California for a compact, and it became evident then that California intended to make and desired to make a much greater use of the Colorado River than appeared to be equitable in the eyes of Arizona.

Mr. MURDOCK. What evidence, then, do you have of that?

Mr. DEBLER. At this time that is just my memory of the correspondence and the debates and the discussions of those years.

Mr. MURDOCK. Do you have any evidence of California's later intent to use more than 4,400,000 acre-feet plus any possible surplus of water?

Mr. DEBLER. Well, I have heard at these hearings, particularly before the Senate, the representatives of California unequivocally state that they needed the full 5,362,000 acre-feet to take care of the projects that are authorized and existing.

Mr. MURDOCK. What facilities do they have for taking care of that amount of water?

Mr. DEBLER. The canals which have been built by California, or which have been built for California——

Mr. MURDOCK. You mean, in California?

Mr. DEBLER. And in California, as they come out of the river, generally speaking, are of a size adequate to use that amount of water in the various diversions.

Mr. MURDOCK. As an engineer would you say that those facilities are larger than is required to use that assured amount of water?

Mr. DEBLER. They could be made to use somewhat more, but that was what they were intended to use.

Mr. ENGLE. Will the gentleman yield?

Does the gentleman think there is any impropriety in California building a larger aqueduct than is necessary for 4,400,000 acre-feet?

Mr. DEBLER. Not at all. I would say that California was strictly within her rights, and if she so elected it is thoroughly proper for California to build those canals any size she wishes.

Mr. ENGLE. That is true; because California is entitled to half of any surplus of excess water, is that not correct?

Mr. DEBLER. I do not know just what the California ideas were with regard to surplus waters.

Mr. ENGLE. But the compact provides, does it not, that they get 4,400,000 acre-feet and half of any surplus? If there is any surplus California gets half of it. Therefore, if they build an aqueduct which would only hold 4,400,000 acre-feet and subsequently had some excess

or surplus they would be put to great expense and inconvenience in enlarging the aqueduct. It seems to me just good sense.

Mr. MURDOCK. I get the point, exactly.

How much possible surplus could there be over the 4,400,000 acre-feet? Could you give that approximately? Would the surplus be that much extra?

Mr. DEBLER. With the present apportionments and with our present-day estimates of the average flows, the total surplus for the entire system is only 220,000.

Mr. MURDOCK. According to that somebody has been figuring on a pretty big half of a surplus, have they not?

Mr. DEBLER. I do not know, Mr. Chairman, just what they have been figuring on.

Mr. MURDOCK. I would like to pursue this just a little bit further.

What is the capacity of the All-American Canal from the diversion dam to the Mexican border?

Mr. DEBLER. It starts with a capacity of 15,000 second-feet. At the syphon drop power plant, where most of the water is taken off for the Yuma project, right opposite the city of Yuma, the capacity reduces to 13,000 second-feet. A few miles further down, at the Pilot Knob power plant, where water is being delivered to Mexico, the capacity reduces to 10,000 second-feet; and that is the capacity as the canal enters the Imperial Valley.

Mr. MURDOCK. Translated into acre-feet, what would 15,000 second-feet mean?

Mr. DEBLER. If the canal were to be——

Mr. MURDOCK. Running full all the time.

Mr. DEBLER. Running full all the year round, that would be roughly 11,000,000 acre-feet a year.

Mr. MURDOCK. In other words, there is a canal that can divert from the Colorado River at the Imperial diversion dam 11,000,000 acre-feet?

Mr. DEBLER. That is right.

Mr. MURDOCK. There is another diversion I want to speak of, but I do not want to get away from this yet.

Did I understand you to say that the All-American Canal is reduced to 10,000 second-feet from Pilot Knob on into Imperial Valley?

Mr. DEBLER. Ten thousand second-feet.

Mr. MURDOCK. Yes. It is 13,000 second-feet in the last stretch of the canal down to Pilot Knob, is it not?

Mr. DEBLER. That is right.

Mr. MURDOCK. But from Pilot Knob, which is right on the border, from that point on into California into the Imperial Valley it is only 10,000 second-feet?

Mr. DEBLER. That is right.

Mr. MURDOCK. There is a difference of 3,000 second-feet. How much is 3,000 second-feet in terms of acre-feet?

Mr. DEBLER. It is about 2,169,000 acre-feet per year.

Mr. MURDOCK. Suppose that the canal is running full down to Pilot Knob. What would become of that 2,169,000 acre-feet at Pilot Knob?

Mr. DEBLER. That could be dumped either into the Alamo Canal, which serves Mexico, or into the Colorado River.

Mr. MURDOCK. Did you say 2,169,000 acre-feet?

Mr. DEBLER. Two million, one hundred and sixty-nine thousand acre-feet per year.

Mr. MURDOCK. That is what we are talking about.

Mr. ENGLE. Will you yield?

Mr. MURDOCK. Just a moment, please. I want to establish something here.

Is that not a bottleneck? If you carry that much water down to Pilot Knob you cannot carry it on into Imperial Valley. It has to be dumped into Mexico some way or other, does it not?

Mr. DEBLER. That is right.

Mr. MURDOCK. When was this canal built?

Mr. DEBLER. The All-American Canal, I believe, was started about 1935 or 1934. I am not too sure; but it was right in there some time.

Mr. MURDOCK. It was begun and planned after the Limitation Act of 1929; is that not true?

Mr. DEBLER. That is right.

Mr. MURDOCK. I think somebody has some explaining to do. We have heard our friends from California affirm that they believe in keeping their irrevocable covenants, and the act of 1929 was such an irrevocable covenant made between the State of California on the one hand and the United States of America on the other, for the benefit of the six other States named alphabetically.

Yet they have built an expensive, permanent canal costing upward of, perhaps, $40,000,000, which is supposed to last 1,000 years, to take care of the California share for Imperial Valley and some surplus, but able to take care of twice the amount of the limitation. I want that emphasized in the record so that we can look at it, to compare profession and practice.

Mr. WHITE. Mr. Chairman, at the proper moment I wish you would yield to me for a question.

Mr. MURDOCK. I will yield in just a moment.

Mr. WHITE. Just one question.

Mr. MURDOCK. There is another diversion you speak of, Mr. Debler. Take the Los Angeles aqueduct. What is its capacity?

Mr. DEBLER. It was constructed for a nominal capacity of 1,600 second-feet, and intended originally to convey the 1,100,000 acre-feet of water contracted for by the metropolitan water district. It is now proposed, however, to carry in addition to that water the 112,000 acre-feet contracted to San Diego.

Mr. MURDOCK. Therefore to the 11,000,000 acre-feet which the All-American Canal will divert and carry for a distance, there is then to be added the 1,100,000 acre-feet, making something over 12,000,000 acre-feet, which California has constructions completed, but not paid for, to carry water, after the State of California limited herself to 4,400,000 acre-feet plus surplus.

Now I yield to Mr. White.

Mr. WHITE. I just want to ask one question.

You spoke of water drafted at Pilot Knob. Does the United States not get credit from Mexico for that amount of water delivered at that point?

Mr. DEBLER. To the extent that water is delivered at the Pilot Knob wasteway in accordance with the delivery schedules set up.

Mr. WHITE. We have a treaty with Mexico set up to deliver so much water?

Mr. DEBLER. I will finish this statement, sir.

That is delivered to that point within the schedules that Mexico sets up under its treaty; it is credited against the required delivery to Mexico.

Mr. WHITE. Mexico, of course, would not let that water go to waste, would she? Would she demand additional water in the place of that water at some other point?

Mr. DEBLER. The main reason for that 3,000 second-feet was of course for utilization for power purposes prior to the time that the Colorado River would be rather fully utilized.

Mr. WHITE. As I understand it, you have to have a continuous flow at Pilot Knob to energize that power plant the year round. Mexico may not want that water at all seasons. You say they can dump the water. The point I want to find out is this: we have a canal that carries a certain capacity to that point and is reduced from there on. We have to release part of the water at that point. That is for delivery to Mexico. Do we get credit from Mexico as to other waters, and let that water go to waste?

Mr. DEBLER. Mr. White, the Mexican treaty contemplates delivery at three separate points. One, right there at the Pilot Knob power plant; two, in the river below Yuma, sort of opposite the power plant, you might say; and, three, at what is called San Luis, a town at the south border of the Yuma Valley, where a delivery has been made for many years.

Under the treaty Mexico can each year specify how it wants those deliveries divided, subject to certain limits on the use of the All-American Canal.

To the extent that the deliveries at the Pilot Knob power plant comply with that schedule the uses receive credit for delivery.

Mr. WHITE. Thank you, sir. Now, Mr. Chairman, I yield and thank the chairman for the courtesy of letting me develop that point.

Mr. MURDOCK. Yes, Mr. White. I think I would like to supplement the answer given, because I think you are not clear on one thing.

We spoke about dumping water at Pilot Knob, in Old Mexico, by an oversized canal that could easily carry more than 2,000,000 acre-feet to that point where it could be dumped. In fact, it can carry much more than that. You understand, however, that there is not a power plant there yet.

The witness brought with him this morning the "Hoover Dam documents," by Wilbur and Ely, which is a public document which no doubt all of you have, House Document No. 717, second edition. I want to call attention to the fact that the last three items in this collection are communications.

The very last letter is a reply from the State Department in answer to Chairman Hewes, of the Imperial irrigation district, concerning this very matter. Please note the proposal.

You find in these two letters signed by Chairman Hewes, of the Imperial irrigation district, to the State Department, and especially in the second letter, on pages A915–917, about a power plant, that the Imperial irrigation district is asking certain things. One request is control of the All-American Canal, including the diversion dam, as I

understand it, and then asking to build a power plant at Pilot Knob with a capacity that would use more than 5,000,000 acre-feet of water annually.

Now, I want the committee to understand that when that water goes through the wasteway of the power plant it is in Mexico, and not capable of being used in the United States.

The next to the last letter in that collection, bearing on that very point, is attempting to get a power plant. The last letter is a rather noncommittal reply from the State Department to the effect that some arrangements might be worked out.

That was to me a very alarming letter. I wrote the Secretary of State, while General Marshall was still Secretary, and I said, in effect:

It does not make any difference about the contract of 1932. It is against good public policy for the United States of America, the State Department, representing our dealings in foreign affairs, to let the control of the All-American Canal and the Imperial Diversion Dam fall into the hands of any private organization, because it now has an international use and obligation, and it is the duty of the State Department to see that some agency of the United States Government—especially two, the State Department and the Department of the Interior—keep control of that diversion works and the All-American Canal.

Mr. WELCH. May I interrupt at this point, Mr. Chairman?

Mr. MURDOCK. If you do not get me off the subject, Mr. Welch.

Mr. WELCH. The water at the Pilot Knob power plant, as you have described, after it is used would go into Mexico.

Mr. MURDOCK. Yes, sir.

Mr. WELCH. Is that water over and above the amount of water provided in the treaty between this country and Mexico?

Mr. MURDOCK. Yes, sir; that undoubtedly is a part of their plan. Let me show that from their own correspondence.

I am referring now to this letter dated January 9, 1948, to the Honorable George C. Marshall, Secretary of State, and signed by Mr. Evan T. Hewes, president of the board of directors of the Imperial irrigation district, I believe, and I am referring also to a reply from the State Department of August 4, 1948, which alarmed me.

I understand since that time that my fears that the State Department might fall for the suggestion were not altogether justified. I think the matter has possibly been safeguarded; but I wanted to call it to the attention of the committee, that here is an attempt made to build a works at Pilot Knob that will take a large volume of water out of the river over and above the California limitation, and possibly 10 times the amount legally required for Mexico, and dump it in Mexico.

Mind you, Congressman Welch, it is much over the treaty requirements. The Mexican treaty requires only 500,000 acre-feet of water annually to go down through the All-American Canal to be delivered at Pilot Knob.

Mr. WHITE. Mr. Chairman, do you not think you can be reassured by the fact that the Imperial Valley irrigation district or the Department of the Interior has no power to alter or modify the terms of a treaty with Mexico, without ratification of the Senate?

Mr. MURDOCK. No, that does not give me complete assurance, Congressman White. If they got what they sought, I believe they could if they wished to breach the treaty.

Let me restate that, Congressman Welch. It is true that the treaty calls for 1,500,000 acre-feet annually for Mexico. That is the treaty requirement, but the treaty also requires that for a period of years 500,000 acre-feet of that shall be delivered, as the witness said, at Pilot Knob. Now, I would be glad enough to see power produced by that, at the Pilot Knob drop under the right circumstances and control.

Mr. WHITE. If the water were not used by Arizona at the diversion, it would be surplus when it got down there?

Mr. MURDOCK. Pilot Knob is right on the border; yes.

Mr. WHITE. But it is way below any place where Arizona could divert the water.

Mr. MURDOCK. Yes, Arizona could not use water dropped there. While I am on this, Mr. Debler, you speak of the Los Angeles aqueduct having a capacity of 1,100,000 acre-feet?

Mr. DEBLER. That is right. That is what it was originally built for.

Mr. MURDOCK. It was originally built for that. Have you ever heard of any talk about enlarging that aqueduct?

Mr. DEBLER. Not except just a few hints that California could use a whole lot more water over in the Los Angeles area. Just how to get it over there had not been thought about much, apparently, but there is a possibility of enlarging that aqueduct.

Mr. MURDOCK. Would it be possible to keep that Los Angeles aqueduct running 100 percent every day in the year, within the California limitation?

Mr. DEBLER. Yes.

Mr. MURDOCK. In other words, with a quantity of water of approximately 4,400,000 acre-feet, more or less, it is possible to furnish 1,100,000 acre-feet to Los Angeles without any jeopardizing the Los Angeles water supply.

Mr. DEBLER. You say, "without jeopardizing the Los Angeles water supply"?

Mr. MURDOCK. Yes.

Mr. DEBLER. I do not quite understand you there, Mr. Chairman.

Mr. MURDOCK. Now, Los Angeles counts on 1,100,000 acre-feet of water, which is more than the great city of New York is now using; and they could get that water—could they not—within the California limitation.

Mr. DEBLER. That is an internal matter there, Mr. Chairman. It is a matter which the Californians have to decide among themselves, as to who gets which share of the water.

Mr. MURDOCK. So they do. For that reason, I suggest that the gentlemen who have the metropolitan water district as their clients would be better protecting the interest of those clients in the State of California than in Washington.

But, this is a mathematical question I ask: Is it possible to subtract 1,100,000 acre-feet of water from 4,400,000 acre-feet?

Mr. DEBLER. That is right. That leaves 3,300,000.

Mr. MURDOCK. You are a good mathematician.

Mr. ENGLE. Wait a minute. You do not get 3,300,000 with that subtraction if you charge California for the evaporation and losses on the river; do you?

Mr. DEBLER. That is without deducting it. I had not gone into that.

Mr. ENGLE. There is 600,000 acre-feet of water there which, if Arizona does not get it under its contention, would come out of the 4,400,000 acre-feet; is there not?

Mr. DEBLER. That is right.

Mr. ENGLE. That would make a different figure, then?

Mr. MURDOCK. Are those evaporation losses computed to be as much as 3,300,000 acre-feet?

Mr. ENGLE. I said 600,000 acre-feet, approximately.

Mr. DEBLER. Congressman Engle is correct. California's share averages about 600,000, or pretty close to it.

Mr. MURDOCK. Suppose that we take the 600,000 acre-feet away from the 4,400,000 acre-feet. That leaves 3,800,000 acre-feet.

Mr. DEBLER. About that.

Mr. MURDOCK. You can still get 1,100,000 acre-feet out of that amount; can you not?

Mr. DEBLER. And leave quite a little more.

Mr. ENGLE. But we are given 4,400,000 net, Mr. Chairman.

Mr. MURDOCK. Never mind about that. I am just presenting California with her true picture.

You are right, Mr. Debler; these matters were fixed by internal State affairs. I resent anyone trying to convince this committee, Congress, and the American people that by Arizona coming here and asking for 1,100,000 acre-feet of water it is jeopardizing the water supply of the cities on the west coast. Now, if they want their billion gallons of water daily, which they ought to have, let them fix it themselves out of their legally recognized quota. That is what I am talking about the hoax putting city needs against Arizona's claim.

Mr. WHITE. Mr. Chairman?

Mr. MURDOCK. Mr. White.

Mr. WHITE. Mr. Chairman, we can spare a lot of our surplus water out of the Columbia River if you can find some way to get it.

Mr. MURDOCK. I hope the other gentlemen will feel the same way about it.

Mr. WHITE. It is all over my land now.

Mr. ENGLE. May I ask Mr. Debler a question?

Mr. MURDOCK. Mr. D'Ewart has a question first.

Mr. D'EWART. I have a couple of questions.

Including the Gila River, there goes to the lower basin 8,500,000 acre-feet, leaving out evaporation and so forth. Not considering the Gila River, you have 7,500,000 acre-feet to divide among the four or five States. What I am trying to determine is: What acre-feet are allotted to each State on which there is no dispute? Tell me if these figures are correct: 4,400,000 to California, 2,662,000 to Arizona, 300,000 to Nevada, and 138,000 to Utah and New Mexico. That is 7,500,000 acre-feet. Is there any dispute about those figures so far?

Mr. DEBLER. Yes. The division set up in the Boulder Canyon Project Act was 2,800,000 acre-feet to Arizona, 300,000 acre-feet to Nevada; and that, together with the limited 4,400,000 acre-feet to California, made the 7,500,000 acre-feet.

Mr. D'EWART. What I did was to add California's 4,400,000 with Nevada, Utah, and New Mexico, and subtracted that from the 7,500,000, and I came out with 2,662,000 acre-feet for Arizona.

Mr. DEBLER. Yes. What you did, Mr. D'Ewart, was that you deducted the Utah and New Mexico use from Arizona.

Mr. D'EWART. Yes.

Mr. DEBLER. You deducted it from the 2,800,000, and got 2,662,000.

Mr. D'EWART. I see; 2,800,000.

Mr. DEBLER. I see no reason for deducting the use by those two States from Arizona. There would be just as much reason to deduct it from the 4,400,000 that California uses.

Instead of doing it that way, because the Boulder Canyon Project Act did not mention those States, in my statement I deducted that 138,000 acre-feet ahead of the three States mentioned in the Boulder Canyon Project Act.

Mr. D'EWART. The first question is: From what figure is the Nevada, Utah, and New Mexico water to be deducted? Is there any question about that?

Mr. DEBLER. Nevada was definitely mentioned in the Boulder Canyon Project Act, along with Arizona and California.

Mr. D'EWART. I see.

Mr. DEBLER. The act did not mention Utah and New Mexico. Consequently, what has been done in my statement, because amounts for Utah and New Mexico were not set, is that I have taken from the blue book of the Bureau of Reclamation what they consider to be the ultimate possible development in the States of New Mexico and Utah; and it is shown to be 138,000. I deduct that first of all from that total supply for the lower basin, and then divide the rest between Arizona, California, and Nevada as contemplated by the Boulder Canyon Project Act.

Mr. D'EWART. Does California accept that?

Mr. ENGLE. California does not.

Mr. D'EWART. What water is in dispute?

Mr. ENGLE. There are three classes of water in dispute. The III (b) water under the compact; the additional 1,000,000 acre-feet which the lower basin is entitled to——

Mr. D'EWART. I was coming to that.

Mr. ENGLE. That is 1,000,000 acre-feet. There is approximately 600,000 acre-feet in dispute, which is evaporation losses. Then there is the difference between what California contends Arizona is charged with on the Gila and what Arizona contends Arizona is charged with, which amounts to another 1,000,000,000 acre-feet. Those are the disputes.

Mr. D'EWART. On the question of the Gila, the dispute is whether it should be considered as surplus waters to be divided, or whether it is allotted wholly to California?

Mr. ENGLE. That is the III (b) water.

Mr. D'EWART. That is the III (b) water.

Mr. ENGLE. Our contention is that III (b) water is not allotted water; and, therefore, Arizona and California should split that 1,000,000, which would be 500,000 each way.

On the Gila the difference is whether you take the inflow-outflow method of computation, or whether you take on-the-site use computation of beneficial consumptive use. We contend that Arizona is charged with all the water that they actually used to grow spuds and everything else. Arizona contends it is only charged with the amount

of water which it reduces, what would be the theoretical flow of the Gila River at its confluence with the Colorado.

Is that right, Mr. Debler?

Mr. DEBLER. Yes. The depletion of the Colorado River itself.

Mr. WHITE. Let me ask a question, Mr. Chairman.

Mr. MURDOCK. Mr. D'Ewart has the floor.

Mr. D'EWART. One more question before I yield.

We have had before the Subcommittee on Indian Affairs the matter of the Navajo and the irrigation up there. In your figures on pages 10, 11, and 12, where do the waters allegedly the property of the Navajo Indians appear? Here is the question: Out of what waters in your tabulations on pages 10, 11, and 12 will the water come that belongs to the Navajos for the San Juan irrigation project? Whose allotment under the compact would that come from?

Mr. DEBLER. That is the upper-basin water; it is not the lower-basin water.

Mr. D'EWART. Part of it. Not all of it.

Mr. DEBLER. The main part of the Navajo Reservation, and substantially all irrigation, is in the upper basin.

Mr. D'EWART. It does not not come out of the lower basin?

Mr. MURDOCK. Not for the Navajos or the Hopis.

Mr. D'EWART. That clears that up.

Mr. DEBLER. It is mainly New Mexico water.

Mr. MURDOCK. Mr. White?

Mr. WHITE. Mr. Debler, due to the physical conditions, there is no way in the world that California could get any water out of the Gila River; is there?

Mr. DEBLER. No. The Gila River is on the opposite side of the Colorado.

Mr. WHITE. The mouth of the Gila is way below any place California could divert water?

Mr. DEBLER. Until the All-American Canal was built, Mr. White, California did divert some of the Gila River water, because the Gila River entered the Colorado River above the intake for the Imperial canal until the All-American Canal was built. Until that time California was diverting some of the Gila River water.

Mr. WHITE. Was that not the main bone of contention between California and Arizona in signing the compact; that California wanted to have the Gila waters included in the volume that Arizona would get, and Arizona's contention was that that water was there in the State and entered the river so far down that it was not available to California, and was entirely Arizona water? Was that not the main trouble, and the reason Arizona did not ratify the compact?

Mr. DEBLER. That is not my memory of it. The main difficulty, as I remember it, was the division of the main-stream waters.

Mr. WHITE. The trouble was that they wanted to include the Gila waters in the main stream waters, and Arizona's contention was that it was wholly in the State of Arizona and should not be included in the main stream waters of the Colorado River. For that reason, they refused to ratify the compact.

Mr. DEBLER. Well, these arguments about the Gila River were prior to the compact. Originally, the thought was to just divide the main-

stream waters, leaving the Gila River out of it. Then, of course, the trouble came up of trying to leave one river out of the compact.

Mr. WHITE. Yes.

Mr. DEBLER. The idea being that, if you left one river out, a lot of States would want other rivers left out.

Mr. WHITE. Was the river they wanted left out of the compact the Gila?

Mr. DEBLER. That was the Gila River. When the compact was finally signed up, it included the entire Colorado River system.

Mr. WHITE. There was a great deal of pressure put on Arizona to ratify the compact. It was done right here on the floor of the House. I can remember when money was stricken out of the appropriation bill for Arizona, due to the fact that Arizona failed to ratify the compact. Was there not a great deal of pressure put on Arizona to force them to ratify the compact?

Mr. DEBLER. Yes; there was a lot of it.

Mr. MURDOCK. Have you concluded?

Mr. WHITE. I just would like to compliment the witness on one of the finest engineering reports that has ever come to my attention. It is exhaustive. It is complete. It takes in not only the engineering features, but the legal features. It is going to make a splendid reference, and I commend the members of the committee to retain this report in their files, because it brings out all the facts.

I just want to enlarge on this a little bit. There is a statement that the compact was signed by Arizona on November 24, 1922. The Arizona representative did sign?

Mr. DEBLER. That is right.

Mr. WHITE. But the legislature refused to ratify?

Mr. DEBLER. That is right.

Mr. WHITE. It ran along for 22 years—to be exact, until 1944—before it was ratified?

Mr. DEBLER. That is right.

Mr. ENGLE. Will the gentleman yield to me?

I would like to ask at this point whether or not Arizona considers itself to be a beneficiary of the basic Colorado River compact?

Do you think, Mr. Debler, that your ratification 22 years after the signing of the compact makes you a part of it?

Mr. DEBLER. Well, I think Arizona is just as much a part of it as any other State.

Mr. ENGLE. Can you point to any place where Congress has consented to a seven-State compact?

Mr. DEBLER. It originally consented to a seven-State compact, but they also put in a proviso that the Boulder Canyon Project Act would be effective if six States at that time signed. To my way of looking at it, there was a provision for both six- and seven-State signatures.

Mr. ENGLE. Yes; but the six-State compact is predicated upon California passing the Self-Limitation Act. Is that not true?

Mr. DEBLER. Yes; that is very true, but that was for the benefit of all the States in the United States.

Mr. ENGLE. I understand that.

Mr. DEBLER. Including Arizona.

Mr. ENGLE. What I am trying to determine is whether or not Arizona claims the benefit of the limitation under the six-State compact and the benefits under the seven-State compact as well?

Mr. DEBLER. Certainly.

Mr. ENGLE. In other words, you want to retain the benefits of the Limitation Act placed on California because Arizona would not come into the seven-State compact, and then 22 years later acquire the benefits of the seven-State compact. Is that it?

Mr. DEBLER. That is exactly what was intended.

Mr. ENGLE. I understand that this Boulder Canyon Project Act had a limitation of 6 months in it on the seven-State compact. If the seven-State compact was not ratified in 6 months, then the six-State compact would be entered into with the Limitation Act. Is that not correct?

Mr. DEBLER. As I see it, the only purpose of that 6-month provision was merely to permit the project to go ahead without waiting for ratification by Arizona, but it in no way deprived Arizona of anything she could have gotten by ratification prior to that time.

Mr. ENGLE. That is right; but do you think you can come along 22 years later and claim those benefits?

Mr. DEBLER. I should think so. I cannot see anything wrong with that.

Mr. ENGLE. I just want to raise the point; I have great doubt about it.

Mr. WELCH. May I ask a question, Mr. Chairman?

Mr. MURDOCK. Had you finished, Mr. White?

Mr. WHITE. I wanted to go into one little subject here, Mr. Chairman.

I will yield to the gentleman from California first, though.

Mr. MURDOCK. Go ahead, Mr. Welch.

Mr. WELCH. By what means could the Imperial irrigation district, a private corporation, acquire ownership of the All-American Canal?

Mr. MURDOCK. I will answer that pretty briefly. The All-American Canal was built, as I understand it—I will be corrected if I am wrong—by the Bureau of Reclamation under a contract of 1932. It was repayable somewhat as most of these works are when built by the Government. However, there is a peculiar provision in the contract, which I will want to discuss with the committee a little later. I think that we ought to say that the title to the All-American Canal is in the United States. Is that right, Mr. Debler?

Mr. DEBLER. The legal title is. The beneficial title to that canal, after completion, was contemplated to be in a project, like it is with all Bureau projects.

Mr. WELCH. The present title to the All-American Canal is in the United States Government?

Mr. DEBLER. It is, and there will so remain until Congress takes action to the contrary.

Mr. WELCH. If it were to be transferred to the ownership of a private corporation, it would have to be done by an act of Congress, would it not?

Mr. DEBLER. That is my understanding.

Mr. WELCH. Mr. Chairman, I have heard it said that the Imperial Irrigation District, a private corporation, has large interests in the

Alamo Canal in Mexico, together with vast acreages of fertile land that could be irrigated from the Alamo Canal. Would that possibly be a motive for releasing water from the projected Pilot Knob power plant into Mexico and into the Alamo Canal, which in turn could be used for the irrigation of a vast acreage which I am told the corporation is a large stockholder?

Mr. MURDOCK. That is a question that would take some little time to answer, but it should be answered, for it touches the very thing that I fear. What is the motive of some of the witnesses that appear in opposition on this bill before this committee? Such may prove to be the case, judging from testimony in former congressional hearings. It is an important point.

Mr. WHITE. Mr. Chairman?

Mr. MURDOCK. Yes.

Mr. WHITE. If I understood it correctly, the letter and application was not to take title to the canal, but to take the control of the canal.

Mr. MURDOCK. You are right. What they were asking for was full and complete control, on the assumption that the private corporation would carry out the international obligations for the State Department, at a saving to Uncle Sam of quite a sum of money, and they asked to do that, and I have opposed it.

Mr. WHITE. Is that Alamo Canal a Mexico project?

Mr. MURDOCK. That was Mr. Welch's question. I think the succeeding witnesses will show that there is a relationship which this committee needs to look into.

Mr. WHITE. Trying to get an interlocking directorate, or something like that.

Mr. WELCH. Mr. Chairman, without attempting to indicate my position as to the issue between the State of California and the State of Arizona over the allocation of water of the Colorado River, if what I have heard and briefly stated here be true, some people should be put under oath as to the ownership and financial interest in the Alamo Canal and the vast acreage within the Republic of Mexico.

Mr. MURDOCK. Congressman Welch, I think this is a matter that ought to be investigated fully by this committee. Ordinarily we do not put witnesses under oath, but we have already had extensive hearings both before the House and the Senate, and those must be brought in to answer your question.

Mr. WELCH. This committee has the right to put witnesses under oath.

Mr. D'EWART. Mr. Chairman, I have one question.

Mr. ENGLE. Mr. Chairman.

Mr. MURDOCK. Just a moment, please. May I continue? We are about to close for lunch, at least. I want this record to show that I am not trying to take any water away from the great cities of the west coast, or the Los Angeles Metropolitan Water District.

They have the aqueduct, and they built it with their own money. I take off my hat to them for having made that investment.

The thing I want this committe to understand quite thoroughly—and I hope other witnesses coming along will cinch this matter—is this: If you do not furnish Arizona the water which she is asking for in this legislation it will go on down as surplus, and it will be used for the profit of people who do not have a claim to it.

Mr. WHITE. Mr. Chairman.

Mr. ENGLE. Now, Mr. Chairman, I have been trying to be recognized here for 25 minutes.

Mr. WHITE. I yield to the gentleman.

Mr. ENGLE. I think I am entitled to some consideration.

Mr. WHITE. I yield to the gentleman from California.

Mr. MURDOCK. Mr. White yields to you.

Mr. ENGLE. I want to say to the chairman that all that California wants is what California is legally entitled to. If California is legally entitled to 4,400,000 acre-feet of water plus one-half of the surplus, whatever that is, what California does with it is California's own business. I do not think California is going to dump any water into the Gulf of Mexico.

Mr. MURDOCK. They have been dumping it into the Salton Sea.

Mr. ENGLE. We are not going to get into that now. I think that can be properly shown as a necessary function of any water program.

However, what California does with its water is not Arizona's business. All we want to happen is for this great marble building or temple near here, over which is written the words, "Equal Justice Under Law," to have its occupants sit down and tell us what we are entitled to.

When we have a decision as to what is allocated to us under the contract we are not going to argue with Arizona about what they do with their water.

Now, Mr. Chairman, I want to read from the Boulder Canyon Project Act, section IV (a), which says:

This act shall not become effective unless and until (1) the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming shall have ratified the Colorado River compact mentioned in section 13 hereof, and the President by public proclamation shall have so declared, or—

and I emphasize this word "or," because this word "or" in the compact places it in the alternative—

or (2) if said States shall fail to ratify the said compact within 6 months from the date of the passage of this act then until six of the said States—

six of the said States—

including the State of California, shall ratify said compact—

and I emphasize this—

and shall consent to waive the provisions of the first paragraph of article XI of said compact, which makes the same binding and obligatory only when approved by each of the seven States signatory thereto, and shall have approved said compact without conditions save that of such six-State approval and the President by public proclamation shall have so declared and found, until the State of California, by act of its legislature—

and then I cease quoting.

It goes on to mention that California must put a limitation upon itself.

The reason I want that in the record at this point, Mr. Chairman, is that I want to make it perfectly clear that there is no seven-State compact. There is no seven-State compact which has been agreed to by the other six States. There is no seven State compact which has been consented to or ratified by Congress.

My point, and the one I was making with this witness, is that Arizona cannot claim and accept the benefits of the Limitation Act im-

posed upon California, because Arizona failed to ratify under the terms of this act; and then turn around 22 years later and claim the benefits of a seven-State compact which does not exist; without first disgorging the benefits which accrued under the Limitation Act, and getting the consent of the other six States to a seven-State compact, in addition to the consent of the Congress of the United States.

Mr. WELCH. May I state further, briefly, Mr. Chairman?

Mr. MURDOCK. Yes, Mr. Welch.

Mr. WELCH. I want this for the record. I shall go as far as any member of the California delegation or any resident of my State of California in protecting the rights of the State of California; but I, on the other hand, want it definitely understood that I have no interest in a private corporation referred to as the Imperial Irrigation District of California, a private corporation, which may have an interest in dumping the water after it is used as the Pilot Knob power plant into Mexico and into the Alamo Canal, for irrigation of their private holdings in the Republic of Mexico. I make that distinction. I want it definitely understood.

I repeat again: I will go the full distance for my State, but I have no concern in selfish interest.

Mr. ENGLE. Neither am I; and, for a further matter, I am not interested in red herrings.

Mr. MURDOCK. Mr. Welch, I greatly appreciate your statement. What is the pleasure of the committee with regard to an afternoon session?

Mr. WHITE. Can you get permission from the Speaker?

Mr. MURDOCK. We do not have a session today, and it is not necessary.

Mr. WHITE. Before I yielded to the gentleman from California, and following the remarks of the chairman, I was about to observe that if it had not been for the solemn compact entered into, which enabled the Boulder Canyon project, there would have been no water in certain seasons of the year to have any dispute over. The people of the State of California made it possible to regulate the flow.

Mr. MURDOCK. We have held hearings so late that possibly we had better not attempt to have a meeting this afternoon, but instead have one tomorrow at 9:30 a. m. Would that be satisfactory?

Mr. MILES. May I say something before we go?

Mr. D'EWART. I have one other question, too.

Mr. ENGLE. Mr. Chairman, is that an understanding; that we do not meet this afternoon?

Mr. MURDOCK. That is right.

Mr. MILES. I want to make this statement: I certainly do appreciate the witness' testimony, because he is the first one I have heard who has recognized and mentioned the rights of New Mexico to this water.

Mr. MURDOCK. Mr. D'Ewart?

Mr. D'EWART. I live 2,000 or 3,000 miles away from this project, so I hope that someone will show me what connection the Alamo canal has with H. R. 934, this bill.

Mr. MURDOCK. It is one of those alternatives that I spoke of. If we do not pass some such legislation as the bill before us, there is going to be a lot of water called surplus but belonging to someone else that

will go down into that canal for somebody's benefit. That is the connection. It will be tragic for the losers if that happens.

Mr. WELCH. Off the record.

(Discussion off the record.)

Mr. MURDOCK. That will conclude the testimony of Mr. Debler. We thank you, sir.

Mr. DEBLER. I would like to make a little request, if I can, Mr. Chairman, that my paper in its entirety be printed just as is in one place.

Mr. MURDOCK. Without objection, it is so ordered.

(The document is as follows:)

STATEMENT BY E. B. DEBLER, CONSULTING ENGINEER FOR THE STATE OF ARIZONA BEFORE THE HOUSE COMMITTEE ON PUBLIC LANDS ON H. R. 934 AND 935 EIGHTY-FIRST CONGRESS, FIRST SESSION, CENTRAL ARIZONA PROJECT WATER SUPPLY

SOURCE

Waters for the project are to be diverted from the Colorado River by pumping from Lake Havasu, impounded by Parker Dam built by the Bureau of Reclamation at the expense of the Metropolitan Water District of Los Angeles, to facilitate diversion by that district, and for other purposes.

Availability of water is controlled by the Colorado River compact, the Boulder Canyon Project Act, and the treaty with Mexico.

COLORADO RIVER COMPACT

The Colorado River compact, signed at Santa Fe November 24, 1922, by representatives of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming, was approved by Congress in section 13 of the Boulder Canyon Project Act of December 21, 1928, with a waiver of that part of article XI requiring approval of the compact by all of the States, such approval by the Congress being conditional on acceptance of the waiver and approval of the compact by California and at least five other States. The States, except Arizona, complied promptly. Arizona ratified on February 24, 1944.

The compact provisions pertinent to the Central Arizona project are as follows:

ARTICLE III

(*a*) There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

(*b*) In addition to the apportionment in paragraph (*a*), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

(*c*) If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River system, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (*a*) and (*b*); and if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be equally borne by the upper basin and the lower basin, and whenever necessary the States of the upper division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (*d*).

(*d*) The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series beginning with the 1st day of October next succeeding the ratification of this compact.

(*f*) Further equitable apportionment of the beneficial uses of the waters of the Colorado River system unapportioned by paragraphs (*a*), (*b*), and (*c*) may be made in the manner provided in paragraph (*g*) at any time after October 1, 1963, if and when either basin shall have reached its total beneficial consumptive use as set out in paragraphs (*a*) and (*b*).

The compact (art. IIIa) apportions to each of the upper and lower basins in perpetuity a total of 7,500,000 acre-feet for beneficial consumptive use annually and (art. IIIb) grants the further right to the lower basin to increase its beneficial consumptive use by 1,000,000 acre-feet annually. While article IIIb does not use the word "apportionment" with respect to the 1,000,000 acre-feet, article IIIf clearly earmarks this as apportioned water by grouping it with the apportioned waters of IIIa and IIIc, and by designating as surplus waters available for further apportionment only the waters remaining after either basin shall have reached its total allowance under IIIa and IIIb. Article IIIc establishes the basis for supplying any right later recognized in Mexico and article IIIf leaves the apportionment of any remaining surplus water to be made after October 1, 1963. By the terms of the compact (art. IIId), the States of the upper division cannot cause the flow of the Colorado River at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years, and in addition thereto must deliver one-half of the Mexico requirement not met from the surplus remaining beyond the apportionments of 16,000,000 acre-feet to the two basins.

The compact does not define "beneficial consumptive use," nor have the States acted under article VI of the compact to secure such clarification.

The compact in article IIId does place a limitation on such "beneficial consumptive use" with respect to the upper basin in periods of low run-off by designating a specified minimum 10-year delivery of water at Lee Ferry, the downstream limit of the upper basin. It appears only reasonable to conclude then that the intention in article IIIa was to permit the upper basin to deplete the flow of the Colorado River at Lee Ferry by an average of 7,500,000 acre-feet per year, subject to the specified minimum delivery under article IIId. Likewise it is concluded that it was the intention in article IIIa, IIIb, and IIIc to permit the lower basin and its component States to deplete the Colorado River at the international boundary by an average of 8,500,000 acre-feet per year, with each basin to make up one-half the deficiency when remaining surplus waters are inadequate to supply Mexico the amount accorded that nation.

BOULDER CANYON PROJECT ACT (CH. 42, 45 STAT. 1057)

This act, approved December 21, 1928, in section 4 (a), contains the following provisions pertinent to the central Arizona project:

"This act shall not take effect * * * unless and until (1) the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming shall have ratified the Colorado River compact * * * (2) if said States fail to ratify the said compact within six months from the date of the passage of this Act then, until six of said States, including the State of California, shall ratify said compact * * * and, further until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, and Nevada, New Mexico, Utah, and Wyoming * * * that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this act and all water necessary for the supply of any rights which may now exist, shall not exceed four million four hundred thousand acre-feet of the waters apportioned to the lower basin states by paragraph (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

"The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by an allowance of water which may be made by treaty or otherwise to the United States of Mexico but if, as provided in paragraph (c) of article III of the Colorado River compact, it shall become necessary to supply

water to the United States of Mexico from waters over and above the quantities which are surplus as defined by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply, out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin. * * *"

The more important features of this section of the Boulder Canyon Project Act are (1) limitation of use by California to a maximum of 4,400,000 acre-feet of IIIa water, plus one-half of any unapportioned water, which was accepted by California in a statute dated March 4, 1929, and (2) Arizona to have exclusive use of its Gila River waters, and (3) in case Mexico is not fully supplied from surplus waters unapportioned, requiring the lower basin to make up a deficiency, such deficiency will be borne equally by Arizona and California out of the main stream of the Colorado River. Again, it will be noted the Congress, only 6 years after the signing of the Colorado River compact and at a time when there was a full and frank discussion of the numerous contentions and interpretations of the compact, intended that apportionments were to be based on their effect on Colorado River flows, for the upper basin at Lee Ferry, and for the lower basin at the international boundary where delivery is made to Mexico, since surplus waters available for use by Mexico could be measured only at the international boundary where delivery is made to Mexico.

TREATY WITH MEXICO

A treaty relating to the division of the waters of the Rio Grande and of the Colorado and Tijuana Rivers was signed by representatives of the two Governments on February 3, 1944, and, together with the protocol signed November 14, 1944, and clarifying reservations, were ratified by the United States Senate on April 18, 1945, and by the Mexican Senate on September 27, 1945.

The treaty guarantees Mexico a delivery of 1,500,000 acre-feet annually collectively at a number of points on the international boundary in the vicinity of Yuma. This quantity may be reduced in time of extraordinary drought to the same degree that consumptive uses are reduced in the United States.

Mexico is also to receive, without acquiring a permanent right thereto, up to 200,000 acre-feet of additional water when a surplus exists in the supply for users in the United States.

CONTRACT BY THE STATE OF ARIZONA WITH THE UNITED STATES FOR WATER

By an agreement dated February 9, 1944, with the United States, Arizona contracted for the storage of water in Lake Mead and for the delivery thereof at points on the Colorado River to be agreed upon, for irrigation and domestic use. The portions of the contract particularly pertinent to the central Arizona project are as follows:

"Subject to the availability thereof for use in Arizona under the provisions of the Colorado River compact and the Boulder Canyon Project Act, the United States shall deliver and Arizona, or agencies or water users therein, will accept under this contract each calendar year from storage in Lake Mead, at a point or points of diversion on the Colorado River approved by the Secretary, so much water as may be necessary for the beneficial consumptive use for irrigation and domestic uses in Arizona of a maximum of 2,800,000 acre-feet.

"The United States also shall deliver from storage in Lake Mead for use in Arizona, at a point or points of diversion on the Colorado River approved by the Secretary, for the uses set forth in subdivision (*a*) of this article, one-half of any excess or surplus waters unapportioned by the Colorado River compact to the extent such water is available for use in Arizona under said compact and said act, less such excess or surplus water unapportioned by said compact as may be used in Nevada, New Mexico, and Utah in accordance with the rights of said States as stated in subdivisions (*f*) and (*g*) of this article.

"The obligation to deliver water at or below Boulder Dam shall be diminished to the extent that consumptive uses now or hereafter existing in Arizona above Lake Mead diminish the flow into Lake Mead, and such obligation shall be subject to such reduction on account of evaporation, reservoir, and river losses, as may be required to render this contract in conformity with said compact and said act.

"Arizona recognizes the right of the United States and the State of Nevada to contract for the delivery from storage in Lake Mead for annual beneficial consumptive use within Nevada for agricultural and domestic uses of 300,000 acre-feet of the water apportioned to the lower basin by the Colorado River compact,

and in addition thereto to make contract for lake use of one twenty-fifth of any excess or surplus waters available in the lower basin and unapportioned by the Colorado River compact, which waters are subject to further equitable apportionment after October 1, 1963, as provided in article III (*f*) and article III (*g*) of the Colorado River compact.

"Arizona recognizes the right of the United States and agencies of the State of California to contract for storage and delivery of water from Lake Mead for beneficial consumptive use in California, provided that the aggregate of all such deliveries and uses in California from the Colorado River shall not exceed the limitation of such uses in that State required by the provisons of the Boulder Canyon Project Act and agreed to by the State of California by an act of its legislature (ch. 16, Statutes of California of 1929) upon which limitation the State of Arizona expressly relies."

ARIZONA SHARE OF APPORTIONED WATERS

Arizona, California, and Nevada have not entered into a compact or agreement for a division of lower-basin apportionments of water as authorized by sections 4 and 19 of the Boulder Canyon Project Act, nor are they in agreement on such a division.

In arriving at the Arizona share of available waters, the following factors have been taken into consideration:

(*a*) The compact permits the lower basin under articles IIIa and IIIb to deplete stream flow by 8,500,000 acre-feet, as heretofore discussed.

(*b*) California, under the terms of section 4 (a) of the Boulder Canyon Project Act, and its conforming statute, is limited to an aggregate annual consumptive use (diversions less returns to the river) of 4,400,000 acre-feet plus one-half of any surplus that may be apportioned to the lower basin after October 1, 1963.

(*c*) Congress by section 4 (a) of the Boulder Canyon Project Act authorized an agreement by Arizona, California, and Nevada providing (1) for division of the 7,500,000 acre-feet of IIIa water, with Arizona apportioned 2,800,000 acre-feet and Nevada 300,000 acre-feet; (2) Arizona may use one-half of the unapportioned waters; (3) Arizona to have exclusive beneficial consumptive use of Gila Basin waters within its borders; and (4) no Gila waters subject to demand to meet Mexico requirements.

Since the California limitation statute limits that State to the use only of IIIa and surplus waters as yet unapportioned, it follows that the 8,500,000 acre-feet of Colorado River depletion apportioned to the lower basin by articles IIIa and III(b), in the absence of a lower-basin agreement, are available to the States as follows: To California not more than 4,400,000 acre-feet; to Arizona and other States, not less than 4,100,000 acre-feet. In the remainder of this statement in the interest of conservatism with respect to Arizona water supply, it is being assumed that the water contract of February 9, 1944, recognizes the right of Arizona by the water contract of February 9, 1944, recognizes the right of Nevada to a beneficial consumptive use of 300,000 acre-feet of apportioned water, and the rights of Utah and New Mexico to equitable shares of lower-basin apportioned water. While the shares of these latter States have not been fixed by agreements, the report, The Colorado River, dated March 1946, by the Bureau of Reclamation, page 184, presents the estimated ultimate depletion by the lower-basin portions of these States as follows:

	Acre-feet
New Mexico	37,000
Utah	101,000
Total	138,000

Nevada in the same report is estimated to be able to deplete the stream by 256,800 acre-feet annually, compared with an Arizona recognition in its contract with the United States of 300,000 acre-feet.

The lack of synchronism in the high and low run-off periods of the Gila and Colorado Rivers, the exceedingly large ground storage capacity available in the Phoenix area to regulate Gila River run-off, and the freedom of Gila River from water demands for Mexico use, makes it advisable to segregate the Arizona water allotment as between Gila River uses and uses of the Colorado River and its other tributaries. Arizona (and New Mexico) in most years will fully divert Gila River flows with an inflow to Colorado River of 70,000 acre-feet, being that part of the 166,000 acre-feet of Gila River waters to be released from the Phoenix area for a salt balance with ultimate development, reaching the Colorado River.

Operations in that area in 1941 showed an ability to reduce Gila River outflow from an estimated 3,700,000 acre-feet under natural conditions (p. 285, March 1946 on Colorado River, U. S. Bureau of Reclamation), to 590,000 acre-feet. With the increased diversion and storage capacity contemplated within the Gila Basin, it is estimated that flood outflows would be limited to remnants of the 1905, 1916, and 1941 floods with an average outflow of 64,000 acre-feet for the entire 47-year period. Depletion of Colorado River flows by Gila Basin development would then be as follows:

		Average annual acre-feet
Natural outflow from Gila River		1,272,000
Ultimate outflow of waters produced in Gila Basin:		
Return flow for salt balance	70,000	
Flood waters	64,000	
		134,000
Depletion		1,138,000
Depletion by New Mexico		24,000
Depletion by Arizona		[1] 1,114,000

[1] In round numbers 1,100,000 acre-feet.

The following tabulations present the results of the applications of the compact and pertinent laws, as heretofore discussed.

In the following tabulations, quantities are acre-feet per year.

Comparison of apportionments with long-time average flow

Long time (1897–1943) average flow at international boundary	[1] 17,720,000

[1] From p. 12 of the Blue Book (March 1946 report, Bureau of Reclamation).

Apportionments pursuant to the Colorado River compact:		
Upper basin by art. III (a)	7,500,000	
Lower basin by art. III (a) and III (b)	8,500,000	
Mexico by treaty pursuant to art. III (c)	1,500,000	
		17,500,000
Surplus, unapportioned and subject to apportionment after 1963, in accordance with art. III (f)		220,000

Division of lower basin apportionment authorized by Boulder Canyon Project Act

[Gila River, assigned entirely to Arizona with amount of water not stated but at the time generally assumed to be 1,000,000 acre-feet]

	Acre-feet	Percent
Main stream:		
Arizona	2,800,000	37½
California, by required Self-Limitation Act, a maximum of	4,400,000	58⅔
Nevada, main stream	300,000	4
Total	7,500,000	100
Utah and New Mexico, not mentioned, estimated in blue book at	138,000	

Division of lower basin available water

Since the Boulder Canyon Project Act in authorizing a lower basin compact failed to designate any water for the States of Utah and New Mexico, the contemplated use by these States is herein deducted from the total supply ahead of the division between Arizona, California, and Nevada.

Evaporation losses from the main stream reservoir is similarly deducted since all three States receive benefits from these reservoirs by reason of regulation of their water supplies, diversion from the dams and reservoirs, and use of power produced at the dams.

Since Arizona and New Mexico will deplete Gila River by 1,138,000 acre-feet instead of the 1,000,000 acre-feet in mind in the Boulder Canyon Project Act, a suitable adjustment is made to avoid penalizing California and Nevada for this extra Gila River use.

The resulting division is:		
Apportioned to lower basin		8,500,000
Less Gila River use contemplated at time of Boulder Canyon Project Act		1,000,000
Main stream use contemplated by act		7,500,000
Less:		
Use by New Mexico above Hoover Dam	13,000	
Use by Utah above Hoover Dam	101,000	
Main stream reservoir evaporation	870,000	
		984,000
Available main stream water for further use		6,516,000
Arizona share 37½ percent of 6,516,000		2,432,000

Arizona utilization of Colorado River System

Available water after deduction for evaporation from mainstream reservoirs:		
Gila River depletion assumed in Boulder Canyon Project Act		1,000,000
Main stream water		2,432,000
Total		3,432,000
Utilization:		
Contemplated Gila River depletion by Arizona and New Mexico		1,138,000
Main stream water available for Arizona use		2,294,000
Present use above Hoover Dam	64,000	
Present use on Williams River	3,000	
Parker Valley (Colorado River) (Indian) project, authorized	250,000	
Gila project, authorized	600,000	
Yuma project	130,000	
Total present and authorized		1,047,000
Available for additional projects		1,247,000
Contemplated for central Arizona project:		
Diversion	1,200,000	
Return to Colorado River	88,000	
		1,112,000
Balance for further projects		135,000

Low run-off period 1930–46

Main stream water:		
Minimum delivery at Lee Ferry		7,500,000
Net gain Lee Ferry to international boundary exclusive of Gila River (small reduction in inflow offset by reduction in valley loss)		180,000
Gila River ultimate outflow		150,000
Total		7,830,000
Lower basin long-time use	6,516,000	
Main stream reservoirs, etc	600,000	
Mexico	1,500,000	
		8,616,000
Deficiency to be secured by draw-down at Lake Mead		786,000
Necessary total draw-down in 17-year period		13,362,000
Available for draw-down		18,000,000

Mr. MURDOCK. The subcommittee stands adjourned until 9:30 tomorrow morning.

(Thereupon, at 12:45 p. m., Friday, May 6, 1949, an adjournment was taken until 9:30 a. m., Saturday, May 7, 1949.)

THE CENTRAL ARIZONA PROJECT

SATURDAY, MAY 7, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met at 9:30 a. m., Hon. John R. Murdock (chairman) presiding.

Mr. MURDOCK. The committee will come to order, please. The Subcommittee on Irrigation and Reclamation has reconvened this morning to have further hearings on H. R. 934.

Mr. Charlie Carson, of Phoenix, Ariz., is our next witness. The committee is well acquainted with Mr. Carson, but we would like to have him identify himself for the record rather fully.

Mr. WELCH. Mr. Chairman, before we proceed, may I ask what is the correct title of the corporation?

Mr. CARSON. The Imperial irrigation district.

Mr. MURDOCK. There are officials of the Imperial irrigation district of California scheduled as witnesses, and if it is not exactly officially correct, we will have it corrected for the record.

Mr. CARSON. Yes.

Mr. MURDOCK. Proceed, Mr. Carson. You are the last affirmative witness for Arizona. What you do not cover I will have to cover.

STATEMENT OF CHARLES A. CARSON, PHOENIX, ARIZ., COUNSEL FOR THE ARIZONA INTERSTATE STREAM COMMISSION

Mr. CARSON. Mr. Chairman, my name is Charles A. Carson. I live and practice law in Phoenix, Ariz. I am chief counsel for the Arizona Interstate Stream Commission and also a special counsel for the State of Arizona on Colorado River matters and a representative authorized to speak on behalf of the Governor of Arizona.

My only compensation for all of the services I render in connection with water matters is paid by the Arizona Interstate Stream Commission.

Mr. Chairman, there are very few members of the committee here this morning. Mr. Engle requested that I stay until Monday morning for cross-examination, which I will do; so I think we can make more progress now if I may be permitted to put some statements in the record and furnish copies to each member of the committee and to the clerk for those who are not here and have them printed in the record in one place and then go ahead with a short oral statement this morning. If that is agreeable to the committee, I will proceed along that line.

Mr. MURDOCK. Without objection, Mr. Carson's prepared statement which has been supplied the committee may be inserted in the record as is, and each member will be furnished with a copy by Mrs. McMichael, and the witness will confine himself to a summary of this or other pertinent matters connected with it.

Mr. CARSON. This statement is headed "Statement of Charles A. Carson, Chief Counsel of Arizona Interstate Stream Commission." I would appreciate it if that could be printed in the record at one place.

Mr. MURDOCK. It will be, exactly as furnished.

(The statement above referred to is as follows:)

STATEMENT OF CHARLES A. CARSON, CHIEF COUNSEL OF ARIZONA INTERSTATE STREAM COMMISSION

My name is Charles A. Carson. I practice law in, and my home is in Phoenix, Ariz. I am a member of the firm of Cunningham, Carson, Messinger, and Carson, and have been a member of that firm, formerly known as Cunningham and Carson, for more than 22 years. I have practiced law in Phoenix, Ariz., for more than 25 years. I have served as deputy county attorney of Maricopa County, Ariz.; as city attorney of the city of Phoenix; as a special assistant attorney general of the State of Arizona; and as counsel for the Colorado River Commission of Arizona. I have also served as a special attorney in the Lands Division of the Department of Justice, in connection with acquisition of properties in Arizona for the United States during the war. I also served as a member of the enemy alien hearing board of Arizona during the war. I also served as a member of the board of bar examiners of Arizona, as a member of the commission appointed by the supreme court of Arizona to integrate the State bar of Arizona; and I served for some 14 years as a member of the board of governors of the State bar of Arizona, and was twice president of the State bar of Arizona. I am now, and have been since 1934, admitted to practice in the Supreme Court of the United States; I have served on various committees for revision of rules of procedure in Federal and State courts, and on various committees of the American Bar Association. I began the practice of law in Phoenix in the offices of Judge John C. Phillips, who later became Governor of Arizona, and of Judge W. S. Norviel, who was Arizona's compact commissioner and who signed on behalf of Arizona the Colorado River compact in 1922.

I became very much interested in the Colorado River question at that time; but I was not employed in a professional capacity on the matter until early in 1933. I served as a special assistant attorney general and as counsel for the Colorado River Commission of Arizona from 1933 to 1935. While I was not thereafter employed professionally until the latter part of 1941 or early 1942, I was during all those years, at various times, called upon for advice to the Colorado River Commission, to the governor, and to the legislature of Arizona. I was employed by the Colorado River Commission from 1942 until it was abolished by act of the legislature in 1945. Thereafter, I was retained directly by the governor's office until the present Arizona Interstate Stream Commission was created early in 1948. Since that time, I have been and now am chief counsel for the Arizona Interstate Stream Commission and special attorney for the State of Arizona on Colorado River matters and adviser to the governor of Arizona on Colorado River matters. However, I am paid for such services only by the Arizona Interstate Stream Commission.

Of course, I have very carefully studied the hostory of the Colorado River question, and have been active in it since 1933.

I believe it would be helpful if I very briefly reviewed the history of the matter, dividing that history into four periods; first, prior to 1922, when the Colorado River compact was signed; second, from the signing of the Colorado River compact to the passage of the Boulder Canyon Project Act in December 1928; third, from the passage of the Boulder Canyon Project Act in 1928 to March 1939, when the Arizona Legislature offered to California and Nevada a compact in the terms prescribed by the Boulder Canyon Project Act; and fourth, from 1939 to date.

Prior to 1900, when Arizona was a sparsely inhabited Territory, the California Development Co. obtained rights good under California law to divert 10,000

cubic feet per second of the waters of the Colorado River for use in Mexico and the Imperial Valley of California through the Alamo canal, which ran through Mexico and back into the Imperial Valley.

The development of the Imperial Valley of California and adjacent portions of Mexico was undertaken by the same promoters as one project. However, in Mexico they were required to organize a Mexican corporation known as the Sociedad de Irrigacion y Terrenos de las Baja California, S. A., all of the stock of which was owned by the original promoters of irrigation in Mexico and the Imperial Valley, and all of the stock of which was later transferred to the officers of the Imperial Irrigation District of California when that district upon its organization took over the property and rights of the California Development Co. Such stock was so held in 1945 by the officers of the Imperial Irrigation District, as testified to by them in the hearings on the treaty with Mexico, which were held before the Committee on Foreign Relations of the United States Senate early in 1945. That company was required by the Mexican Government to and did enter into an agreement with that Government which provided that half of the water carried through the Alamo canal to which the water rights had been established for diversion in California of 10,000 cubic feet per second, would be delivered for use to irrigate all lands susceptible to irrigation in Lower California in Mexico. Assuming continuous flow, the water thus contracted by the promoters of the Imperial Valley, the obligations and rights of which were taken over by the Imperial Irrigation District of California, required delivery for use in Mexico of 3,600,000 acre-feet of the waters of the Colorado River. The Imperial Irrigation District of California and its predecessors charged varying sums through the years for rental of the diversion works at Rockwood Heading and Hanlon Heading and so much an acre-foot for the water delivered for use in Mexico.

That practice continued at least until early 1945, as testified to by Mr. Hewes, the president of the Imperial Irrigation District; Mr. M. J. Dowd, at that time chief engineer and manager of the irrigation district and now a consulting engineer for that district; and Mr. Phil Swing, who was then an attorney representing California interests and who had been attorney for the Imperial Irrigation District.

The provisions concerning the contract with Mexico were presented by Mr. Frank Clayton, attorney for the United States section of the International Boundary Commission, on page 178 of part 1 of the hearings on the treaty with Mexico in 1945, and are matters of record. The testimony of Mr. Swing concerning the sale of water to Mexico is set forth at pages 401, 402, 483 of part 2 of the same hearings.

At that hearing Mr. Hewes produced a copy of the proposal that the Imperial Irrigation District had made to the Mexican Government to sell water to Mexico, by delivery to Mexico through the All-American Canal, which proposal is in the record of the hearings on the Mexican water treaty at pages 1644–1646 of part 5.

The proposal was made in the year 1941, and Mr. Hewes testified that unless the treaty was made reducing Mexico's claim to the waters of the river the Imperial Irrigation District proposed to make some such arrangement with Mexico (p. 1648, pt. 5, Mexican water treaty).

In the Arizona Enabling Act, under which Arizona was admitted as a State, the United States reserved all dam sites and rights-of-way on both sides of the Colorado River across Arizona; and the State, in the constitution adopted, agreed to such reservation.

In 1922 the Colorado River compact was signed at Santa Fe, N. Mex., with its terms as set out.

HISTORY, 1922–28

Following the signing of the Colorado River compact, Arizona tried to work out with California and Nevada a tri-State compact which would carry out the understanding that had been reached between them before Mr. Norviel signed the compact for Arizona, that immediately after its signing a tri-State compact between California, Nevada, and Arizona would be executed, providing that the million acre-feet of III (b) water set forth in the compact was for the exclusive beneficial consumptive use of Arizona to compensate Arizona for the inclusion of the Gila system in the over-all definition of the Colorado River system, which agreement California refused to make. It is only fair to say that Arizona at that time, and I submit with justification, believed that Arizona was entitled to the use of the waters of the Gila River, and in addition thereto to the use of an amount equal to the use in California of the main stream of the Colorado River.

This they believed to be true, and I submit with justification, for the reason that Arizona then had and now has a great deal of excellent land that could be irrigated if the water were available; and in view of the further fact that California contributes practically no water to the Colorado River and has only some 3,500 square miles in the natural basin of the Colorado River, whereas Arizona contributes large quantities to the Colorado River, and has some 103,000 square miles, practically the entire State, in the natural basin of the Colorado River.

During that period various attempts were made to negotiate, and all attempts failed. Then in 1927 at a meeting of the governors of the seven States of the basin, in Denver, Colo., Governor Young of California suggested an informal arbitration between Arizona, California, and Nevada. The four governors of the upper division States, Adams of Colorado; Emerson of Wyoming; Dillon of New Mexico, and Dern of Utah; undertook such informal arbitration; and they made a finding which is set out at page 232 in my testimony on S. 1175, which is a part of the record of this committee, and at page 378 of part 2 on the hearings on H. R. 5434. They recommended settlement, but their recommendation was not accepted by California. It has always been my understanding that it was accepted by the Arizona representatives at that conference. The recommended settlement provided that Nevada should have 300,000 acre-feet, California 4,200,000 acre-feet, and Arizona 3,000,000 acre-feet from the main stream of the Colorado River, and that Arizona should have the exclusive beneficial consumptive use of the Gila River, in addition to the quantities mentioned from the main stream of the river.

It will be noted that the proposed settlement cut down Arizona's claim to mainstream water from 3,600,000 acre-feet to 3,000,000 acre-feet. It has been testified in some of these hearings by California witnesses that Arizona agreed to accept that award conditioned only upon a further provision that the waters of the Gila should never be subject to diminution by any treaty demands of Mexico. If that be true, however, that condition was incorporated in the Boulder Canyon Project Act and was accepted by the Congress.

The provisions of section 4 (a) of the Boulder Canyon Project Act were adopted by the Congress from the recommendations made by the four governors of the upper division States, except that Congress took 200,000 acre-feet from Arizona and added it to California, making the congressional apportionment 300,000 acre-feet to Nevada, 4,400,000 acre-feet to California, and 2,800,000 acre-feet to Arizona. I submit that the provisions of 4 (a) make it clear that such was the intent of Congress, and that Congress required California to accept such division by requiring California as a condition to the effectiveness of the Boulder Canyon Project Act and the construction of the works therein authorized, to adopt the California Self-Limitation Act, which California did adopt in March 1929, by act of its legislature, irrevocably and unconditionally agreeing with the United States and I say with the Congress of the United States, since the reciprocal legislation amounted to a legislative compact for the benefit of the other States of the basin, made through the agency of the Congress of the United States, "That the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of the act, and all water necessary for the supply of any rights which may now exist, shall not exceed 4,400,000 acre-feet of the waters apportioned to the lower basin States by paragraph (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus water unapportioned by said compact, such uses always to be subject to the terms of said compact."

HISTORY, 1928–39

Following the passage of the Boulder Canyon Project Act, Arizona filed an action in the Supreme Court of the United States attacking the constitutionality of that act. No allegations concerning the waters of the Gila River were material in that action, and indeed California had not at that time, and did not until approximately 1944, to my knowledge, make any claim that beneficial consumptive use of water was not measurable by the resulting depletion of the main stream of the Colorado; so any allegations made in that action or statements in briefs in that action by either side were not material to any questions here presented, and were made without any consideration being given to the questions now raised by California as to whether or not III(b) water is apportioned water to the lower basin, and as to whether or not consumptive use should be measured by depletion of the main stream of the Colorado River, and were not considered in either con-

nection. It is therefore entirely unfair for California now to claim that they relied upon such irrelevant, immaterial, and inadvertent statements on either side.

The Supreme Court upheld the constitutionality of the act, and also specifically upheld the constitutionality of the provisions of section 13 (c) and (d), which provided that all rights-of-way across Federal lands, and remember, that in the Enabling Act and in the Constitution of Arizona the United States had reserved all rights-of-way clear across the State of Arizona on both sides of the Colorado River, for the use of which such rights-of-way were necessary or convenient to the use of the waters of the Colorado River, or for the generation or transmission of electrical energy generated by the Colorado River, should be on the express condition and with the express covenant that the rights of the users of such waters should be subject to and controlled by the Colorado River compact, and that such conditions and covenants attach and run with the right to use water and attach as a matter of law whether set out or referred to in the instrument evidencing such right-of-way and other privileges from the United States or not.

The Boulder Canyon Project Act is also unique in another particular in that it provided in section 13 (b) that the rights of the United States as well as the rights of those claiming under the United States in or to waters of the Colorado River and its tributaries, shall be subject to and controlled by the Colorado River compact.

The act is also unique in another respect in that section 5 provides that no person shall have or be entitled to have the use for any purpose of any waters stored in Lake Mead except by contract with the Secretary of the Interior. Section 5 also authorizes the Secretary of the Interior, under such general regulations as he may prescribe, to contract for the storage of water in Lake Mead and for the delivery thereof to such points on the river as may be agreed upon.

In 1929 and 1930 further attempts were made to negotiate a compact between Arizona, California, and Nevada, but failed. It is my understanding, although I did not participate in those negotiations and have no personal knowledge thereof, that the only claim there asserted, and which is here asserted by California contrary to the Arizona position, was that the million acre-feet mentioned in article III (b) of the Colorado River compact was unapportioned or surplus water. Another interesting fact in connection with the case that was filed by Arizona attacking the constitutionality of the Boulder Canyon Project Act (283 U. S. 423), is that notwithstanding the fact that Arizona at that time was disputing the constitutionality of the act and opposed appropriation for the construction of Hoover Dam, and that California, Arizona, and Nevada had been unable to agree to the terms of the tri-State compact as set out in the Boulder Canyon Project Act, and notwithstanding the fact that Arizona had filed the suit attacking the constitutionality of the act and California's right to the water set out in the act, the California agencies proceeded to negotiate the California intrastate priorities agreement and negotiated contracts with the Secretary of the Interior, Mr. Wilbur, with his assistant, Northcutt Ely (who now represents California interests), without waiting for the decision of the Court in that case, and moved to dismiss the case.

In my judgment, the Court properly dismissed the case; and the reason it dismissed the case would still prevail in any such case as California now desires to bring. I quote from the decision, next to the last paragraph appearing on page 463 of 283 U. S.:

"When the bill was filed, the construction of the dam and reservoir had not been commenced. Years must elapse before the project is completed. If by operations at the dam any then perfected right of Arizona, or of those claiming under it, should hereafter be interfered with, appropriate remedies will be available. Compare *Kansas* v. *Colorado* (106 U. S. 46, 117). the bill alleges, that plans have been drawn and permits granted for the taking of additional water in Arizona pursuant to its laws. But Wilbur threatens no physical interference with these projects; and the act interposes no legal inhibitions on their execution. There is no occasion for determining now Arizona's rights to interstate or local waters which have not yet been, and which may never be, appropriated. *New Jersey* v. *Sargent* (269 U. S. 328, 338). This court cannot issue declaratory decrees. Compare *Texas* v. *Interstate Commerce Commission* (258 U. S. 158, 162); *Liberty Warehouse Co.* v. *Grannis* (273 U. S. 70, 74); *Willing* v. *Chicago Auditorium Association* (277 U. S. 274, 289–290). Arizona has, of course, no constitutional right to use, in aid of appropriation, any land of the United States, and it cannot complain of the provision conditioning the use of such

public land. Compare *Utah Power & Light Co.* v. *United States* (243 U. S. 389, 403–405)."

Following the failure in 1929 and 1930 to reach any agreement with California, and following the decision of the Supreme Court of the United States in 283 United States, Arizona appropriated and spent considerable sums of money in making engineering investigations and studies and reports, the people of Arizona having reached the conclusion prior to that time that it was essential to divert water from the main stream of the Colorado River into central and southern Arizona.

When I was first retained as a lawyer by the Colorado River Commission of Arizona in 1933, I was requested to and did write legal opinions on Arizona's rights to water of the main stream of the Colorado River and possible courses of action to secure those rights. California had for the first time in the negotiations in 1929 and 1930 made the claim that the million acre-feet of III (b) water mentioned in the Colorado River compact was unapportioned by that compact and was hence part of the surplus that could be used in California. I was requested for an opinion, and gave it as my opinion that under the Colorado River compact and the California self-limitation statute, which had been enacted in 1929, California was precluded from claiming any rights in the millon acre-feet of III (b) water by the terms of the California self-limitation statute, because in my opinion the million acre-feet of III (b) water was apportioned to the lower basin, although not specifically to Arizona alone. It will be remembered that California had refused to carry out the understanding of the original compact commissioners that a tri-State compact between California, Nevada, and Arizona would provide that the million acre-feet of III (b) water was for the exclusive beneficial use of Arizona in compensation for the inclusion of the Gila River in the over-all definition of the Colorado River system. The Colorado River Commission of Arizona, while it agreed with my opinion, wanted, if possible, to have that point settled and determined authoritatively by the Supreme Court of the United States. Accordingly, I prepared and filed a bill asking leave to perpetuate testimony of the understanding which had been reached at Santa Fe, N. Mex., before the Colorado River compact was signed. The Court in the sixth ground of its opinion set forth at pages 358–359 of *Arizona* v. *California* (292 U. S. 341), held that the III (b) water was apportioned to the lower basin. I quote the sixth ground of the opinion:

"Sixth. The considerations to which Arizona calls attention do not show that there is any ambiguity in article III (b) of the compact. Doubtless, the anticipated physical sources of the waters which combine to make the total of 8,500,000 acre-feet are as Arizona contends, but neither article III (a) nor (b) deal with the waters on the basis of their source. Paragraph (a) apportions waters 'from the Colorado River system,' i. e., the Colorado and its tributaries and (b) permits an additional use 'of such waters.' The compact makes an apportionment only between the upper and lower basin; the apportionment among the States in each basin being left to later agreement. Arizona is one of the States of the lower basin and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone. It may be that, in apportioning among the States the 8,500,000 acre-feet allotted to the lower basin, Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her; but that is a matter entirely outside the scope of the compact.

"The provision of article III (b), like that of article III (a) is entirely referable to the main intent of the compact which was to apportion the waters as between the upper and lower basins. The effect of article III (b) (at least in the event that the lower basin puts the 8,500,000 acre-feet of water to beneficial uses) is to preclude any claim by the upper basin that any part of the 7,500,000 acre-feet released at Lee Ferry to the lower basin may be considered as 'surplus' because of Arizona waters which are avilable to the lower basin alone. Congress apparently expected that a complete apportionment of the waters among the State of the lower basin would be made by the subcompact which it authorized Arizona, California, and Nevada to make. If Arizona's rights are in doubt it is, in large part, because she has not entered into the Colorado River compact or into the suggested subcompact."

It is held that there was no ambiguity and that it was apportioned water to the lower basin by the express language of the compact and the Boulder Canyon Project Act.

It is therefore clear that it is not any part of the unapportioned or surplus water, and that California by adopting her Self-Limitation Act has forever excluded herself from claiming any part of it.

During that period 1933–35 I was also requested for a legal opinion as to whether or not Arizona could maintain an action in the Supreme Court of the United States seeking an equitable apportionment of the waters available to the lower basin. I gave it as my opinion that Arizona could not do so because she was not making use of any waters upon which the jurisdiction of the Court might rest. In other words, Arizona could not allege any injury or threatened injury to any existing use of water; and hence there was no justiciable controversy. I therefore advise against and did not participate in the case of *Arizona* v. *California* reported in 298 U. S. 558. In that case California objected to the filing of the bill on two grounds. As stated by the Court:

"* * * The returns raise numerous objections to the sufficiency of the proposed bill of complaint, only two of which we find it necessary to consider. One is that the proposed bill fails to present any justiciable case or controversy within the jurisdiction of the Court. The other is that the United States, which is not named as a defendant and has not consented to be sued, is an indispensable party to any decree granting the relief prayed by the bill.

"The relief sought is: (1) that the quantum of Arizona's equitable share of the water flowing in the Colorado River, subject to diversion and use, be fixed by this Court, and that the petitioner's title thereto be quieted against adverse claims of the defendant States. (2) That the State of California be barred from having or claiming any right to divert and use more than an equitable share of the water flowing in the river, to be determined by the Court, and not to exceed the limitation imposed upon California's use of such water by the Boulder Canyon Project Act (45 Stat. 1057), and the act of the California Legislature of March 4, 1929 (Ch. 16, Stat. of Calif., 1929, p. 38). (3) That it be decreed that the diversion and use by any of the defendant States of any part of the equitable share of the water decreed to Arizona pending its diversion and use by her shall not constitute a prior appropriation or confer upon the appropriating State any right in the water superior to that of Arizona. (4) That any right of the Republic of Mexico to an equitable share in any increased flow of water in the Colorado River made available by works being constructed by or for California, shall be supplied from California's equitable share of the water, and that neither petitioner nor the defendant States other than California shall be required to contribute to it from their equitable shares as adjudicated by the Court.

"The proposed bill thus, in substance, seeks a judicial apportionment among the States in the Colorado River Basin of the unappropriated water of the river, with the limitation that the share of California shall not exceed the amount to which she is limited by the Boulder Canyon Project Act and by her statute, and with the proviso that any increase in the flow of water to which the Republic of Mexico may be entitled shall be supplied from the amount apportioned to California. Our consideration of the case is restricted to an examination of the facts alleged in the proposed bill of complaint and of those of which we mak take judicial notice."

The Court upheld both grounds of the motion to dismiss referred to in the above quotation; that is, the Court held that there was no justiciable controversy because there was no injury or threat of injury. And it also held that in that character of action seeking an equitable apportionment for future use of the United States is an indispensable party defendant and was not joined. The Court in the course of its opinion said (P. 570):

"The decree sought has no relation to any present use of the water thus impounded which infringes rights which Arizona may assert subject to superior but unexpected powers of the United States. Cf. *Wisconsin* v. *Illinois* (278 U. S. 367); see *Arizona* v. *California*, supra, 464; *United States* v. *Arizona*, supra, 183, * * *"

In the meantime, Hover Dam was rapidly nearing completion, and we in Arizona were very much concerned over the increase in the use of waters in Mexico made possible with the encouragement, assistance, and to the financial benefit of the Imperial Irrigation District of California.

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Arizona had tried in 1925 and 1927 to get the United States to notify Mexico that the United States would never recognize any right in Mexico to use any greater quantity of water of the Colorado River than Mexico was then using. California refused to join in that effort.

Again in 1933 Arizona made an effort to persuade the United States to notify Mexico that no greater use of the waters of the Colorado River than Mexico was then making would be recognized by the United States. Again California refused to joint in the effort, and Arizona was on both occasions unable to persuade the State Department to give Mexico any such notice.

Finally, the people of Arizona recognized that Arizona was in grave jeopardy, mainly from the increasing and potentially very large uses of water which would be made in Mexico to the financial profit of the Imperial Irrigation District of California, and also by virtue of the fact that Arizona had been unable to secure the construction of any works in Arizona for the use of any water of the Colorado River and California was building works to take more than the 4,400,000 acre-feet of apportioned water to which California had forever limited herself. We realized that by virtue of the decision of the Supreme Court of the United States in 292 U. S. 341, the million acre-feet of III (b) water had been held to be apportioned water and hence no part of the surplus. Therefore, by the California Self-Limitation Act California was precluded from claiming any part of it. Arizona recognized that it would not be able to get any water or to utilize water from the main stream of the Colorado River under conditions laid down by Congress until it ratified the Colorado River compact. Arizona desired to make the tri-State compact between Arizona, California, and Nevada authorized by the Boulder Canyon Project Act. Accordingly, I helped write chapter 33 of the Session Laws of Arizona of 1939, which was adopted by the legislature and approved by the Governor, March 3, 1939.

By that time California had begun to assert, for the first time so far as I am aware, that the word "and" in the second paragraph of section 4 (a) of the Boulder Canyon Project Act was not a conjunction, and therefore did not mean "in addition to." So in the 1939 act we made it clear that in our opinion the word "and" in the second paragraph of section 4 (a) of the act did mean "in addition to."

For purposes of comparison, the provisions of article III of the tri-State compact offered by the Legislature of Arizona to California and Nevada is here set out as follows:

"ARTICLE III

"(a) The aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of the Boulder Canyon Project Act and all waters necessary for the supply of any rights which may now exist, shall not exceed 4,400,000 acre-feet of the waters apportioned to the lower-basin States by paragraph (a) of article III of the Colorado River Compact, plus not more than one-half of any excess or surplus waters unapportioned by said Colorado River compact.

"(b) Of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact, there is hereby apportioned annually to the State of Nevada 300,000 acre-feet and annually to the State of Arizona 2,800,000 acre-feet for the exclusive beneficial consumptive use by said States of Nevada and Arizona, respectively, in perpetuity.

"(c) The State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact.

"(d) In addition to the water covered by paragraphs (b) and (c) hereof, the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of the State of Arizona in perpetuity.

"(e) The waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico, but if, as provided in paragraph (c) of article III of the Colorado River compact, it shall become necessary to supply water to the United States of Mexico from waters over and above the quantities which are surplus as defined by said Colorado River compact, then the State of California shall and does mutually agree with the State of Arizona to supply,

out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin.

"(f) Neither the States of Arizona, California, nor Nevada will withhold water nor require the delivery of water which cannot reasonably be applied to domestic and agricultural uses.

"(g) All the provisions of this compact or agreement shall be subject in all particulars to the provisions of the Colorado River compact."

I next set out the exact language of section 4 (a) of the Boulder Canyon Project Act, which is as follows:

"SEC. 4. (a) This act shall not take effect and no authority shall be exercised hereunder and no work shall be begun and no moneys expended on or in connection with the works or structures provided for in this act, and no water rights shall be claimed or initiated hereunder, and no steps shall be taken by the United States or by others to initiate or perfect any claims to the use of water pertinent to such works or structures unless and until (1) the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming shall have ratified the Colorado River compact, mentioned in section 13 hereof, and the President by public proclamation shall have so declared, or (2) if said States fail to ratify the said compact within 6 months from the date of the passage of this act then, until six of said States, including the State of California, shall ratify said compact and shall consent to waive the provisions of the first paragraph of article XI of said compact, which makes the same binding and obligatory only when approved by each of the seven States signatory thereto, and shall have approved said compact without conditions, save that of such six-State approval, and the President by public proclamation shall have so declared, and, further, until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an express covenant and in consideration of the passage of this act, that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this act and all water necessary for the supply of any right which may now exist, shall not exceed 4,400,000 acre-feet of the waters apportioned to the lower-basin States by paragraph (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

"The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico but if, as provided in paragraph (c) of article III of the Colorado River compact, it shall become necessary to supply water to the United States of Mexico from waters over and above the quantities which are surplus as defined by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply, out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin, and (5) that the State of California shall and will further mutually agree with the States of Arizona and Nevada that none of said three States shall withhold water and none shall require the delivery of water, which cannot reasonably be applied to domestic and agricultural uses, and (6) that all of the provisions of said tri-State agreement shall be subject in all particulars to the provisions of the Colorado River compact, and (7) said agreement to take effect upon the ratification of the Colorado River compact by Arizona, California, and Nevada."

I leave it to the committee that the "and" before (3) as set out in the act and hereinbefore quoted means that it was the intent of Congress that Arizona should have the use of 2,800,000 acre-feet of main-stream water plus one-half of

any excess or surplus waters unapportioned by the Colorado River compact which might be available in the lower basin, and in addition thereto that the State of Arizona should have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State.

The legislature of Arizona made a firm offer of such compact setting out its terms and provided that if it were approved within a total of 2 years thereafter the Colorado River compact should thereupon be and become by the terms of the said chapter 33 ratified for and on behalf of the State of Arizona.

I did not participate in any negotiations with California following the passage of that act, but I am informed that California refused to make such compact, and that no question of any claim that beneficial consumptive use of water should be measured in any way other than by the resulting depletion of the Colorado River, and no question of any claim that California should not bear pro rata her share of evaporation losses were brought up, which points are urged by California witnesses now.

1939 TO DATE

Following California's refusal to make such compact, I was requested by the Colorado River Commission of Arizona and by the Governor of Arizona, under an act of the legislature authorizing it, to attempt to negotiate with the Secretary of the Interior a contract for the delivery of Arizona's share of main-stream water for use in Arizona, which act provided that upon the ratification of such a contract the Colorado River compact would be ratified by Arizona. I had attempted to negotiate such a contract in 1933–35. But California and the other basin States had opposed it on the ground that Arizona was not a party to the Colorado River compact. California did not advance any theory as to the measurement of beneficial consumptive use other than by the resulting depletion of the Colorado, nor did it advance any claim that it should not bear the proportionate share of evaporation losses caused by storage of water for her benefit.

After long negotiations in the committees of 14 and 16, which at that time represented all seven States of the Colorado River Basin, and at all of the meetings at which California interests were well represented, the contract to be executed by the State of Arizona and the Secretary of the Interior was approved by all of the States of the basin except California. Nevada aided Arizona in negotiating that contract as did the other States of the basin, and Arizona helped Nevada negotiate with the approval of the other States the Nevada contract.

That contract is in evidence before you and is incorporated in the hearings on S. 1175, at page 240. It was signed on February 9, 1944; and during the same month it was ratified by the legislature of the State of Arizona. The Colorado River compact was also ratified by that legislature.

THE MEXICAN WATER TREATY

The Mexican water treaty was negotiated by the State Department and Mexico after numerous conferences with the committees of 14 and 16 representing the seven States of the Colorado River Basin, and it was signed February 3, 1944. The States of Colorado, Wyoming, Utah, New Mexico, and Arizona supported the treaty. California opposed, and was joined by the State of Nevada after the signing of the treaty.

In 1943 Mexico had increased her uses of the waters of the Colorado River, with the encouragement and aid, and to the financial profit, of the Imperial irrigation district of California, to 1,800,000 acre-feet per annum. Our engineers stated that there are approximately a million acres of land in Mexico which could be readily irrigated with the waters of the Colorado River; and we felt that unless an over-all all-time limit to the Mexican claims of the Colorado River to the lowest possible limit could be fixed by treaty with Mexico immediately Mexico might increase her uses to some five or six million acre-feet of water and then invoke the provisions of the inter-American treaty of arbitration, which had been ratified in 1935. We felt that unless immediate settlement was made by treaty and agreement with Mexico, Mexico might at some future time assert claim to the quantity of water which she was using at such future time.

By the year 1940 Hoover Dam had been completed and was filled. In 1941, according to the engineers of Arizona, the Colorado River waters flowed across the Mexican border in the quantity of 12,891,900 acre-feet. In 1942 it was in the amount of 11,748,900 acre-feet, and in 1943 10,667,200 acre-feet. It was back up close to the run-off prior to the construction of Hoover Dam and Mexico was rapidly increasing her uses.

I testified for Arizona on the treaty hearings before the Foreign Relations Committee in 1945 (pp. 248–307). I filed in that hearing a condensed statement of Arizona's position, which appears on pages 301–307 of volume 1. During that same hearing Mr. Phil Swing, representing California interests, testified on pages 401, 402, and 438 of volume 2. Mr. M. J. Dowd, chief engineer and manager of the Imperial irrigation district at that time, testified on page 713, volume 3, of that hearing; and Mr. Evan T. Hewes, president of the Imperial irrigation district, testified on pages 1644–1652 of volume 5 of the hearings as to the revenues that the Imperial irrigation district and its subsidiary in Mexico obtained through the delivery of water of the river to Mexico. Mr. Hewes produced and there is in the record at page 1644 of volume 5 a proposal made by the Imperial irrigation district to the Mexican Government on its own behalf, and on behalf of its subsidiary in Mexico, dated June 11, 1941, for a further arrangement for the delivery by the Imeprial irrigation district and its Mexican subsidiary of water of the Colorado River for use in Mexico. On page 1652 of volume 5, Mr. Frank Clayton, attorney for the United States section of the International Boundary Commission (now the International Boundary and Water Commission) gave a translation and analysis of the proposal, which indicated that under the plan set out in the proposal the Imperial irrigation district would receive an annual payment, for 20 years, of approximately $470,000, and thereafter in perpetuity approximately $340,000 a year; and that under plan No. 2 in the proposal of the Imperial irrigation district it would receive approximately $628,000 a year.

Mr. Hewes stated on page 1948 of volume 5 of the hearings, in answer to question by Senator Austin, that if the Mexican water treaty were not ratified the Imperial irrigation district would make some such arrangement with Mexico.

In the Seventy-ninth Congress and in the Eightieth Congress California interests introduced bills, which, in my judgment and in the judgment of the Colorado River Basin States committee, and I believe in the judgment of the State Department and of the Interior Department, would have the effect of rendering nugatory and abrogating the Mexican water treaty, and thus releasing Mexico from the all-time limit placed upon her claim to the waters of the river by that treaty.

I do not know whether such a bill has been introduced in the Eighty-first Congress; I am informed, however, that the Imperial irrigation district is trying to secure by other means the control of the running of water through the All-American Canal to Mexico.

In 1944 before the committee of 14 and 16 and in the hearings on the Mexican treaty before the Senate Foreign Relations Committee in 1945, it was openly argued by some of the representatives of southern California interests that if that treaty were ratified they would bring an action in the Supreme Court of the United States to set aside the Colorado River compact and the California Self-Limitation Act. None of the representatives of the other States believed that they could be successful in any such action.

In the hearings on the Gila reauthorization bill before the House Committee on Irrigation and Reclamation, California still persisted, in spite of the opinion of the Supreme Court of the United States in 292 U. S. 341, to state that the million acre-feet of III (b) water was unapportioned and hence part of the surplus, in which California could have an interest, nothwithstanding the provisions of the California self-limitation statute. California also presented its argument that resulting depletion of the Colorado River was not the proper method of measuring beneficial consumptive use of the water as between States, and further presented its argument that California should not bear its proportionate share of the reservoir losses caused by the storage of water for its benefit.

In 1946 shortly after the hearings on the Gila reauthorization bill, California withdrew from the committees of 14 and 16, which for many years had been the forum for discussion of the Colorado River matters between the States of the basin, and California severed diplomatic relations with the States of the basin. The name of the committee was changed to the Colorado River Basin States committee. Shortly thereafter, Nevada followed California by withdrawing from the committee severing diplomatic relations with the remaining five States of Arizona, Colorado, Wyoming, Utah, and New Mexico.

It was true that from 1933 to 1937, when the Colorado River Board of California was created, that southern California men representing one or another of the California agencies of southern California which claimed rights in the Colorado River, appeared at all interstate meetings concerning the river and spoke in the interests of their respective agencies.

In 1937 the Legislature of California created the Colorado River Board of California, and restricted its membership to representatives of the California agencies. The agencies were the Palo Verde irrigation district, the Imperial valley district, Coachella Valley County water district, the Metropolitan water district of southern California, the Department of Water and Power of the city of Los Angeles, and the city of San Diego. It is my understanding that the representatives of those agencies who signed the intrastate priorities agreement in California, are still acting in the interests of their respective agencies and trying to carry out their interagency priorities agreement which was signed by them on August 18, 1931; and that they feel bound to each other by that agreement, although they do not apparently feel bound by the California self-limitation statute.

Later, after having, in my opinion, somewhat belatedly determined that they should not bring an action attacking the validity of the Colorado River compact and the California self-limitation statute they gave lip service to those documents; and yet by strained constructions and twisting of words, they tried to avoid their plain meaning. Therefore, they have thought up the strained constructions and distortions which are now being presented to Congress as substantial controversies requiring immediate adjudication, in spite of the solemn agreements of their State and the plain meaning of those agreements.

The late Gov. Sidney P. Osborn, who was Governor of Arizona from 1941 until the last of May 1948 when he died, told me that he many times during the course of his gubernatorial career tried to talk to Gov. Earl Warren, of California, about Colorado River matters, but that he was always informed in those oral conversations with Governor Warren that he would not discuss it, that Arizona would have to see the Colorado River Board of California, every member of which represents one of the southern California agencies—which apparently feel bound to one another rather than by the solemn agreements of the State of California.

I myself tried to talk to Governor Warren as the representative of Arizona one time at the governors conference in Seattle, but he would not discuss the Colorado River or the position of California or of Arizona.

California witnesses have called attention to two letters, one by Gov. Earl Warren to Governor Osborn, and the other Governor Osborn's answer thereto. They fail to refer to the whole series of letters exchanged between our two governors. There were six letters in the series, which are set forth on pages 229–233 of the hearings on Senate Joint Resolution 145 before a subcommittee of this committee in May of last year and on pages 467–472 of the hearings on House Joint Resolution 225. I request that the committee read the whole correspondence where Governor Warren himself, over his own signature, completely refutes the statements in the press and inferences of representatives of these southern California interests, that Governor Osborn would not talk with Governor Warren.

Governor Osborn and Governor Warren had worked together in many matters of mutual interest to their respective States at numerous governors conferences; and I believe the two men were personal friends and respected one another. I am sure that Governor Osborn liked, respected, and had confidence in the ability and fair-mindedness of Governor Warren.

So when he received Governor Warren's letter of March 3 he hoped that it meant that Governor Warren was proposing to reassert the prerogatives of the office of governor of California, and take a personal interest in and endeavor to work out the California-Arizona situation which, as we see it, has been created by the failure of the representatives of the southern California agencies to respect the commitments made by the good people and the sovereign State of California.

Governor Osborn was fair-minded, a student of Colorado River matters, and a great governor. Neither he nor the people of Arizona had, nor have, any desire to hurt California or its people. Arizona and California are neighbors; they are part of the same trade territory. California furnishes our best market and Arizona is one of California's best customers.

Governor Osborn was always forthright, frank and honest in his dealings. On account of his personal relations with Governor Warren and his confidence in Governor Warren, in spite of the fact that Governor Warren had not set forth the basis of any claim that he intended to make for California, Governor Osborn believed that he owed Governor Warren the duty of frankness, and that if they could get to discussing the matter on the high level of governors, he could show

Governor Warren that Arizona's position was correct. Accordingly, he answered Governor Warren's letter of March 3, 1947, on March 12, 1947. Governor Warren did not answer Governor Osborn's letter until May 16, 1947. Governor Osborn answered that letter on May 23, 1947, but received no reply. Governor Osborn wrote Governor Warren again after waiting until October 10, and Governor Warren answered under date of October 16. In order to make this matter clear, I desire now to read to you those letters. They appear in the hearings on Senate Joint Resolution 145 at pages 228 to 233, and in the hearings on House Joint Resolution 225 at pages 467–472. These southern California gentlemen present to these respective committees only the first two of these letters.

You will note that Governor Warren never did take issue with any fact, statement, or conclusion of Governor Osborn's, or set forth the quantity of water that California claimed or intended to claim; or the basis for such claim.

The committees of 14 and 16 had been organized as a governors' committee to be composed of two men from each State, named by and representing directly their respective governors. So I was surprised when the letters withdrawing California representatives from the committee was presented by the Colorado River Board of California. The committee immediately changed its name to the Colorado River Basin States Committee, and requested Governor Warren, of California, to persuade the California men who had been participating in the work of the committee to return to the committee; or, if they refused, to appoint to the committee other California representatives. Governor Warren declined.

At the hearings on S. 1175 in the summer of 1947 these representatives of southern California agencies enlarged upon the arguments they had made in the hearings on H. R. 5434 the preceeding year. I, for Arizona, presented the questions raised by California to the Colorado River Basin States committee. After long and mature consideration, the Colorado River Basin States committee at a meeting at Salt Lake City, Utah, on the second day of October, unanimously adopted the statement which appears on page 155 of the hearings on Senate Joint Resolution 145, and which I would like to read to you at this time. * *

* * * * * * *

The Upper Colorado River Basin Compact Commission had been negotiating since July 1946; and it adopted the principles enunciated in the statement which I have just read to you. The upper Colorado River Basin compact was signed in late 1948, and has now been ratified by each of the five States and consent thereto has been given by the Congress. The Colorado Basin States committee in the statement of principles I have just read to you, found unanimously that the million acre-feet mentioned in article III (b) of the Colorado River compact is apportioned to the lower basin, making the total apportionment to the lower basin 8,500,000 acre-feet; and the lower basin is entitled to deplete the flow of the Colorado River at the international boundary by 8,500,000 acre-feet. It was adopted by the committee the principle that evaporation and reservoir losses should be divided on a ratable and proportionate basis among projects served by such reservoirs. Water stored for future use is on the same basis as diverted water.

In the brief filed in opposition to Senate Joint Resolution 145, appearing in the printed record of those hearings at pages 157–179, and at pages 265–287 of hearings on House Joint Resolution 225, the Colorado River Basin States committee, composed of Judge Clifford H. Stone and Frank Delaney, for the State of Colorado; L. C. Bishop and H. Melvin Rollins, for the State of Wyoming; William R. Wallace and Grover R. Giles for the State of Utah; Fred E. Wilson and John H. Bliss for the State of New Mexico; and Nellie T. Bush and Charles A. Carson for the State of Arizona, with additional members on the subcommittee to oppose litigation, including Judge J. A. Howell for the State of Utah; Martin A. Threet for the State of New Mexico; Norman B. Gray, attorney general of Wyoming; and Jean S. Breitenstein for the State of Colorado, made the flat statement:

"* * * Taking into consideration that Arizona is entitled to all the uses of the Gila River as set out in this paragraph (meaning the second paragraph of sec. 4 (a) of the Boulder Canyon Project Act), this necessarily means that Arizona is entitled in addition thereto to 2,800,000 acre-feet per annum. Which means, further, that there is ample water for the central Arizona project because California does not and cannot assert that that project will take more water than that."

I would like to read a few paragraphs of that brief, beginning on page 174 of the hearings on Senate Joint Resolution 145 * * * and on page 282 of the hearings on House Joint Resolution 225.

It seems to me that the arguments here advanced by California are fully, completely, and devastatingly answered by that portion of that brief which I have read.

I testified very fully before this committee and its subcommittee on S. 1175 and Senate Joint Resolution 145, and before the House committee on House Joint Resolution 225, and I do not believe it is necessary here to repeat its arguments, because I understand thta the full and complete record of the hearings on Senate Joint Resolution 145 and S. 1175 are before this committee for consideration without reprinting. I do believe that the statements made by the witnesses in favor of S. 1175 and in opposition to Senate Joint Resolution 145 are full, complete, and unanswerable.

PRESENT HEARINGS

It has been argued by the representatives of the southern California agencies in the hearings before this committee on S. 75 and more fully in the hearings before the Public Lands Committee on H. R. 934 and H. R. 935, which have been proceeding simultaneously, that Congress does not have the power or jurisdiction, for any purpose, to construe or interpret the Colorado River compact; and therefore that Congress is helpless to determine the question whether or not, in its judgment, there is water legally available for the central Arizona project, for the purpose of the authorization bill. They have argued that consideration of that question by the Congress is precluded and barred, and that the only tribunal having jurisdiction to determine the question of the availability of water for the project is the Supreme Court of the United States.

However, while some of their witnesses have been pressing such arguments in the legislative committees, Mr. James H. Howard, general counsel for the Metropolitan Water District of Southern California, presented a statement before Subcommittee No. 3 of the House Committee on the Judiciary in a hearing on House Joint Resolution 3 and similar resolutions, all of which are companion to Senate Joint Resolution 4, being considered by your committee, in which he conceded that Congress did have such power to determine the availability of water for a project for the legislative purpose of authorizing a project. Mr. Howard stated that in making contracts with the Secretary of the Interior the souhern California agencies had relied upon immaterial and irrelevant allegations in the bill and statements in the pleadings in *Arizona* v. *California* (283 U. S. 423). I thought that Mr. Howard was too careful a lawyer to rely upon such statements, and I checked dates. I find that he must be in error because the bill was not filed in that case until October 13, 1930. I find in the Hoover Dam Contracts, by Wilbur and Ely, published in 1933, copies of a contract for electrical energy executed by the United States, and the Metropolitan Water District of Southern California on April 26, 1930, executed a contract for the delivery of water by the United States to it. Both of said contracts were executed nearly 6 months before the Arizona bill of complaint was filed; so Mr. Howard must be mistaken.

It is Arizona's view that the questions raised by California are completely and conclusively settled by the Boulder Canyon Project Act, the California self-limitation statute, the Colorado River compact, and the Arizona contract, with the one possible question of who shall bear reservoir losses.

In that connection, it should be remembered that that question cannot arise probably for a hundred years, or until the upper basin has completely utilized all of its water and all surplus has disappeared and there occurs a shortage of water available for delivery from Lake Mead. If that time should ever arise, it is in the far, dim, and distant future; and as is the universal practice in the West, deliveries would be curtailed proportionately. In any event, it cannot now give rise to a justiciable controversy, because it may never happen. If there should be such a shortage, and it may never happen, that California should use all of the water conceivably usable by her and Arizona and Nevada should use all of the water set aside for them, deliveries to them would necessarily be reduced proportionately, in accordance with well-recognized principles of equity.

SITUATION AS TO UTAH AND NEVADA

I would like to touch briefly upon the situation of Utah and Nevada and their utilization of their shares of the waters of the Muddy River, the Virgin River, and Kanab Creek, in the lower basin. The Virgin River rises in Utah, flows through Arizona, thence through Nevada, where it enters Lake Mead. The

Muddy River is, as I understand it, entirely within the State of Nevada. Kanab Creek rises in Utah, and flows into Arizona in the lower basin. It appears to us in Arizona that insofar as Nevada and Utah are concerned, and their right to use water of those tributaries is concerned, their best interests require that the beneficial consumptive use of water be measured by the resulting depletion at the mouths of those tributaries, as Arizona contends that it should be measured and as Utah has agreed that it should be measured in the upper Colorado River Basin compact. Of course, Utah cannot properly take one position in the upper basin and a contrary position in the lower basin. However, all the tributaries are wasting streams, as is the Gila River in Arizona and New Mexico. By measuring beneficial consumptive use by the resulting depletion at the mouths of the various tributaries, all users of waters from those tributaries can use greater quantities of water than they could under the California theory of measurement of beneficial consumptive use at points of use, without regard to the effect upon the streams. Therefore, under the Arizona theory that is given above, they can use more water than they could under the California theory.

It appears to us that Nevada's best interests require that Nevada stand with Arizona upon the proposition that reservoir losses should be borne ratably and proportionately by those benefiting from the storage of water for future use, which makes possible such evaporation losses.

The Boulder Canyon Project Act and the California Self-Limitation Act provide "that the aggregate annual consumptive use (diversions less returns to the river) of and from the Colorado River for use in the State of California * * * shall not exceed 4,400,000 acre-feet."

It will be noted that the Boulder Canyon Project Act and the California Self-Limitation Act do not say water diverted into California but diverted for use in the State of California.

Section 5 of the Boulder Canyon Project Act authorized the Secretary of the Interior, under such general regulations as he may prescribe, to contract for the storage of water in the reservoir and the delivery thereof.

The Secretary did provide in the metropolitan water district contract and in the San Diego contract for storage of water in Lake Mead and delivery thereof to such agencies. In their contracts giving them the right of such storage, it is provided as follows:

"* * * provided that accumulations shall be subject to such conditions as to accumulation, retention, release, and withdrawal as the Secretary of the Interior may from time to time prescribe in his discretion, and his determination thereof shall be final: *Provided further*, That the United States of America reserves the right to make similar arrangements with users in other States without distinction in priority, and to determine the correlative relations between said district and/or said city and such users resulting therefrom."

It therefore seems clear to me that the California agencies and the Secretary contemplated in such provisions in accordance with equity, which would require, as is the practice throughout the West, that reservoir losses be shared ratably and proportionately, if that should ever become necessary.

Arizona, in the water-delivery contract, has by contract with the United States, for the benefit of Nevada, recognized the right of Nevada to use 300,000 acre-feet of water; and for the benefit of Utah has recognized the right of Utah to equitable shares of the water in the lower-basin tributaries to which Utah has access. That share has not yet been agreed upon; so for the purpose of this bill, Arizona, in her calculations, has calculated that Utah might be able to use all the water which the Bureau of Reclamation estimates is the total ultimate possible use in Utah, and has deducted the quantities calculated by the Bureau for use in Utah and 300,000 acre-feet for use in Nevada, from the total of the water apportioned to the lower basin, before calculating the quantity available to Arizona.

Arizona has appraised both Utah and Nevada that when they are ready to do so Arizona is prepared to negotiate a compact with them, apportioning the water of the Virgin River and Kanab Creek and, if Nevada desires, the waters of the Big Muddy for use in the States through which such tributaries flow, in such a manner that all of the water of said tributaries, to the greatest extent possible, would be utilized in such tributary basins without regard to the effect of such utilization on the flow of the main stream of the Colorado River, whether or not California should join in such a compact.

No parts of the three States through which such tributaries flow have access to any water except that flowing in such tributaries.

SITUATION AS TO NEW MEXICO

Likewise, Arizona has contracted with the United States to recognize the rights of New Mexico to equitable shares of the water apportioned and unapportioned in the lower basin. Those shares have not yet been fixed in amount; but for the purpose of calculating its water supply for the central Arizona project, Arizona has deducted from the quantity of water apportioned to the lower basin the ultimate possible uses in New Mexico, as estimated by the Bureau of Reclamation. That estimate, of course, is not binding on either of the States; but it is the closest approximation available to us at this time.

The water rights to the Gila River, as between Arizona and New Mexico, have been established by a Federal court decree, over which, of course, the State of Arizona has no control. The waters of the Gila River affected by that decree are fully appropriated, and rights are definitely settled, so that, as Arizona sees it, the only chance for an adequate supplementary supply of waters to lands now or heretofore irrigated along the Gila River, in either New Mexico or Arizona, is by the authorization of the Central Arizona project: the bringing in of waters from the main stream of the Colorado River to supply lower lands, mainly in Pinal County, Ariz.; and by an exchange, to release waters of the Gila River to which those lands have decreed rights to lands upstream in New Mexico and the upper valleys of Arizona, and then to provide for storage in the upper Gila River in New Mexico to store a sufficient quantity of the waters of the Gila River to provide the adequate supplementary supply for lands now or heretofore irrigated in the upper valleys of Arizona and below the dam site in New Mexico.

The best interests of New Mexico in the lower basin coincide with the interests of Arizona, because all the tributaries in the lower basin are wasting streams. If beneficial consumptive use is measured by the resulting depletion at the mouths of those tributaries, larger quantities of water could be used in New Mexico than if beneficial consumptive use of the waters were attempted to be measured at points of use, as contended by California.

REBUTTAL

I would like very briefly to rebut some arguments here made by spokesmen for California interests, very much as I did in the hearings on S. 1175, beginning at page 481.

1. It is argued that the 1,000,000 acre-feet of water mentioned in article III (b) of the Colorado compact is not apportioned to the lower basin.

I submit that the compact itself shows it is apportioned water; that the evidence in this record, including the testimony of Mr. Meeker, the statements of Mr. Carpenter, Mr. Hoover, Mr. Norviel, Mr. Lewis, and Governor Campbell, clearly disclose that the negotiators of the compact so regarded it and that the Members of Congress so regarded it when they approved the compact; and that the Supreme Court of the United States has held it to be apportioned water (*Arizona* v. *California*, 292 U. S. 341).

The particular ground of the decision to which I desire to call attention is the sixth ground of the decision reported on page 358.

2. It is argued that beneficial consumptive use is not measured by depletion of the Colorado River.

I submit that the negotiators of the compact were dealing solely with water flowing in a surface stream and that there is no way to measure beneficial consumptive use of water flowing in a surface stream except by the resulting depletion.

I further submit that article III (d) of the compact shows that the negotiators of the compact used depletion as the measure of consumptive use.

I further submit that the Boulder Canyon Project Act, the California Limitation Act, and the Arizona contract measure consumptive uses by the resulting depletion of the Colorado River.

The Arizona contract is in this record.

3. It is argued that reservoir evaporation losses are chargeable solely to Arizona; that California bears no part of them.

I submit that when water is stored in on-stream reservoirs or off-stream reservoirs, it is in equity diverted from the stream, and I further submit that equity requires that all parties benefiting from storage of water should bear ratably evaporation losses caused by such storage.

I further submit that section 8 of the contract between the United States and the Metropolitan Water District of Southern California is as follows:

"SEC. 8. So far as the rights of the allottees named above are concerned, the metropolitan water district of Southern California and/or the city of Los Angeles shall have the exclusive right to withdraw and divert into its aqueduct any water in Boulder Canyon Reservoir accumulated to the individual credit of said district and/or said city (not exceeding at any time 4,750,000 acre-feet in the aggregate) by reason of reduced diversions by said district and/or said city: *Provided*, That accumulations shall be subject to such conditions as to accumulation, retention, release, and withdrawal as the Secretary of the Interior may from time to time prescribe in his discretion, and his determination thereof shall be final: *Provided further*, That the United States of America reserves the right to make similar arrangements with users in other States without distinction in priority, and to determine the correlative relations between said district and/or said city and such users resulting therefrom."

There is incorporated in the appendix of the hearings on S. 1175 the contract between the United States and the Metropolitan Water District of Southern California, pages 209 to 306, inclusive, of the Hoover Dam contracts by Wilbur & Ely of 1933.

It is, therefore, clear that both the metropolitan water district and the Secretary of the Interior anticipated ratable sharing of such evaporation losses.

Mr. CARSON. Next, Mr. Chairman, I would also like to furnish each member of the committee and have printed in the record in one place the Colorado River Basin States Committee summary of portions of hearings before Subcommittee No. 4 of the Judiciary Committee in the Eightieth Congress on House Joint Resolution 225 and similar resolutions.

Mr. MURDOCK. Without objection, those may also be admitted following the prepared statement of Mr. Carson.

(The matter above referred to is as follows:)

STATEMENTS SUBMITTED BY THE COLORADO RIVER BASIN STATES COMMITTEE, REPRESENTING THE STATES OF COLORADO, WYOMING, UTAH, NEW MEXICO, AND ARIZONA, BEFORE SUBCOMMITTEE NO. 3 OF THE JUDICIARY COMMITTEE, THE HOUSE OF REPRESENTATIVES, EIGHTY-FIRST CONGRESS

HON. WILLIAM T. BYRNE, CHAIRMAN, AND SUMMARY OF PORTIONS OF THE HEARINGS BEFORE SUBCOMMITTEE NO. 4 ON JUDICIARY, HOUSE OF REPRESENTATIVES, EIGHTIETH CONGRESS

HON. CLIFFORD P. CASE, CHAIRMAN, PRESIDING

ON HOUSE JOINT RESOLUTION 225 AND SIMILAR RESOLUTIONS (MAY 17, 20, 26, AND 27, 1948)

On May 17, 20, 26, and 27, 1948, Subcommittee No. 4 of the Committee on the Judiciary of the House of Representatives, Eightieth Congress, held hearings on House Joint Resolution 225 and other identical or similar resolutions. These hearings having been reported, the page references in this summary are made to that printed report.

This summary deals only with the statements of those appearing in opposition to the proposed legislation. The full text of House Joint Resolution 225 appears on page 1 of the report.

There are now before Subcommittee No. 3 of the House Judiciary Committee similar resolutions, to wit, House Joint Resolution 3, and others which are identical or similar.

House Joint Resolution 3 differs somewhat in text from House Joint Resolution 225, but it is obviously intended to accomplish the same purpose. House Joint Resolution 3 reads as follows:

"Granting the consent of Congress to joinder of the United States in suit in the United States Supreme Court for adjudication of claims to waters of the Colorado River system.

"Whereas there are controversies of long standing, among the States of the lower Colorado River Basin, over the rights of those States to the use of water under certain provisions of the Colorado River compact, the Boulder Canyon Project Act, the Boulder Canyon Project Adjustment Act, and the California Limitation Act (Stats. Cal. 1929, ch. 16); and

"Whereas those controversies now adversely affect and limit the development of various projects in that basin for impounding, regulating, and using the waters of the Colorado River and its tributaries, the construction of which the Congress has heretofore authorized or may hereafter authorize, in the exercise of its constitutional powers; and

"Whereas the Secretary of the Interior, on behalf of the United States, has entered into various agreements with States, public agencies, and other parties of the lower Colorado River Basin relating to the storage and delivery of Colorado River water, and the rights of said parties to the delivery and use of water under those agreements are involved in the controversies hereinbefore referred to; and

"Whereas said States, after many years of negotiations, have been unable to settle such controversies by compact; and

"Whereas the Supreme Court of the United States in *Arizona* v. *California* (298 U. S. 558) held in effect that there can be no final adjudication of rights to the use of the waters of the Colorado River system without the presence, as a party, of the United States: Now, therefore, be it

"*Resolved by the Senate and House of Representatives of the United States of America in Congress assembled*, That consent is hereby given to the joinder of the United States of America as a party in any suit or suits, commenced within 2 years from the effective date of this joint resolution in the Supreme Court of the United States by any State of the lower basin of the Colorado River, as that basin is defined in the Colorado River compact, for the adjudication of claims of right asserted by such State, by any other State, or by the United States, with respect to the waters of the Colorado River system as defined in said compact available for use in that basin. Process in any such suit may be served upon the Attorney General."

The principal difference between the two resolutions is that under the provisions of House Joint Resolution 225 Congress would have directed the Attorney General of the United States to institute and maintain an action in the Supreme Court of the United States against certain States of the Colorado River Basin and require them to assert and have determined their claims and rights to the use of the waters of the Colorado River system. By the provisions of House Joint Resolution 3 Congress would grant consent to the joinder of the United States in suit in the Supreme Court for adjudication of claims to the waters of the Colorado River. Both resolutions seek the same objective.

Statements of those appearing in opposition to House Joint Resolution 225, in the order of their appearance, were as follows:

1. Hon. Carl Hayden, Senator from the State of Arizona (pp. 238–236).
2. Hon. Robert F. Rockwell, Representative in Congress from the State of Colorado (p. 237).
3. Hon. Frank A. Barrett, Representative in Congress from the State of Wyoming (pp. 237–239).
4. Hon. Walter K. Granger, Representative in Congress from the State of Utah (p. 240).
5. Hon. John R. Murdock, Representative in Congress from the State of Arizona (pp. 240–244).
6. Hon. Richard F. Harless, Representative in Congress from the State of Arizona (pp. 244–248).
7. Hon. Ernest W. McFarland, Senator from the State of Arizona (pp. 248–265).
8. Mr. Jean Breitenstein, attorney, Colorado Water Conservation Board (pp. 296–318, 517).
9. Mr. J. A. Howell, legal adviser to the State engineer of the State of Utah (pp. 318–329).
10. Further statement of the Hon. John R. Murdock, Representative in Congress from the State of Arizona (pp. 331–333).
11. Hon. William A. Dawson, Representative in Congress from the State of Utah (pp. 333–334).
12. Mr. Charles A. Carson, chief counsel, Interstate Streams Commission of Arizona (pp. 340–484, 487–488, 520).
13. Mr. Fred E. Wilson, attorney at law, member of the Colorado Basin States Committee, representing New Mexico (pp. 484–487).

Judge J. A. Howell made the principal statement in opposition to the resolution, first presenting the resolution of the Colorado River Basin States Committee opposing the resolution. The full text of that committee's resolution appears

on page 268. Judge Howell presented and discussed a brief which he submitted on behalf of the Colorado River Basin States Committee. This brief was signed by representatives of the States of Colorado, Wyoming, Utah, New Mexico, and Arizona.

THE COLORADO RIVER BASIN STATES BRIEF

This brief contains first an introductory statement of facts pointing out the provisions of the resolution, emphasizing that those responsible for the resolution were well aware of the fact that the Supreme Court of the United States in the exercise of its original jurisdiction will not render declaratory judgments. In order to make a determination of the rights to the use of the water of the Colorado River available for the lower basin, it will be necessary to determine the rights of all the basin States to the use of the water of the Colorado River. The brief further points out that the avowed purpose of the resolution is "for the purpose of avoiding a multiplicity of suits and expediting the development of the Colorado River Basin." It presents the question whether or not the acts proposed will accomplish the purpose. It is pointed out in this brief and by other testimony that there can be no question of a multiplicity of suits; and if one State of the Colorado River Basin brings a suit against any other State of that basin by which the rights of other States are affected, the States so affected can and would of course intervene, so that their rights might be fully protected. So far as expediting the development of the basin is concerned, the resolution, if adopted, would probably have the opposite effect and would delay the development.

After a recitation of these introductory facts, the brief presents the Colorado Basin States Committee resolution opposing the legislation.

The brief proceeds in part II with the argument. Under the argument the first proposition discussed is as follows:

"1. The jurisdiction of the Supreme Court, in the exercise of its original jurisdiction, so far as material for our consideration, extends only to justiciable controversies between the United States and one or more States, and to controversies between two or more States" (p. 272).

In support of this proposition the brief states:

"Article III section 2 of the Constitution of the United States provides, so far as material here, 'The judicial power shall extend to * * * controversies to which the United States shall be a Party;—to controversies between two or more States.' That section further provides 'In all cases * * * in which a State shall be a party, the Supreme Court shall have original jurisdiction.'

"The Supreme Court of the United States has had occasion frequently to pass upon the meaning of the foregoing constitutional provisions in suits or actions between States, and to fix the limits of its jurisdiction thereunder. It has held that it will not grant relief against a State unless the complaining State shows an existing or presently threatened injury of serious magnitude" (p. 272).

A number of cases are cited in support of this contention. Some of the most significant quotations in the cited cases are as follows:

"A potential threat of injury is insufficient to justify an affirmative decree against a State. The Court will not grant relief against something feared as liable to occur at some future time (*Alabama* v. *Arizona* (291 U. S. 286, 291))" (p. 272).

The brief goes on to state:

"The Court will not grant relief against something feared as liable to occur at some future time" (p. 272).

In *Alabama* v. *Arizona* the Court further said:

"This Court may not be called upon to give advisory opinions or to pronounce declaratory judgment * * *. In its jurisdiction in respect of controversies between States will not be exerted in the absence of absolute necessity" (p. 273).

The brief then proceeds with a discussion of the New River case (*U. S.* v. *Appalachian Electric Power Co.* (311 U. S. 377, 432), in which the Court said:

"To predetermine, even in the limited field of water power, the rights of different sovereignties, pregnant with future controversies, is beyond the judicial function" (p. 273).

The brief then proceeds with a discussion of the case of *Kansas* v. *Colorado* (206 U. S. 46), and quotes from that decision as follows:

"In such disputes as this, the court is conscious of the great and serious caution with which it is necessary to approach the inquiry whether a case is proved. Not every matter which would warrant resort to equity by one citizen

against another would justify our interference with the action of a State, for the burden on the complaining State is much greater than that generally required to be borne by private parties. Before the court will intervene the case must be of serious magnitude and fully and clearly proved. And in determining whether one State is using, or threatening to use, more than its equitable share of the benefits of a stream, all the factors which create equities in favor of one State or the other must be weighed *as of the date when the controversy is mooted*" (p. 273). [Italics supplied.]

The brief continues with the discussion of the case of *Nebraska* v. *Wyoming* (325 U. S. 558), involving the North Platte River, pointing out in particular that when this case was considered the construction of the Kendrick Dam in Wyoming had been authorized by Congress, and that this authorization was the basis of the Court's decision. This same case later was discussed by Mr. Jean S. Breitenstein.

The brief then succeeds with an additional thorough discussion of the proposition in question, citing numerous authorities in support thereof, and concluding the argument on this particular proposition with the following pertinent statement:

"It is impossible to conceive how there could from any point of view under the situation presented as to the Colorado River be a multiplicity of suits which is the only ground upon which the jurisdiction of the Court was predicated in the case of *Texas* v. *Florida*. Whatever suit be brought, and by either the United States or a State, any State whose rights are affected would either be parties or would have to voluntarily appear to protect their interests therein, and so there would only be the one suit * * *" (p. 276).

Proposition No. 2 in the brief reads as follows:

"2. There is no present justiciable controversy between the United States and the Colorado River Basin States, or any of them, or between any of said States" (p. 276).

It was pointed out that the only threat of injury advanced by the proponents of the bill was that "Arizona is asking the Secretary of the Interior to approve S. 1175 (the central Arizona project * * *." Commenting on that, the brief says:

"Well, what of it? Suppose the Secretary of the Interior is of opinion S. 1175 should be enacted, or that it should not be, or is doubtful about the matter, or has no opinion at all. Does that opinion rise to the dignity of an existing justiciable controversy? Obviously not, and his opinion is precisely in the same category as the opinions in the case of *United States* v. *West Virginia*, which the Court held did not rise to the dignity of a controversy, because whatever be his opinion, he can take no action until the Congress acts. It may act unfavorably on the bill, then there could be no controversy even at that time, much less now. Suppose it should act favorably, and the bill should become law, would the United States then want to become the moving instrumentality by which California might assert that Congress should not have passed the law? We submit not. It should require California to move to assert its right by bringing an action against Arizona, and assert that it was being injured in its rights by virtue of the authorized project" (p. 276).

The position of the committee on this particular point is clearly set forth in the following pertinent language:

"As we have shown, there is not only now no controversy between the United States and all or any of the Colorado River Basin States suggested by the California-Nevada brief, but there are in fact none, nor could there be, because those rights were protected in the Colorado River compact, as herein heretofore in our preliminary statement of facts pointed out that they are not and could not be now questioned by any of the basin States" (p. 278).

Nevada's position is discussed under this head, and it is pointed out that Nevada is concerned only because the central Arizona project bill contemplates the operation of a power plant at Bridge Canyon, above Lake Mead; and the operation of that plant will have the effect of reducing the power available to Nevada at Hoover Dam. Attention is directed to the fact that under the Colorado River compact power is subservient to the right to use the waters of the river for irrigation and domestic purposes. Therefore, the brief concludes that the real dispute is between California and Arizona, and that the points in dispute numbered three, to wit:

1. What is meant by what is called in the Colorado River compact "III (b) water"?

2. Concerns the question of uses of waters of the Gila River.

3. The issue of reservoir losses.

The meaning of "III (b) water" is discussed somewhat in detail. The pertinent provisions of the Boulder Canyon Project Act are discussed. The famous letter from Herbert Hoover to W. S. Norviel, dated November 26, 1922, was introduced in the record. That letter is reproduced on pages 279–280 of the hearings.

The brief goes on to state:

"In the light of what we have said at least from the point of view of the United States, this disposes of the contention of Nevada and California as to III (b) water, for (3) of the paragraph says that the 'State of Arizona shall have the exclusive beneficial consumptive use of the Gila River within the boundaries of said State' and it explains why III (b) water was separated from III (a) water, a separation which disturbs the writers of the Nevada-California brief if it is apportioned water. It was because it had nothing to do with the division of water between the upper and lower basin. It was Arizona's because the Gila River was Arizona's. But apart from all this argument as to III (b) water, it presents no present justiciable controversy between Arizona and California, because it does not jeopardize any of California's present use of the river's water" (p. 280).

With reference to the uses of Gila water, the matter is briefly discussed, pointing out the nature of the Gila River and what uses are made of the waters of that stream and its tributaries, that this use includes reuse and salvage waters, and that no State under the compact should be charged with waters so salvaged or reused. The conclusion on this particular point is well stated as follows:

"The short answer to this contention is, as we have already pointed out, this water in question is not III (a) water, but III (b) water, and that Arizona is entitled to all the water of the Gila River, and that therefore what is meant by 'consumptive beneficial use' in the compact becomes immaterial" (p. 281).

As to the issue of reservoir losses, it is California's contention that Arizona should stand all those losses. It is pointed out that this question may be important in the future, but it cannot be now because even if all reservoir losses were charged to California that State's present use of allotted water is not in jeopardy.

After again reviewing the three issues, the conclusion is arrived at as follows:

"Finally, what sort of disputes are these three claimed disputes? They are as to the meaning of certain provisions of the documents constituting the law of the river, which may or may not become important in the future but are not now, because they do not jeopardize any present use by California of the water of the river. They are, first: What is meant by 'III (b)' water as used in the compact? As to that, it is claimed Arizona has one opinion and California another. Second, what is the meaning of the term 'beneficial consumptive use of water' as used in the compact? As to that it is claimed the opinions of California differ from those of Arizona. Third, what is the interpretation to be given to the limit on California's use of the river, the 4,400,000 acre-feet per annum? California says that means without losses. Arizona says, so that brief claims, it means subject to losses. This demonstrates that what California really wants is a definition of these words and terms for future guidance. That can only be done by agreement or by a declaratory judgment of a court. She knows that the Supreme Court has decided it will not render declaratory judgments in the exercise of its original jurisdiction because of the constitutional limitation upon it. She cannot bring an action or suit to have their meaning fixed. So, what she proposes is that the United States shall bring the suit or action and thus indirectly give color of jurisdiction which would otherwise not exist. We say that the attempt would eventually be futile, because color of jurisdiction does not suffice. It must be existent. We say that if the bill of complaint which was filed would state all the three claimed disputes of California against Arizona as stated in the brief, and as we have shown that is all there is on the river, and then state the facts as to present use of the water of the river, and what is going to waste, it would not state a justiciable cause of action. If it went further, then it would state more than California has asked or has a right to ask" (p. 282).

The first two propositions involve legal matters. The remaining propositions are largely matters of policy.

Proposition No. 3 is not pertinent in the consideration of the present legislation.

Proposition No. 4 is stated as follows:

"4. The adoption of the proposed resolution will delay the development of the river" (p. 283).

The argument advanced in support of this point is pertinent when considering the present proposed legislation. Under this proposition, the practice of appoint-

ing a master or commissioner to take testimony is discussed. It is further pointed out that this kind of litigation almost without exception involves a great deal of time; and a determination can be made, if at all, only after long years of court procedure. Quoting from the brief on this point:

"The result of the adoption of the resolution, and the commencement of the action, pursuant thereto, instead of expediting the development of the Colorado River Basin as claimed in the resolution, will greatly delay it. The writer or writers of the California-Nevada brief are cognizant of the long delays in water litigation between States in the Supreme Court of the United States, but they claim that the issues in this case will be merely 'interpretations of statutes and other documents,' and therefore this case will differ from all previous water litigations. That statement but reinforces our claim that that is the extent of their claims, that they want these statutes and documents now construed solely for future guidance. That they cannot do as the decisions of the Supreme Court stand now, because uniformly that Court has refused to render declaratory judgments. Apparently they have not the courage to ask the Supreme Court to reverse those decisions, and parenthetically we may say they have been criticized, and so they ask the United States to pull their chestnuts, which may exist sometime, although they do not now exist, out of the fire which is not yet burning. They hope that the Attorney General, if the resolution passes, can camouflage an action to declare the meaning of certain 'statutes and documents' into a justiciable controversy, or at least be the intermediary by which they will be able to do it. We submit it would be a breach of faith to all the other basin States for the United States to lend California any aid or comfort in such an undertaking and to bring an action which would throw the rights of all the basin States and of the United States in the river in litigation which it will take many years to conclude. In other words, the inconsistency of the brief and the resolution is this: The brief claims that the disputes are confined to interpretations of instruments affecting only the rights in the river between Arizona and California. The resolution attempts to put in issue all the claims of all the States. Meantime California will endeavor to use the water to which the other States are entitled and will oppose any projects of the upper river, as she is opposing the central Arizona project, including the central Utah project now pending in Congress (S. 2095, H. R. 5233), and we can now hear her representatives shout, 'Why appropriate any of the money of the United States so needed for other projects to construct this project on the Colorado River when that river is in litigation before the Supreme Court of the United States, and it will be years and years before it will be determined whether there will be any water available for the project?' When reduced to the ultimate, this resolution is nothing but a flank attack upon the central Arizona project. But it will undoubtedly be followed, if it is adopted and the contemplated suit is brought, by frontal attacks upon every project for the development of the river. Putting it bluntly, California, having already received all the major projects needed by her to enable her to use not only the water to which she is entitled, but an amount greatly in excess thereof, wants to be in a position to use those excess waters which the other basin States are entitled to use but have not the facilities to enable them to so use.

"Then, after she has used them, she will raise the cry that she must not be deprived of them because it will ruin the wondrous civilization which has been builded upon their use. Indeed, this cry, while somewhat vague and feeble, is nevertheless audible in the resolution and in the brief. In the resolution it is intimated 'engineering, economic, and other facts' are factors to be considered in determining the rights of the basin States in the river. In the brief the immense amount of water involved is stressed. The number of people it will serve with domestic water is heralded—5,000,000 people. But vague and feeble though it now be, it will become a lusty yell once California is using water which really belongs to the other States for 5,000,000 people, or some such number. Thus, are the rights of the other States in the river to be sacrificed upon the altar of California's alleged economic needs? We submit the United States ought not to kindle the fire that will enable California to make that sacrifice and that is the purpose of the resolution and will be its effect if it is adopted and pursuant to it, the suit is brought" (p. 284).

The summary contained in the brief pertinent to the legislation now before Congress is as follows:

"1. Jurisdiction of the United States Supreme Court in controversies between States is determined by the Constitution of the United States and may not be enlarged or diminished by act of Congress.

"2. The Supreme Court has, by a long and consistent line of decisions, established the rule that a suit may not be maintained against a State by another State or by the United States unless the complainant has suffered or is immediately threatened with an injury of serious magnitude.

"3. The proposed suit by the United States against certain Colorado River Basin States does not come within the stated rule because there is no injury or threat of injury. This conclusively appears from the following irrefutable facts:

"(*a*) Every Colorado River Basin State is now using water in an amount substantially less than that to which it is fairly and equitably entitled under the documents which constitute the law of the river.

"(*b*) No project has been constructed, is under construction, or has been authorized for construction in any State which threatens to diminish the supply of water which admittedly is available to each other State under the documents constituting the law of the river.

"(*c*) Very large amounts of Colorado River water are flowing unused across the international boundary into Mexico and there is no claim that within the immediate future those amounts will be so substantially reduced as to interfere with the availability of water necessary to supply the admitted share of the proponents of the resolution.

"(*d*) There is no suggestion of any projects for development of Colorado River water which might interfere with the claimed rights of any State except projects which are of such magnitude that Federal financial is essential. Projects of that character must be authorized by Congress and financed by congressional appropriations. The availability of water for those projects is a proper concern for Congress when considering the necessary legislation. Under our Constitution and applicable decisions of the Supreme Court, Congress cannot avoid that responsibility or obtain assistance by requesting declaratory or advisory opinions of the Supreme Court.

"4. The Colorado River Basin States Committee, and the States composing that committee, affirm that they recognize as valid and binding instruments and legislation and as the law of the river the Colorado River compact; the Boulder Canyon Project Act, the California Self-limitation Act, the Boulder Canyon Project Adjustment Act, the Mexican Water Treaty of 1944 * * *.

"5. It is reasonable to assume that any Supreme Court litigation, such as that proposed, will require a period of years before ultimate determination by the Court. The practice of the Court in interstate cases involving disputes as to facts is to appoint a master or commissioner for the taking of testimony. Experience has shown that this process is long drawn out and costly. * * *

"6. The effect of the proposed litigation can only result in delay in the development of the river. Congressional authorization of projects or appropriations for construction of projects will be contested upon the ground that until the decision of the Court the availability of a water supply is uncertain.

"7. * * *

"8. The proposed legislation is unnecessary as it must be assumed that the Attorney General of the United States and the responsible officials of each State will do their duty and institute whatever litigation is necessary to protect the rights of their respective governments.

"9. The assertion that the legislation is necessary because the United States is an indispensable party to litigation involving the issues presented is without merit because (*a*) the mere presence of the United States in the suit does not create a justiciable controversy, (*b*) there is no justicable controversy and hence legislation giving the consent of the United States to suit is unnecessary, (*c*) if any State believes and can establish that it is being injured or threatened with injury by another State, a suit by such injured State may not be defeated by the assertion that the United States is an indispensable party, and (d) whenever in the future some controversy, as yet undefined either as to issues or parties, arises and in connection with such litigation it is proper for the United States to be a defendant, then will be the time for Congress to give consideration to legislation involving consent to be sued therein" (pp. 285–287).

ADDITIONAL ARGUMENT ON LEGAL QUESTIONS

A very thorough and exhaustive statement of the legal questions involved was made by Mr. Jean S. Breitenstein, attorney, Colorado Water Conservation Board, and a recognized authority on the subject of water rights. Mr. Breitenstein's statement appears beginning on page 296.

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He first discusses the map in evidence, showing the geographical location of the Colorado River and of the principal tributaries thereto. Commenting on the lower-basin, he said:

"In the lower basin, the principal tributaries are the Little Colorado River, which rises in Arizona and enters the main stream a short distance below Lee Ferry.

"The Virgin River, which drains part of Utah, Nevada, and Arizona; the Bill Williams River, which rises in Arizona and enters the Colorado in that State; and the Gila River.

"The Gila River rises in New Mexico, flows across Arizona to enter the main stream near Yuma, Arizona. The Gila River and its tributaries, because of their geographic location, produce water which is available for use only in the States of New Mexico and Arizona. The greater portion of the water supply of the Colorado River comes from the State of Colorado. Using approximate figures, of the virgin flow of the river at Lee Ferry, Ariz., the division point between the upper and lower basin, approximately 74 percent of that water comes from the State of Colorado. At the international boundary, approximately 64 percent of the virgin flow of the river comes from the State of Colorado.

"The State of California, which is strongly supporting the resolution before the committee, contributes no water whatsoever to the Colorado River system. The area of California within the natural basin of the Colorado River is approximately 3,500 square miles, or a smaller area than the portion of the State of Arizona which is in the upper basin of the river" (p. 297).

Having concluded his geographical comments, Mr. Breitenstein proceeded with the legal questions involved. He emphasized that the Department of the Interior and the Bureau of the Budget have indicated that approval will not be given to any new projects until there is an allocation, between the States, of the water supply available for use in each of the States. He explained that the matter of the dispute between Arizona and California was involved in the question. He further stated:

"The State of Colorado is opposed to any congressional legislation of the type being considered by the committee. We feel that any such legislation directly affects the upper basin States. It is true that the States of Colorado and Wyoming are not named as prospective parties defendant in the resolution which is presented, but each of those States is a signatory to the Colorado River compact.

"Certainly any lawsuit which would involve the interpretation and application of the compact would be a matter of vital interest to all of the States who are signatory to that compact" (pp. 298–299).

Mr. Breitenstein also contends that the proposed legislation probably would require a long period of time before a final decision could be reached; but during that time development of the river would be stymied. He said:

"We note that the resolution says that the purpose of it is to aid in the development of the Colorado River Basin. We question that statement and the sincerity of that statement. The State of California has its development now. It has the Boulder Canyon project, the dam at Boulder, now known as the Hoover Dam; also the All-American Canal, Parker Dam, the aqueduct to southern California area; Davis Dam is now under construction.

"The facilities which are now constructed in California for the use of Colorado River water have a capacity to divert from the stream more than 8,000,000 acre-feet of water annually. We believe that California is limited in her use of III (a) water to 4,400,000 acre-feet. Yet these facilities, which that State has already constructed, could use 3,600,000 acre-feet of water more than we feel is her share, her determined share of III (a) water" (p. 299).

Enlarging on the legal questions, he contends that the legislation is unwise, inasmuch as the committee knows that Congress may not enlarge or diminish the jurisdiction of the United States Supreme Court, citing authorities in support of this argument, and commenting on those authorities. He then discusses the question, "Now what is a justiciable controversy?" His conclusions on this point are as follows:

"The Supreme Court of the United States has held that it will not grant relief against a State unless the complaining State shows an existing or presently threatened injury of serious magnitude. The Court will not grant relief against something feared, as liable to occur at some future time. The rule that judicial power does not extend to the determination of an abstract question has been announced in numerous cases. For there to be a justiciable controversy it must appear that the complaining State has suffered a loss through the action of the

other State, furnishing a claim for judicial redress or asserts a right which is susceptible of judicial enforcement according to the accepted principles of jurisprudence. The mere fact that a State is plaintiff is not enough. An injunction will issue to prevent existing or presently threatened injuries, but will not be granted against something merely feared as liable to occur at some indefinite time in the future" (p. 300).

In support of this contention, he cites a number of authorities, and, commenting on these authorities, he makes the following pertinent statement:

"Now, those are the rules, and we say when you boil those down they mean that you have got to have an existing injury of serious magnitude, or an immediately threatened injury of the same type. We have neither in this instance. California is not using the amount of water to which she is admittedly entitled" (p. 300).

He proceeds with a discussion of the waters available for use in Arizona as shown by Mr. Royce J. Tipton, consulting engineer for the Colorado River Water Conservation Board, in hearings on S. 1175.

Then he makes the following statement:

"Well, now, what is the threatened injury? So far as I know, there is no project under construction or authorized in any part of the Colorado River Basin which in any way would threaten to reduce or diminish the flow of the river so as to make available to California less than 4,400,000 acre-feet of water. The only project which has been talked about at all as constituting a threat is the central Arizona project of Arizona. That project has not been authorized by Congress; but unless and until it is authorized it cannot be said that that project constitutes a threat to the State of California. So here you do not have an injury and you do not have a threat. Hence, there is not a justiciable controversy" (p. 301).

He then discusses the North Platte case, *Nebraska* v. *Wyoming and Colorado*, explaining that the reason the Supreme Court took jurisdiction over that controversy was that the Kendrick project had been authorized for construction in Wyoming, that appropriations had been made for that project, and that that constituted a threat to Nebraksa in that that project proposed to use water which properly was within Nebraska's share of the flow of the stream.

He calls attention to the decision in that case, a 5 to 3 decision, with only eight judges participating. He quotes from the two dissenting opinions, one from Justice Roberts and the other from Justice Frankfurter, the latter being joined in by Justices Rutledge and Roberts. He quotes from the last mentioned opinion as follows:

"Such controversies between States are not easily put to repose. Even when judicial enforcement of rights is required, the attempt finally to adjudicate often proves abortive. Our reports afford evidence of this fact. Kansas and Colorado came here twice at the instance of Kansas in a dispute over the flow of the Arkansas River. In a case presenting, on the whole, less difficulty than the present one, this Court entered a decree June 5, 1922, only to find it necessary to revise it on October 9, 1922. But the controversy would not down; the parties came back here on three occasions because of misunderstandings and disagreements with respect to the effect of our decree" (pp. 303–304).

In his presentation he then proceeds to point out that litigation of this kind is generally long drawn out. Factual issues are involved; and this probably means the appointment of a master or commissioner to take testimony. Such litigation not only requires a great length of time, but is also very expensive.

When questioned concerning the effect of the passage of a resolution of this character, he states, in answer to a question by Mr. Case:

"If Congress should direct this legislation, it seems to me it would constitute a legislative finding that there is such a justiciable controversy" (p. 307).

His conclusions on this matter may be summarized in an answer to a question by Mr. Case as follows:

"Mr. CASE. How do you think this is going to be settled?

"Mr. BREITENSTEIN. It seems to me, Mr. Chairman, that the pattern for this sort of a situation is furnished by the North Platte case.

"If a project is authorized in any of the States other than California, which California considers a threat to her water supply, then you come within the pattern of the North Platte case: California can bring a suit" (p. 309).

He then discusses the question as to whether or not the United States is an indispensable party to this kind of litigation, pointing out the distinction beween his case and the Arizona case, directing attention to the fact that in the Arizona case that State had not signed the compact when the action was brought; and

since the only available water was from dams constructed by the United States, the United States was an indispensable party. His contention was that if California could state a cause of action, suit could be brought by that State against Arizona, and the Attorney General of the United States could intervene when he thought the United States had any interest in the litigation.

He then pointed out that the contemplated projects on the Colorado River would have to be financed by the Federal Government, and:

"I think everyone recognizes that. It seems to me that it is the duty, the responsibility, of Congress, to make its own determination as to whether or not there is a water supply available for those projects. The central Arizona project is one mentioned most at this time. It is one on which hearings have been held. The project is badly needed by the State of Arizona.

"The Congress of the United States, in the Boulder Canyon Project Act, authorized the making of a compact between the States of California, Nevada, and Arizona. I am sure that that has been called to your attention. If not, Judge Howell will do it in his statement. That authorization for a compact provided for 2,800,000 acre-feet for the State of Arizona and the State of Arizona shall have full use of the waters of the Gila River system.

"Now, that is the existing congressional attitude on that matter and if, as we in Colorado think, the central Arizona project will use water within that amount, the supply is available for the project and if California disagrees with that, when and if the project is authorized, California can bring a suit and obtain a judicial determination on those various matters which have been presented to the committee" (p. 311).

Discussing then the question of reservoir losses, he says:

"The California people have given you their ideas on that. Our ideas are to the contrary. Now, the mere fact that there are differences of opinion on those three matters does not mean that there is a justiciable controversy.

"A difference of opinion is far different from a justiciable controversy" (pp. 311-312).

He next quoted authorities in support of this position.

He then proceeded with a discussion of the use of the phrase "beneficial consumptive use" in the compact, and how a determination of that issue would affect the upper-basin States, particularly Colorado. In answer to a question by Mr. Case, he stated:

"The compact does not define 'beneficial consumptive use.' It does not say where it shall be measured. The two differences of opinion in that regard are these:

"California says that you measure the beneficial consumptive use at the place of use. The other States, except possibly Nevada, say that it is measured as stream depletion. Now, the difference is this: California would say that if you have a ditch taking out irrigation water to a 160-acre farm, the diversion into the ditch is so much; and the return to the stream is so much. The difference between those two is 'beneficial consumptive use." (p. 314).

On this subject he also read from the testimony of Mr. Tipton, given before the Senate committee on S. 1175 in 1947. He closes his statement with the following summary:

"In closing, I would just like to say one other thing. It is up to Congress, of course, in looking after the welfare of the whole country, to decide what projects shall be financed by the Federal Government for the use of these western waters. We appreciate the fact that in southern California they have had a great growth, that they anticipate the need of additional water to take care of even greater growth in that area.

"I called your attention this morning to the fact that California, under the testimony of its own witnesses before the Senate committee on S. 1175, was using only 3,200,000 acre-feet of water annually. California has more than a million acre-feet to go before it is using up its entire share. While I am no engineer, it is simple mathematics to figure up that if you assume that an adequate supply of water for municipal uses is 150 gallons per person per day, a million acre-feet of water will sustain a population of about 6,000,000 people. That is conservative. We feel that, so far as national welfare is concerned, it is just as important to look after the hinterland and the provinces as it is to look after the big cities on the seacoast. We feel that from a national standpoint it is just as important that we in the mountains, the deserts, the valleys, have water to sustain a population, to sustain agriculture, and to sustain industry there, as it is to sustain a population in southern California, particularly when

they are seeking water which would furnish a municipal supply for more than 6,000,000 additional people.

"We are opposed to this legislation and we respectfully ask that the committee recommend against its passage" (pp. 317–318).

Judge J. A. Howell, who had presented the brief on behalf of the Colorado Basin States Committee, then proceeded with his statement, introducing a resolution of the Colorado Basin States Committee, opposing the proposed legislation and commenting on the bill before the committee. He emphasized that when a project under the Reclamation Act is brought before Congress, Congress must determine whether there is water available for the project. Judge Howell stated:

"Now, whether or not that determination is simple, as to which there is no question, or whether it is difficult, nevertheless it seems to me the onus of that determination is on Congress, and what I do not want to repeat is what Mr. Breitenstein has just said with reference to the necessity of a project being authorized, at least before there could be any justiciable controversy. It does seem to me that until some project is authorized which infringes upon the rights of some State, the question is moot and cannot give rise to a controversy cognizable before the Supreme Court in the exercise of its original jurisdiction" (p. 320).

He questions the sincerity of the resolution, pointing out that perhaps the States of California and Nevada feel that they cannot state a judiciable cause of action against any of the other States, and they hope by means of the resolution to give color of jurisdiction when otherwise there would be no jurisdiction in the Supreme Court of the United States.

He also questions the proposition that the United States is an indispensable party to any such litigation, commenting on testimony of Mr. Breitenstein. He further emphasized that if California thought it could state a cause of action against Arizona it could bring that suit without the passage of the proposed legislation.

He then analyzed the dispute between Arizona and California, discussing article III (a) of the compact and then article III (b) and surplus water, what are apportioned waters, provisions of the Boulder Canyon Project Act, and proceeds to say:

"Now, the only reason why I should like to emphasize that situation is that, as I conceive of it, there are three methods in which a compact may be made between States under the constitutional provisions:

(1) That the States go out and make a compact as settling their interests between them; and then it is ratified by the Congress, which constitutes, of course, an authorization and is equivalent to an authorization and makes a valid contract; or

(2) The Congress may prescribe the exact terms of the compact which is to be entered into by two or more States, and then, of course, I think there would be no necessity for any ratification; or

(3) The Congress may do as it did here; namely, prescribe that certain provisions should be made in this compact between Arizona, California, and Nevada, leaving it to those States to determine what other matters they might agree upon, and it would be only as to them that there would be any ratification.

"So, I submit to you that there is no necessity or reason for the passage of this resolution as it is proposed, and that, therefore, the report should be adverse upon the adoption of the resolution; and that, inasmuch as the United States, by virtue of this provision in the Boulder Canyon Project Act, has given a legislative determination as to at least two of the matters which are presented here by California as reason for the bringing of this action, so that the question as to what is meant by beneficial consumptive use, if I am correct in my interpretation of the provisions of the Boulder Canyon Project Act, is absolutely immaterial, because under that act Arizona is entitled to all of the Gila River, and whether you adopt the California method of measurement, or whether you do not, is immaterial.

"In other words, the Congress, having by legislative enactment in the Boulder Canyon Project Act determined that III (b) water is apportioned water and that Arizona is entitled to all the water of the Gila River, ought not by the adoption of this resolution reverse that determination" (pp. 327–328).

The next legal discussion is by Mr. Charles A. Carson, chief counsel, Interstate Streams Commission of Arizona, whose testimony appears on page 340 of the hearings.

He introduced for the record a portion of his testimony on the Gila bill (H. R. 5434, 79th Cong.). In that statement he discussed briefly first the Mexican Treaty, pointing out that in 1924 Mr. Harry Chandler, of the Los Angeles Times, had stated that at that time he and his associates owned 833,000 acres of land in Mexico immediately below the border, of which some 600,000 acres were irrigable from the waters of the Colorado River. At the time Arizona was admitted as a State, in 1912, these people owning this land in Mexico contended that Arizona could not divert from the main stream of the Colorado River without the consent of Congress.

Mr. Carson then proceeded to discuss the negotiations leading up to the signing of the Colorado River Compact, particularly that 1,000,000 acre-feet of III (b) water was included in the compact to compensate Arizona for uses then being made of Gila River waters. In support of this proposition, he had first introduced in evidence a letter from Herbert Hoover to W. S. Norviel, dated November 26, 1922, as follows (p. 343):

DEPARTMENT OF COMMERCE,
OFFICE OF THE SECRETARY,
Los Angeles, Calif., November 26, 1922.

Mr. W. S. NORVIEL,
State Engineer, Proenix, Ariz.

MY DEAR NORVIEL: This is just by way of registering again my feelings of admiration for the best fighter on the commission. Arizona should erect a monument to you and entitled it "1,000,000 acre-feet."

I am sending you herewith a photograph which does not purport to be a likeness, but it is a better-looking fellow than the one you have, and I send it as an excuse for writing this letter expressing my personal appreciation of this fine association which we have had.

Faithfully yours,

HERBERT HOOVER.

This statement shows that Mr. Carson next presented the testimony of Gov. Thomas E. Campbell given before the Arizona-Colorado River Commission. Mr. Campbell was Governor of Arizona in 1922 at the time the compact was signed and was present while it was being negotiated. In his testimony he recites that part of the negotiations concerning uses of the Gila River water, emphasizing the fact that there was an understanding between the compact makers to the effect that the 1,000,000 acre-feet of III (b) water was included in the compact to compensate Arizona for the then existing uses of Gila water.

Quoting from Governor Campbell's testimony:

"Q. Was anything said about designating this million acre-feet for Arizona?—A. Yes; that was discussed, and it was concluded that we could not tag that as belonging to Arizona because the plan on which we proceeded was that the waters be divided among the basins and no particular water would be allowed to any one State. If we attempted to tag it, then every other State would demand that it get a certain amount of water.

"Q. Was here any agreement between the Arizona representative and the representatives of the other lower basin States as to setting aside to Arizona the water described in paragraph 3B of the proposed compact?—A. Yes; there was a definite understanding that after the seven-State compact was ratified, so far as the three States in the lower basin were concerned, they would enter into a compact in which it would be agreed that all of the water of the Gila River would go to Arizona.

"Q. Who were present at the discussions which resulted in that understanding?—A. Mr. McClure, of California; Mr. Scrugham and Mr. Squires, of Nevada; and Mr. Norviel and myself, of Arizona" (p. 344).

In this statement Mr. Carson next included the statement of Mr. W. S. Norviel, of Phoenix, Ariz., who was the Arizona commissioner in negotiating the Colorado River Compact. This statement discloses that Mr. Norviel attended the negotiations in his official capacity, and that he objected to the compact until there was an understanding that 1,000,000 acre-feet of III (b) water would be included to compensate Arizona for Gila uses. A part of his testimony was given before the Arizona-Colorado River Commission, and was as follows:

"What discussion was had relating to the said paragraph (b) of article III and its meaning and purpose?—A. I had steadfastly refused to agree to the original draft that merely included the Gila River; and after several days of discussion and argument, during which the conference refused to exclude the Gila and I refused to accept the draft which included the Gila, a compromise was

reached in the form of article III (b), which provided the extra million acre-feet to compensate Arizona for the inclusion of the Gila River in the Colorado River System. It was fully understood by all that this million acre-feet was for the sole and exclusive use of Arizona, although the language used provided for its use by the lower basin. I have explained why such wording was used" (p. 347).

The statement of Mr. Carson's next included testimony of Mr. C. C. Lewis, also given before the Arizona-Colorado River Commission. Mr. Lewis was assistant State water commissioner for Arizona in 1927, and in his official capacity he attended the negotiations leading up to the compact. Concerning the question of III (b) water Mr. Lewis said:

"Q. What discussion was had relating to the said paragraph (b) of article III and its meaning and purpose?—A. Due to Mr. Norviel's firm refusal to sign the compact with the Gila River included, there were several days' delay and the final result was paragraph (b) of article III, with the definite understanding that this million acre-feet belonged to Arizona in compensation for inclusion of the Gila River in the Colorado River system.

"Q. Was the answer that you have given of the meaning and purpose discussed at the full meeting of all the delegates at this conference, including California and Nevada?—A. Yes" (p. 350).

The Carson statement then continues with a discussion of some of the efforts that had been made to arrive at a compact between the lower-basin States, and particularly an informal attempt that was made by the governors of the upper-basin States to arbitrate the matter. As a result of this attempt at arbitration the governors submitted a proposal at Denver on August 30, 1927, suggesting a division of the waters of the lower basin as follows:

"1. Of the average annual delivery of water to be provided by the States of the upper division at Lee Ferry, under the terms of the Colorado River Compact—

"(*a*) To the State of Nevada, 300,000 acre-feet.

"(*b*) To the State of Arizona, 3,000,000 acre-feet.

"(*c*) To the State of California, 4,200,000 acre-feet.

"2. To Arizona, in addition to water apportioned in subdivision (*b*), 1,000,000 acre-feet of water, to be supplied from the tributaries of the Colorado River flowing in said State and to be diverted from said tributaries before the same empty into the main stream. Said 1,000,000 acre-feet shall not be subject to dimunition by reason of any treaty with the United States of Mexico, except in such proportion as the said 1,000,000 acre-feet shall bear to the entire apportionment in 1 and 2 of 8,500,000 acre-feet" (p. 351).

The Arizona delegation was willing to accept the recommendations made, but California refused to accept them. Arbitration having failed, the next step in the development of the river was the passage of the Boulder Canyon Project Act in December 1928. Mr. Carson points out that Congress undertook to give effect to the recommendation of the four upper-basin States governors in several ways in that act. The statement then quotes as follows from the act:

"The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that, of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity" (p. 351).

The statement here points out that Congress reduced Arizona's claim, as approved by the upper-basin governors, from 3,000,000 to 2,800,000 acre-feet, and then continues to quote from the act "and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact; and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State" (p. 352).

Mr. Carson then introduced for the record his statement made before a subcommittee of the Senate Committee on Public Lands, United States Senate, Eightieth Congress, first session, on S. 1175. This statement contains some of the same data appearing in his former statement, but in addition thereto contains a statement made by Judge Clifford H. Stone, director, Colorado Water Conservation Board, and Commissioner for Colorado on the Upper Colorado River Basin Compact Commission, which statement appears on pages 422–428 of the hearings. Judge Stone's discussion was very comprehensive, dealing principally with two questions: (1) Is III (b) water apportioned water, and (2) what is beneficial consumptive use? His conclusions are that III (b) water is apportioned water, and that California, by passage of the Self-Limitation Act, has renounced any

claim to that water and, as to beneficial consumptive use, particularly that of the waters of the Gila River. He supports Arizona's theory that this use should be measured by net depletion, and disagrees with the California interpretation, concluding with this statement:

"On the contrary, we have here submitted from the minutes of the compact commissioners what they had in mind when they considered the use of the term, and the only measure evidenced by the compact itself of beneficial consumptive use is that of depletion.

"Then, in conclusion, the Congress, we believe, will not approve an unconscionable portion in interpreting the Colorado River compact for the purposes of proposed legislation. Nor would a court give approval to any interpretation of a solemn agreement among States which would be inequitable. It cannot be assumed that the compacting States intended to apportion water between the upper and lower basins of the Colorado River by terms and conditions, the interpretation of which would limit one of the States to its existing uses of water when the compact was made with a comparatively small opportunity for future development. We submit that the States did not do so.

"California, under the compact, has proceeded with extensive development. California, according to the statements made before this committee, now claims that there is no water for the proposed central Arizona project or any other water development—future development, I mean—in the State. The California spokesmen arrive at this conclusion through the interpretations of the Colorado River compact which they asked this committee to accept. May I submit that, if these interpretations are approved by this committee or should be approved in the future by a court, the terms of the Colorado River compact would be held to deny one of the signatory States an equitable share of Colorado River water" (p. 428).

The Carson statement in question then contains a statement by Mr. R. J. Tipton, consulting engineer for the State of Arizona and the Central Arizona Project Association; a statement by Mr. R. Gail Baker, State reclamation engineer for Arizona, and a statement by Mr. E. B. Debler, consulting engineer for the State of Arizona. While these statements are constructive, they do not appear pertinent to the particular issue now before this committee.

As a part of this statement of Carson's, there was included for the record a copy of a portion of the contract by the State of Arizona with the United States for water, which was made in 1944 (p. 457). Attention is directed to the fact that this contract recognizes the rights of New Mexico and Utah to share equitably in the waters apportioned to the lower basin.

This particular portion of Mr. Carson's statement continues to page 484 of the hearings.

Later in the hearings Mr. Carson pointed out that in 1939 the Arizona Legislature passed an act in which they offered a compact to California, in terms specified as Arizona construed section 4 (a) of the Boulder Canyon Project Act. He introduced in the record a copy of that compact (pp. 487–488). It will be noted that, under the terms of the proposed compact, Nevada would receive 300,000 acre-feet and Arizona 2,800,000 acre-feet annually of III (a) water; that, in addition thereto, Arizona would receive one-half of the surplus waters unapportioned by the Colorado River Compact and the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of the State.

Again during the hearings Mr. Carson directed attention to certain portions of the record that he had heretofore made, emphasizing the fact that the division of the waters of the lower basin was a matter of contract law; that the rights of the United States under the provisions of section 13 (b) of the Boulder Canyon Project Act were subject to and controlled by the Colorado River Compact. He concluded with this statement:

"So it is a matter of contract, but certainly by the act of Congress we have a right to expect that Congress knows what it intended and what it will do in the future as particular projects come up for authorization, and we know that we must be able to show that there is an available water supply for a particular project, and we believe that we can do that when this S. 1175 comes before the proper committees of Congress, and we accept that burden" (p. 520).

ADDITIONAL WITNESSES APPEARING IN OPPOSITION TO THE BILL

Senator Hayden

Of particular interest were the remarks of the Honorable Carl Hayden, Senator from Arizona. Senator Hayden pointed out that he came to the House of

Representatives in 1912 and served in the House for 15 years. During that time he was active on the Irrigation and Reclamation Committee, and helped to prepare legislation authorizing the appointment of the Federal representative to join with the seven States of the Colorado River Basin for the purpose of negotiating a compact. After that act was passed, Mr. Hayden went with a delegation of Congressmen to call upon the then Secretary of Commerce, Mr. Herbert Hoover, and urged him to accept the position of Federal representative. Senator Hayden further pointed out that during the compact negotiations it was concluded that there was not sufficient available information upon which an allocation of water to each of the States could be made. It was then decided to divide the waters of the Colorado River system between the upper and lower basins. He said that there was urgent need for the compact at that time due to the fact that the Colorado River was flooding the Imperial Valley.

After the compact was negotiated, a bill was introduced in Congress to authorize the construction of a dam at Boulder Canyon. Not only Arizona but also the upper basin States demanded that before that bill was passed some limitation should be placed upon the State of California as to the use of the waters of the river, that that limitation was required by the Boulder Canyon Project Act, and it was accepted by the State of California by legislative enactment. Senator Hayden had been elected to the Senate when the Boulder Canyon Project Act was before Congress in 1928. He gives a summary concerning the controversy over that act, remarking that the record is perfectly clear that the additional 1,000,000 acre-feet of III (b) water was intended to recognize Gila River uses. He pointed out that the final agreement, after conferences, was approved by all concerned. To quote Senator Hayden on this point:

"That proposition was brought to us by Senator Pittman, of Nevada, who said that it was a complete acknowledgment of all that the Senators from Arizona had claimed. It is an acknowledgment by the Congress of the United States in approving the Colorado River compact. The California Senators had no objection. Senator Shortridge and Senator Johnson said, 'Yes; our State has limited itself. We have no interest in the Gila River because it comes into the Colorado River below any California diversion.' Based on the action taken pursuant to that agreement, Senator Ashurst and I allowed the bill to pass and become law. We thought that everything was settled to the satisfaction of all concerned" (p. 235).

Senator McFarland

The Honorable Ernest W. McFarland, United States Senator from Arizona, gave a rather detailed statement, outlining the purpose of the bill and explaining that the companion resolution in the Senate had been introduced on the last day of the hearings on S. 1175, the central Arizona project bill, and that identical arguments in support of this bill had been offered in opposition to S. 1175. He pointed out that the passage of the resolution could be interpreted as a decision by Congress that there was a judiciable controversy, and that that action would be an invasion of the jurisdiction of the Supreme Court. He said that in the present case there was no injury or threat of injury upon which a cause of action could be stated, that there could not be one until the project was authorized. He cited authorities for these contentions, particularly the case of *New York* v. *Illinois and Sanitary District of Chicago* (274 U. S. 488) and the case of *Ashwander et al.* v. *Tennessee Valley Authority et al.* (297 U. S. 288). He then observed:

"I turn now, Mr. Chairman, to the self-evident proposition that Congress has already placed an unequivocal construction upon the Colorado River compact and by the promulgation of the Boulder Canyon Project Act it has clearly expressed its views and intentions as to the division of waters of the Colorado River as between the States of California, Nevada, and Arizona. Congress authorized the making of the Colorado River compact; in due course, it approved the same; it also construed the compact, and required California to agree to its rights and obligations thereunder" (p. 254).

Under this proposition he discussed the California Self-Limitation Act and the Boulder Canyon Project Act, pointing out the intention of Congress as expressed in the Boulder Canyon Project Act in dividing III (a) water: 300,000 acre-feet per year for Nevada, 2,800,000 acre-feet per year to Arizona, and 4,400,000 acre-feet per year to California; and it further provided, of course, that Arizona should receive in addition thereto the exclusive right to the use of the Gila River waters. He explained that article III (b) had been included in the compact expressly to compensate Arizona for the inclusion of the Gila

in the Colorado River system. He offered for the record certain remarks as shown by the Congressional Record of the Seventieth Congress, second session, supporting his contention on this proposition. These remarks appear on pages 251–259.

He summarized his position on this proposition by the following language: "Let me reemphasize this point: That the intention of Congress during the course of the debate and adoption of the Boulder Canyon Project Act is made abundantly clear when the record as a whole is considered. However, I should like to say that it is unnecessary to peruse any part, or all, of the Congressional Record in an effort to find the guiding intention of the Congress, because the Boulder Canyon Project Act itself is entirely plain and understandable and clearly shows what was the intention of Congress in the enactment thereof" (p. 260).

Senator McFarland then briefly touched upon the question of the need of the two States for water, stating that in his opinion this question did not have a proper place in this hearing. He pointed out, however, that California's asserted needs were for the future to permit her to grow, while Arizona's needs were present ones, not to grow but to maintain an existing economy.

His conclusions are as follows:

"Now, Mr. Chairman and members of the committee, in conclusion I merely want to say this: That the bill S. 1175 is pending before Congress, and I think that the evidence which has been presented here by other witnesses has clearly demonstrated that there is not a justiciable cause of action, or issue, which could be presented to the Supreme Court at this time.

"So what would be the effect of the passage of this resolution? The effect would be this: That we would be delayed in the consideration of S. 1175, and I submit, Mr. Chairman, that that was the purpose of introducing the resolution. Did you ever hear of California wanting a delaying resolution passed while she was coming before Congress, getting millions of dollars to develop her own State? We never heard of that. She did not want to litigate then—not as long as she was getting her own projects developed.

"What she would do now is tie up the consideration of this project for Arizona—and not only this project, but every other project in the Colorado River Basin.

"For what purpose? What would be gained? Well, she could delay 2 years, 3 years; maybe it would take 10 years if a master were appointed; and what would happen in the meantime? She stated that she already has the projects built to divert more water; she is now only diverting some 3,000,000 acre-feet—there could not be a justiciable issue now, she is within her 4,400,000 acre-feet. But if she could delay any consideration by Congress for the authorization of other projects, she could go ahead and put more water to beneficial use, and then she would come here and say to the Congress of the United States: 'Don't take away water that is needed for irrigation of the lands where people already live and where water is needed for drinking purposes'" (p. 264).

Other witnesses

Strong opposition to the bill, and particularly to the principles involved in the bill, was expressed by the following witnesses on behalf of their respective States:

1. Hon. Robert F. Rockwell, Representative in Congress from the State of Colorado (p. 237).
2. Hon. Frank A. Barrett, Representative in Congress from the State of Wyoming (p. 237–239).
3. Hon. Walter K. Granger, Representative in Congress from the State of Utah (p. 240).
4. Hon. John R. Murdock, Representative in Congress from the State of Arizona (pp. 240–244, 331–333).
5. Hon. Richard F. Harless, Representative in Congress from the State of Arizona (pp. 244–248).
6. Hon. William A. Dawson, Representative in Congress from the State of Utah (pp. 333–334).
7. Mr. Fred E. Wilson, attorney at law, member of the Colorado Basin States Committee, representing New Mexico (pp. 481–487).

It will be observed that all of these witnesses, except for those from Arizona, represented upper basin States; and all of the witnesses from upper basin States expressed strong opposition to the legislation, not only in its present form but

to any legislation of the same kind and character. It was pointed out that the proposed legislation would necessarily involve interpretation of the Colorado River compact and the Boulder Canyon Project Act, and that all the upper basin States would be affected by any such interpretation. It was further pointed out that such a suit, if brought, could and probably would be used as an excuse to delay authorization, not only of the central Arizona project, but of any major project in the upper basin. Therefore, the resolution would not accomplish the purpose for which it was intended, to wit: to facilitate development in the basin; but to the contrary, the resolution would delay and hinder development in the basin.

Mr. CARSON. Then I would like to furnish each member of the committee and have printed in the record in one place a resolution of the Colorado River Basin States Committee relating to House Joint Resolution 3 and allied resolutions now pending before Subcommittee No. 3 of the House Judiciary Committee, together with the accompanying statement which was adopted in Denver, Colo., on April 14, 1949.

Mr. MURDOCK. Without objection, they may be admitted to the record.

(The matter above referred to is as follows:)

RESOLUTION OF THE COLORADO RIVER BASIN STATES COMMITTEE RELATING TO HOUSE JOINT RESOLUTION 3 AND ALLIED RESOLUTIONS AND STATEMENT OF THE COLORADO RIVER BASIN STATES COMMITTEE RELATING TO HOUSE JOINT RESOLUTION 3 AND ALLIED RESOLUTIONS, ADOPTED APRIL 14, 1949

RESOLUTION

Whereas, House Joint Resolution 3, and allied resolutions have as their declared purpose the granting of consent to joinder of the United States as a party to interstate Supreme Court litigation involving the use of water of the Colorado River system; and

Whereas such litigation is of vital interest to the Colorado River Basin States because of the effect thereof upon the development of water use projects dependent upon the Colorado River system for a water supply; and

Whereas the general welfare of the United States and of the affected States requires that each Colorado River Basin State make use of its equitable share of the water of the Colorado River system in order that a great natural resource be beneficially utilized rather than wasted: Now, therefore, be it

Resolved by the Colorado River Basin States Committee, consisting of the States of Arizona, Colorado, New Mexico, Utah, and Wyoming, and open to the States of California and Nevada, That House Joint Resolution 3 and allied resolutions should not be enacted by the Congress of the United States for the following reasons:

1. There is no justiciable controversy.

2. Congressional consent to suit aids the proponents of litigation by wrongfully implying that there is a justiciable controversy.

3. The proposed litigation imperils the Colorado River Basin development essential to national welfare and national defense; be it further

Resolved, That the attached statement is approved as expressing the views of this committee and that the chairman of the committee is directed to forward a copy of this resolution with the accompanying statement to any and all congressional committees which may give consideration to House Joint Resolution 3 and allied resolutions.

STATEMENT OF COLORADO RIVER BASIN STATES COMMITTEE IN OPPOSITION TO HOUSE JOINT RESOLUTION 3

I. There is no justiciable controversy.

(*a*) A justiciable controversy may not be based upon an inchoate or contingent claim. For there to be a justiciable controversy within the purview of article III, section 2 of the United States Constitution there must be an existing or immediately threatened injury of serious magnitude established by clear and convincing evidence. (See *Nebraska* v. *Wyoming*, 325 U. S. 607, 608;

Colorado v. *Kansas*, 320 U. S. 383, 391–392; *New York* v. *New Jersey*, 256 U. S. 296, 309; *Washington* v. *Oregon*, 297 U. S. 517, 529; *Missouri* v. *Illinois*, 200 U. S. 496, 521.)

(*b*) No Colorado River Basin State is now suffering any injury resulting from the action of any other basin State with respect to the use of the waters of the Colorado River system.

(*c*) The lack of injury conclusively appears from the fact that 8,000,000 to 9,000,000 acre-feet of Colorado River water is annually wasted into the Gulf of California. (Senate Executive Report No. 2, 79th Cong., 2d sess., p. 4; H. Doc. 419, 80th Cong., 1st sess., p. 13, par. 29.)

(*d*) Neither California nor Nevada can show a present injury because there is a large margin between the present uses of water in each State and the quantity of use of water which each of those States admittedly may make. (Testimony of Chief Engineer Matthew of Colorado River Board of California in summer of 1947 was that total consumptive use in California of Colorado River water was 3,230,000 acre-feet annually—see hearings on S. 1175, 80th Cong., 1st sess., p. 412; H. Doc. 419 supra (p. 184) gives as present annual Colorado River depletions in California 145,000 acre-feet consumed in basin and 2,535,000 exported or a total of 2,680,000. These amounts are far below the 4,400,000 acre-feet of annual use mentioned in sec. 4 of the Boulder Canyon Project Act and the 1929 California Self-Limitation Statute. H. Doc. 419 supra (p. 184) gives the present annual Colorado River depletions in Nevada as 43,800. This is far below the 300,000 acre-feet of annual use mentioned in the Nevada water contract.)

(*e*) California may not claim a present injury when that State permits about 1,000,000 acre-feet of Colorado River water to be wasted annually into the Salton Sea. (See testimony of Senator McFarland presenting Bureau Reclamation table as to flow into Salton Sea, hearings before House Judiciary Committee on H. J. Res. 225, 80th Cong., 2d sess., p. 262.)

(*f*) There is no threatened injury to any Colorado River Basin State because there is no water use project under construction or authorized for construction which would utilize more than the equitable share of the State in which the project is located.

(*g*) The United States Supreme Court will not render declaratory judgments or give advisory opinions in interstate litigation. (See *Massachusetts* v. *Missouri*, 308 U. S. 1, 16; *United States* v. *Appalachian Electric Power Co.*, 311 U. S. 377, 423; *United States* v. *West Virginia*, 295 U. S. 463; *Alabama* v. *Arizona*, 291 U. S. 286, 291.)

(1) In no interstate water case has the United States Supreme Court ever acted in the absence of an existing or threatened injury.

(2) In each interstate water case in which the United States Supreme Court has granted relief that relief has taken the form of an injunction to prevent existing or threatened injury.

(i) In *New Jersey* v. *New York* (283 U. S. 336), the Court entered an injunctive decree limiting exportation of water from basin in order to protect downstream areas from injury to municipal water supplies, industrial uses, agricultural uses, recreation and fisheries.

(ii) In *Wisconsin* v. *Illinois* (278 U. S. 367, 281 U. S. 179), the operations of the Chicago drainage canal were limited to prevent the lowering of the level of the Great Lakes.

(iii) In *Wyoming* v *Colorado* (259 U. S. 419), the exportations of water from the basin were limited to prevent injury to downstream senior rights in Wyoming.

(iv) In *Nebraska* v. *Wyoming* (325 U. S. 589), upstream uses were limited to protect downstream uses.

(*h*) The decision in *Nebraska* v. *Wyoming* is no precedent for the claim that the United States Supreme Court will declare rights in the absence of existing or threatened injury because in that suit the Court found out-of-priority diversions in the upper States to the detriment of the low States which constituted an exising injury and because the authorization and construction of the Bureau of Reclamation's Kendrick project in Wyoming constituted a threat of injury to Nebraska.

II. Congressional consent to suit aids the proponents of litigation by wrongfully implying that there is a justiciable controversy.

(*a*) While Congress may not add to or detract from the jurisdiction of the United States Supreme Court (*Ex Parte Yerger*, 75 U. S. 85), Congress is presumed to know the tests which have been announced by that Court as determinative of the question as to the existence of a justiciable controversy.

(*b*) The passage of a resolution granting the consent of the United States to suit would probably be sufficient in and of itself to cause the Court to permit the filing of a bill of complaint and to prevent the early disposition of the case by the Court on a motion to dismiss.

(*c*) The consequence will be that the case will follow the pattern of presentation of evidence to a master appointed by the Court with the delay and expense incident thereto.

(*d*) Under the existing factual situation such a hearing before a master can only result in the ultimate dismissal of the case upon the ground no justiciable controversy exists under the tests applied by the Court.

III. The proposed litigation imperils the Colorado River Basin development essential to national welfare and national defense.

(*a*) A balanced national economy requires the utilization of substantial quantities of the water of the Colorado River for domestic purposes, for irrigation, and for hydroelectric power generation within the interior of the country.

(*b*) The 1947 report of the Bureau of Reclamation on the Colorado River (H. Doc. 419, supra) and the recently effective upper Colorado River Basin compact furnish the basis for such development.

(*c*) It is fair to assume that the pendency of the proposed litigation will be used by those opposing such development as an objection to the Federal authorization of Colorado River water use projects upon the theory that until the litigation is settled the share of water use available to each basin State will not be fixed.

(*d*) Plans for the development of the Colorado River are based upon the documents constituting the law of the river, viz: The Colorado River compact, the Boulder Canyon Project Act, the California Self-Limitation Statute, the Mexican Water Treaty, and the Upper Colorado River Basin compact. Congress should not, by granting the requested consent, raise any question as to the integrity of these documents.

(*e*) Experience has shown that interstate water litigation in the United States Supreme Court is time consuming and costly.

(1) There was litigation on the Arkansas River between Kansas and Colorado from 1901 to 1943 (*Kansas* v. *Colorado*, 185 U. S. 125; *Colorado* v. *Kansas*, 320 U. S. 383).

(2) Litigation between Wyoming and Colorado over the Laramie River lasted from 1911 to 1940 (see *Wyoming* v. *Colorado*, 259 U. S. 419, 455; 309 U. S. 572.)

(3) The Great Lakes drainage case, *Wisconsin* v. *Illinois*, was begun in 1925 (269 U. S. 527), a decree was entered in 1930 (281 U. S. 279) and the parties have returned repeatedly to the Court since then (see citations assembled by Justice Roberts in his dissenting opinion in *Nebraska* v. *Wyoming*, 325 U. S. 589, 664).

(4) The North Platte suit, *Nebraska* v. *Wyoming* was filed in 1934 (269 U. S. 527) and decree was entered in 1945 (325 U. S. 665). Commissioner of Reclamation Page in testifying before the Senate Committee on Irrigation and Reclamation on S. 649, Seventy-eighth Congress, First session, testified that the cost of that suit to the United States at that time amounted to half a million dollars. A conservative estimate is that the North Platte suit cost the four litigants at least $1,500,000.

(*g*) The States represented by this committee can ill afford to participate in the proposed litigation. Also, they cannot afford to postpone their needed development until the judicial processes have finally come to an end.

Colorado River Basin States Committee: Arizona, Charles A. Carson and Wayne M. Akin; Colorado, Clifford H. Stone and Frank Delaney; New Mexico, Fred E. Wilson and John H. Bliss; Utah, William R. Wallace and Clinton Vernon; Wyoming, L. C. Bishop and H. Melvin Rollins.

Special subcommittee on Suit Resolution: Utah, J. A. Howell, Chairman, Oregon, Utah; Arizona, Charles A. Carson, Phoenix, Ariz.; Colorado, Jean Breitenstein, Denver, Colo.; New Mexico, Fred E. Wilson, Alubquerque, N. Mex.; Wyoming, Arthur H. Kline, Cheyenne, Wyo.

Mr. CARSON. Then I would like to furnish each member of the committee with a copy and have printed in one place the application of the Arizona Power Authority in a letter to Secretary Krug dated April 26, 1949, in which the Arizona Power Authority applies for

all of the electrical energy that may be generated at Bridge Canyon Dam.

Mr. MURDOCK. Without objection, the letter to the Secretary of the Interior may be admitted at this point in the record.

(The letter above referred to is as follows:)

ARIZONA POWER AUTHORITY,
Phoenix, Ariz., April 26, 1949.

Hon. JULIUS A. KRUG,
Secretary of the Interior, Interior Building,
Washington, D. C.

DEAR SIR: Application is hereby made for all electric energy which may be generated and developed at that certain proposed public works project known as Bridge Canyon project on the Colorado River or so much thereof as may, by law, rules and regulations, be made available for use within the State of Arizona.

Throughout its history, Arizona has been short of electric power resulting repeatedly in great damage and frequent interruptions to the entire economy of the State in the industrial, agricultural, and social fields.

A recent survey of the power field for our State indicates that after using the entire output of Parker, Davis, and Boulder Dams made available to the State of Arizona, plus the entire generation output of generating capacity within the State, Arizona will still suffer from power shortage and that such a shortage will continue until power becomes available from the proposed Bridge Canyon project.

Arizona possesses vast quantities of raw products which have remained unused and undeveloped through the history of the State because of power shortage.

Our engineers have exhaustively studied the possibility of substituting power generation within the State using our cheapest priced fuel—natural gas, but further advise us that power can be sold at Bridge Canyon much cheaper than we can supply it from any other source.

We not only have great need for additional power in order to make proper use of these natural resources, but we must have increasing quantities of power to even maintain our present economy. For a number of years past there has been a slow-down in our mineral, agricultural, woodworking, metal activities, transportation, and other industrial and commercial lines because of increasing demands for additional motive power. For the reasons stated, we trust that due consideration will be given to our application and if additional information or data may be required we stand ready to supply the same and to meet for such conferences regarding our application as you may deem advisable.

Respectfully yours,

ARIZONA POWER AUTHORITY,
M. J. DOUGHERTY, *Chairman.*

Mr. CARSON. Then, Mr. Chairman, I would like to submit for printing in the record in one place and furnish each member of the committee with a copy of the report on the central Arizona project prepared by the Doane Agricultural Service, Inc., of St. Louis, Mo., at the request of the Arizona Interstate Streams Commission. The Doane Agricultural Service has in the back of its report a statement of its experience in making appraisals of agricultural areas and projects, and I think it is a very informative report.

Mr. MURDOCK. I have examined the report. I think this is important in a number of respects. Without objection, this may be admitted to the record at this point.

(The report above referred to is as follows:)

REPORT ON CENTRAL ARIZONA PROJECT TO ARIZONA INTERSTATE STREAM COMMISSION, WAYNE M. AKIN, CHAIRMAN, STATE OFFICE BUILDING, PHOENIX, ARIZ., BY DOANE AGRICULTURAL SERVICE, INC.

SUMMARY AND CONCLUSIONS

The information developed on the agricultural phases of the central Arizona project is briefly summarized as follows:

1. The central Arizona project has been proven as well adapted to irrigation. The proposed irrigation investment carries little or no risk from the standpoint of the productive capacity of the land and its adaptation to irrigation. The lands are minerally rich and productive.

2. Farmers of the area can afford to pay $4.75 per acre-foot for the irrigation water, which is the amount proposed in the Bureau of Reclamation report.

3. The Federal taxes produced by the maintenance and stabilization of the agricultural productivity of the region affected will repay to the Federal Treasury much, if not all, of the costs of the project that are incurred by the Government for agricultural purposes.

4. The indirect benefits of the irrigation will equal or exceed the direct benefits to the farmers. These reach out across the Nation and affect many people and businesses.

5. Consumers generally will benefit by more health and protective foods and by lower food costs.

6. The central Arizona project is an important national defense project.

It is strategically located.

Food is essential for fighting a successful war.

The power that the dams will supply is urgently needed now for industries of Arizona and other Southwestern States, and will be critically needed in the event of another war.

7. These lands are located in a climate that permits crop production all year. Some of the most profitable crops are grown during the winter when fresh vegetables are scarce.

8. The central Arizona project will save a very large investment in farms, irrigation developments, homes, public improvements, utilities, civic and religious developments, and other town and city properties.

9. There will be residual or permanent values remaining long after the project investment has been repaid. There will be a going irrigation and power development remaining for use for hundreds of years, and the land will continue productive for thousands of years.

10. These soils are minerally rich and produce health foods that are shipped all across the Nation. They are especially needed by city people.

11. The diet deficiencies of the United States will increase with the growing population and the declining fertility of the cropland soils.

12. The cropland to go out of production unless Colorado River water is made available provides enough food for liberal health diets for 200,000 to 300,000 people, equal to the entire population of a city the size of Syracuse, N. Y., Dayton, Ohio, or Richmond, Va.

13. The greatly increased population of California and the other west coast States is requiring much larger supplies of milk and meat. Maintaining the fertile lands of the central Arizona project in production means cheaper milk and meat for Los Angeles and other west coast population centers.

14. Present food shortages will become more acute. The food production of the United States is less than is consumed in this country. In every year from 1925 through 1941, the United States was a net food importer.

15. "The total population will continue to grow through 1975 * * * about 20 percent or 30,000,000 people * * * a population of 174,000,000 by 1975 * * * total food consumption might reach 150 percent of the 1935–39 level by 1960 and 165 percent or more by 1975." (USDA Rept., House Committee on Agriculture.)

16. A shortage of cropland is developing. By 1975, there will be only about 2 acres of cropland per person, unless more cropland is brought into use.

"With average yields, about 2 acres will produce the food required by one person for a low-income diet. It takes 3 acres or more per person to supply the food for a liberal diet." (Report of Secretary of Agriculture, 1947.)

17. "We have no more land to lose," according to Dr. Hugh H. Bennett, Chief of the United States Soil Conservation Service. "Actually, we need more good land for crops now."

18. The central Arizona project area normally will not produce the crops that cause major surplus problems, but will produce those that help overcome deficits of meat, milk, eggs, and other health and protective foods.

Since much of the production is in the winter and there is large consumption of the foods in the Southwest, these lands tend to be noncompetitive with farm lands in the Central and Eastern States.

19. The proposed protection of the large investment of citizens in the 226,000 acres of productive cropland and the towns and industries supported by this production is in keeping with the established policies of the Federal Government.

Flood-control work is done with no obligation on the part of those protected to repay the costs. The same is true of soil-conservation work and other protective activities of the Federal Government.

This proposed protective measure, in contrast, does provide for repayment to the Federal Treasury of all reimbursable costs.

20. The Bureau of Reclamation estimates 226,000 acres of irrigated land will go out of production unless the Colorado River water is made available for irrigation to maintain the irrigation water supply.

21. The University of Arizona estimates the crop acreage to be lost may be 350,000 acres if Colorado River water is not made available. This is well over one-third of the total irrigated acreage of Arizona. If this takes place, the economic impact on both the State and the Nation will be very great.

22. Over two-thirds of the total construction cost will go into concrete dams, reservoirs, aqueducts, concrete-lined ditches, and other canals and structures that will be maintained under the project plan and will undergo limited physical depreciation because they are built of concrete and other durable materials.

23. Maintenance of the productivity of this total area will help maintain the market for industrial goods. This is of vital importance to all producers of manufactured goods.

CONCLUSIONS

Our conclusions regarding the central Arizona project, based upon the report of the Bureau of Reclamation and upon other data and information, are as follows:

1. Farmers can pay the proposed charges for the irrigation water.
2. There will be large indirect economic benefits to consumers generally and more especially to the citizens of Los Angeles and of other parts of California.
3. There are large indirect benefits to processors, transportation companies, merchants, and industries. Eastern and west coast industries will be most benefited.
4. This is an important national defense project.
5. Based on the costs allocated for repayment by irrigation, the central Arizona project is a sound investment, both for the Government and for the farmers in the project area.

This report contains 51 pages, including 2 maps.

Respectfully submitted.

DOANE AGRICULTURAL SERVICE, INC.,
TRUE D. MORSE, *President*.

MAY 28, 1948.

AUTHORITY

At the request of Mr. Wayne M. Akin, chairman of the Arizona Interstate Streams Commission, True D. Morse, president of the Doane Agricultural Service, Inc., visited Phoenix and Tucson, Ariz., the week of March 8, 1948. After numerous conferences with informed individuals and groups, authority was given for proceeding with this study.

This study has been completed by True D. Morse, president, and head of the Economic Division of the Doane Agricultural Service, Inc., and editor of the Doane Agricultural Digest. Working with Mr. Morse was the research and economic staff of the Doane Agricultural Service, Inc., with Mr. Morris L. McGough actively directing the research.

AREA AND SCOPE

The Bureau of Reclamation of the United States Department of the Interior, under date of December 1947, has completed a report on the central Arizona project. It is designated as Project Planning Report No. 3–8b4–2.

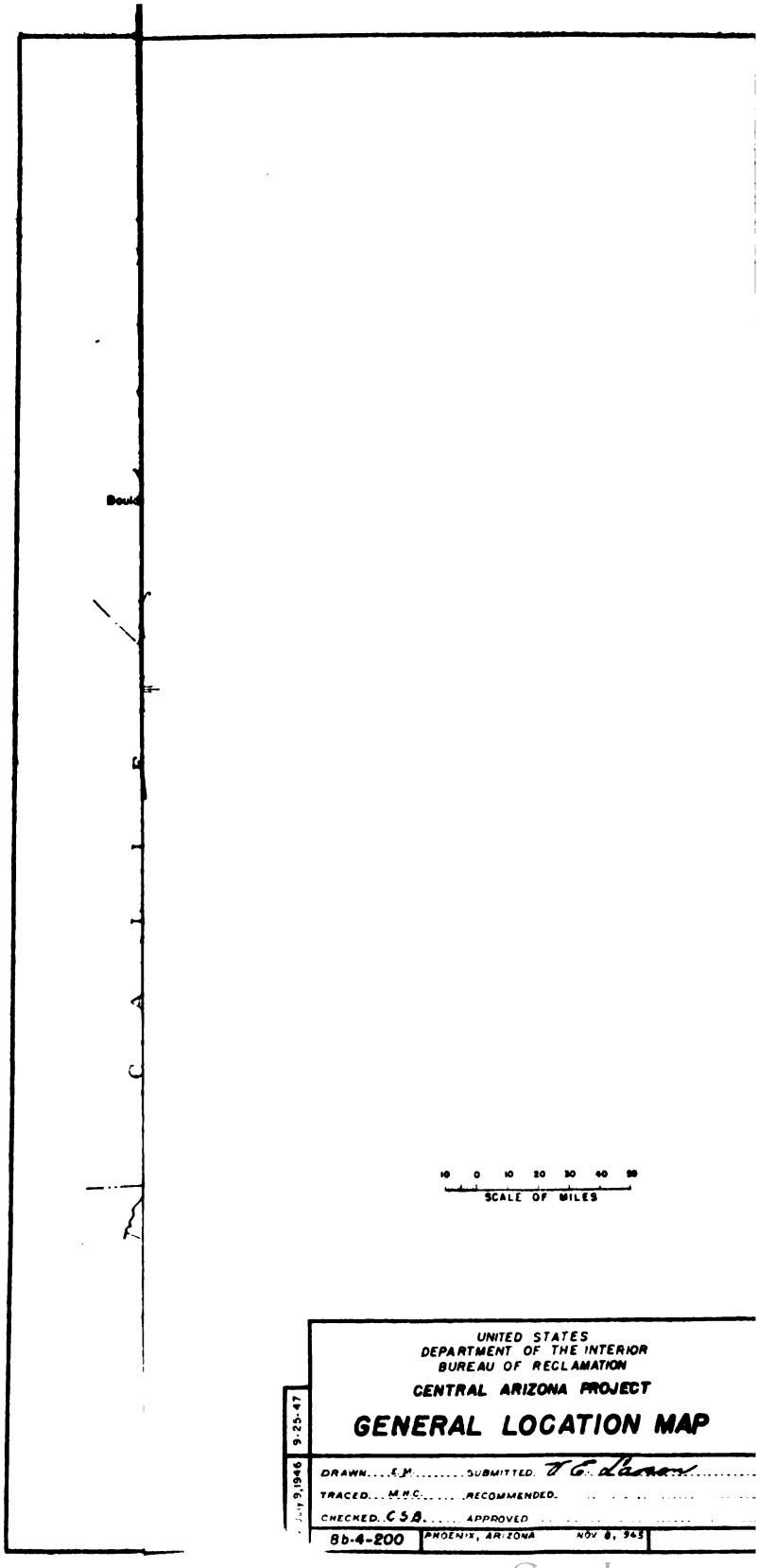
This report, after transmittal by Michael W. Straus, Commissioner, was approved by J. A. Krug, Secretary of the Interior, on February 5, 1948.

The within study is to further test the economic feasibility of the agricultural phases of the proposed project.

National as well as local effects and benefits are given consideration.

Both immediate and long-time views of the project have been studied.

See the maps for general locations and the agricultural areas involved as furnished by the Bureau of Reclamation.



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

CENTRAL ARIZONA PROJECT

GENERAL LOCATION MAP

9-25-47

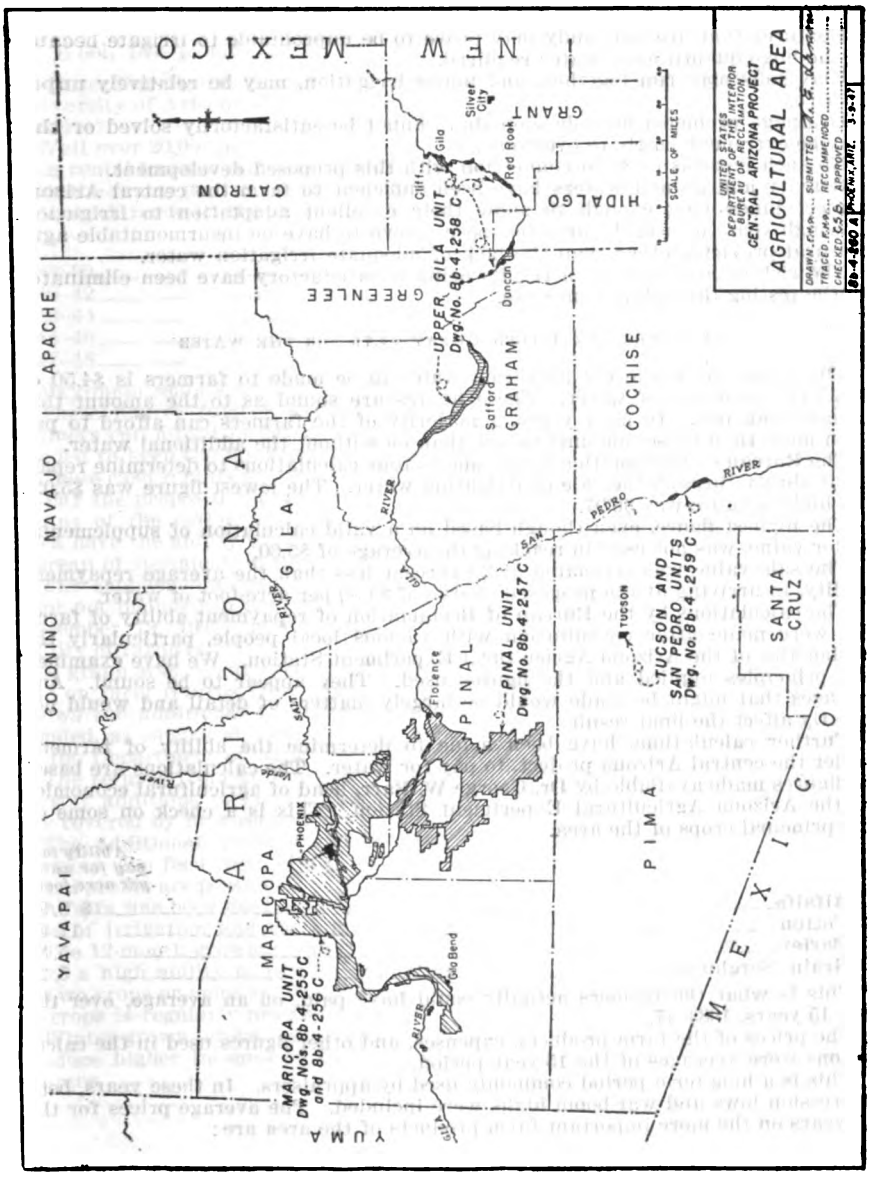
DRAWN....E.M..... SUBMITTED. W. G. Larson

TRACED....M.H.C..... RECOMMENDED.

CHECKED..C.S.B..... APPROVED

8b-4-200 PHOENIX, ARIZONA NOV 8, 1945

9-19-1946



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A PROVEN IRRIGATION AREA

The elements of risk in developing a new irrigation area have been eliminated in the proposal to supply Colorado River water to the central Arizona project. Desert or other lands that have never been irrigated may not respond to water as anticipated.

Textures that are too sandy may prove to be unprofitable to irrigate because of the huge quantities of water required.

Clay soils may run together, and under irrigation, may be relatively unproductive.

Drainage problems may develop that cannot be satisfactorily solved or that may be extremely costly to overcome.

No such hazards exist in connection with this proposed development.

Gravity and ground waters have been sufficient to farm the central Arizona project lands long enough to show their excellent adaptation to irrigation. Through years of use, the area has been shown to have no insurmountable agricultural problems other than the lack of adequate irrigation water.

The risk of final irrigation results being unsatisfactory have been eliminated by the testing through advance use.

FARMERS CAN AFFORD TO PAY $4.75 FOR THE WATER

The proposed charge for irrigation water to be made to farmers is $4.50 or $4.75 per acre-foot of water. These figures are sound as to the amount that farmers can pay. In most years, a majority of the farmers can afford to pay even more than these amounts rather than be without the additional water.

The Bureau of Reclamation report shows four calculations to determine repayment ability through the sale of irrigation water. The lowest figure was $5.02; the highest figure was $6.97.

The highest figure, even though based on a valid calculation of supplemental water value, was not used in reaching the average of $5.60.

The sale value was estimated at 20 percent less than the average repayment ability, in arriving at the proposed charge of $4.50 per acre-foot of water.

The calculations by the Bureau of Reclamation of repayment ability of farmers were made after consultation with various local people, particularly the authorities of the Arizona Agricultural Experiment Station. We have examined the principles applied and the figures used. They appear to be sound. Any changes that might be made would be largely matters of detail and would not greatly affect the final result.

Further calculations have been made to determine the ability of farmers, under the central Arizona project, to pay for water. The calculations are based on figures made available by Dr. George W. Barr, head of agricultural economics of the Arizona Agricultural Experiment Station. This is a check on some of the principal crops of the area.

	Ability to pay for water per acre-foot
1. Alfalfa	$ 5.90
2. Cotton	11.98
3. Barley	5.84
4. Grain Sorghums	5.23

This is what the farmers actually could have paid, on an average, over the last 15 years, 1933–47.

The prices of the farm products, expenses, and other figures used in the calculations were averages of the 15-year period.

This is a long-term period commonly used by appraisers. In these years, both depression lows and war-boom highs were included. The average prices for the 15 years on the more important farm products of the area are:

1. Alfalfa hay, per ton	$14.21
2. Alfalfa seed, per hundredweight	19.76
3. Cotton lint, per pound	.16
4. Cottonseed, per ton	40.40

5. Barley, per hundredweight	1.56
6. Grain Sorghums, per hundredweight	1.64
7. Lettuce, per crate	2.14
8. Beef steers, per hundredweight	11.68
9. Eggs, per dozen	.36
10. Milk, per pound of fat	.71
11. Wool, per pound	.28

(Foregoing figures prepared by the Department of Agricultural Economics, University of Arizona, March 1948, from source data available in the department files.)

Well over 20,000 acres of land in Maricopa and Pinal Counties are leased on a cash rental basis to commercial vegetable growers. These are often 3-year leases with the renter paying at least part of the water costs.

A check made on the rental rates reveals the following:

	Average cash rentals per acre
1933–39	$20 to $25
1940–42	25 to 30
1943–44	30 to 35
1945–46	35 to 40
1947–48	35 to 45

Maximum rentals for 1946–48 have been as high as $60 per acre.

These figures further emphasize the fact that the central Arizona project farmers can afford to pay $4.75 per acre-foot of water for the irrigation water needed to keep the lands producing to capacity.

These cash rentals are an index of the ability of all lands devoted to vegetables to pay the proposed charge for the irrigation water.

Any of the major types of farming adapted to the central Arizona project area have the ability to pay the $4.50 or $4.75 per acre-foot of water used in the Bureau of Reclamation repayment calculations.

The supplemental water value figure shown by the Bureau of Reclamation (but not included in their average, see pp. R–49 and R–50 of their report dated December 19, 1947) is the approach which shows the maximum repayment ability of farmers.

A graph was constructed to show the effect that additional irrigation water has on farm returns from alfalfa over a long period of years (see p. 15). It shows the additional farm return resulting when 4½ acre-feet of water was applied, as compared with 3½ acre-feet of water. This graph is based on data of the Department of Agricultural Economics, University of Arizona.

The returns from an extra 1 or 2 feet of water up to 5 acre-feet of water is largely additions to profits. This is typical of any business where fixed costs are covered by first returns up to the break-even point.

The additional profit would be even greater during most years for those farmers who feed their alfalfa to livestock. In marketing it in this way, additional profits are possible.

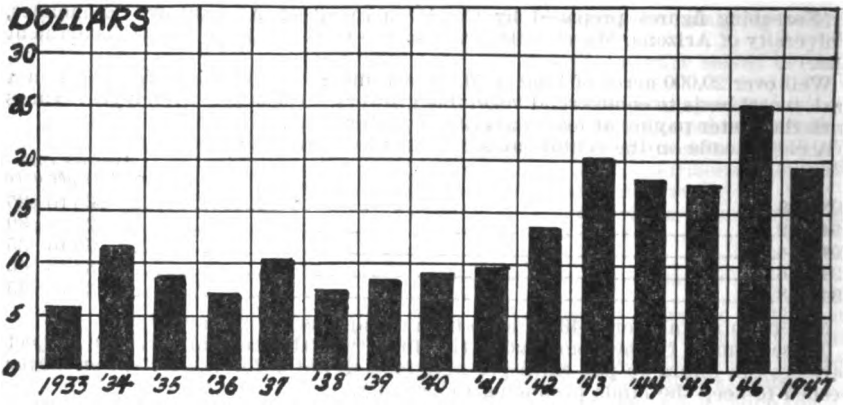
Alfalfa has been used as it is a good index crop in checking on the profitableness of irrigation and the adaptation of land to irrigated crops.

The 12-month growing season is a major reason why the farmers in this area have a high ability to pay for irrigation water.

Two crops or more can be grown on the same land within 1 year. Double use of crops is regularly practiced because of the 12-month growing season.

Winter-grown crops, especially vegetables, command higher prices which produce higher incomes to further insure the payment of the proposed water charges.

RETURN FROM AN EXTRA ACRE-FOOT OF IRRIGATION WATER ON ALFALFA IN CENTRAL ARIZONA PROJECT AREA, 1933-47 1/



1/ BASED ON USE OF 4½ ACRE - FEET OF WATER, AS COMPARED WITH 3½ ACRE - FEET OF WATER. NO CHARGE IS INCLUDED FOR WATER IN ADDITION TO THE 3½ ACRE - FEET.

SEE TABLE ON NEXT PAGE.

The value of an additional acre-foot of water in the production of alfalfa hay on land for which 3½ acre-feet of water is normally available, Salt River Valley water users' area, 1933–1947

Year	Profit, 3½ acre-feet of water	Profit, 4½ acre-feet of water [1]	Return from extra acre-foot of water [2]	Year	Profit, 3½ acre-feet of water	Profit, 4½ acre-feet of water [1]	Return from extra acre-foot of water [2]
1933	−$5.57	$0.18	$5.75	1941	$3.80	$13.62	$9.82
1934	11.75	23.21	11.46	1942	9.45	22.73	13.28
1935	.26	8.90	8.64	1943	24.39	44.63	20.24
1936	−3.71	3.45	7.16	1944	17.22	35.39	18.17
1937	6.94	17.38	10.44	1945	9.74	27.49	17.75
1938	−3.20	4.16	7.36	1946	34.23	59.51	25.28
1939	−1.96	6.40	8.36	1947	4.97	24.39	19.42
1940	.44	9.48	9.04				

[1] Here it is assumed that 4½ tons of hay are produced from 4½ acre-feet of water. No charge is included for water in addition to the 3½ acre-feet.
[2] Before any charge is made for this water.

Source: Prepared by the Department of Agricultural Economics, University of Arizona, March 1948, from source data available in the department files.

THE FEDERAL TAXES PRODUCED MAY REPAY MUCH OF THE COSTS

The additional revenue in the form of income taxes and other Federal taxes resulting from the central Arizona project will entirely repay the costs of the irrigation development to the Federal Government and may go a long way in paying for the total costs of the project.

It is not possible to accurately measure the total increase in Federal income that will result from the increase in yearly production as it flows out through

the economic streams of the Nation. However, the following rough approximations show that the increased revenues will be very large.

National income, based on prewar, is about seven times as large as the gross farm income. On the basis of this ratio, the estimated $22,600,000 per year, that will be produced from the 226,000 acres that will be kept in production, will have a counterpart of $158,200,000 per year in national income.

(The $22,600,000 per year is $100 per acre on 226,000 acres. This assumes a mature type of farming which Maricopa County tends to represent. The 15-year average prices on pages 12 and 13 were used in the calculation and yields in line with 4.5 tons of alfalfa and 475 pounds of lint cotton.)

The Federal income tax and profits tax for the 3 years 1944 to 1946, inclusive, have averaged over 20 percent of the national income. Applying this factor to the foregoing $158,200,000 gives a yearly Federal tax of $31,640,000.

It is recognized that this exceeds the total increase in Federal revenue to be expected from keeping this fertile land in production. However, farm production is basic wealth. Also, farmers on such land produce profitably and pay income taxes, whereas marginal producers do not.

This total of $31,640,000 needs to be weighed along with the annual costs of the project, including repayment of capital of $25,783,500. The total irrigation construction costs spread over the 78-year period is less than $5,000,000 per year.

The foregoing conclusions are further supported by information furnished by the Valley National Bank.

Federal taxes—Total for Maricopa and Pinal Counties

	Retail sales total	Percent State total	Estimated income of individuals	Estimated share of Federal taxes [1]
1938–39	$71,252,021	46.2	$101,600,000	$7,500,000
1939–40	77,732,340	45.9	106,500,000	7,600,000
1940–41	84,374,251	45.8	120,000,000	10,200,000
1941–42	107,779,078	48.5	177,500,000	21,300,000
1942–43	129,251,347	47.5	247,500,000	40,800,000
1943–44	154,039,650	49.5	292,100,000	74,500,000
1944–45	175,723,628	51.0	299,900,000	78,000,000
1945–46	225,205,122	52.0	317,500,000	73,300,000
1946–47	300,897,708	52.4	330,600,000	[2] 79,344,000
1947–48	371,487,569	53.1	382,900,000	[2] 91,896,000
Total	1,697,742,714	49.1	2,376,100,000	484,440,000

[1] Based on national ratio of total Federal tax collections to income of individuals. (Calculated by Valley National Bank, April 1948, and later revised to include 1947–48 estimates.)
[2] Estimates by DAS.

In 1947, the acreages receiving irrigation water in these two counties was (Bull. 211, table 5, Arizona Agricultural Experiment Station):

	Acres
Maricopa County	415,000
Pinal County	200,000
Total	615,000

The 226,000 acres to go out of production if supplemental water is not obtained is more than the total irrigated land in Pinal County and over one-third of the total for the two counties.

Even though it is recognized that there are resort, residential, and other developments in and about Phoenix that are not dependent upon irrigation, it is obvious that elimination of 1 acre of irrigation land out of each 3 in the area will sharply reduce the 70,000,000 or more of Federal taxes that have accrued in each of the past 4 years.

THERE ARE INDIRECT BENEFITS

Indirect benefits equal or exceed what farmers will pay

The foregoing discussion deals with the ability of farmers to pay and the direct benefits which the irrigation water from the Colorado River will produce. There are indirect benefits that reach out to all people, that are perhaps as important as the direct benefits. These benefits are never paid for by direct charges but are nonetheless real.

It is in recognition of these indirect benefits that—"There are numerous instances, both in California and elsewhere, of collection of payments from indirect beneficiaries. * * * Benefits that accrue to the general public and Nation as a whole provide a basis for national sharing of the cost of irrigation development. * * * The national interest is broader than measurable direct benefits." (Problem 12, Central Valley Project Studies, H. E. Selby, chairman, Berkeley, Calif., May 1944.)

H. E. Selby, formerly western regional leader for the Division of Land Economics, Bureau of Agricultural Economics, USDA, and now irrigation specialist of the Bureau of the Census, has classified indirect benefits into the following:

1. National benefits: "* * * accruing to the Nation as a whole which are distributed very widely and relatively evenly to a large portion of the population. * * *"

2. Local benefits: "* * * accruing to certain individuals or groups of individuals, such as—

"The handlers of the commodities produced,

"The owners of property near the project, and the suppliers of goods and services to farmers on the project."

Mr. Selby, after citing statistics on irrigated areas of California, concludes "that in the Central Valley, with increase in value of farm real estate, there has been an increase of at least 25 percent in value of nonfarm real estate * * *

"The amount of indirect benefits thus estimated is only a part of the total * * * In addition, there will be—

"(1) Increased profits to certain interests in the project area which are not reflected in increased land values.

"(2) Increased profits to certain interests outside the project area.

"(3) Lower living costs to consumers gnerally.

"(4) Certain intangible benefits to both local business and the general public, such as increased national resources, increased stability of income and improved living conditions." (The Journal of Land and Public Utility Economics, February 1944.)

These same principles are also set out in the report on problem 12 of the Central Valley in California in which it is stated—"The principal monetary benefit that the Nation, as a whole, may receive from an irrigation project is the forestalling of increased cost of food and other farm commodities."

The Farm Credit Administration of Omaha (Farm Credit Leader, spring 1948) in discussing the Missouri River Basin project, asks the question—

"Will program pay?" and answers,

"The largest benefits will accrue to the people of the region and of the Nation. They will show on the 'human balance' sheet of America. * * *

"Wisely planned irrigation also has an economic value far beyond the dollar return to the agency that provides the water.

"* * * Fifty-three thousand family-sized farms will pour this new productive wealth into the economic bloodstream.

"New processing plants will be needed.

"Expanded trade and services will be required to serve the greater population the land will support.

"A broadened tax base will permit better schools for future generations, better roads, more recreational facilities.

"All the benefits * * * cannot be measured alone in terms of immediate or future income.

"They can be measured only in terms of national welfare * * *." Developing the national resources to meet future needs, especially emergencies like war, has long been recognized as a sound policy.

Likewise, it is well recognized that the developments of irrigation projects result in a substantial increase in business activity, both in the local project area and throughout the Nation.

Such developments contribute to a higher standard of living for the Nation as a whole.

The benefits to nonfarm business interests in the local area are more obvious than those for the Nation as a whole. For this reason, total benefits are apt to be underestimated.

MORE BUYING FROM INDUSTRY

Even though the central Arizona project is far removed from the industries of the Eastern States and of California, the area is an important market for industrial goods.

Alert industrialists will not willingly neglect a highly productive 226,000 acres of cropland and let it go out of production because of the market it supports for industrial products. A sizable part of the $22,600,000 of annual farm income will be spent for industrial goods.

The nonfarm families supported by this basic income are also buyers of industrial goods. Total purchases are therefore two or more times the purchases made on the farms comprising the acreage supported by the added water.

"Over 50,000 carlots of incoming products of all kinds are shipped by rail annually to central Arizona from manufacturers from all parts of the United States." Such statements as this taken from the testimony of George W. Mickle, president of Phoenix Title & Trust Co., indicate the large market supported by this productive area.

Central Arizona farmers, who have an annual income of about three times the average farmer of the United States, are a good market for refrigerators, radios, automobiles, plumbing, and home conveniences of all kinds. They want and have the income to buy the best in farm equipment. For the most part, these industrial goods will continue to flow into central Arizona from Michigan, Ohio, New York, and other manufacturing States. Also from the industrial areas of California and the other West Coast States.

WAR—A NATIONAL DEFENSE PROJECT

The people of the United States have been made very conscious of the need of major expenditures to keep prepared for war. The proposed central Arizona project will provide two of the most essential elements of national defense: Food and power.

This area produced an abundance of food during the last war period by drawing upon the underground water storage of past ages.

But this area cannot produce equal amounts of food should another war come, unless Colorado River water is made available to it to carry the irrigation load which the underground water supplies can no longer adequately provide.

Strategically located.—The recent big increase in west coast population came as a result of World War II. The threatening third world war, if fought, would require similar intense activity along the west coast.

Under such circumstances, the strategic location of this source of food supply is apparent.

It is tucked away in the interior, yet is close enough to put food overnight into vital locations on the west coast and elsewhere.

Food is essential for fighting a successful war. This is clear from the "Food will win the war" slogans of both the World Wars and the all-out effort to get a maximum of food production with which to wage the wars.

E. H. Taylor, associate editor of Country Gentleman, in speaking before the Soil Conservation Society of America, December 4, 1947, stated:

"The three essentials in war are manpower, weapons, and food. A nation without adequate food resources and with its supply lines destroyed is a defeated nation."

The stability of the food production of irrigated lands is a strong factor in the national defense program. There are no crop failures such as befall dry-land and even humid farming regions when drought or excessive rains strike.

Increasing the areas of irrigated lands decreases the degree of crop failures. Thus, the national economy is given more stability. A more dependable supply of food will be provided if needed in a period of war.

The central Arizona project, from the view of such features as its strategic location and the production of stable supplies of essential foods, is a national defense project.

Power.—The urgent need for power in Arizona and other Southwestern States under present peacetime conditions makes it evident that the area is not prepared for another war emergency from an industrial standpoint.

Therefore, for power, as well as for food, the central Arizona project is important to the national defense.

TO SAVE PRODUCTIVE CAPACITY

A major economic consideration in the central Arizona project is the preservation of agricultural production. This is of extreme importance to local farmers and businessmen and to the national economy.

The growing concern of the United States over the need for maintaining the productive capacity of farm land is well known.

Soil conservation is the outstanding example that is commanding governmental support, as well as the influence of all alert citizens. Increasing appropriations of Federal funds and enlarging public agencies devoted to maintaining soils in a condition to produce show that this is a major national problem.

Flood control, along with extensive levee and drainage districts, are other farm land preservation projects costing large sums of money.

Desert wasteland or continued production?

Soil conservation most frequently is the battle to stop soil erosion which, if unchecked, will turn cropland and pasture into gullied or barren waste.

The central Arizona project is to prevent some of the most highly productive cropland in the United States from becoming a desert waste.

Only an extremely small part of the United States is excellent cropland. The loss of any part of this cuts rapidly into the food supply of the Nation.

The amount of production at stake

The Bureau of Reclamation estimates that 226,000 acres of irrigated land will go out of production if Colorado River water is not brought in.

Local authorities, including Dr. George W. Barr, head of agricultural economics at the University of Arizona, estimate the acreage lost may be "350,000 acres once highly productive, irrigated land that will not be receiving any water at all within a few years." (See testimony before the Senate subcommittee, p. 4 of mimeographed copy.)

The United States Department of Agriculture quoted from the 1947 report of the Secretary, shown elsewhere in this report, says it requires 3 acres of cropland with average yields to produce a liberal diet for one person. Since the land in this project produces with year-round cropping fully three times the average yields of United States croplands, the food being produced from the land that will be lost is providing liberal diets for 200,000 to 300,000 people.

In other words, the production that will be lost now is providing enough food for a liberal health diet for the entire population of a city the size of Syracuse, N. Y.; Dayton, Ohio; or Richmond, Va.

Highly productive land

The best measurement of the quality of land is the actual yields of crops. The central Arizona project lands produce high yields.

Cotton.—Yields used for costs of production calculations, 1933 to 1947, based on yields of upland cotton per acre for Maricopa County (net weight) were 478 pounds of lint. (See data prepared March 1948 by the department of agricultural economic, University of Arizona.)

Alfalfa.—Yields shown by the Salt River project crop report for 1945 and 1946 were 4.5 tons per acre.

Grain sorghums.—Two thousand and six hundred pounds per acre, 1945 and 1946 crop reports of Salt River project.

Lettuce.—One hundred and forty-three crates per acre. (Same source as above.) The 1945 yields averaged 180 crates per acre for the fall crop and 172 crates for the spring crop. These are sufficient to show the high yield capacity of the project lands.

Irrigation

"Only about 1 percent of the earth's surface is irrigated, but this small area probably feeds one-third to one-half of the world's population." (Starvation Truths, Half-Truths, Untruths, 1946, p. 17, Cornell University.)

The United States will undoubtedly depend increasingly upon irrigation and can ill afford to not make maximum use of the water available for irrigation.

TO SAVE WEALTH

Another major economic consideration in the central Arizona project is the preservation of wealth. This also is of extreme importance to individual property and business owners, as well as to the national economy.

The development of the productive farm land has been by a heavy investment of labor, money, and materials within and adjacent to the area. This is wealth that must be abandoned unless the Colorado River water is brought in to

"rescue" or "salvage the existing economy" supported by the 226,000 acres or more of cropland that will go out of production.

The following includes some of the major types of property or wealth that it is proposed to protect.

1. Farm land and the improvements.
2. Irrigation and other district improvements that would become useless, such as dams, ditches, headgates, wells, pumps, etc.
3. Public improvements such as roads, schools, domestic water systems, post offices, parks, and other public facilities.
4. Utilities—electric, telephone, railroad sidings, depots, warehouses, etc.
5. Civic and religious developments, such as churches, community centers and recreational facilities.
6. City and town, privately owned businesses and properties, business buildings, factories, homes and other residential developments.

There does not exist adequate valuation figures to show the physical value of all these properties. Even if available, it would be difficult to separate out those values which would be destroyed or impaired if the Colorado River water is not obtained.

"Maricopa and Pinal Counties produce about 60 percent of the total Arizona agricultural income, and on this basis have averaged about $75,000,000 a year for the last 10 years and about $102,000,000 for the last 5 years." (Valley National Bank, figures revised to include 1948 estimates.)

If, therefore, in the eventual maturity of the agriculture of the area, the loss of one-third of the irrigated lands reduces the agricultural income of the area one-third, a total of about one-fifth of the agricultural income of the State will be lost.

RESIDUAL OR PERMANENT VALUE

The Reclamation report proposes repayment of the irrigation, power, and municipal water development costs within 78 years.

Therefore, at the end of the 78-year period, the irrigation facilities will still be a going concern with a long, useful life remaining. What is this worth to the Nation?

In other words, the reimbursable construction costs will be entirely repaid in 78 years—but, a going irrigation and power development will remain for use through hundreds and, as to the land, thousands of years. What is such development worth to the Nation?

Permanent land wealth

The central Arizona project should be at all points considered in the light of the fact that—

1. The soils to be irrigated are among the very best crop soils of the world.
2. The soils are permanently productive if irrigated.

The valley of the Nile River of Egypt contains parallel situations. It has been demonstrated there that good land, which is level enough not to erode and which can be irrigated, can be kept productive for thousands of years.

Civilization in Egypt is known to be 6,000 years old.

There are many examples of ancient irrigation systems in regular use today. Even at the old missions in Texas, there are irrigation systems still in use after 200 years.

What part will remain?

The original construction should be in use long after the end of the 78-year repayment period. The following classification, along with initial costs, shows that most of the expenditures will be for structures of extreme long life.

Dams and reservoirs

	Construction cost
Bridge Canyon Dam and Reservoir	$191,939,000
Other dams and reservoirs	114,310,000
Total	306,249,000

Of the above amount, 92 percent will be spent on reservoirs with concrete dams. The larger of the other two dams is "Slab and buttress and earth embankment" and the Horseshoe Dam enlargement is "Earth-and-rock-fill."

The dams will probably be in use hundreds of years after the cost has been fully repaid.

The Alicante masonry dam in Spain, completed in 1594, is still in use—over 350 years later.

The Zola masonry dam in France, built in 1843, is still in use—over 100 years later.

Aqueducts and irrigation distributive system

	Construction cost
Granite Reef aqueduct	$131,716,000
Salt-Gila and Tucson aqueducts	40,986,000
Irrigation distribution system	54,086,000
Total	226,788,000

The permanency of these structures is indicated by Granite Reef aqueduct—"The canal would be concrete-lined" * * * irrigation distributive system—"Concrete lining of all new canals and laterals is contemplated."

In Egypt, the present systems of dams, canals, and basins are known to date back to the time of the Pharaohs, about 1400 B. C. or more than 3,000 years.

The aqueducts of Rome date back over 2,000 years to about 312 B. C.

At Segovia, Spain, is a Romain-built aqueduct over 1,800 years old, still in service.

An aqueduct built in 1613 to bring water to London is still in use, over 300 years later (with some improvements).

	Construction cost
Drainage system and salinity control	$9,973,000
Safford Valley improvements	4,090,000
Total	14,063,000

Power and pumping plants and transmision systems

	Construction cost
Bridge Canyon power plant	$73,419,000
McDowell, Horseshoe, and Buttes power plants	4,799,000
Havasau pumping plants	25,973,000
McDowell pumping plants and canal	3,346,000
Power-transmission system	83,771,000
Total	191,308,000
Grand total of construction costs	738,408,000

Replacements

In the annual costs, there are included $2,377,100 for "Reserves for replacements." There is, therefore, provision for leaving the irrigation and power system in full operating condition at the end of the 78-year period.

Even the power and pumping plants will be fully maintained, ready for continued operation beyond the repayment period.

Permanent structures

Over two-thirds of the total construction cost will go into concrete dams, reservoirs, aqueducts, concrete-lined ditches and other canals and structures that will undergo a minimum of physical depreciation as long as needed replacements are made.

Most of the structures will, therefore, have a long life—some of them hundreds of years—after the repayments are finished.

NEED FOR ADEQUATE DIETS AND HEALTH FOODS

The central Arizona project is needed to supply the diet deficiencies of the people of the United States. The foods now being produced on these irrigated lands and that will be grown in even larger quantities, are those needed to maintain good health among the American people.

Health foods

In 1947 the acreages devoted to producing meat, milk, eggs, vegetables, and citrus fruits in Maricopa and Pinal Counties were as follows:

	Acres
Alfalfa	156,000
Feed grains	145,700
Truck crops	63,000
Grapefruit and oranges	18,000

These crops and the meat, milk, and eggs produced from them are shipped all across the Nation for consumption. Some of the alfalfa meal, because of its high vitamin content, is shipped to the eastern seaboard.

Minerally rich

These crops are grown on minerally rich soils. This means health food of a quality that old, leached, and otherwise impoverished soils do not produce.

Dr. William A. Albrecht, head of the soils department of the Missouri College of Agriculture, has been a leading exponent of the need for "Minerals for backbone." He points out that "Hidden hungers" may give people "lifetime torments" because of impaired health resulting from food crops grown on minerally deficient soils.

Likewise, livestock suffer from these hidden hungers and there is evidence that people who eat the meat and milk from animals grazed or fed on vegetation and crops of impoverished soils, may suffer from poor teeth, weak eyesight, and weakened internal organs.

The soils of the central Arizona project are young and minerally rich. They are typical of the areas which produced a high percentage of men physically fit for the armed services during the last war while areas of old, leached soils had a high percentage of rejects.

Effect on city people

The health effects of "protective foods" produced on the minerally rich soils of the central Arizona project affect many more people in the cities and industrial areas than in the local area.

The concentration of population on the Pacific coast, as well as the large industrial cities of the northeastern part of the United States, benefit when their people eat the health foods produced in the central Arizona project. It is a major reason why people in even the most distant markets reached by Arizona products are interested in maintaining this area in production.

Diet deficiencies of the United States

The need for full use of all the available cropland in the United States is shown by reports and warnings being constantly sounded by various agricultural authorities. Typical are these statements in the 1947 report of the Secretary of Agriculture.

"Although diets have been better in recent years on the whole, many people still are not enjoying a high level of nutritional health.

"With yields per acre at present levels, our cropland would not support our present population if all civilian families had the same diet as the high-income families. Our cropland with yields as at present would support possibly 190,000,000 people on a low-cost diet.

"It would support only about 140,000,000 to 150,000,000 on a liberal diet.

"With average yields, about 2 acres will produce the food required by one person for a low-income diet; it takes 3 acres or more per person to supply the food for a liberal diet.

"After the world food emergency subsides, it will take about 300,000,000 acres in intertilled and close-growing crops to produce the food our people want and to provide for reasonable exports. About 180,000,000 acres, however, is subject to some erosion damage. Only about 120,000,000 acres can be used for such crops without doing some damage.

"Let us take their buying as representative of what the people of the United States want, and apply the standard to the whole population. It indicates that people want about 40 pounds more meat per capita than they got between 1937 and 1941; that they want about 200 pounds more milk; about 9 pounds more

chicken; about 23 or 24 pounds more fresh vegetables; about 17 pounds more processed vegetables; about 50 pounds more citrus fruit; and about 80 pounds more of other fruits.

"The Soil Conservation Service estimates that half of the cropland we are using this year is subject to erosion in greater or lesser degree.

"Our reserves in the soil and forest banks are being steadily diminished. We are living off our capital.

"American agriculture, after a century and a half of rapidly expanding acreage, now finds that it has reached the limits, practically speaking, of its land resources. Comparatively little additional land can be brought into cultivation."

Clinton P. Anderson, in one of his last speeches (May 3, 1948, Columbus, Ohio) while still Secretary of Agriculture, summarized as follows:

"Taking a quick inventory, we find in the United States today a population of 144,000,000 persons. We find good cropland, or land which could be good cropland, amounting to 460,000,000 acres. This includes all the good land now in cultivation, plus about 100,000,000 acres that need clearing, drainage, irrigation, and other improvements. In addition, we have about 475,000,000 acres of range and pasture land.

"Looking to the future, we find that, according to most estimates, the population of the United States will reach somewhere between 165,000,000 and 185,000,000 about the year 1975. This works out to about 2½ to 2¾ acres of good cropland per person."

Babcock, chairman of the board of trustees of Cornell University and one of the Nation's farm leaders, in his articles and speeches makes such statements as:

"* * * All over the world, human beings like best the animal product foods—the milk, meat, eggs, butter, cheese, and the fresh, ripe fruits and vegetables.

"* * * The constant struggle of humanity is away from the beans and cereals, towards ice cream and beefsteak.

"* * * At the high end of the American diet, we have meals based on animal products—eggs, milk, cream, butter, cheese and meat, and fresh fruits and vegetables. Such meals are highly attractive. They satisfy people and the nutritionists tell us that anyone eating them just can't help being well nourished.

"The low end of our diet here in America is literally bread and beans.

"* * * Our fields and pastures do not produce enough grains, hay, and pasture to feed the people of this country the milk, meat, and eggs they should have for good health. We are nearly 40 percent short of the production needed. * * *

"Industrial activities correlate with the quality of the diet of the people. Such industrially poor countries as China and India are in sharp contrast to better-fed nations. We cannot build a stable society on hunger and malnutrition. The increased energy and efficiency of well-fed workers is well known. * * *

"* * * Up-grading the health of the people will set in motion a whole chain of activities that will keep the wheels of industry at work. Healthy people are ambitious, desire to work, and want things which industry produces.

"We aren't doing our job well unless we feed the people well."

LIMITED MEAT AND MILK

In the 11 Western States, the production of cattle and sheep has not kept pace with the increasing population. There was a rapid increase until about 1890, when full use of the range lands was reached.

Since 1890, the primary livestock expansions have been due to irrigation and other cropland developments, since deterioration of the range has probably offset the improvements of pastures and any extensions of grazing.

The amount of livestock that can be produced is limited by the feed that can be grown. Since the practical limit of the ranges has been reached and even more dry farming is being practiced than is advisable, the hope for maintaining or expanding the production of meat and dairy products in the West is in irrigation.

Implications.—The United States Department of Agriculture, in a special study of Livestock Production in Relation to Land Use and Irrigation in the Eleven Western States (March 1946), states these conclusions.

1. "It appears from the foregoing analysis that the 11 Western States are

likely to be a dwindling source of supply of beef cattle and sheep for the rest of the country, even with a maximum rate of irrigation development. * * *"

* * * * * * *

4. "Although it frequently is stated that the increased production brought about by irrigation development consists chiefly of dairy products, and of fruits, vegetables, and other cash crops, it appears from the foregoing analysis that the net result of additional irrigation development is to a large extent additional production of beef cattle or sheep. * * *

"The net result of new land development is largely an additional amount of feed for beef cattle and sheep over the amount that otherwise would have been available * * *."

5. "The justification for public subsidy of irrigation development lies chiefly in the possibility of providing a needed additional supply of food without a rise in its price to the consumer. If consumers would have to pay an addtional 10 cents per beefsteak in order to get farmers to produce enough of them from the presently available land, but by putting the equivalent of 5 cents per beefsteak into subsidizing irrigation could get as many beefsteaks as they want without an increase in price, it obviously would be to their advantage to subsidize irrigation development."

Cheaper meat and milk for Los Angeles

The last statements have special significance to the great concentration of population in Los Angeles and southern California. Meat, milk, and eggs are being shipped in from further and further east.

Livestock for slaughter on the Pacific coast is now being solicited as far east as the Dakotas. Hogs and corn will continue in short supply on the Pacific coast.

The California Agricultural Experiment Station (circular 366) estimates that the population of California has nearly doubled during the past 20 years, but that the number of dairy cows has increased only 40 percent and the volume of milk fat produced, only 63 percent. "Although the increase in the number of dairy cows and of milk-fat production was relatively greater in California than in the United States or in the Western States, output of milk failed to keep pace with the increase in population."

This means higher living costs. The development of the central Arizona project will help hold down the living costs for the people of Los Angeles and the adjoining areas.

Effect over a broad area

The effect of the supplemental feed supply in the central Arizona project is spread widely over much of the range lands of the Southwest.

Because of these feeds, more cattle and sheep can be carried through dry periods to fully utilize the abundant vegetation when seasonal weeds and grasses are available on the range.

Because of these feeds, more cattle and sheep can be fed to heavier weights and be given a better finish before marketing. Cattle from west Texas and New Mexico, as well as from the Arizona ranges, move by the thousands into the feed lots about Phoenix for finishing before being slaughtered to provide meat to Los Angeles and other west coast areas.

Over three-fourths of all beef cattle shipped from Arizona now go to California to help feed the rapidly growing population.

FOOD SHORTAGES NOW—WILL INCREASE

Present food shortages will become more acute. This means high food prices. It means more and more families will not be able to buy the amounts and kinds of foods their families should eat.

This is one of the strongest reasons for not allowing 226,000 acres of some of the best land in the United States to go out of production for lack of Colorado River water for the central Arizona project. The following briefly shows the situation now and the prospect for food supplies per person dwindling in the future.

The United States produces less food than we eat

"In every year from 1925 through 1941, the United States was a net food importer." See Survey of Current Business, page 16, January 1948, United States Department of Commerce.

For 17 years more food was imported into the United States than was exported. This was true all through the depression years.

The excess of exports during the war periods has been possible only by drawing down storage stocks to dangerously low levels, good crop weather and severe cropping of land at a rate that is rapidly depleting the soils.

The population is rapidly growing

The baby boom of the war period, plus record low death rates, plus immigration, has put the population growth about 10 years ahead of earlier estimates.

Since 1940 more people have been added to the United States than are in all of Canada.

There are 13,000,000 more people in this country than 8 years ago. The increase is continuing at a rate of over 2,000,000 per year.

The USDA, in reporting to the House Committee on Agriculture March 10, 1948, states:

"The total population will continue to grow through 1975 * * * about 20 percent or 30,000,000 people * * * a population of 174,000,000 by 1975.

"Under prosperous conditions, per capita consumption of food would probably increase over the next two decades. * * * Total food consumption might reach 150 percent of the 1935–39 level by 1960 and 165 or more by 1975.

"The upward trend of recent decades in the consumption of fruits and vegetables is likely to continue. Per capita consumption of meats and whole-milk dairy products is likely to continue high as compared with prewar consumption. * * *

"In general, it appears reasonable to expect a relatively high level of employment over the 25 years ahead."

It is such facts as these which caused the President of the United States in his economic report to Congress on January 14, 1948, to state:

"In view of the growing population and expanding income, we should seek within a decade to raise agricultural production about 10 percent above present levels. This would mean that crop production would be 25 percent and livestock production nearly 50 percent, above prewar levels."

A shortage of cropland is developing

"In the United States, we have 3 acres of cropland per person, but conservative estimates indicate that one-sixth of our cropland is depleted to the extent that it is unsuited for crop production, and serious soil destruction is continuing." (Report 885 to United States Senate February 9, 1948.)

In 1947, only 2.5 acres were planted to crops per person in the United States.

If there is the 20-percent increase in population by 1975, there will be only about 2 acres of cropland per person, unless more cropland is brought into use.

"Ordinarily, we consume that which is produced on 3 acres * * *" (Alabama College).

The Nation, therefore, faces a reduced standard of living. The specialists state there is not enough food now produced in the United States for adequate diets.

"We have no more land to lose," according to Dr. Hugh H. Bennett, Chief of the United States Soil Conservation Service. "Actually, we need more good land for crops now. Too many farmers are working poor land that should be turned back to grass or woodland. More waste of good land would amount to a national crime on the part of those who are responsible—meaning ourselves."

DOES NOT CAUSE SURPLUSES

In contrast, the area helps overcome food deficits.

The central Arizona project, when fully developed, will not be producing major quantities of the farm products that have, in the past, been the cause of "surplus" problems.

Quite to the contrary, the area will be producing those health foods of which the Nation is usually in short supply. Note: Reference is here made to the production after water deficits have been overcome and the agriculture of the area takes on a more permanent nature.

The Salt River project illustrates the crops that will then be grown. Crops like wheat and cotton are crowded out by vegetables, alfalfa, feed grains, and livestock pastures when a dependable water supply is established, homes are built and farms are more fully developed.

The following gives a brief reference to major surplus crops of the United States to show that they will not be grown in any large acreage under the central Arizona project.

Cotton

This crop is grown primarily on new lands and where there is a water shortage. Cotton can be grown with 3 acre-feet of water while alfalfa requires 5 acre-feet.

Water shortages this year, 1948, are causing alfalfa to be plowed up and the land planted to cotton.

Pinal County has large acreages of new irrigated land. In 1947, there were:

Total crop acres	200,000
Cotton occupied	128,000
Alfalfa, acres only	23,000

Maricopa County, where irrigation has been much longer established, shows the shift away from cotton.

Total crop acres	415,000
Cotton	59,000
Alfalfa	133,000

This county has double the crop acreage of Pinal, but less than one-half as much cotton. In Maricopa County, 32 percent of the cropland in 1947 was in alfalfa, while Pinal County had only 11 percent in alfalfa.

With a more mature agriculture, Maricopa County has swung heavily to dairying and livestock with 271,400 acres out of a total crop acreage of 415,000 in alfalfa and feed grains.

Truck crops in Maricopa County are 60,000 acres.

Truck crops in Pinal County only 3,000 acres.

Less than 2 percent of the cropland acres in Pinal County is in truck crops as compared with 14 percent in Maricopa County.

Wheat

This is a major surplus crop of the United States. Only small acreage are grown in the central Arizona project area. In 1947, the figures for Maricopa and Pinal Counties were:

Total crop acreages	615,000
Wheat	16,800

The wheat is used locally.

Tobacco is a major surplus crop but is not grown within the area.

Rice is a surplus crop but is not grown within the area.

Citrus apparently will be a surplus crop for the immediate future. The acreages of grapefruit and oranges in Maricopa and Pinal Counties for 1947 were as follows:

Total crop acres	615,000
Grapefruit and oranges	18,000

It is unlikely that there will be any major expansion. Any added groves may be more than offset by present groves going out of production.

The crop acreage figures are from Bulletin 211, Arizona Agriculture, by Dr. George W. Barr, University of Arizona.

Largely noncompetitive

Much of the production of the central Arizona project lands are noncompetitive with products of most other farming regions for such reasons as the following:

Winter production when other vegetable and fruits are scarce.

Milk, meat, and eggs are needed locally and in other Western States to make up serious shortages of supplies.

This area tends to round out the year-long supplies of health foods—especially those needed in the population centers on the west coast.

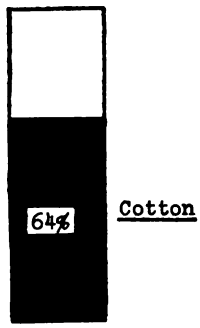
LAND POLICIES

The proposed investment of Federal funds in this central Arizona project is strongly supported by established governmental policies.

COTTON

BEFORE

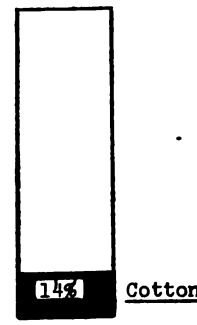
MATURE DEVELOPMENT



% Cropland in Cotton
As Illustrated by Pinal County

AFTER

MORE MATURE DEVELOPMENT

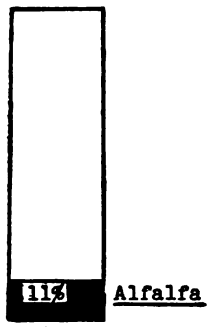


% Cropland in Cotton
As Illustrated by Maricopa County

ALFALFA

BEFORE

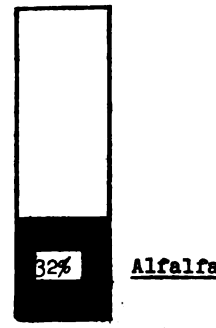
MATURE DEVELOPMENT



% Cropland in Alfalfa
As Illustrated by Pinal County

AFTER

MORE MATURE DEVELOPMENT



% Cropland in Alfalfa
As Illustrated by Maricopa County

As the agriculture in this irrigated area grows older, there is a shift away from cotton to alfalfa, feed grains and pasture to support dairying and livestock production.

Protection.—There are firmly established governmental policies to protect the money, material, and work that may have been invested in productive farm land.

Huge expenditures have been made down through the years by various governmental agencies to protect farm lands, homes, and urban developments in the interest of "general welfare" and "national prosperity."

An outstanding example is the flood-control work. Great levees have been built against major streams to protect farmers who have moved into the bottom land areas and developed farms. These levees are also to protect the merchants and town people who have moved in to serve the farming areas.

It is not the policy to condemn such people for their enterprise and leave them to their own salvation where there are practical ways to protect them and their property. The fact that they undertook such developments in hazardous areas has not prevented the Federal Government from protecting the wealth which their work and pioneering has created.

Another outstanding example of protection extended to those who have undertaken to farm in new areas is found in regions like the Great Plains. Farmers moved in, built homes and barns, and erected fences in the good faith that they were extending the productive capacity of the Nation while developing their property.

When soil erosion and other problems overtook these farmers, the Federal Government moved in with heavy expenditures in soil conservation, seed loans, and other aids to keep the land in production and to help protect the property of the citizens.

Here in central Arizona, it is not flood waters or soil erosion, but the desert that will move in on enterprising people who have developed and built in good faith that the Government would show an equal interest in their future welfare.

Flood control expenditures are made by the Federal Government without any charge against landowners or requirements for repayment.

Soil conservation and other such protective measures have been carried on with outright grants with no requirements that farmers repay the funds.

The central Arizona project is set up for repayment to the Government of all reimbursable costs.

THE COSTS ARE HIGH

This appraisal of the economic feasibility of the central Arizona project for irrigation purposes has revealed only two major questions—

Should the Federal Government make the investment?

Will farmers be able to pay $4.75 per acre-foot of water over a 78-year period?

Although it is not possible to know what may be the conditions over such a long span of years, the economic trends of the past indicate that this project is a sound investment—both for the Government and for the farmers in the project area.

The long-time upward trend in general price levels will lighten the repayment load for the farmers in the latter part of the period.

The water costs are high. They are much higher than the average costs of irrigation water for the United States. The Colorado River water cannot be had at bargain rates for this project.

But this is not bargain-counter land. It will be worth the cost.

Those who own and farm such highly productive land can consistently pay high costs for the water that is necessary to farm the land.

When the Louisiana Purchase was made 145 years ago, there was vigorous opposition to the high cost. The rapid progress of the Nation soon revealed how wise was the investment.

This is another proposed long-time investment. The pressing need for health foods with which to feed our rapidly growing population may be such that long before the 78-year repayment period has elapsed, the wisdom of financing this development will have been justified many times.

DOANE AGRICULTURAL SERVICE, INC.

Home Office, St. Louis 8, Missouri

The Doane Agricultural Service is the oldest and largest farm management, appraisal, and research service in the United States.

It is now in its thirtieth year.

91190—49—ser. 11, pt. 1——37

Land is managed in 15 States. Appraisals and special farm services are furnished in about one-half the States of the Nation.

The Doane Agricultural Digest, a twice-monthly service, goes into all the States and about 15 foreign countries.

Through the industrial division, such clients are served as Weyerhaeuser Lumber Co., American Maize Products Co., Westinghouse Electric Co., Stran-Steel Corp., T. J. Moss Tie Co., and Lincoln Engineering Co. This work is assisting in designing and testing industrial products for farm use—also procurement and testing of farm products for industrial use.

The economic division has made exhaustive farm loan territory studies and loan recommendations, and trained the appraisers for such insurance companies as Aetna, Traveler, and Bankers Life.

The farm assessment valuation procedure and rural appraisal manual were developed for the Iowa State Tax Commission and schools were held for the commission during 1948 for training the Iowa assessors and their deputies.

Through research and other types of work, services have been rendered to a wide variety of organizations including the United States Gypsum Co., Krey Packing Co., American Meat Institute, Farm Journal, Inc., the Progressive Farmer Co., and the Standard Oil Co. of Ohio.

The staff is farm-reared, with practical experience and agricultural college training.

TRUE D. MORSE

True D. Morse is president of Doane Agricultural Service, Inc., and editor of the Doane Agricultural Digest.

Prior to 1925 he was an economist with the University of Missouri, of which he is a graduate of the College of Agriculture. In 1941 he served as president of the American Society of Farm Managers and Rural Appraisers and he is a member of the American Farm Economics Association.

Mr. Morse is a member of the Missouri bar. Well known as a lecturer and author, he has traveled widely for study and research in the United States, Canada, and Mexico.

Mr. CARSON. Then, Mr. Chairman, I only have one copy of this, but it is the Ground Water Code of 1948 adopted by the Arizona Legislature, which prohibits permits for any additional wells from any critical ground-water basin established under the machinery set up by this act, and the State is now proceeding, as rapidly as possible, to establish critical ground-water areas and their boundaries in connection with the United States Geological Survey. One such area has already been established legally under this act, and it prohibits any additional well in any critical area for any new land. I would like to have this printed in the record in one place, also.

Mr. MURDOCK. Without objection, the Arizona statute referred to may be admitted to the record at this place. The Chair hears no objection, and it is so ordered.

(The act above referred to is as follows:)

STATE OF ARIZONA

HOUSE OF REPRESENTATIVES

Eighteenth legislature, sixth special session

(Chapter 5—House bill No. 2)

AN ACT Relating to ground water; declaration of public policy for regulation of its use; defining ground-water basins and subdivisions; establishing regulations for the designation and determination of critical ground-water areas; making an appropriation; and declaring an emergency

Be it enacted by the Legislature of the State of Arizona:

SECTION 1. *Short title.*—This act may be cited as the ground-water code of 1948.

SEC. 2. *Definitions.*—In this act unless the context otherwise requires:

"Ground water" means water under the surface of the earth regardless of the geologic structure in which it is standing or moving; it does not include water flowing in underground streams with ascertainable beds and banks.

"Ground-water basin" means land overlying, as nearly as may be determined by known facts, a distinct body of ground water, but the exterior limits of a ground-water basin shall not be deemed to extend upstream or downstream beyond a defile, gorge, or canyon of a surface stream or wash.

"Ground-water subdivision" means an area of land overlying, as nearly as may be determined by known facts, a distinct body of ground water; it may consist of any determinable part of a ground-water basin.

"Critical ground-water area" means any ground-water basin as herein defined, or any designated subdivision thereof, not having sufficient ground water to provide a reasonably safe supply for irrigation of the cultivated lands in the basin at the then-current rates of withdrawal.

"Exempted well" means a well or other works for the withdrawal of ground water used for domestic, stock-watering, domestic water utility, industrial, or transportation purposes.

"Irrigation well" means any well or works for the withdrawal of ground water primarily used for irrigation purposes and having a capacity in excess of one hundred gallons per minute.

"Permit" means a permit to construct and operate a well or other works for the withdrawal of ground water.

"Person" includes an individual, firm, public or private corporation, or Government agency.

"Commissioner" means the State land commissioner.

"Owner of land" means any person in whom legal title to real property is vested or any person having an equitable interest in real property.

"User of ground water" means any person who is putting ground water to a beneficial use primarily for irrigation purposes.

SEC. 3. *Declaration of policy.*—United States Geological Survey reports, based on studies covering a long period of years, indicate that large areas of rich agricultural lands in Arizona are dependent, in whole or in part, upon ground-water basins underlying such lands for their water supply, and that in a number of such basins withdrawals of ground water, greatly in excess of the safe annual yield thereof, is converting the lands of rich farming communities into critical ground-water areas, to the serious injury of the general economy and welfare of the State and its citizens. It is therefore declared to be the public policy of the State, in the interest of the agricultural stability, general economy and welfare of the State and its citizens to conserve and protect the water resources of the State from destruction, and for that purpose to provide reasonable regulations for the designation and establishment of such critical ground-water areas as may now or hereafter exist within the State.

SEC. 4. *Administration.*—This Act shall be administered by the State land commissioner. The commissioner in the administration thereof shall have the authority and it shall be his duty: 1. to adopt, publish and make available to the public such reasonable rules and regulations, not in conflict with this Act, as may be necessary for the administration thereof; 2. to compile and maintain in his office records of the various ground-water basins, and subdivisions, in the State, together with factual data as to the safe annual yield of ground water, and the use thereof, in such basins and subdivisions to the end that the people may have an opportunity to understand their ground-water resources and what steps are necessary to obtain its maximum beneficial use; 3. to appoint such deputies and assistants as may be necessary for the efficient administration of the provisions of this Act, and to fix and prescribe their duties; 4. to cooperate with any agency of the United States or of this State or any political subdivision thereof, or with any person. 5. The commissioner, or any deputy or representative charged with the administration of this Act may enter at reasonable times upon the lands of any ground-water basin or subdivision where a well or other works for the withdrawal of ground water are located for the purpose of examining any well or works subject to the provisions of this Act, and for the purpose of obtaining factual data in any ground-water basin within the State or any subdivision thereof.

SEC. 5. *Designation of ground-water basins and subdivisions thereof.*—(a) It shall be the duty of the commissioner, from time to time, as adequate factual data become available, to designate ground-water basins and subdivisions thereof,

and as future conditions may require and factual data justify, to alter the boundaries thereof.

(b) The designation or alteration of the boundaries of a ground-water basin or subdivision thereof may be initiated by the commissioner on his own motion, or by petition to the commissioner signed by not less than twenty-five or one-fourth, whichever is the lesser number, of the users of ground water in such ground-water basin or subdivision thereof.

(c) Before designating or altering the boundaries of a ground-water basin or subdivision thereof the commissioner shall cause to be prepared and filed in his office a map thereof clearly showing and describing all lands included therein, together with adequate factual data justifying the designation or alteration of the boundaries of such ground-water basin or subdivision; whereupon the commissioner may make and file in his office an order designating such ground-water basin or subdivision, and such map and factual data, together with a copy of the order of the commissioner designating the same shall be and remain a public record in his office, and shall, at all reasonable times be made available for examination by the public. The designation or alteration of the boundaries of such ground-water basin or subdivision shall give the commissioner and his official representatives reasonable access to the lands included therein, but shall not be construed as giving the commissioner authority to regulate the drilling or operation of wells in such ground-water basin or subdivision.

SEC. 6. *Designation, alteration or dissolution of critical ground-water areas.*—(a) The commissioner is hereby authorized and it shall be his duty, from time to time, as adequate factual data become available justifying such action, to designate critical ground-water areas, and as future conditions my require and factual data justify, to alter the boundaries thereof.

(b) The designation of a critical ground-water area, or the alteration of the boundaries thereof may be initiated by the commissioner on his own motion, or by petition to the commissioner signed by not less than twenty-five or one-fourth, whichever is the lesser number, of the users of ground water within the exterior boundaries of the ground-water basin, or subdivision, wherein the lands proposed to be included in such critical ground-water area is situated.

(c) Before designating the proposed critical ground-water area, or altering the exterior boundaries thereof, a public hearing shall be held and conducted by the commissioner. Notice of such hearing shall be given by the commissioner and shall include (1) the legal description of the lands proposed to be included in such critical ground-water area; (2) the time when and the place where such public hearing shall be held, which shall not be less than four weeks after the first publication of the notice of such hearing. Such notice, together with a map clearly showing and describing all lands proposed to be included in such critical ground-water area shall be published once each week for four successive weeks in a newspaper of general circulation in the county or counties in which said lands or any part thereof are located. The publication of such notice when completed shall be deemed to be sufficient notice of such hearing to all interested persons. Any interested person may appear at such hearing, either in person or by attorney, and may submit evidence, either oral or documentary, for or against the designation of such proposed critical ground-water area or the alteration of the exterior boundaries thereof.

(*d*) After the conclusion of such public hearing the commissioner shall make and file in his office written findings of fact with respect to the designation of the proposed critical ground-water area, or alteration of exterior boundaries of existing critical ground-water area, considered during such public hearing. If he shall in such findings of fact conclude to designate a critical ground-water area, or to alter the boundaries of an existing critical ground-water area, he shall make and file in his office an order designating such critical ground-water area, or altering the boundaries pursuant to such findings. Such findings of fact and order shall be published in the manner and for the length of time prescribed for the publication of the notice of such public hearing, and when so published shall be final and conclusive unless an appeal therefrom is taken within the time and in the manner prescribed in section 15 of this act. All factual data compiled by the commissioner to justify a hearing for the designation of a critical ground-water area, together with a copy of the findings of fact and map showing and describing the lands included in such critical ground-water area shall be and remain a public record in the office of the commissioner, and shall, at all reasonable times, be made available for examination by the public. A true copy

of said map shall also be filed in the office of the county recorder of the county or counties in which said critical ground-water area is located.

(*e*) Any order of the commissioner issued pursuant to this act may be altered, modified, or dissolved in the manner and at such times as provided in this section for the designation or alteration of a critical ground-water area; provided, however, that no petition to abolish a critical ground-water area shall be received by the commissioner within a period of 1 year followin a rejection of an identical petition.

SEC. 7. *Application for permit to construct an irrigation well.*—No person except as hereinafter provided shall construct any irrigation well in any critical ground-water area established as herein provided without a permit therefor. A person proposing to construct any such well within a critical ground-water area shall make application to the commissioner for a permit authorizing the construction thereof, which application shall contain the following: (1) Name and address of the applicant; (2) name and address of the owner of the land on which the well is to be constructed; (3) location of the well; (4) ground-water basin, or subdivision thereof, if designated, within the boundaries of which the withdrawal is to be made; (5) amount of water, in acre-feet per year, to be withdrawn; (6) depth and type of construction proposed for the well; (7) legal description of the land on which use of ground water is proposed to be made; and (8) such other information as the commissioner may require. No permit shall be required for the completion of any well located within a critical ground-water area and substantially commenced prior to the designation of such critical ground-water area, or for the construction of any well in any such area an uncancelable and binding contract in writing for the construction of which shall have been made and entered into prior to the effective date of this act; provided, however, that the well or other works for the withdrawal of ground water thus substantially commenced or under contract for construction shall be completed within 1 year from the date of designation or alteration of such critical ground-water area.

SEC. 8. *Issuance of permit.*—Upon application made as provided in section 7, the commissioner shall issue a permit for the construction of the proposed well, except that no permit shall be issued for the construction of an irrigation well within any critical ground-water area for the irrigation of lands which shall not at the effective date of this act be irrigated, or shall not have been cultivated within 5 years prior thereto.

Except as provided in this act no permit shall be issued to any person other than the owner of the land on which the proposed well is to be located, or to an irrigation or agricultural improvement district or other organized irrigation project for use upon lands within such district or project.

SEC. 9. *Change of location of well.*—The holder of a permit desiring to change the location of the well thereby authorized shall make application to the commissioner for an amendment of such permit. The application shall contain the like information required in the case of an original application. If the commissioner shall determine that the proposed well when constructed at the proposed new location will be used to irrigate the same lands as the original well and shall be located within the exterior boundaries of the same critical area, he shall approve the application and issue an amended permit therefor.

SEC. 10. *Reports.*—(a) Upon the completion of construction of any well in compliance with the terms of the permit therefor, the permittee shall file with the commissioner a written statement, which shall contain the following: (1) Location of the well by legal description and in terms of distance from, and the direction of, any preexisting well not more than one-quarter of a mile distant; (2) depth and diameter and general specifications of the well; (3) thickness in feet and physical character of each bed, stratum, or formation penetrated by the well; (4) length and position in feet below the land surface and commercial specifications of all casing used; (5) location and specifications of each screen or perforated zone in the casing; (6) tested capacity of the well in gallons per minute, as determined, for a nonflowing well, by measuring the discharge of the pump after continuous operation for at least four hours or for a flowing well by measuring the natural flow at the land surface; (7) depth in feet from the land surface to the static ground-water level, measured immediately prior to the well-capacity test; (8) draw-down of the water level measured in feet, for a nonflowing well, after not less than four hours of continuous operation, and while still in operation, or for a flowing well, the shut-in pressure, measured in

feet above the land surface or in pounds per square inch at the land surface; and (9) such additional information as may be required by the commissioner to establish compliance with the terms of the permit and the provisions of this Act.

(b) The well driller or other constructor of works for the withdrawal of ground water shall furnish the permittee a verified record of the factual information necessary to show compliance with the provisions of this section.

SEC. 11. *Report of ground-water withdrawals.*—The commissioner may require any person making a ground-water withdrawal in a critical ground-water area which does not fall within the purview of this Act, to furnish reasonable factual information regarding the use and quantity of such withdrawals.

SEC. 12. *Waste prohibited.*—(a) Ground water which has been withdrawn shall not be suffered to waste. To effectuate the purposes of this section it shall be the duty of the commissioner to (1) require all flowing wells to be capped or equipped with valves that the flow of water can be completely stopped when not in use; and (2) require both flowing and nonflowing wells to be so constructed and maintained as to prevent the waste of ground water through leaky casing, lack of casings, pipes, fittings, valves, or pumps, either above or below the surface.

(b) The reasonable withdrawal of ground water for drainage purposes or in connection with the construction, development, testing, or repair of a well, or the inadvertent loss of water due to breakage of a pump, valve, pipe, or fitting shall not be construed as waste, if reasonable diligence is shown by the permittee in effecting the necessary repairs.

SEC. 13. *Fees.*—The commissioner shall collect, in advance, the following fees: (1) Filing application for a permit to construct a well, $3; (2) making a copy of a document filed in his office, 10 cents for each one hundred words or fraction thereof; (3) certifying copies, documents, records, or maps, $1 for each certification; (4) furnishing blueprint or photostat copy of any map, drawing, or document required by the commissioner, actual cost of the work; (5) issuing permit to construct a well, $5..

SEC. 14. *Penalties.*—(a) Any person who violates, or refuses or neglects to comply with, any provision of this Act, or of any rule or regulation promulgated by the commissioner pursuant thereto, is guilty of a misdemeanor, and upon conviction shall be fined not less than $25 nor more than $250 for each offense. Any person who, after notice that he is in violation thereof, continues to violate any provision of this Act, and fails to comply therewith within a reasonable length of time, is guilty of a separate offense for each day the violation continues.

SEC. 15. *Appeals.*—Any person aggrieved by any determination order or decision of the commissioner may have the decision reviewed in the manner prescribed by section 75–113, Arizona Code of 1939, relating to appeals from the State water commissioner; provided, however, that such appeal or review by a superior court shall be a trial de novo, and such person may appeal to the supreme court from any adverse judgment of the superior court.

SEC. 16. *Wells not affected.*—Nothing in this Act shall be construed to affect the right of any person to construct and operate an exempted well as herein defined, nor to affect the right of any person to continue the use of water from existing irrigation wells or any replacements of such wells.

SEC. 17. *Appropriation.*—The sum of $32,000 is appropriated to the State land department, for the purpose of administering this Act, to be available during the remainder of the thirty-sixth and for the thirty-seventh fiscal year.

SEC. 18. *Exemption.*—The appropriation made under the terms of section 17 shall be exempt from the provisions of section 10–930, supplement to Arizona Code of 1939 (sec. 7, art. 4, ch. 86, Laws of 1943, regular session), relating to lapsing appropriations, but any unexpended balance remaining at the end of the thirty-seventh fiscal year shall revert to the general fund.

SEC. 19. *Emergency.*—To preserve the public peace, health, and safety it is necessary that this Act become immediately operative. It is therefore declared to be an emergency measure, to take effect as provided by law.

Passed the House March 18, 1948, without enacting emergency.

Passed the Senate March 20, 1948, without enacting the emergency.

Approved by the Governor April 1, 1948.

Filed in the office of the Secretary of State April 1, 1948.

Mr. MURDOCK. Do you offer this as part of your testimony to show that what is now a critical area will not become so again under the fulfillment of this law?

Mr. CARSON. That there will be no additional water drawn from any critical ground-water area for the irrigation of any new land.

I offer all of these exhibits as parts of my presentation before this committee. Some of them were not made by me, but we stand on them, and I think you will find them very valuable.

Mr. MURDOCK. Yes, I think so. Proceed, Mr. Carson.

Mr. CARSON. Then I would like to call the attention of the committee, without including in the record, to the hearings that have been held before this committee on H. R. 5434 in 1946.

Mr. MURDOCK. The committee has been and will be supplied with those hearings, complete.

Mr. CARSON. And the hearings before the Senate committee in 1947 on S. 1175.

Mr. MURDOCK. Mrs. McMichael is instructed to see that each member of the committee is supplied with that hearing.

Mr. CARSON. And the present hearings that have just been closed for oral testimony in the Senate on S. 75 and the hearings before the Senate Committee last year on Senate Joint Resolution 145 and before the subcommittee of the Judiciary Committee of the House last year on House Joint Resolution 225, and the hearings that are now still proceeding there in this Congress on House Joint Resolution No. 3.

Also, I would like to call the attention of the committee to the hearings on the Mexican water treaty which were held before the Senate Foreign Relations Committee in 1945. Those hearings are rather voluminous, but they give the complete story of the background of the questions that are now being considered by this committee.

My request is that, if possible, all the members of the committee read my statement which has already been admitted to the record and the statement of this summary of a portion of the testimony given on the suit resolutions last year before the House committee and the resolution of the Colorado River Basin States Committee which has already been placed in the record. I believe this will give a clear understanding of the issues that are here presented to this committee.

Mr. MURDOCK. Before you proceed, Mr. Carson, I want to give you my promise that I shall read those voluminous reports; in fact, I have already read them—and I want also to urge my colleagues to look into this matter. It is not so simple as it is sometimes made to appear. One has to be mighty well-informed and, for that reason, we hope you will summarize the points that have not been sufficiently summarized before this committee.

Mr. CARSON. I think I have done that in my statement that is on file here.

Then, Mr. Chairman, I would like to offer and have printed in the record the correspondence between Governor Warren and Governor Osborn appearing in the hearing on Senate Joint Resolution 145 before the Senate committee, beginning on page 228 and ending on page 233 of the hearing on Senate Joint Resolution 145. That is just a bare reference.

Mr. MURDOCK. Without objection, that will be admitted to the record at this point.

(The correspondence above referred to is as follows:)

STATE OF CALIFORNIA,
GOVERNOR'S OFFICE,
Sacramento, March 3, 1947.

Hon. SIDNEY P. OSBORN,
Governor of Arizona, Phoenix, Ariz., and
Hon. VAIL N. PITTMAN,
Governor of Nevada, Carson City, Nev.

MY DEAR GOVERNORS: We have just completed our review of the comprehensive plan for the Colorado River system as presented by the Bureau of Reclamation, and I am more than ever impressed by the staggering size and complexity of the proposal.

It is quite apparent, and it is admitted in the comprehensive plan, that the 134 projects inventoried will, if constructed, use more water than is available in the river system. This fact will undoubtedly emphasize the differences of opinion concerning the water to be made available to each State. It is therefore of the utmost importance to the lower basin States that we reconcile our differences as soon as possible.

The negotiations of the past have failed to bring about agreement between Arizona and California, but I am of the opinion that there must be some fair basis upon which their respective rights can be determined. The only methods that occur to me are (1) negotiation of a compact, (2) arbitration, and (3) judicial determination.

I would therefore like to suggest that we three governors of the affected States endeavor first to enter into a compact which will resolve our differences and finally determine our respective rights.

In the event you believe for any reason that this cannot be done, I suggest that we submit all our differences to arbitration, agreeing to be bound by the results thereof.

If this is not feasible, I propose that we join in requesting Congress to authorize a suit to determine our rights in the Supreme Court of the United States, which suit could, if agreeable to the States, be submitted on an agreed statement of facts.

I believe that either method could produce the desired results. If you agree with me, I suggest that the three of us meet at some time and place mutually agreeable for the purpose of further exploring the subject. If we can place our three States in position to maintain a common front in urging the speedy and orderly development of the Colorado River system, we will have rendered a great service to our people.

Hoping that I may have your reaction to this proposal and with best wishes, I am,

Sincerely,

EARL WARREN, *Governor.*

EXECUTIVE OFFICE,
Phoenix, Ariz., March 12, 1947.

Hon. EARL WARREN,
Governor, State of California, Sacramento, Calif.

MY DEAR GOVERNOR WARREN: I have your letter of March 3, addressed to Gov. Vail Pittman and myself, concerning the report of the Bureau of Reclamation on the development of the water resources of the Colorado River Basin.

I presume from your letter that you have completed and sent to the Bureau your comments on the above-mentioned report. I, too, have furnished the Bureau with my comments and am enclosing a copy to you herewith. It will be appreciated if you will furnish me with a copy of your report.

Ever since I have been Governor of Arizona, I have endeavored to cooperate with all other States in the Colorado River Basin in all matters of common interest. Arizona has at all times been represented on the Committee of Fourteen and Sixteen, whose name has now been changed to the Colorado River Basin States Committee. Arizona is now represented on the Colorado River Basin States Committee, which committee as presently constituted and as heretofore constituted has been very helpful in all matters affecting the interests of the

respective States in the Colorado River. Arizona is now cooperating in plans for the utilization of Colorado River water in the respective States within the allocation of water available to them.

I will be pleased to meet with you, or with you and Governor Pittman, or with the governors of other interested States, to discuss all matters of common interest to our respective States.

All seven of the Colorado River Basin States—Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming, five of which States are still represented on the Colorado River Basin State Committee—are parties to the Colorado River compact which apportions the water of the Colorado River system as between the upper basin and the lower basin and to Mexico. The compact contains provisions which make utilization of water over and above the apportionment made by the compact of interest to all of the States of the Basin.

Portions of Utah and New Mexico are in the lower basin and are entitled to share in the apportionment made to the lower basin and in the use of any available water which is unapportioned by the Colorado River compact.

California, in consideration of the passage by the Congress of the Boulder Canyon Project Act and as a condition precedent to the taking effect of that act and the construction of Boulder Dam, Imperial Dam, and the All-American Canal, by chapter 16, California Statutes, 1929, entered into a statutory agreement with the United States and for the benefit of each of the Colorado River Basin States, irrevocably and unconditionally limiting California's claim to water of the Colorado River to 4,400,000 acre-feet per annum of the apportioned water, plus not more than half of the water unapportioned by the Colorado River compact. The quantity of surplus water—that is, water unapportioned by the compact—varies from year to year and is subject to further apportionment by agreement between all of the compact States after 1963.

Arizona recognizes the right of California to use the quantity of water to which California, by the statutory agreement, is forever limited.

Arizona recognizes the right of Nevada to use 300,000 acre-feet of apportioned water per annum, plus one-twenty-fifth of available unapportioned water, subject to further apportionment of the unapportioned water by agreement between the compact States after 1963.

Arizona has a contract with the United States for delivery for use in Arizona from the main stream of the Colorado River, subject to its availability for use in Arizona, under the Colorado River compact and the Boulder Canyon Project Act, of so much water as is necessary to permit the beneficial consumptive use in Arizona of main-stream water to a maximum of 2,800,000 acre-feet of the apportioned water, plus one-half of the available surplus, less such part of the one-twenty-fifth thereof as Nevada may use, the quantity of which surplus, of course, varies from year to year, and which surplus is subject to further apportionment by agreement between all of the compact States after 1963.

Arizona does not claim the right to the use of any water to which California is entitled, nor the right to the use of any water to which Nevada is entitled, and I am sure that Nevada does not claim the right to the use of any water to which California is entitled, not the right to the use of any water to which Arizona is entitled.

It therefore appears that California and Nevada are now in a position to join Arizona in urging the speedy consideration and passage of S. 433, now pending in the United States Senate, and H. R. 1598, its companion bill, now pending in the House of Representatives, which are authorization bills to authorize the construction of the central Arizona project, and H. R. 1597, which is an authorization bill to relocate the boundaries of the Gila project heretofore authorized.

I am certain that the passage of these bills and the construction of the works which they seek to authorize will be of great and incalculable benefit, not only to Arizona but to California and Nevada, and to the United States as a whole.

They are virtually necessary to the welfare and to the economy of the whole Southwest region. They do not in any way interfere with the full use in California and in Nevada of the water to which California and Nevada are respectively entitled.

If either California or Nevada are interested in the promotion and construction of projects for the utilization of water to which they are respectively entitled, I would like to know it in order that I may render such aid as seems appropriate.

It is difficult for me to understand what, if anything further, need be done to place either California or Nevada or Arizona in position to support the utilization in our respective States of our respective shares of the water of the Colorado

River, which shares have already been determined by the Colorado River compact, the Boulder Canyon Project Act, the California Limitation Act, the water-delivery contracts of the California agencies, the Nevada water-delivery contracts and the Arizona water-delivery contract.

However, I will be glad to meet and discuss with you and the governors of the other Colorado River Basin States, jointly or severally, any matters of common interest, and if at such conference or conferences it should develop that there are any substantial differences, we can consider and perhaps resolve such differences, and if it should develop that anything further is necessary, we can consider the proper course to pursue.

During your incumbency we in Arizona have not had the pleasure of a visit from you. We would like to see you over in our State and I will greatly appreciate it if you can arrange to come to Phoenix as soon as possible, either alone or with Governor Pittman, or with such other governors of the basin States as you may desire to have present, in order that any matters which you may desire to further discuss can be gone into fully and thoroughly.

With all good wishes, I am,

Sincerely,

———— ————, *Governor.*

STATE OF CALIFORNIA,
GOVERNOR'S OFFICE,
Sacramento, May 16, 1947.

The Honorable SIDNEY P. OSBORN,
Governor of Arizona, Phoenix, Ariz.

DEAR GOVERNOR OSBORN: I did not bother you during the time you were ill in our State concerning my suggestions for settling the differences of opinion of Arizona and California regarding their respective rights to the use of the water of the Colorado River. However, now that you have recovered sufficiently to return to your home, I would like to discuss your letter of March 12, 1947, and the accompanying copy of your letter to William E. Warne, Acting Commissioner of the Bureau of Reclamation, dated November 22, 1946.

I gather from these two letters that you believe it is unnecessary to try to write a compact between the lower basin States or to have your respective claims arbitrated, because you consider the existing statutes, contracts, etc., have so settled the rights of Arizona, California, and Nevada in the Colorado River that there are no substantial differences between the States. It may well be that the suggestions of a compact and arbitration are not feasible at this late date, but I am of the opinion that there are such basic divergencies of interpretation of the statutes and documents mentioned above, particularly between Arizona and California, that without an authoritative determination as to which State is right it is possible for anyone to know what quantity of water either State is entitled to. If our States are to plan for their futures, they must know with certainty how much water is eventually to be made available to them, because everyone recognizes that there is not enough water in the river to fully serve the legitimate aspirations of both our States.

It seems to me that a suit in the Supreme Court of the United States, to which the lower basin States and the United States are parties, is essential to supply the necessary answer. This would, of course, require a jurisdictional act of Congress, authorizing the United States to be made a party to such suit. Governor Pittman, of Nevada, has expressed a similar opinion in a letter to me dated March 6, a copy of which is enclosed. I am sure that such a procedure will eventually redound to the benefit of both of our States.

With best wishes for the continued improvement of your health, I am,

Sincerely,

EARL WARREN, *Governor.*

EXECUTIVE OFFICE,
Phoenix, Ariz., May 23, 1947.

Hon. EARL WARREN,
Governor of California, Sacramento, Calif.

MY DEAR GOVERNOR WARREN: I have received your letter of May 16 and appreciate your personal good wishes.

In my letter to you of March 12 and in my letter to William E. Warne, Acting Commissioner of the Bureau of Reclamation, of November 22, 1946, a copy of which I sent to you, I clearly stated the facts and the reasoning which in my opinion lead to the inescapable conclusion that the quantities of apportioned water available for use in Arizona, California, and Nevada, respectively, from the Colorado River are already determined.

If you do not agree with such facts and reasoning and my conclusions, it is regrettable that you do not specify wherein you disagree.

On page 8 of The Views and Recommendations of the State of California on Proposed Report of the Secretary of the Interior entitled "The Colorado River" there purports to be a list of relevant statutes, decisions, and instruments affecting the Colorado River, but no mention is there made of the California Self-Limitation Act, chapter 16, California Statutes, 1929.

I discussed the California Self-Limitation Act as well as the other relevant compact, statutes, contracts, and reports in my letters, but in your letters to me you take no exception to any statements in my letters, nor do you set forth any statement of any facts, reasoning, or conclusions as to what claim to water of the Colorado River you intend to assert for California nor the basis for such claim.

California has unconditionally and irrevocably limited herself forever to the quantity of water set out in the California Self-Limitation Act. Arizona has by contract recognized the right of California to the quantity of water set out in that act and Arizona does not intend to and will not attempt to utilize water to which California is entitled.

Arizona respects her commitments.

Any aspiration entertained in California to use water in excess of that limitation appears to be illegitimate. If California would be content with the use of the quantity of the water to which she has by solemn statutory agreement unconditionally and irrevocably limited herself forever all occasion for any feeling that any further compact, any arbitration, or litigation is advisable would disappear.

I am sure if you will review my letters and the compact, statutes, contracts, and reports therein mentioned you will recognize that the only thing required for cooperation between our great States in developing the use of the waters of the Colorado River to which they are respectively entitled for their mutual benefit and for the benefit of the Southwest and the Nation is for your great State to respect the agreements your State has already made.

I request that you again review my letters and if in your opinion there is any error in the facts, reasoning, or conclusions stated in my letters, I will appreciate your advising me concerning the same.

With all good wishes, I am

Sincerely,

SIDNEY P. OSBORN, *Governor.*

EXECUTIVE OFFICE,
Phoenix, Ariz., October 10, 1947.

HON. EARL WARREN,
Governor, State of California,
Sacramento, Calif.

MY DEAR GOVERNOR WARREN: In my letter to you of March 12, 1947, in reply to your letter to me of March 3, 1947, I extended to you an invitation in the following words. I quote the last two paragraphs of my letter to you of March 12, 1947:

"However, I will be glad to meet and discuss with you and the governors of the other Colorado River Basin States, jointly or severally, any matters of common interest, and if at such conference or conferences it should develop that there are any substantial differences we can consider and perhaps resolve such differences, and if it should develop that anything further is necessary we can consider the proper course to pursue.

"During your incumbency we in Arizona have not had the pleasure of a visit from you. We would like to see you over in our State and I will greatly appreciate it if you can arrange to come to Phoenix as soon as possible, either alone or with Governor Pittman, or with such other governors of the basin States as you may desire to have present, in order that any matters which you may desire to further discuss can be gone into fully and thoroughly."

To date you have neither accepted nor declined that invitation. I note that in the public press there are appearing statements to the effect that I refused to meet with you.

Of course, you and I know that such is not the case, but in order to clear up any possible misunderstanding I herewith repeat the above-quoted invitation. I will be glad to meet with you and with the governors of other Colorado River Basin States, jointly or severally, at any time to discuss matters of common interest.

I suggest you arrange to come to Phoenix before Christmas, giving me 20 days' advance notice of the date of your arrival, and the names of the other governors and advisers who will attend, so that I may make the necessary hotel reservations and arrangements.

With all good wishes, I am,

Sincerely,

SIDNEY P. OSBORN, *Governor.*

STATE OF CALIFORNIA,
GOVERNOR'S OFFICE,
Sacramento, Calif., October 16, 1947.

The Honorable SIDNEY P. OSBORN,
Governor of Arizona, Phoenix, Ariz.

MY DEAR GOVERNOR: I have your letter of October 10 concerning items in the public press relatives to our Colorado River problems. I have not seen the items that you mention but if there is any statement in them to the effect that you have refused to meet and discuss matters with me they are wholly without foundation. No one has been more willing to discuss our mutual problems than yourself and I am sure you know that I would never make any expression to the contrary.

The subject of the correspondence to which the press item must have had reference could not have applied to conferences, because innumerable conferences have been held during recent years without reconciling differences of opinion. In addressing you and Governor Pittman on the subject I merely proposed the only three methods that occurred to my mind as being able to lead to a final solution:

1. A compact between the three States, making a determination of all the issues.
2. Arbitration.
3. Judicial determination.

I merely suggested that California was willing to use any of these three methods that is agreeable to Arizona and Nevada. If I could have thought of any other practical method I would have incorporated it also.

Thanking you for calling the matter to my attention and with best wishes, I am,

Sincerely,

EARL WARREN, *Governor.*

Mr. CARSON. Then I would like to offer and have printed in the record the statement of principles adopted by the Colorado River Basin States Committee in Salt Lake City on October 2, 1947, as appears on page 155 of the hearings before the Senate committee on Senate Joint Resolution 145.

Mr. MURDOCK. That is all on the one page?

Mr. CARSON. That is all on the one page. It is set out there in small type.

Mr. MURDOCK. Without objection, the resolution may be admitted to the record at this point.

(The matter above referred to is as follows:)

The Colorado River Basin States Committee representing the States of Arizona, Colorado, New Mexico, Utah, and Wyoming, and open to the States of California and Nevada, in meeting assembled in Salt Lake City, Utah, this 2d day of October 1947.

After full discussion declares its firm opinion that California by her own statutory irrevocable agreement is limited forever to 4,400,000 acre-feet of the water of the Colorado River apportioned to the lower basin by the Colorado

River compact plus not more than one-half of the excess or surplus water unapportioned by the compact, and that—

Any waters of the Colorado River system which are unapportioned by the Colorado River compact are subject to further apportionment by agreement of all seven States of the Colorado River Basin after 1963, and no State can gain permanent right to the use of any part of such surplus waters until after such agreement shall have been made; and that—

The million acre-feet of water mentioned in article III (b) of the Colorado River compact is water apportioned to the lower basin; and that—

Under the Colorado River compact, and subject to the obligations thereunder, which apportions 7,500,000 acre-feet of beneficial consumptive use to the upper basin and 8,500,000 acre-feet of beneficial consumptive use to the lower basin, the upper basin is entitled to deplete the virgin flow of the river at Lee Ferry by an average of 7,500,000 acre-feet per annum and the lower basin is entitled to deplete the virgin flow of the river at the international boundary by an average of 8,500,000 acre-feet per annum; and that—

Evaporation reservoir losses should be divided on a ratable and proportionate basis among projects served from such reservoirs; water stored for future use is on the same basis as diverted water.

Mr. CARSON. Then I would like to refer the committee especially to the brief of the Colorado River Basin States Committee filed before the House Judiciary Committee last year on House Joint Resolution 225. It is printed in full in that hearing, and I do not think it is necessary to have it reprinted in full in this hearing. I would like to emphasize the statement to which I have referred as the adoption of the principles annunciated there by the Colorado River Basin States Committee representing Colorado, Wyoming, Utah, New Mexico, and Arizona, which bears directly upon every argument here presented by California and establishes the position all of the States of the basin, aside from California and Nevada, adversely to every contention here made by California.

Then I would like to read into the record, if I might, a quotation from the brief of the Basin States Committee that was filed last year on House Joint Resolution 225, beginning on page 282, and I will furnish the reporter a marked copy of this to show what I desire to incorporate in this record. I would like to read it to you now:

"So far as the lower basin States are concerned, as we have already shown, the United States by the enactment of the Boulder Canyon Project Act has already determined that two out of the three principal contentions now made by California cannot be successfully made and that the United States cannot now countenance California making them. So far as the United States is concerned, they are settled as fully and completely as if there were an express compact as to them between the lower basin States and the United States and between those States. By virtue of section IV (a) of the Boulder Canyon Project Act, these are:

"(1) That of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico."

That provision was in quotations. I proceed again with the brief:

As already pointed out, the provisions of IV (a) dispose completely of California's contention with respect to III (b) water and what is meant by the

beneficial consumptive use of water so far as the Gila River is concerned. Taking into consideration that Arizona is entitled to all the use of the Gila River as set out in this paragraph, this necessarily means that Arizona is entitled in addition thereto to 2,800,000 acre-feet per annum which means, further, that there is ample water for the central Arizona project because California does not and cannot assert that that project will take more water than that. In other words, by virtue of section IV (a) of the Boulder Canyon Project Act the United States has said to the lower basin States that these four items are so settled that there need be no compact concerning them, and if you do make any compact as to any other differences there may be between you, if any such exist, such compact must contain the provisions and be subject to these limitations. This is so far as the Nevada-California brief is concerned, and as we have now before stated, it must be assumed that that brief states as strongly as can be stated California's position, leaves only one dispute of any consequence as between California and Arizona, namely, whether California shall be required to bear its proportionate share of the evaporation loss in Lake Mead.

As we have already shown, that cannot now give rise to a justiciable controversy before the Court * * *.

Then I have a little more of a paragraph I would like to read, beginning on page 284.

Mr. MILLER. What are you reading from?

Mr. CARSON. This is from the brief of the Colorado River Basin States Committee:

Meantime—

and that is when they talk about the effect of this bill—

Meantime California will endeavor to use the water to which the other States are entitled and will oppose any projects of the upper river, as she is opposing the central Arizona project, including the central Utah project now pending in Congress (S. 2095; H. R. 5233), and we can now hear her representatives shout, "Why appropriate any of the money of the United States so needed for other projects to construct this project on the Colorado River when that river is in litigation before the Supreme Court of the United States, and it will be years and years before it will be determined whether there will be any water available for the project?" When reduced to the ultimate, this resolution is nothing but a flank attack upon the central Arizona project. But it will undoubtedly be followed—if it is adopted and the contemplated suit is brought—by frontal attacks upon every project for the development of the river. Putting it bluntly, California, having already received all the major projects needed by her to enable her to use not only the water to which she is entitled, but an amount greatly in excess thereof, wants to be in a position to use those excess waters which the other basin States are entitled to use but have not the facilities to enable them to so use.

Then, after she has used them, she will raise the cry that she must not be deprived of them because it will ruin the wondrous civilization which has been builded upon their use. Indeed, this cry, while somewhat vague and feeble, is nevertheless audible in the resolution and in the brief.

I would like to call attention that this brief and these statements and this resolution of a statement of principles are filed by Clifford H. Stone and Frank Delaney and Jean S. Breitenstein on behalf of the State of Colorado; by L. C. Bishop, H. Melvin Rollins, and Norman B. Gray on behalf of the State of Wyoming; by William R. Wallace, Grover A. Giles—who was at that time attorney general—and Judge J. A. Howell on behalf of the State of Utah; by Fred E. Wilson, John H. Bliss, and Judge Martin A. Threet on behalf of the State of New Mexico; and on behalf of the State of Arizona by Nellie T. Bush, attorney and former member of the Colorado River Commission of Arizona, and by myself.

It seems to me that these acts and those positions completely and absolutely refute the argument made by California here as to III (b)

water and as to the claim of consumptive use measured at points of use on the Gila River. Now, the language of the Colorado River compact is clear. The statements made at the time by former President Hoover, who was chairman of that committee, are clear. The understanding of everybody at it was clear that III (b) water was apportioned to the lower basin. The language of the compact so states, in my judgment, as clearly as it can be stated that there is apportioned to the lower basin 8½ million acre-feet and California by her Limitation Act can claim no more of that apportioned water than the 4,400,000 acre-feet which Arizona and all of these other States agree she is entitled to use as a maximum.

There is one other point I want to emphasize in the California Limitation Act. The 4,400,000 acre-feet there set out is not a minimum; it is a maximum. It does not apply to water diverted into California but to water diverted from the stream for use in California, and I submit to this committee, as I have covered in my statement, that any water diverted from the flow of the stream and stored in the reservoir, whether it be an on-stream reservoir or an off-stream reservoir, is diverted from the flow of the stream.

I call attention again in my statement to the provisions of the Boulder Canyon Project Act providing for regulations by the Secretary of the Interior concerning the storage of water in Lake Mead and conditions of accumulation, retention, and release, and then I call attention again to the provisions of the contract of the Metropolitan water district of California and the county and city of San Diego, Calif., that are set out in my statement from the provisions of their contract in which it was provided, and I want to read this one portion in the record here to make myself clear. I will just read one section. This happens to be the All-American Canal contract that I have turned to, which is the Imperial Valley compact, but the same provision is in every one of those California water contracts, relating, however, solely to the Metropolitan water district of southern California and to the city of San Diego and/or county of San Diego. This, I think, will make clear what I am getting at now. This is section 8 appearing on page 334 of the Hoover Dam Contracts by Wilbur and Ely, first edition, which was published in 1933, shortly after these contracts were made, and which is confined to, in the main, these actual documents that affect this question. This last volume of the Hoover Dam documents does not contain all that this first volume contains and does, in addition, contain a lot of things that are entirely immaterial of the California constructions which are no part of these documents and which are no part of any official record that has an application as to the meaning of any of these documents. But let me read this section 8:

So far as the rights of the allottees named above are concerned, the Metropolitan water district of southern California and/or city of Los Angeles shall have an exclusive right to withdraw and divert into its aqueduct any water in the Boulder Canyon Reservoir accumulated to the individual credit of said district and/or said city (not exceeding at any one time 4,750,000 acre-feet in the aggregate) by reason of reduced diversions by said district and/or said city; provided that accumulations shall be subject to such conditions as to accumulation, retention, release, and withdrawal as the Secretary of the Interior may from time to time prescribe in his discretion, and his determination thereof shall be final; provided further, that the United States of America reserves the right to make similar arrangements with users in other States, without distinction in

priority, and to determine the correlative relations between said district and/or said city and such users resulting therefrom.

Now, Mr. Chairman, I submit that it was understood and anticipated by the Metropolitan water district and the city and county of San Diego when they signed these contracts that they were subject to such regulations and provisions of these contracts as the Secretary would require as to conditions of accumulation, retention, and release and, therefore, that it must have been in their minds that the evaporation losses would be shared.

In any event, as I point out in my statement there, the question of evaporation losses cannot now arise, but what they are afraid of is what might happen 100 years from now.

Mr. MILLER. Is it all right, Mr. Chairman, to ask the gentleman a question as we proceed?

Mr. MURDOCK. I think so.

Mr. MILLER. The bill we have before us, Mr. Carson, is one that authorizes the construction, operation, and maintenance of a dam and incidental works in the main stream of the Colorado River at Bridge Canyon.

Mr. CARSON. Yes.

Mr. MILLER. I am very much impressed with the gentleman's statement here relative to the legal rights to the water, and if we were sitting here as a court trying to adjudicate the matter, the gentleman makes a very forceful impression upon me and I think he is probably right, unless we hear the other side and they persuade me the other way.

I want to ask the gentleman this question: There apparently is a difference of opinion between Arizona and California relative to who has the water and how much.

Mr. CARSON. Yes.

Mr. MILLER. And regardless of what you have read into the record at this point, what I would like to ask you is this: If the committee reports out H. R. 934 and it is finally enacted into law, does the gentleman contend there would not be any litigation to arise from sources in California, challenging your right?

Mr. CARSON. There might be. I cannot say what they would do.

Mr. MILLER. If there is going to be, while I am impressed with your testimony, I am not sure that we, as a committee, can adjudicate the thing you are trying to tell us, if there is a difference of opinion as to the beneficial and consumptive use of the water or about the question of evaporation on Lake Mead and who gets the excess water, if any. Those seem to be the three things where there are differences of opinion between Arizona and California.

Mr. CARSON. That is what I am coming down to.

Mr. MILLER. I wonder if, eventually and finally, regardless of what action this committee might take, or the Congress, if it will not eventually have to be adjudicated by the Supreme Court.

Mr. CARSON. It might be. I cannot say it would not be.

Mr. MILLER. I asked this the first day of our hearing, and I am wondering, as you search your own mind and thinking on this question, what is your honest opinion as to what will happen should this or a similar bill be enacted into law.

Mr. MURDOCK. Before you answer that, Mr. Carson, may I state that Dr. Miller did ask that question the first day of the hearings, I remember.

Mr. CARSON. I think I recall it.

Mr. MURDOCK. And it has been asked by other Members. So I am anxious that attention be given to it.

Mr. CARSON. Let me explain it to you in this way, Doctor. In my judgment, Congress in passing this bill construes the Boulder Canyon Project Act and the Colorado River compact and the provisions of the Arizona contract with the United States under which the United States agrees to deliver for use in Arizona 2,800,000 acre-feet of storage from Lake Mead. Now, in considering this project, I think it is incumbent upon us to show this committee and the Congress that the water is available for that project in the judgment of the Congress and, if so, that we are entitled to have this project authorized. And if we have it authorized and then California does think we are in any way infringing on her rights, she can bring suit in the Supreme Court against Arizona, without joining the United States, where it could be determined, and it would not call into question all of the rest of all of the other States up and down the river.

Mr. MILLER. I think that is correct. I was very much impressed the other day by Judge Stone when he said Colorado had been able to adjudicate their claims with them and with other States, and I was hopeful, of course, that Arizona and California could adjust their differences by conferences and compromises, and I am wondering if, in your oipnion, you think they will be able to adjust their differences without getting into a long drawn-out court procedure.

Mr. MURDOCK. Would you yield for just a moment for a little correction?

Mr. MILLER. Yes.

Mr. MURDOCK. Did you use the right word "adjudicate" in quoting Judge Stone? I think he was referring to the fact that they negotiated and compacted their differences.

Mr. MILLER. That is right Mr. Chairman.

Mr. MURDOCK. Instead of "adjudication," which to me means "litigation."

Mr. MILLER. That is right. They negotiated and compromised, and so forth, and were able to adjust their differences.

Mr. MURDOCK. This committee has reported out recently several bills to grant consent to interstate compacts; so we are strongly in favor of that method.

Mr. MILLER. Yes. Do you think there is a possibility that Arizona and California might be able to adjust their differences in order to keep out of the court?

Mr. CARSON. No, sir.

Mr. MILLER. You do not think so?

Mr. CARSON. I do not think so. I will tell you why I do not. It is all in my statement. All of the people we can deal with in California do not, in my judgment, properly represent the whole State of California. We are limited in all of our dealings, as I said, with the representatives of those six southern California agencies, and by the State law in California nobody can be on the Colorado River board of California except as nominated by them.

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Now, immediately after the passage of the Boulder Canyon Project Act, they entered into an intrastate priorities agreement in California as between themselves in which they set up schedules of priorities totaling 5,362,000 acre-feet of water, apportioned that part of it as between those six agencies, and the agencies themselves signed it, and in my judgment, all the people that we have dealt with representing those agencies feel bound by that intrastate priority agreement which they signed and do not feel bound by the Limitation Act required of California by the Congress and adopted by the Legislature of California, because they did not sign it.

Now, I have put in my statement—and you will see, if you read it—a complete history, I believe, as I see it, of all of these attempts to negotiate and to arbitrate and to litigate. Now, we have got a compact. They are parties to the Colorado River compact; so are we. They are parties to the legislative compact between the Congress of the United and the State of California for our benefit, and it is as binding as if made directly. So that we have a compact. Then they say "arbitrate."

My State, Mr. Congressman, in 1927, at a governors' conference in Denver, Colo., had the same proposition made by the then Governor Young, of California—arbitrate. Of course, there is no machinery set up under the Constitution of the United States or by our State law to make a binding arbitration on either State, but that was an informal arbitration, and the four governors of the upper-basin States of Wyoming, Colorado, Utah, and New Mexico constituted themselves such an arbitration committee. They made their recommendations and findings, and the Congress of the United States took those findigs and wrote them into the Boulder Canyon Project Act with one qualification only. The Congress took 200,000 acre-feet of what the governors had recommended from Arizona and added it to California, and then the Congress of the United States, in my judgment, by the provisions of section IV (a) of the Boulder Canyon Project Act required that California agree "irrevocably and unconditionally" to that division, and the legislature did so agree.

Mr. MILLER. Then it is the job of this committee and of the Congress finally, as I see it, to determine the yardstick of feasibility.

Mr. CARSON. That is right—and the availability of the water.

Mr. MILLER. And to weigh this feasibility of it and then decide whether the project should be authorized?

Mr. CARSON. That is the way I see it.

Mr. MILLER. And the litigation, if any, that follows, or the adjudication of differences, would come through the courts for final action?

Mr. CARSON. That is right. I want to make one other point in response to your question, Congressman Miller. In my judgment and in the opinion of all these men whom I have named here on the Colorado River Basin States committee—and they are among the leading water lawyers of the West, as you know, and I think of the United States—we are all of the opinion that unless and until an authorization bill is passed there can be no justiciable controversy within or under the Constitution, within the jurisdiction of the court, and that these California men, in advocating a suit again, do not anticipate any final adjudication by the court, because it is beyond the jurisdiction of the court, and what we think is that

these suit resolutions are introduced and hearings held before this Congress, not for possible adjudication by the court, but as an argument in the Congress against the authorization of projects on the river.

We are not afraid of any suit with California whenever the court can take jurisdiction, but we do not want to be forced into any litigation until we are certain that the Supreme Court can take jurisdiction.

Mr. MILLER. May I ask one more question there? Of course, in determining the feasibility of a project, the one big item of feasibility, in my opinion, is, is there enough water to justify the project.

Mr. CARSON. That is right; that is exactly correct.

Mr. MILLER. And if the Congress should come to that conclusion and fix that firmly in their minds, that there is sufficient water with all of the other things that go along with feasibility, then we would be justified in authorizing the project?

Mr. CARSON. That is my judgment.

Mr. MURDOCK. In keeping with that, before you go to another point, suppose this were thrown into litigation before some such bill as this authorization bill was passed. What would be the result in your judgment?

Mr. CARSON. In my judgment, it would result in allegations of fact in the bill, and the court would follow its ordinary course. It is not equipped to try questions of fact, and it appoints a master to take testimony, and the master would take testimony for years and then report back to the court, and then I believe the court, at the conclusion of that long period of time—nobody can foresee how long it would be—would of necessity in the end dismiss the case, because it would then find under the testimony presented that it never had any jurisdiction in the first place, because there was no justiciable controversy.

Mr. MURDOCK. What would that delay mean to the other States?

Mr. CARSON. That delay would mean absolute economic collapse of Arizona and, in my judgment, it would mean very serious damage to the States of Utah, Wyoming, Colorado, New Mexico, and Nevada.

Mr. MURDOCK. That is what I had in mind the other day when I spoke of certain alternatives which this committee must consider in the total matter.

Mr. MILLER. I have one further question. Inasmuch as the feasibility of a project depends upon whether water is available and who gets the water, I am wondering if Congress should not have a determination on that point before we authorize the spending, I guess, of a billion dollars, maybe, or several hundred million.

Mr. CARSON. $738,000,000.

Mr. MILLER. Several hundred million for building the project, before we know that the water will be available for that project; in other words, if we were not getting the cart before the horse.

Mr. CARSON. I do not think so; I really do not think so.

Mr. MILLER. Would you, as a businessman, go out here and spend in this case hundreds of millions of dollars in building a project in which the main item in that whole proposition depended upon "Do I have any water, and is it mine?" Would you do that before you had that determination made?

Mr. CARSON. No. I see what you are getting at. Let me answer on that point——

Mr. MURDOCK. And while you are answering that, may I point out that we have had two witnesses, engineers, who have given their attention to that very point, and I hope the committee will study their findings carefully.

Mr. MILLER. I am very sympathetic in doing this thing, Mr. Chairman, but I am wondering, if there is going to be a big quarrel as to who gets the water, if there is enough water and then who gets it, whether Congress would be justified in authorizing the spending of hundreds of millions of dollars and getting the project all set up and then find there just is not the water to put in the dam and we do not have it.

Mr. CARSON. I follow you.

Mr. MILLER. That is what disturbs me in trying to analyze the direction we should go with this type of legislation.

Mr. CARSON. Let me follow through with that. This Bluff Dam on the San Juan, the Coconino Dam on the Little Colorado, and the Bridge Canyon Dam on the main stream of the river are all desirable from every point of view as a start for the protection of Lake Mead, to keep it from silting up and for the production of electrical energy which is short. These works, the Horseshoe Dam enlargement in Arizona, Buttes Dam, Charleston Dam, and Tucson Aqueduct, would conserve some water—not enough to do the job, but some water—and would relieve the critical economic situation in Arizona to the extent it would go.

Now, if California believes she is entitled to a suit to claim this water—and I want to go further into that here with the committee on a couple of occasions—and should file such a suit within a very short period, these works could go ahead [indicating on map] and all these [indicating on map] could go ahead, and the only thing that would need to be delayed, if you are worried about appropriating money when a lawsuit is going on, would be this pumping plant and aqueduct [indicating on map].

Mr. MILLER. Cannot we authorize the building of the dam site and the other two and leave the others out until——

Mr. CARSON. No.

Mr. MILLER. Why not?

Mr. CARSON. It would not do, because then there would be no justiciable controversy; there would be no jurisdiction in the court. There cannot be a justiciable controversy until California can allege that Arizona is threatening to divert water from the main stream of the Colorado River, and they can make no such allegation until we have an authorized project.

Mr. MILLER. Why?

Mr. CARSON. Because we have no authority.

Mr. MILLER. That is the reason I want to avoid any litigation. The other three dams, as I understand, would not cause that litigation, and they are necessary to conserve water and produce power.

Mr. CARSON. No. Let me read to you from the decision of the Supreme Court of the United States.

Mr. MILLER. That might confuse me. I am not a lawyer; I am a layman. You have made a valiant plea for it, if I were sitting here as a court, but I am not in a position to analyze it.

Mr. CARSON. Let me read this one case. It is between Arizona and California, where we filed suit. We have been in court three times, and California has objected every time, in two of the cases on the ground there was no justiciable controversy. Let me read you what the court said in 283 United States.

Mr. MILLER. In other words, you want to create a controversy without building the Colorado dam?

Mr. CARSON. We want it to be a controversy so that the court will take jurisdiction if a suit is brought.

Mr. MILLER. Then would you want the committee to go ahead and authorize the building of the dam before you get the thing settled?

Mr. CARSON. Yes.

Mr. MILLER. Even to build the dam and have it all ready to go and then come into court and say "We have the dam built. We want to put some water in it and divert it to Arizona"?

Mr. CARSON. No. California says they will bring suit to enjoin our diversion of the water, and they could bring that suit immediately before this aqueduct is built. I want to read from this opinion of the court one paragraph in the first case that Arizona filed, in 238 United States. I am reading now from page 463.

Mr. WELCH. Before you proceed to read, I am anxious to know how more dams upstream from Lake Mead would prevent Lake Mead from silting up.

Mr. CARSON. Because it would stop the silt from going into Lake Mead. This dam up here, the Bluff Dam, on the San Juan River in southern Utah [indicating on map] stops a great deal of silt that now goes into Lake Mead. This dam, the Conconino Dam, on the Little Colorado [indicating on map] stops a great deal of silt that now goes into Lake Mead. The Bridge Canyon Dam itself will stop a great deal of silt that now goes into Lake Mead and eventually, and I think it won't be too long, there will be a dam at Glenn Canyon on the main stream which will, in effect, halt the silting now going into Lake Mead.

Mr. WELCH. The reason I ask that question, Mr. Carson, is that at different times it has been stated that Lake Mead is destined to silt up; that it is just a question of years.

Mr. CARSON. Yes; I have heard that stated, but I am not an engineer and do not know.

Mr. WELCH. The water, unless it is actually filtered as it goes through those other dams before reaching Lake Mead, must carry an amount of silt after it passes through the dams and generates electricity upstream from Lake Mead.

Mr. CARSON. No. This Bluff Dam on the San Juan and the Coconino Dam on the Little Colorado, as I understand it, have a large capacity to store water for flood control and stop all of the silt that comes down those streams, and it will do so. There will be no silt, as I get it, coming through the San Juan or Little Colorado into the main stream and down to Lake Mead for many, many years—more than 100 years and maybe 200 years. So it will stop the silt.

Mr. MURDOCK. Since Congressman Miller has yielded to Congressman Welch, will he also yield to me to make a point on that?

Mr. MILLER. Yes; but I want to ask another question.

Mr. MURDOCK. Yes. We must not leave that, because that is a mighty important question.

Those streams, especially the San Juan River and the Little Colorado, are great contributors of silt?

Mr. CARSON. Yes.

Mr. MURDOCK. We have been hearing it said that those waters are "too thick to drink and too thin to plow."

Mr. CARSON. Yes.

Mr. MURDOCK. This is what I wanted to point out to Congressman Welch, who thinks the water passing through those power plants at such dams ought to be as muddy as when it reaches the reservoir: when the water reaches the upper part of the reservoir, the flowing water is slowed up and deposits its layer of silt, so that the siltation begins at the upper end of the reservoir, and the water in the lake near the dam is clear. The waters of Lake Mead down below the dam are as clear as crystal, and when they pass through the power plant at Hoover Dam, they are clear water.

It would be the same, Congressman Welch, with the power plants at these three dams just mentioned. The silt before long would be deposited in the reservoir, especially beginning at the upper end of the reservoir. That is the way it works out.

Mr. CARSON. May I answer right there and say to Congressman Welch, as I understand, there will be no power plant at the Bluff or Coconino Dams. They are designed to stop the silting, and there will be no power plant for either one. So that the silt will not be permitted to go through any power plant.

Mr. MILLER. In other words, there is no controversy relative to the Bluff Dam and the other two dams you have over there, so far as California is concerned?

Mr. CARSON. I do not say that; I would not say there is no controversy.

Mr. MILLER. Well, we will drop that for a moment.

Mr. CARSON. But let me finish my answer, so that I give a good answer to the question. I want to be entirely frank. In the Senate committee there was some objection made on the part of the State of Nevada to the building of the Bridge Canyon Dam on the theory that it would interfere with the generation of power at Boulder Dam. However, the State of Nevada and the State of California are both parties to the Colorado River compact, and in section 13 (b) of the Boulder Canyon Project Act, Congress subjected the rights of the United States and everybody claiming under it to the Colorado River compact, and the compact provides, in article IV, that the water of the river might be used for power purposes, but it shall be subordinate to the use for irrigation and domestic use and that power shall never interfere with or prevent such use. And then, again, on that, in the Blue Book, which is the report of the Secretary of the Interior on the whole Colorado River Basin, the State of Nevada filed its comments, and I think their positions are entirely inconsistent all the way through. I would like just to call attention to this; I do not think I have it in my formal statement——

Mr. MILLER. You have referred to there being some differences of opinion about the Bridge Canyon dam site.

Mr. CARSON. Yes.

Mr. MILLER. Is there a difference of opinion between Nevada and perhaps California?

Mr. CARSON. And Arizona. But let me read you Nevada's comments that were given in connection with this Colorado River Basin report, under date of February 6, 1947, addressed to Mr. Warne:

I have your letter of January 31, 1947, calling my attention to the fact that Nevada's comments on the Bureau's comprehensive report on the Colorado River is 6 weeks overdue.

In reviewing the Colorado River report, I find there is little if anything I might say concerning it at this time that would be of much significance or importance. In my opinion the report is a splendid piece of work. Everyone who is interested should realize that it does not set up any projects, but is merely an inventory of all possible projects regardless of their respective merits.

That is the view we take of it.

We feel that several of the Nevada projects, all of which are comparatively small, should be listed if and when that time comes, with fairly early priorities. We are also interested in joining with the State of California in promoting as early a priority and appropriation for the early construction of the Bridge Canyon project, because of its great value and necessity for additional power very much needed throughout the area capable of being served by it.

That is signed "Very truly yours, Alfred Martin Smith, State Engineer of Nevada."

Mr. MILLER. I think that covers that particular phase of it. Coming back to the bill presently before the committee, you would say, would you not, that the main part of the question of feasibility of the project would rest upon whether water is available?

Mr. CARSON. No; I would not say that altogether. We feel, Doctor, that we do have the burden of presenting to the Congress evidence that will, in the judgment of the Congress, indicate that there is water available for this project.

Mr. MILLER. That is what I say.

Mr. CARSON. And we are taking that burden.

Mr. MILLER. If the Congress is convinced there is water available, then the project would be feasible; if water is not available, the project could not reach in any way the yardstick that we had.

Mr. CARSON. That is right.

Mr. MILLER. That is true.

Mr. CARSON. You carry it a little too far when you say "in any way." That is what I tried to point out, that these Interior works of Arizona would even then be feasible, and the main-stream dams would then be possible.

Mr. MILLER. Not if there was not water, it would not be feasible.

Mr. CARSON. But regardless of the feasibility of water from the main stream on the river, there are a lot of internal improvements in Arizona that could be made, and the main-stream dams could be built.

Mr. MURDOCK. Those are all set out in Mr. Larson's comprehensive report.

Mr. MILLER. I recall the testimony; I understand what you mean; but if you are going to build this project here, are going to build a big dam, you have to have the water available.

Mr. CARSON. Yes.

Mr. MILLER. Then the question is who gets the water, if there is a controversy.

Mr. CARSON. We want to show Congress—and we believe we can and we pretty well have—that Arizona is entitled to this water and that California has no standing to dispute it.

Mr. MILLER. But the Congress will still have to determine that there is water available and that it belongs to Arizona and pass this legislation.

Mr. CARSON. Yes.

Mr. MILLER. Then, of course, that does not keep California from coming into court on the measure that might be passed by Congress.

Mr. CARSON. California could have gone to court any time in the last years, Doctor, if they thought they had a cause of action; if they thought there was a justiciable issue, they would not have filed a motion in the Supreme Court to dismiss Arizona's cases or object to their filing on the ground that there was no justiciable issue.

Mr. MILLER. Then you think Congress should not give any consideration to House Joint Resolution No. 3?

Mr. CARSON. No; I certainly do not.

Mr. MILLER. I think that is all, Mr. Chairman.

Mr. MURDOCK. Dr. Miller, you have asked a question there that I think is mighty vital, and I wish Mr. Carson would take a little time on that.

Mr. CARSON. Well, I want to read this one paragraph from the first case that Arizona brought against California, to try to get this settled, and I think it is still applicable and is the law today and that the Court properly dismissed that bill. I am reading now from the last paragraph beginning on page 463, and the language of that paragraph appearing on page 464 of 283 United States. This is the language:

> When the bill was filed, the construction of the dam and reservoir had not been commenced. Years must elapse before the project is completed. If by operations at the dam any then perfected right of Arizona, or of those claiming under it, should hereafter be interfered with appropriate remedies will be available. Compare *Kansas* v. *Colorado* (206 U. S. 46, 117). The bill alleges that plans have been drawn and permits granted for the taking of additional water in Arizona pursuant to its laws. But Wilbur—

that was the Secretary of the Interior—

> threatens no physical interference with the projects; and the act interposes no legal inhibitions on their execution. There is no occasion for determining now Arizona's right to interstate or local waters which have not yet been, and which may never be appropriated (*New Jersey* v. *Sargent*, 269 U. S. 328, 338, 339).

Mr. MILLER. If I understood you correctly, you did say you thought there would be some litigation should we pass this bill.

Mr. CARSON. I am not so sure, but if there is, I want to go further and show you there is no merit to it.

Mr. MILLER. That might be.

Mr. CARSON. It has already been decided by the Supreme Court.

Mr. MILLER. You should be the No. 1 man to present that argument to the Supreme Court because you have the facts at you fingertips. You could do a grand job. What I am trying to find out is whether I understood you to say that there would be some litigation.

Mr. CARSON. No; I do not know what California will do, but I do not believe if they stay with the facts they can allege a justiciable controversy.

Mr. MILLER. All Congress has to do is to decide if water is available, and if they do, they will decide that the project is feasible and probably will authorize it.

If there is going to be a question of a great deal of litigation, then whether Congress should authorize hundreds of millions of dollars to build some project about which there is some question as to who gets the water——

Mr. CARSON. I think there is no question, and we hope that we can show you that there is not.

Mr. MILLER. That is where there is a difference of opinion.

Mr. CARSON. Let me get down to that right now.

Mr. MILLER. The courts say differently.

Mr. CARSON. I am trying to get you to decide. Here now I have to give what I consider to be the gist of the California argument, and as advanced by Mr. Engle.

They have three questions that they throw at Arizona which they say show that the water is not available for Arizona.

One of them is that III (b) water is unapportioned and hence is surplus of which they could use a part.

Second, they estimate the uses on the Gila River at a higher amount than we do and say there is a corresponding surplus in the main stream of which they could take a part.

Then they go to the question of reservoir losses.

Now, I have told you in my judgment diversion—to a reservoir from the flow of a stream is diverted from the stream. The California Limitations Act is not a minimum; it is a maximum, and it is not measured into California, but diversions for use in Cailfornia. It cannot arise in any foreseeable future, and it can never arise unless and until the upper-basin States have put to complete use their reserved 7,500,000 acre-feet, and all the surplus has disappeared from the river, and then there would come a shortage in the water stored in Lake Mead for delivery for use below.

We all know that a court of equity would require that the curtailment in deliveries below be proportionate and ratable.

Mr. MILLER. You would say that there is a difference in the thinking between you and Mr. Engle relative to this water

Mr. CARSON. It does not rise to a justiciable controversy.

Mr. MILLER. That might be one for settlement in the courts.

Mr. CARSON. No.

Mr. MILLER. There is a difference of opinion between you and the people that Mr. Engle, a member of this committee, represents; is that right?

Mr. CARSON. There is an expressed difference of opinion on these two points—other than evaporation—whether or not III (b) water is apportioned and the quantity of the use of the Gila River.

Now, the compact says that the III (b) water is apportioned. The effect of all the California argument on these two points, leaving out the question of evaporation losses, is that part of the water deliverable at Lee Ferry by the upper basin is surplus water of which they can claim half. There is no other water in that river which would make that up unless it be a part of the 7,500,000 acre-feet delivered at Lee Ferry by the upper basin.

In other words, they want to say that 2,800,000 acre-feet to 2,900,000 acre-feet of the 7,500,000 acre-feet delivered at Lee Ferry is surplus water of which they can claim half.

Now then, in a case that I had the honor of filing on behalf of Arizona to perpetuate testimony of what had happened, and the understandings reached at the original Santa Fe compact the Supreme Court settled adversely to California both of these contentions.

I am reading from the sixth ground of the opinion in *Arizona* v. *California* (292, U. S., at p. 358):

> Sixth. The considerations to which Arizona calls attention do not show that there is any ambiguity in article III (b) of the compact. Doubtless, the anticipated physical sources of the waters which combine to make the total of 8,500,000 acre-feet are as Arizona contends, but neither article III (a) nor (b) deal with the waters on the basis of their source. Paragraph (a) apportions waters "from the Colorado River system," i. e., the Colorado and its tributaries, and (b) permits an additional use "of such waters." The compact makes an apportionment only between the upper and lower basin; the apportionment among the States in each basin being left to later agreement. Arizona is one of the States of the lower basin and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone. It may be that, in apportioning among the States the 8,500,000 acre-feet allotted from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her; but that is a matter entirely outside the scope of the compact.

There the Supreme Court has specifically held that the III (b) water is apportioned water under the Limitations Act required of California by the Congress as a condition to the effectiveness of the Boulder Canyon Project Act.

Proceeding with the quotation:

> The provision of article III (b), like that of article III (a), is entirely referable to the main intent of the compact which was to apportion the waters as between the upper and lower basins. The effect of article III (b) (at least in the event that the lower basin puts the 8,500,000 acre-feet of water to beneficial uses) is to preclude any claim by the upper basin that any part of the 7,500,000 acre-feet released at Lee Ferry to the lower basin may be considered as "surplus" because of Arizona waters which are available to the lower basin alone. Congress apparently expected that a complete apportionment of the waters among the States of the lower basin would be made by the subcompact which it authorized Arizona, California, and Nevada to make.

My point there is that the Supreme Court has already held that no part of the 7,500,000 acre-feet delivered at Lee Ferry can be considered as surplus, insofar as any claim of the upper basin is concerned. Clearly, then, the Supreme Court of the United States would not countenance California claiming that any part of that 7,500,000 feet is surplus, because if California could claim it, the upper basin could claim it, and it would be subject to further apportionment after 1963.

Therefore, the argument of California on the first two points has already been answered by the courts. The evaporation loss cannot occur in any foreseeable future, and if and when it ever did occur, as we all know over the West, deliveries would be curtailed proportionately, taking into account, of course, priorities under State law.

Mr. WHITE. Suppose there is more water than 7,500,000 feet passing Lee Ferry; how would you classify that?

Mr. CARSON. We have agreed among all the States that any surplus water in either the upper basin or the lower basin shall be first used to satisfy the Mexican demand. That is 1,500,000 acre-feet.

Mr. WHITE. Everything at Lee Ferry, above and below, is based upon the proposition that half of the Colorado River shall go to the upper basin and half to the lower basin. That would be 7,500,000 feet normal flow. You keep talking about California's rights to surplus water. What do you mean by "surplus water"? Do you mean excessive seasonal flow, or do you mean water in excess of normal flow?

Mr. CARSON. It is all set out in the Colorado River compact. It means the water of the river in excess of the 7,500,000 acre-feet apportioned to us in perpetuity in the upper basin, and in excess of the 8,500,000 acre-feet apportioned for use in the lower basin.

Mr. WHITE. In the United States there are certain seasons when the rivers flow more than in other seasons, and the idea of the Hoover Dam was to regulate the flow of the Colorado River so it would run regularly at low-water season below the dam.

Now, in certain seasons there is an excess flow of water. It will pass Lee Ferry. Is that what you call surplus water?

Mr. CARSON. No. I had better refer to the compact right there. When we are talking about "surplus" we are talking about "surplus" set out in the compact. Let me read you article III, subparagraph (c) of the Colorado River compact:

If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any rights to the use of any waters of the Colorado River system, such waters shall be supplied first from the waters which are surplus over and above the aggregate quantities specified in paragraphs (a) and (b).

That is 7,500,000 to the upper basin and 8,500,000 to the lower basin.

And if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be equally borne by the upper basin and the lower basin, and whenever necessary the States of the upper division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

Paragraph (d) provided that the States in the upper division would never decrease the flow at Lee Ferry below an average of 7,500,000 acre-feet a year averaged over a period of each succeeding 10 years.

Now, quoting article III, subsection (f):

Further equitable apportionment of the beneficial uses of the water of the Colorado system unapportioned by paragraphs (a), (b), and (c) may be made in the manner provided in paragraph (g) at any time after October 1, 1963, if and when either basin shall have reached its total beneficial consumptive use as set out in paragraphs (a) and (b).

That is 7,500,000 in the upper basin and 8,500,000 for the lower basin.

Mr. WHITE. You must remember that clause reads "consumptive use," and that goes to appropriation. Will you read that again?

Mr. CARSON. The last thing that I read was—

Further equitable apportionment of the beneficial uses of the water for the Colorado River system unapportioned by paragraphs (a), (b), and (c)—

and that is the Mexican apportionment and an apportionment of 8,500,000 acre-feet——

Mr. WHITE. I understand.

Mr. CARSON (continuing):

may be made in the manner provided in paragraph (g) at any time after October 1, 1963, if and when either basin shall have reached its total beneficial consumptive use as set out in paragraphs (a) and (b).

Mr. WHITE. That is the point. Neither Arizona nor California has appropriated any water.

Mr. CARSON. Neither the lower basin nor the upper basin is using the water apportioned.

Mr. WHITE. That is based on the appropriation.

Mr. CARSON. That is based on the beneficial consumptive use.

Mr. WHITE. What is "beneficial consumptive use" but appropriation?

Mr. CARSON. I would say it is the net depletion, caused by use, in the stream.

Mr. WHITE. The water is going away.

The cardinal principles of water rights are, first, priority, and, second, appropriation. You might file a water right on a stream and tie it up for a time, but there is a limit on the time that you can hold that water right. If you do not appropriate that water, your water right becomes null and void.

Mr. CARSON. That is within a State.

Mr. WHITE. The water commissioner of one of the States talked about priority in appropriation. The cardinal principle of water is utilization.

Mr. CARSON. That does not apply. The compact cuts across the western law of appropriation and limits each share of each State. When that share is determined then within the State the law of appropriation will apply.

Mr. WHITE. Until Arizona appropriates this water there can be no judgment by the court as to the rights between Arizona and California.

Mr. CARSON. They have to establish a use, and put it to actual use.

Mr. WHITE. You cannot use it without appropriating it.

Mr. CARSON. No.

Mr. WHITE. Is not the principle of this legislation before this committee to authorize the appropriation for the construction of this dam? Until that is done, there cannot be any decision between California and Arizona as to the water rights of the two States.

Mr. CARSON. That is my judgment. I think this case that I read you here completely answers the California argument on the two points of whether or not 3 (b) is apportioned and also on the question of consumptive use of the Gila River, because it has held that the upper basin cannot claim that any part of the 7,500,000 deliverable at Lee Ferry is surplus water, and certainly the Supreme Court cannot be expected to say that California can claim that any part of it is surplus water and thereby permit the upper basin to deny to the lower basin, including California, water.

Mr. MURDOCK. I would like to make a comment here which will give our witness an opportunity to get a drink of water.

One thing that is very confusing to us who are not lawyers, and it must be confusing to the members of the committee, is these various classifications. If I am wrong in this I hope that the witness will correct me.

There are two classes of water dealt with in the Santa Fe compact: There is apportioned water, apportioned in perpetuity, according to the terms of the compact, and then there is some more water not apportioned, which is a second class called surplus water, or excess water.

Now, a great deal of the confusion of thought hinges on a lack of accurate definitions in our minds as to just what water is apportioned and what is surplus. A great deal of deliberate confusion has been interjected, in my judgment, by attempting to show that part of the water which is actually apportioned is not apportioned, but is surplus.

It is plainly evident that those who want more water in the lower basin, especially the California witnesses, if they can show a larger amount of apportioned water—no, I mean a larger amount of surplus water, California is entitled to her share of that.

Mr. CARSON. You mean a larger amount of surplus water.

Mr. MURDOCK. Yes, I mean they want to show a larger amount of surplus water, so it is the object of the opponents to this bill in all of their arguments to attempt to show there is more of the class of water called surplus than I think there actually is.

Mr. CARSON. Surely. According to our engineers' estimate, whenever the upper basin puts to full use its 7,500,000 acre-feet permitted under the compact and the lower basin puts to full use its 8,500,000 acre-feet permitted under the compact, and Mexico is supplied 1,500,000 acre-feet, as provided in the Mexican Water Treaty, there will on the long-time average be only 220,000 acre-feet of surplus in the entire stream.

Mrs. BOSONE. Are there citations in your statement?

Mr. CARSON. Yes.

I would like to explain the physical conditions as we see them in the lower basin relating to the use of lower-basin water by New Mexico, Utah, and Nevada.

Mr. WHITE. An effort was made to provide water equally between the upper and lower basins—7,500,000 acre-feet is supposed to be the normal rate. Arizona was allocated an extra 1,000,000 feet. Is not that predicated upon the equity and right of California of waters, not of the main Colorado, but of the Gila River?

Mr. CARSON. Arizona?

Mr. WHITE. That is where the 1,000,000 feet come in.

Mr. CARSON. That is the only place that it can.

Mr. WHITE. In the final determination Arizona gets 8,500,000.

Mr. CARSON. The lower basin.

Mr. WHITE. The lower basin. That can only come from these lower-basin tributaries and in the river below Lee Ferry. That would include the Gila and the Little Colorado. In other words, that many feet is based on the flow of the tributaries.

Mr. CARSON. Below Lee Ferry. There is no obligation on the upper States to deliver at Lee Ferry any water for use in the lower basin, except that 7,500,000 acre-feet. The 1,000,000 acre-feet could only come from the tributaries in the lower basin.

Mr. WHITE. That is not confined to the Gila River.

Mr. CARSON. Yes; but we have deducted all their uses from our claim here.

Mr. WHITE. Do you not use over 1,000,000 feet out of the Gila River alone?

Mr. CARSON. Yes; but we deduct that excess from what we claim, and we deduct the uses in Utah and New Mexico from our claim, and we have agreed that Nevada can use 300,000 acre-feet of water.

This bluebook of the Bureau of Reclamation shows that we have agreed to 300,000, but the Bureau of Reclamation estimates the total possible use of water in Nevada with a lift of 1,175 feet at 256,000 acre-feet of water.

I want to call your attention to the fact that in Utah, in the lower basin, their only possibility of utilization of water from tributaries entering the river below the lower basin is from the Virgin River and Kanab Creek, and maybe a few others that cross back and forth across the line. There is no possibility of their getting any of the 7,500,000 acre-feet delivered at Lee Ferry back up there. So we are limited there in that part of Utah and in that part of Arizona through which the Virgin flows, and that part of Arizona through which Kanab Creek flows, and that part of Nevada through which the Virgin flows, and this map does not show the Muddy River. It is by diversion from those tributary streams, and we all are limited by the quantity of water in those tributary streams.

Now, the same thing is true of New Mexico in the lower basin. Their only chance to use water from the lower basin is from tributaries, the Little Colorado River tributaries and the Gila River system tributaries before they cross into Arizona. There is no chance for them to get any part of this 7,500,000 acre-feet deliverable at Lee Ferry. There, again, they are limited, as are we, to these tributary streams and quantities of water that are there available and the uses to which they are put, or might be put.

In our calculations here to show Congress that this quantity of water is available for use in Arizona and for this project which is so essential to the salvation and security of the present civilization in Arizona, we have deducted from our available water supply to the lower basin all of the estimated possible uses in Utah and New Mexico in the lower basin. We have so recognized in our contract with the United States that we recognize their rights. In our contract with the United States we recognize the right of Nevada to 300,000 acre-feet.

Let me call the attention of the committee to two other things in that connection.

Insofar as Utah in the lower basin is concerned, and insofar as New Mexico in the lower basin is concerned, and insofar as Nevada in the lower basin is concerned, in their desire to use water from these tributaries, their interests are the same as Arizona's interests, and the interests of the upper basin States in our method of measuring beneficial consumptive use by the depletion at the mouths of these tributaries. Under our definition, since all of these tributaries in the lower basin are wasting streams and flow through deserts where a lot of water is wasted before it reaches the main stream of the river, each one of these three States can use more water out of those tributary streams than they could under the California plan of measuring consumptive use at the sites of use.

In that connection one other thing that I would like to say.

In the California Limitation Act, and in the Boulder Canyon Project Act, it is provided that the water diverted for use in California shall be measured by diversion less returns to the river. I sub-

mit to the committee that that can mean nothing else than the net depletion resulting in the stream from that diversion. Now, I think that that is recognized by the California people themselves because in the hearing before the House Judiciary Committee in this present session of Congress they have epitomized what they consider to be the meaning of that phrase as used in the California Limitation Act and the Boulder Canyon Project Act by saying, "It means diversions less returns to the river, measured at the site of the use." They add those words after the comma to the act, and they are not in the act. Also, it has been argued by them in some of these committee hearings that Arizona wants to apply one method of measurement to them and another method of measurement to ourselves. That is absolutely unfounded, and I am satisfied it is unfounded so far as any States in the basin are concerned, because in this statement of the basin States committee, which I have already put into the record, it is set forth that in the view of that committee the upper basin is entitled to deplete the flow of the river at Lee Ferry by 7,500,000 acre-feet a year, and that the lower basin is entitled to deplete the flow of the river at the international boundary by 8,500,000 acre-feet.

We have no objection, and I know of no State that has any objection, or any attorney or lawyer of any of the basin States that would object to California measuring her depletion, her consumptive use, by depletion at the international boundary. And they have recognized it, as I say, in my judgment, in their testimony by trying to add to the language of the act the words, "measured at the site of the use."

To make it clear to the House Judiciary Committee, they read it as if they were in there, and they are not there, and never were. Again, I would submit to the committee on the question of diversions less returns to the river on any flowing stream, the only possible way to measure it is by the resulting depletion in the stream at the next control point below. You could divert water from the river or any stream on 40 acres of land and you could measure the diversion, but there is no way on earth you could measure the depletion at the lower end of the land. A lot of that water will come in hundreds of miles below, and the only controlling point for the measurement is the next control point below the diversion which in the upper basin is Lee Ferry, in the lower basin, the international boundary, and there is one intermediate point that was put in by the Arizona contract with the United States.

It provides that the United States shall divert for use in Arizona from storage in Lake Mead enough water to enable the beneficial consumptive use in Arizona of 2,800,000 acre-feet, but it provides that our right to withdraw from storage at Lake Mead shall be diminished to the extent that our uses in Arizona above Lake Mead decrease the flow into Lake Mead.

Again, you have diversions less returns, which means net depletion, and that substitutes and brings in one additional control point on the river.

Mr. MURDOCK. Mr. Carson, may I again interrupt you just a moment to clear up a little confusion of thought?

When you are speaking as rapidly as you have been, it is hard to catch the full meaning of some of the statements made. I think there is a bit of confusion in regard to that much-discussed 1,000,000 acre-feet. You did not mean to say a moment ago that 1,000,000 acre-feet

of III (b) water by the Santa Fe compact was apportioned to Arizona, did you?

Mr. CARSON. No; I said the lower basin.

Mr. MURDOCK. You did say to the lower basin, did you not?

Mr. CARSON. I said the lower basin.

Mr. MURDOCK. And so did Judge Knapp early in the hearings. I was afraid from the question that had been asked that the wrong impression might be had from you.

Mr. CARSON. No, Mr. Chairman, there was an agreement made, a gentleman's agreement, not enforceable, at the time the original contract was negotiated, that as soon as it was signed there would be a compact between California, Arizona, and Nevada apportioning that 1,000,000 acre-feet to Arizona, but that was never made, and it was not enforceable.

Now, then, when the Congress passed the Boulder Act it apportioned to the lower basin, as did the express language of the Colorado River compact, the 1,000,000 acre-feet, and the Supreme Court has so held it is apportioned to the lower basin.

My point is that under the California Limitation Act and the Boulder Canyon Project Act, California has forever precluded herself from claiming any part of the apportioned water except 4,400,000 acre-feet.

Mr. MURDOCK. Pardon the interruption, but I wanted you to make that clear and call Congressman White's attention to it, particularly because I thought that there might be some confusion there.

Mr. CARSON. I have a notation here as to whether or not I answered fully Mrs. Bosone's question about citation of cases. They are in my statement, and they are also in the brief of the Colorado River Basin States Committee to which I refer.

Mr. WHITE. Regarding the 300,000 feet allocated to the State of Nevada, they do not appropriate any water out of the Colorado River, do they?

Mr. CARSON. Their total use now, according to the best information I can get, is somewhere between 40,000 and 50,000 acre-feet out of their tributaries and some water pumped out of Lake Mead.

Mr. WHITE. Do they pump out of Lake Mead to get some water?

Mr. CARSON. Yes.

Mr. WHITE. The main utilization is from some of the tributaries coming into Lake Mead.

Mr. CARSON. Yes. They pump some water out of Lake Mead.

Mr. WHITE. Of the 300,000 that they are entitled to, they are taking only about 40,000?

Mr. CARSON. I would say not over one-sixth.

Mr. WHITE. What percentage of California's 4,400,000 are they using?

Mr. CARSON. They are diverting in the neighborhood of 3,300,000 or 3,400,000 acre-feet, but of that quantity they are wasting into the Salton Sea a little over 1,000,000 acre-feet, so I should say their actual use is around 2,300,000 acre-feet.

Mr. WHITE. Let me get this straight about the water flowing into the Salton Sea. They irrigate land, and the land has to be drained and the water from the drainage ditches gets back to the Salton Sea.

Mr. CARSON. That is not the way that I understand it. Mr. Dow, who was the engineer for the Imperial irrigation district at the time, testified before this committee on H. R. 5434 that they were wasting a lot of water into the Salton Sea they would not waste if the water were scarce, and they were operating as they should operate and would operate in the future.

Now, part of that, of course, I think it would be necessary to release to keep the salt balance in their land, but my information, and I am not an engineer, is that they could save and put to use somewhere around 500,000 or 600,000 acre-feet of that 1,000,000 acre-feet.

Mr. WHITE. Is it not customary in pretty nearly every irrigation district in the United States to dispose of the water after you put the water into the ditches and on the land?

Mr. CARSON. Some of it.

Mr. WHITE. The land will go sour, and you have to take care of it, and to do that you go to the heavy expense of digging drainage ditches to get the water off the land after you have used it for irrigation. Might not that be the way that the water gets to the Salton Sea?

Mr. CARSON. Not to the extent that it gets in.

Mr. WHITE. I might say to you in the State of Idaho we use the water and the water in the drainage ditches is pumped back into a reservoir and irrigates the land farther down. That is what we call return flow.

Mr. CARSON. This map does not show the Salton Sea, but it is over in California. It is below sea level. There is no possibility of any water getting into the Salton Sea and returning to the river for any use at all. It is forever lost for any beneficial use when it once gets there. My understanding of that is, and I am not an engineer, there is a large part of that water that is now wasting into the Salton Sea that is unnecessary from any drainage point of view to carry off salt. The amount of that I do not know.

Mr. WHITE. California, under the act passed by the legislature, established the amount of their water to be used, 4,400,000 acre-feet, and they still have a surplus or excess of 1,000,000 acre-feet that they are not using at the present time.

Mr. CARSON. Oh, yes.

Mr. WHITE. Of the water that Arizona is entitled to under the compact, what percentage is being appropriated at the present time?

Mr. CARSON. Approximately two-thirds.

Mr. WHITE. They are using two-thirds of the water?

Mr. CARSON. They are using approximately two-thirds.

Mr. WHITE. If we authorize this present project only one-third of the water that they are entitled to will be available?

Mr. CARSON. That is right, but that will be more than enough to provide this 1,200,000 acre-feet out of our share of the water. We are not trying to take anybody else's water. By the act of Congress, by the Colorado River compact, this water that we claim is usable only in Arizona. There is no other State in the United States that could lawfully use that water under the existing law of the river. If we do not use it in Arizona, why then it would go on down the river and either permit an increased use in California in violation of its statutory agreement with the Congress of the United States, or it

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would continue across the Mexican border for use in Mexico in excess of the treaty apportionment to Mexico, or else it would be wasted unused into the Gulf of California.

Mr. WHITE. Under the provisions of the existing treaty with Mexico, there is no appropriation of water that was failed to be used upstream.

Mr. CARSON. It would not give them any permanent right under the treaty, but California Congressmen introduced in the Seventy-ninth Congress and in the Eightieth Congress bills which they said were to define duties under the treaty as between Federal agencies and departments, which I think and the Colorado River Basin States Committee thinks, and I believe the State Department and the Interior Department think—according to the reports they gave on these bills to the Congress—would have the effect of violating and rendering negative the Mexican water treaty and would release Mexico from that over-all all-time limit of its use which is imposed by the treaty. Right there there is one particular point that I would like to bring to the attention of the committee.

Most of us, particularly in the States, are inclined to believe that a treaty is inviolate, and it is so far as State action is concerned, but under the Constitution it can be abrogated by a later inconsistent act of the Congress of the United States, and it has been so repeatedly held by the Supreme Court of the United States.

So, if any of those acts which have been presented to the Congress were enacted into law that were inconsistent with the provisions of the treaty, the treaty would be abrogated under the law and Mexico would be released from that over-all all-time limit on its use. Then, if this water is denied to Arizona, and it cannot then lawfully be used in any other State in the United States, it would go to Mexico at a time when Mexico, if any such law were passed, would be released from the all-time limit to which it agreed under the treaty.

Mr. MURDOCK. While the members of the committee are getting ready for questions, this thought has been running through my mind. I have been studying this for 30 years. It is a big subject and a complicated one. I think it is being made unduly complicated by some who do not want to clear up the matter but to confuse it.

Let me illustrate: There are, first, two classes of water that we are talking about, and then there are two parts of this Colorado basin, the upper basin and the lower basin.

How easy it is when you have those four concepts to switch and change them around and confuse the one who has not been thoroughly acquainted with the matter.

I have heard it said that the city of Washington is a simple city in which to locate points. On the other hand, I have heard strangers say it is the hardest place in the world to locate points. That is because the city of Washington has two street systems; it has the rectangular streets running north and south, east and west, like the usual American city, and then the circles and diagonal avenues. Supposing I want to locate a residence, John Doe, living at 412 West Capitol Street, if there is such an address, and I step out here and ask the Capitol policeman who may have been born in this city and was thoroughly familiar with it—"Please tell me how to get to John Doe's residence at 412 West Capitol." He would say, "See the tall building

over there, that is the Capitol of the United States. Start walking around it, counterclockwise."

"Yes."

"When you come to the second diagonal street, turn right around on to it at an obtuse angle and go for about three blocks. Then you will come to an intersecting street. Turn left around an acute angle and go about a block and then turn right at a right angle and begin to look for your number."

I would try to get that fellow fired for giving any such direction, even though it might be accurate.

I have warned this committee to be careful in these hearings, and in all this discussion, that we are not confused by mixing things that ought to be considered separately, because these four concepts are actually found in the Santa Fe compact in the basic law. There is the most complicated arithmetic, some of which is phony, and there is the most complicated twisting and perverting of language and crossing the plain highway of speech in the reading of these fundamental laws which ought to be plain and simple but which can be made very confusing because of these various elements. I am not referring to Mr. Carson's testimony. I just wanted to throw that in as a warning to my fellow Congressmen to apply common sense to every part of this basic law that needs your study.

Mr. MARSHALL. If I understood you correctly a moment ago, Mr. Carson, you said that Arizona was using approximately two-thirds of its share of the water of the main stream of the Colorado.

Mr. CARSON. Out of our share of the whole water supply of the lower basin, including all our uses of the Gila—our share of the water apportioned to the lower basin, not of the main stream.

Mr. MARSHALL. Can you point out on the map where you are taking the water out of the main stream?

Mr. CARSON. We are taking water out down here at Yuma. We are taking water out on the east side of the Imperial Dam, and the Congress has authorized, and there is now under construction works to take water here, which is the Wellton-Mohawk area. We are diverting some water for use on the Colorado Indian Reservation below the Parker Dam. We are diverting a small quantity of water into the Mojave Valley which is in Mojave County just opposite Needles, Calif. We are using a little water which is chargeable to us under our contract in the part of Arizona through which the Virgin River flows and these interstate tributaries between Utah and Arizona, including Kanab Creek. We are using some water in Arizona out of the Little Colorado River basin, and a very small quantity out of the Bill Williams River, which enters at Parker Dam.

Mr. WHITE. That water north of the Colorado River never reaches the Colorado River.

Mr. CARSON. Very little of it does.

Mr. WHITE. Go back north there at the upper end. That water never reaches the Colorado River.

Mr. CARSON. Part of it does in flood. If we did not use it, part of it would reach the river in flood.

Mr. WHITE. Is not some of that in the nature of a return flow?

Mr. CARSON. Yes, in floodwater or return flow it flows into Lake Mead, except that which is wasted along the stream, which a lot of it is.

Mr. WHITE. Anything that does not evaporate gets back into the Colorado River?

Mr. CARSON. Yes. I have told the representatives of Utah and Nevada that Arizona is ready whenever they are ready to make a compact between the three States which would permit all of this tributary water to be used to the greatest extent possible in the tributary basins without regard to its effect on the main stream. There is no urgency about it, but they have both told me they were getting ready their data. There is no urgency about it because of the limited quantity of the water in the tributaries and the fact that of the available water, none of the users in Utah, Arizona or Nevada are being injured by any use in any other State at this time.

Mr. MARSHALL. In connection with 4,400,000 acre-feet set aside as a maximum, is that not a bit unusual—to set up that sort of maximum?

Mr. CARSON. No. You have to consider that this is a compact between States based as such between sovereign States. We never had any agreement with any of these six California agencies that come to fight us. We do have an agreement with the sovereign State of California and we are entitled to the benefit of the legislative compact made between the Congress of the United States and the State of California to that limit.

Now, when that share of the State's water is diverted into that State, the State laws regulate its priorities for use within the State. None of these States surrendered any extra-territorial jurisdiction to any other State within its borders.

The compact and the act expressly reserve to each State the control of the appropriation and use of its share of the water within its own borders, so by that concept of the States dealing in their sovereign capacity and no State having any business in the other States concerning water matters, we have by compact, in my judgment, fixed the points as between States on tributaries for the measurement of beneficial consumptive use by the resulting depletion in the streams at State lines.

In the compact it fixes it for the upper basin as a whole, at Lee Ferry. In the upper basin compact, in which I represented Arizona and signed on behalf of Arizona, there are provisions regulating the depletion at State lines as between the States of the upper basin on interstate tributaries. That is my concept of this whole thing—that within a State it alone is sovereign and it controls the appropriation and use within its borders under its own system of priority as between private individuals wanting the use of water.

Mr. MARSHALL. As I understand the testimony that has been given by the Arizona witnesses, while you may not be satisfied with the compact in determining the feasibility of the project, you will rest your case upon what those agreements have shown.

Mr. CARSON. Yes; we are satisfied with it. We ratified it. We have no intention whatever of violating it in any way, or claim any water usable in any other State under the terms of the contract, or the Boulder Act, or the upper basin compact, or any other applicable statute. We think we are clearly within our rights, and that which

we seek is apportioned us and cannot be used lawfully in any other State. Arizona respects her commitments. Once she makes them she carries them out.

Mr. MARSHALL. In order to clear up my thinking a bit, at Lee Ferry there is delivered 7,500,000 acre-feet, and out of that one of the first obligations must be the treaty with Mexico.

Mr. CARSON. No. Mexico is to be supplied first out of surplus of the whole river system, either the upper basin or the lower basin.

Mr. MARSHALL. Out of the other river water California is to get 4,400,000 acre-feet, but I understand there are differences of opinion on that figure. They are under these agreements assured that as their maximum amount?

Mr. CARSON. Yes, and we recognize it in the Arizona contract with the United States.

Mr. MARSHALL. Suppose that somewhere along the line there would be a dropping off of the flow in the Colorado River. California, then, is assured of its maximum?

Mr. CARSON. No. I will have to go back again. The upper division States have agreed to deliver at Lee Ferry an average of 7,500,000 acre-feet, averaged over a 10-year period, with the last year always included. That is the water we say California is entitled to use up to 4,400,000 acre-feet. Now, the upper basin is by compact required to deliver that water, even though it might result in a shortage in their own uses. They deliver it and it comes to Lake Mead and it is stored. All the water that California takes out of the river is stored in Lake Mead. All we take below Lake Mead, including all these uses in Arizona, is also stored in Lake Mead. As I say, the only time any question of evaporation losses could occur would be after the upper basin has put to complete use the 7,500,000 acre-feet reserved to it, and all surplus has disappeared from the river and there was not enough water available in Lake Mead to be delivered below, which I think will never occur.

The upper basin is now using approximately 1,800,000 acre-feet; maybe 1,900,000 acre-feet. We hope that it will be able to put the balance to use. Arizona wants to help where it can in doing so; but, if that should be all used, there is still the question of the surplus, or occasional years of extremely high flow, all of which would be caught at Lake Mead.

Now, before any curtailment of deliveries in California or Arizona could occur, there would have to be less water in Lake Mead than was required for use below. In that event, as I say, all over the West in all the areas I know anything about where the appropriation doctrine and the use of water for irrigation occurs, in the event of a shortage, then users are curtailed proportionately and ratably; and we say we will bear our share of anything like that if it should occur, but we are convinced that it cannot occur within any foreseeable time, and clearly it cannot make any justiciable issue until it does occur.

California, on the other hand, wants to say that she will bear no part of any evaporation loss; that Arizona must bear it all. I suppose you would also include in that that Nevada and Arizona must bear it all. I do not know, but if Arizona should take any such view and California should prevail in that and we tried to throw it all onto Nevada—which we do not propose to do—it would mean there

would be no water whatever available out of Lake Mead for Nevada.

Mr. WHITE. If you will read the compact where California is limited to its 4,400,000 acre-feet, there is a provision—

not to exceed 4,400,000 acre-feet of water apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact.

Then there is a plus "not more than one-half of any excess or surplus water unapportioned in said compact, such use is always to be subject to the terms of said contract."

Then you follow it down to Arizona, where it says "The States of Arizona and California and Nevada are authorized to enter into agreements which shall provide, first, that of the 7,500,000 acre-feet apportioned to the lower basin, paragraph (a) of the article III of the Colorado River Compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) the State of Arizona may annually use one-half of the excess or surplus water unapportioned of the Colorado River Compact."

So, we find one-half of the surplus water allocated to California and one-half of the surplus water allocated to the State of Nevada; is that correct?

Mr. CARSON. To the State of Arizona and, with one qualification, it is correct. No State can acquire a permanent right to any part of the surplus until after it is further apportioned by agreement of all seven States after 1963. In the meantime, each State would have a right to use such quantity of surplus as it found within its borders, but only on an annual basis.

Mr. WHITE. Under the terms of this compact, Arizona has a valid right to half of the surplus.

Mr. CARSON. Whatever may be ultimately apportioned to the lower basin.

Mr. WELCH. Mr. Carson, is it a fact that Mexico, under the treaty, is receiving more firm water than before the construction of Hoover Dam and Lake Mead?

Mr. CARSON. Yes; I think they are. I think they are getting more water.

Mr. WELCH. More firm water.

Mr. CARSON. Well, they are putting to use, I will put it that way, more water than they did prior to the construction of Hoover Dam, but the treaty cut down the Mexican uses that were in existence at the time the treaty was signed. At the time that the treaty was negotiated in 1943, and in 1942, the Mexican use of the water of the Colorado River was approximately 1,800,000 acre-feet per year. We cut down by the treaty forever the Mexican claim to 1,500,000 acre-feet per year. We thought that it was a good treaty for everybody in the Colorado River Basin that wanted to use water within the boundaries of their States, including the users in California, because it forever limited the Mexican claim.

There is a lot of land in Mexico which is susceptible to irrigation from the Colorado River. After the construction of the Hoover Dam, the flow went through Mexico in a regulated manner. It protected them against floods, so that the water was there, and they were rapidly putting it to use and increasing it.

Our engineers said, and the American section headed by Dr. Mead in 1929 reported to the Congress that there was in Mexico in excess of 1,000,000 acres of land which could be irrigated by the Colorado River. We feared that unless there was a cut-off of the Mexican claim, an over-all all-time limit established, that they would put all that 1,000,000 acre-feet of and into cultivation and establish a use to 5,000,000 or 6,000,000 acre-feet of Colorado River water per year and that when they had done so they would invoke the provisions of the Inter-American Treaty of Arbitration, which was ratified by the Senate in 1935, to arbitrate and determine the share of Mexico to the waters of the Colorado River.

I went to the trouble of looking up the history and conditions of every international settlement on an international stream that had been made all over the world at that time, and in every instance the uses in the lower country existing at the time of the settlement were protected and provisions were made for future use in the lower country.

So we wanted an over-all time limit, and we thought and still think that it was for the protection of the metropolitan water district and the Imperial irrigation district, so far as they want to use water in California, and the Palo Verde and San Diego——

Mr. WHITE. Is not that one of the reasons that we had to hurry up and build the All-American Canal, to appropriate the water before Mexico got it?

Mr. CARSON. The promoters of the Imperial irrigation district—and I am talking about the original promoters—began the development of the Imperial Valley of California and the Mexicali Valley of Mexico just below the border as one enterprise, and they owned the land. Mr. Harry Chandler of Los Angeles, who is now deceased, testified before a Senate committee here in the early 1920's that he and his associates owned 833,000 acres of land in Mexico, most of which was susceptible of irrigation by the water from the Colorado River.

Then in the early days they secured a right, good under the California law, to divert just above the international boundary, a mile or two from the boundary, at the Rockwood heading, 10,000 second-feet of water. They took it through the old Alamo canal that wound down through Mexico and back over into the Imperial Valley of California, and they made a contract with the Mexican Government whereby half of the water flowing through that canal would be delivered to lands in Mexico and there used.

Assuming continuous flow, that amounted to approximately 3,600,000 acre-feet a year for Mexico. That whole thing is set out in the hearings before the Senate Foreign Relations Committee on the Mexican water treaty, including an analysis of that contract which was then still in force; and, so far as I am informed, is still in force, binding upon the Imperial irrigation district.

The United States had a time getting Mexico ever to recede from that, because they said, "We have a contract that gives us 3,600,000 acre-feet of water per year."

I think that our State Department did a marvelous job in negotiating that treaty for everybody in the Colorado River basin that wants to use water within the United States.

Mr. WELCH. I think that the detailed information with reference to the treaty you have given us has been very fine, and we appreciate it.

Mr. CARSON. It is pretty well covered in the statement that I filed. If you go through it, I will be glad to answer any questions on it to the best of my knowledge and ability.

Mr. MURDOCK. I would like to say this: I know how you feel, Congressman Welch, and I know how I feel about that Mexican burden. I felt at the time that I read the treaty that 1,500,000 acre-feet to Mexico was too much; however, it takes two to make a bargain, and I want to call your attention to the fact there have been years of negotiation between the United States and Mexico. They had used less than half that amount actually diverted into Old Mexico before the building of the Hoover Dam. They could not use more than 750,000 acre-feet before the stream was regulated by the United States.

Mr. CARSON. Well, I am not entirely certain. I will give you what I have here. It is in the Mead report of 1929, filed with the Congress. That report estimated that Mexico had prior to that time used 750,000 acre-feet of water delivered at their laterals along the old Alamo canal. Our engineers estimated that that would take approximately or a little more than 1,000,000 acre-feet of water diverted at the river to deliver that 750,000 acre-feet at the heads of their laterals.

Mr. MURDOCK. I am glad to be corrected on that. The point that I wanted to make was this: In Mexico they were using a very limited amount of water before the building of the Hoover Dam. The building of the Hoover Dam and the regulation of the river has done exactly what I said, and what we all understand—it made it possible for them to divert 6,000,000 or 7,000,000 acre-feet of water in Old Mexico. The negotiators of the treaty had to go ahead and horse trade between those extremes. The Americans were not willing to let Mexico have at first more than 750,000 acre-feet. The Mexicans were demanding 6,000,000 acre-feet. In the long period of negotiations they hit upon a figure which I feel is too much—1,500,000 acre-feet, as in the treaty.

Mr. CARSON. I want to protect the negotiators in this. At the time they negotiated, as I stated, Mexico was using a little in excess of 1,800,000 acre-feet of water a year. In every international settlement except the Mexican water treaty, of which I have any knowledge, and I have tried to investigate them all, the lower country at the time of settlement or negotiation was protected in the use it was then making of the water of the international stream, and provision was made for expansion of use in the lower country, in every one of them, except in the Mexican water treaty.

Mr. MURDOCK. I am glad to have that brought out and reinforced. Therefore, in case this treaty should be abrogated and the total situation thrown open and the matter left for settlement by international arbitration of the American Republics under existing conditions, what do you think might be the award?

Mr. CARSON. It would depend upon when they brought it to a head after the abrogation of this treaty. If Mexico delayed or we delayed until they had put in cultivation that 1,000,000 or 1,500,000—some of the engineers say it is 1,500,000 acres, some say it is 1,000,000 acres,

but Mr. Dowd, of the Imperial irrigation district, testified—he stated it as his judgment; I would not say testified, because he was not under oath—that there were 600,000 or 700,000 acres of land in Mexico that could be irrigated by the water of the river.

Now, whatever that acreage of land that could be irrigated is, when and if they had established a right to its use by users of water, in the absence of the treaty, they would have been protected in that then existing use. So we could, in my judgment, every easily have lost to the States of the Colorado Basin and to the United States, in the absence of that treaty, permanently 5,000,000 to 6,000,000 acre-feet of water of the Colorado River.

Mr. WELCH. Off the record.

(Discussion off the record.)

Mr. D'EWART. How much water do you concede California without peradventure of doubt?

Mr. CARSON. 4,400,000 feet, subject to any proportionate part of any reservoir losses if it should be necessary. We put that in our Arizona contract.

Mr. D'EWART. Does this bill have any concern as to how California uses that 4,400,000 feet?

Mr. CARSON. I will have to answer it in this way: If the bill is passed and we divert from the main stream of the Colorado River 1,200,000 acre-feet, it will not deprive California of one drop of usable water under their Limitation Act.

Mr. D'EWART. Not one drop they have a right to under the Limitation Act?

Mr. CARSON. Not one drop that they have a right to under the Limitation Act, in my judgment.

Mr. D'EWART. Would you say that again?

Mr. CARSON. I think the diversion of this 1,200,000 acre-feet of water to central Arizona would not deprive California of one drop of water to which they have a right under their Limitation Act.

Mr. D'EWART. Perhaps I should ask California this question rather than you: What is the maximum that California will concede you beyond peradventure of doubt?

Mr. CARSON. I do not know. One of the members of the Senate committee asked if they would be willing in any way to cut down their demand below 5,362,000 acre-feet, which is 962,000 acre-feet more than their Limitation Act, in an endeavor to get together with Arizona, and they said "No."

One thing I pointed out in my statement: Arizona offered California and Nevada, by an act of our legislature, to make a compact in what we considered to be the exact permissive language in the Boulder Canyon project. It is chapter 33 of the Special Laws of Arizona, of 1939. I helped write it. It was set out in an act of our legislature, and Arizona tendered them that compact and provided in the act that when it was signed by the respective governors and ratified by the legislatures the Colorado River compact would also be ratified, and California refused to make that compact and has ever since refused to deal with us on any other basis than firming up that additional 962,000 acre-feet of water, which, of course, we cannot concede.

Mr. MURDOCK. 5,362,000 acre-feet.

Mr. CARSON. I mean 962,000 acre-feet in addition to the 4,400,000.

Mr. D'EWART. I think that you gave an answer to this question once before, but I would like to have you do it again.

Why should not this committee authorize this portion of this act for the amount of water above which there is absolutely no question, and then let the courts receive the legal question?

Mr. CARSON. No. As to that 962,000 acre-feet, under the language in the Supreme Court case between Arizona and California (283 U. S.), we could not allege, nor could California allege, that there was a threat on our part to divert from the river that 1,200,000 acre-feet.

Mr. D'EWART. Can we not put language in this act that would give the necessary support for such a suit?

Mr. CARSON. No.

Mr. D'EWART. Could we not say that, in view of the question as to the ownership of this water and until such time as the Supreme Court settled the argument, we will postpone authorization?

Mr. CARSON. No; I do not think that you can postpone authorization. I do not think that will give us a sufficient basis for the jurisdiction of the court under the language of the decision that I read.

Mr. D'EWART. We could not write language?

Mr. CARSON. No; I do not think that you could.

Mr. D'EWART. One question on the bill, page 3. There is this language:

> That construction of the tunnel and that portion of the canal hereinabove described from the reservoir above the dam at Bridge Canyon to a junction with the aqueduct hereinafter authorized shall be deferred until Congress by making appropriation expressly therefor has determined that economic—

and the words "by making appropriation expressly therefor has determined that economic" is a subterfuge by which future authorizations are made by the Appropriations Committee.

This is the policy-making committee of this Congress, and we are the ones that should determine whether the project should be authorized or not, not the Appropriations Committee.

Mr. CARSON. Yes.

Mr. D'EWART. And I think that that is poor legislative procedure written into this bill and it should be amended to bring that part of the legislation before this committee for authorization and not leave it a matter of determination by the Appropriations Committee.

I know it has been held by the Solicitor of the Bureau of Reclamation that when the Appropriations Committee makes an appropriation for a project, it is thereby authorized, but I believe that is a subterfuge and is not good legislative procedure. I believe that part of the bill should be amended. Do you agree with me on that?

Mr. CARSON. I do not object to whatever your congressional policy is on that. I think some day that will have to be built. The reason I say that is because the demand for power in the Southwest will increase, and pumping from Lake Havasu ties up approximately a third of the power that will be generated at Bridge Canyon for the purpose of pumping water. That amounts to a lot of power. As the power demand increases and construction costs come down I believe the Congress, under any procedure adopted, would some day—not in the foreseeable future—find that it should be built.

Mr. D'EWART. That is right; and under this present legislation we are being asked to authorize a project that is not needed in the foreseeable future.

Mr. CARSON. That is right.

Mr. D'EWART. I believe that we should not do that.

Mr. WELCH. I am glad to hear Congressman D'Ewart raise that question. From the experience of members of this committee in the past, the subcommittee of the Committee on Appropriations of the Department of the Interior tried to make this committee a rubber stamp.

Mr. CARSON. That is up to the committee.

Mr. MURDOCK. We have now reached the hour of 12:15. Before we conclude I want to say that I, as the sponsor of this bill, expect to see amendments offered and I appreciate the very good suggestion made by Congressman D'Ewart.

We have had a long session this morning, and we will adjourn until 9:30 o'clock on Monday.

(Whereupon, at 12:15 p. m., the committee adjourned to meet on Monday, May 9, 1949, at 9:30 a. m.)

THE CENTRAL ARIZONA PROJECT

MONDAY, MAY 9, 1949

HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON IRRIGATION AND RECLAMATION OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 9:30 a. m., in the committee room of the House Committee on Public Lands, Hon. John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The subcommittee will come to order.

We have asked Mr. Carson, who was our witness on Friday and Saturday, to return this morning.

In the interest of conserving time we have tried to set these meetings at a little earlier than our usual hour. That may explain, in part, why we do not have a full attendance. Perhaps the members will be here within the next few minutes.

Mr. Carson has been questioned at some length on Saturday, our last meeting, but there are doubtless many other questions that are awaiting him.

Before calling the witness, however, I think I would like to make some arrangement about the hearings. According to my understanding Mr. Carson is the last affirmative witness, after which we will be ready to hear opposition witnesses.

Mr. WELCH. Mr. Chairman, will those to whom you refer as the opposition witnesses be ready to proceed after the conclusion of the presentation of the proponents?

Mr. MURDOCK. I understand so, Mr. Welch. Mrs. McMichael, our clerk, has been given a list of witnesses some days ago, and those witnesses have asked for time. That is what I wanted to inquire about a little more specifically.

Mr. Engle, do you know who will be the witnesses for the opposition?

Mr. ENGLE. I understand Mr. Shaw, the attorney general, will probably be the first witness.

Mr. Chairman, I want to make a motion when the Arizona testimony is over, to postpone further consideration of the Central Arizona project until such time as the legal questions are determined, or until the first day of the opening of the second session of the Eighty-first Congress, my purpose being to test the attitudes and views of the committee with reference to whether or not this committee should proceed to a determination of the legal questions or should proceed to a determination of the economic feasibility questions on this project prior to the time that the legal questions are determined.

I would like to take a little time to argue that motion, and to do so prior to the time California goes on with its presentation.

If the committee determines that there is no use in taking weeks more of this committee's time in hearing testimony, until we get a

determination of the legal aspect of the problem, it would not be necessary to proceed at all. Otherwise, California, and presumably Nevada, will want to put on a good deal of testimony, and we want the time equivalent to that which has been used by Arizona.

Mr. MURDOCK. The Chair, of course, cannot recognize the gentleman for any motion at this time, but the suggestion has been made, and it is a part of our planned future continuation of the hearings.

Mr. ENGLE. I think the motion would be in order, would it not, Mr. Chairman? I am not suggesting that it be made now, because I want to ask Mr. Carson some questions, but at the end of his testimony I intend to make such a motion and ask to be recognized for such a motion. I think it is a perfectly proper motion.

It is always proper to move postponement of consideration of the bill.

Mr. MURDOCK. I think we might have some informal discussion of that before any motion is made. The Chair is not willing to entertain the motion in the absence of a quorum.

Mr. ENGLE. I do not think, Mr. Chairman, that you, as chairman of this committee and author of this bill, can refuse to entertain a motion relating to the bill unless it happens to please you. As chairman of the committee it is your obligation to recognize any motion which is parliamentary and in order.

Mr. MURDOCK. That, of course, is in the record.

I asked the committee clerk, Mrs. McMichael, to keep careful check of the time used by the affirmative presentation, exclusive of the questions asked, and that has been done. She gives me this report: That the proponents in their affirmative presentation have used 8 hours and 45 minutes of time.

In a perfectly fair hearing it occurs to the Chair that the opponents of the measure ought to be afforded, as the gentleman from California, Mr. Engle, said a moment ago, an equal amount of time.

I was just wondering whether the opposing witnesses have been listed, and who will arrange the order of their appearance, and the division or allotting of the time to them.

I think that ought to be done.

Mr. ENGLE. I have an idea, Mr. Chairman, that there are going to be some appeals from the decision of the Chair. The committee itself will make its rulings as to what the committee will do.

Mr. MURDOCK. That is quite true, and the Chair recognizes the fact that the chairman is merely a presiding officer and that the committee, under the rules of the House and under the rules of the committee will determine the course of action. We, of course, will follow that natural procedure.

I just wanted to draw that out, while we have a few minutes here this morning.

Now, Mr. Carson, we have asked you to come back for questioning.

STATEMENT OF CHARLES A. CARSON, PHOENIX, ARIZ., COUNSEL FOR THE ARIZONA INTERSTATE STREAMS COMMISSION—Resumed

Mr. CARSON. Yes, sir.

Mr. MURDOCK. You, of course, are the attorney for the State of Arizona in Colorado River water matters?

Mr. CARSON. Yes, sir.

Mr. MURDOCK. I think you made a very good presentation from the legal end of things.

Mr. CARSON. Thank you.

Mr. MURDOCK. I may have some questions to ask you, myself.

Mr. CARSON. Yes, sir.

Mr. MURDOCK. Governor Miles, have you any questions you would like to ask?

Mr. MILES. I believe not, Mr. Chairman.

Mr. MURDOCK. Mr. Engle, have you any questions?

Mr. ENGLE. I have just a few, Mr. Chairman.

Mr. Carson, do I understand that Arizona asserts its rights, whatever they may be, to the water in the Colorado River as a party to the basic Colorado River compact?

Mr. CARSON. As a party to the basic Colorado River compact and in reliance upon the California self-limitation statute, which is not dependent on whether or not Arizona is a member of the basic compact.

Mr. ENGLE. I agree with you on that. What I am trying to determine is whether or not you are seeking the benefit of both positions.

Mr. CARSON. Yes. As far as California is concerned, Congressman Engle, we are relying upon the California self-limitation statute.

We are a party to the compact and to the Colorado River upper basin compact on account of the other States of the basin. We were in this position: That California would claim that we were not in the compact and that the upper States, unless and until we became a party to the compact, would oppose any authorization bills for Arizona.

So we have the two angles. As far as your State is concerned, the California self-limitation statute completely limits your right. Under the Colorado River compact we have agreed to the reservation of rights of the upper basin. We are parties to it.

We have again reemphasized that in the Colorado River upper basin compact, in which I was the negotiator for Arizona, again there reaffirmed some 10 or 12 times that that compact and the parties to it are subject to the Colorado River compact, the basic original document.

We claim we are parties to that document, and we claim that the California self-limitation statute limits the right of California, and that the water we ask for this project cannot be lawfully used in California so long as California stays within that Limitation Act. We expect the Congress of the United States, who required that legislative compact with California by the act of the California Legislature, to hold California to that Limitation Act.

Mr. ENGLE. Is it not true, though, Mr. Carson, that the California Limitation Act was passed as a portion of a Six-State compact?

Mr. CARSON. No, it was not. It is true that the California Self-Limitation Act, the legislative compact between the State of California and the United States, acting through its Congress, was passed in consideration of the passage of the Boulder Canyon Project Act and the construction of the works therein authorized.

What you read the other day relates to the taking effect of the Boulder Canyon Project Act.

Mr. ENGLE. Yes. It says here, on page A–215 of the Hoover Dam documents, which is House Document 717, that—

This act shall not take effect—

referring to the Boulder Canyon Project Act—

unless and until (1) the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming shall have ratified the Colorado River compact——

Mr. CARSON. Yes.

Mr. ENGLE. "Or."

Mr. CARSON. Yes.

Mr. ENGLE. Then it sets up the alternative procedure in the event that they had to go into a six-State compact; is that not right?

Mr. CARSON. That is right, but that is a condition to the effectiveness of the Boulder Canyon Project Act. That "or" relates back to the time when the Boulder Canyon Project Act shall take effect, and anybody can claim rights under it, and the works can be constructed. When the act shall take effect.

First, if there is a seven-State compact then ratified, or if that is not ratified within 6 months, until six States ratify it, including the State of California, and in addition, California must agree to the California self-limitation statute.

So that the right to Arizona to rely upon the California self-limitation statute is not related to whether or not Arizona has ratified the seven-State compact.

Mr. ENGLE. I agree with you on that. What I am trying to determine is whether or not you claim also the benefits of the seven-State compact.

Mr. CARSON. Yes; of course, we do.

Mr. ENGLE. In other words, it is perfectly proper for you to say that you have the benefits of the California Self-Limitation Act?

Mr. CARSON. Yes.

Mr. ENGLE. But what I am saying to you is, how can you claim the benefits of the California Self-Limitation Act, which were passed because Arizona would not ratify the seven-State compact, and then turn around 22 years later and say, "We are also members of the seven-State compact"?

Mr. CARSON. Yes, we can; in my judgment.

Mr. ENGLE. How can you do that?

Mr. CARSON. In my judgment we can. But, as between Arizona and California, that is an immaterial question, because our right to rely on the Limitation Act of California is not dependent upon our ever ratifying the seven-State compact.

Whether or not anybody could argue that Arizona is not a party to the seven-State compact, or not, would not in any sense affect this situation here, or relieve California from that self-limitation statute.

Mr. ENGLE. I know, but you are debating here, Mr. Carson, your right to III (b) water.

Mr. CARSON. Yes.

Mr. ENGLE. And you signed the compact.

Mr. CARSON. Yes.

Mr. ENGLE. And you claim the benefits of the compact.

Mr. CARSON. Yes.

Mr. ENGLE. As a member of the seven-State compact.

Mr. CARSON. We are.

Mr. ENGLE. Then you turn around and claim the benefits of the six-State compact, plus the Limitatioon Act. What I am trying to find out is where you are.

Mr. CARSON. Well——

Mr. ENGLE. Where are you? Are you claiming the benefits of the six-State compact, plus the benefits of the Limitation Act, or are you claiming the benefits of the seven-State compact?

Mr. CARSON. We are claiming the benefits of the Self-Limitation Act of California, as between the two States.

We are claiming the benefits of the seven-State compact as between all the States of the basin.

I can put it that way: We are relying upon the provisions of the California Self-Limitation Act, which irrevocably and unconditionally excludes California from claiming any part of the III (b) water, in my judgment.

Mr. ENGLE. We are going to get around to that a little later, but let us find out first where we are.

Arizona, by the act of its legislature 22 years after the compact was entered into, and after a Limitation Act had been imposed on California——

Mr. CARSON. Not imposed. I would object to that "imposed."

Mr. ENGLE. That is my language. You do not have to agree to it.

After a Limitation Act had been imposed on California because Arizona would not ratify the seven-State compact, after her negotiator had participated in it and executed it as her representative; then you come along 22 years later to say that you are going to take the benefits of the six-State compact and the California Limitation Act plus——

Mr. CARSON. No.

Mr. ENGLE (continuing). The seven-State compact.

Mr. CARSON. I did not say anything about taking advantage of the six-State compact. I say that we are relying upon the seven-State compact and the California Limitation Act. We are not a party to any six-State compact, if you please. We are to the seven-State compact.

Mr. ENGLE. All right. Has Congress ever consented to a seven-State compact?

Mr. CARSON. Yes; it did in the Boulder Canyon Project Act.

Mr. ENGLE. Only, as I understand it, within 6 months.

Mr. CARSON. No; there is no limit on that "within 6 months." That relates to the effective date of the Boulder Canyon Project Act entirely. There is no limit on time in the Boulder Canyon Project Act. There is no limit on time in the Colorado River compact.

Mr. ENGLE. I see here that the Boulder Canyon Project Act says that the compact must be agred to by seven State,

> Or, if said States fail to ratify the said compact withing six months from the date of the passage of this Act——

Mr. CARSON. That does not say the compact must be ratified within 6 months. This says that your Boulder Canyon Project Act shall take effect when either one of those conditions occur.

Mr. ENGLE. I do not read it that way. I read it this way: They had 6 months for the seven States to ratify, and when the seven States did not ratify, the alternative procedure took hold and became operative.

Let me go on:

then, until six of said States, including the State of California, shall ratify said compact and shall consent to waive the provisions of the first paragraph of article XI of said compact, which makes the same binding and obligatory only when approved by each of the seven States signatory thereto—

Now, as I understand it, the Colorado River compact provided that it should not be binding and obligatory until it was ratified by seven States.

In order to make a six-State compact out of it the terms of the compact had to be changed so that it could be ratified as a six-State compact. Those States did, as I understand, after 6 months had elapsed and Arizona failed to ratify the seven-State compact, proceed to waive article XI of the original compact.

Mr. CARSON. Yes.

Mr. ENGLE. And they did waive it?

Mr. CARSON. Yes.

Mr. ENGLE. And then the compact which they entered into was a compact which waived the provisions of article XI.

Mr. CARSON. They did not rewrite it, as I understand it. They merely, in their ratification resolution, waived that requirement and made it become effective on six-State ratification.

Mr. ENGLE (continuing):

which makes the same binding and obligatory only when approved by each of the seven States signatory thereto, and shall have approved said compact without conditions, save that of such six-State approval, and the President, by public proclamation, shall have so declared—

The President did so declare?

Mr. CARSON. Yes.

Mr. ENGLE. What the President declared, in effect, was a six-State compact?

Mr. CARSON. Yes.

Mr. ENGLE. There has never been any declaration of the effectiveness of a seven-State compact, has there?

Mr. CARSON. Well, there has been by the ratification by the Arizona Legislature. I think that was completely and fully effective and we are a party to it.

Mr. ENGLE. That is right, but that was after these other States had nullified article XI.

Mr. CARSON. I do not think that nullified it. They just made it effective when six States ratified. They did not take out article XI.

Then, in the upper Colorado River Basin compact, Arizona again recognized the Colorado River compact in at least 10 or 12 places in that compact.

Mr. ENGLE. In which one?

Mr. CARSON. In the upper basin compact.

Mr. ENGLE. I do not question what Arizona recognized.

Mr. CARSON. Wait a minute.

Mr. ENGLE. The point I am getting to, Mr. Carson, is this: You are in the seven-State compact, if you are in it at all——

Mr. CARSON. Yes.

Mr. ENGLE. By the unilateral action of your own legislature.

Mr. CARSON. Excuse me again. We are not in by unilateral action.

In this upper Colorado River Basin compact, to which Arizona is a party, and which has been fully ratified by all the legislatures of the five States signatory to it, and consented to by the Congress, in some 10 or 12 places we say that we are parties to the Colorado River compact and this Congress has consented to that compact again in which we recognize that we are parties to the basic compact, so it has been approved that we are, by the action of the legislatures of the five States who are parties to this, all of the States that have any interest in the upper basin, and this has been consented to by the Congress.

Now we have in there twice ratification of the Colorado River compact, the original document.

Mr. ENGLE. Before you get away from that point, Mr. Carson—I do not want you to get away completely—California is not a party to the upper Colorado River Basin compact.

Mr. CARSON. No.

Mr. ENGLE. You, yourself, agreed that nothing in it bound California.

Mr. CARSON. That is right.

Mr. ENGLE. So we are not bound by that which you mentioned.

Mr. CARSON. Well, Arizona is. You are arguing that we are not bound.

Mr. ENGLE. What I am afraid of is this: That you claim to be a member of a seven-State compact which has never been consented to by the other six States, and if the Supreme Court or some other agency makes a decision contrary to your interpretation by your unilateral action you back out.

Mr. CARSON. No.

Mr. ENGLE. What would keep you from backing out? What do we have to bind you?

Mr. CARSON. So far as Arizona is concerned, Mr. Engle, you have our ratification of the original compact approved by our legislature in the exact terms of the original compact.

Now, do I understand you to say or to be attempting to argue that California would be willing to make that with the other States but not with Arizona? You signed it that way. We accepted it that way. There was no limit on the time.

Do you conceive that it would be in anybody's interest in California to argue that Arizona is not a party to the compact and is not bound by it?

I am very certain that nobody in Arizona would ever take any such position.

So are all these other States very certain of that. I do not think it would be to the interests of any people using water in California to say that Arizona is not a party to this compact. You might just as well argue that we are not a party to the union of the United States.

Mr. ENGLE. A contract is quite a different matter, Mr. Carson, and a compact, as everybody agrees, is a contract.

What happened in this instance is that seven States sat down to go into a contract. They wrote a contract.

Mr. CARSON. And we ratified it.

Mr. ENGLE. Let us use the word "contract" and I think our thinking will be a little clearer. Arizona would not ratify that contract. So Congress set up an alternative procedure where six States could ratify the contract, changing its terms, waiving the section of the contract which required a seven-State ratification, and putting a Limitation Act on California, limiting California's use and rights for the benefit of Arizona, and the States agreed to that contract, and it was proclaimed to be effective by the President.

What I am trying to determine is whether or not you can accept the benefits of the six-State contract, plus the limitation placed upon California, and then take over a position as a member of a seven-State contract without the consent of the other States.

Mr. CARSON. We are not trying to claim the benefits of any six-State compact. I told you that before, Mr. Engle.

We are claiming the benefits of the California Self Limitation Act, so far as California is concerned.

Then we are claiming the benefits of the seven-State compact, so far as California and all the other basin States together are concerned. There was no limit on the time prescribed for the ratification by any of those States, either by the language of the original compact, or by the Boulder Canyon Project Act.

Mr. ENGLE. Mr. Carson——

Mr. CARSON. That whole limit of time——

Mr. ENGLE. Let me interrupt.

Mr. CARSON (continuing). Related solely to the effective date of the Boulder Canyon Project Act and the construction of works in California or for the use of California that were therein authorized. It had nothing whatsoever to do with any time within which the seven-State compact must be ratified by Arizona.

Mr. ENGLE. Just as man-to-man now, Mr. Carson, do you think it is right for California to be subjected to a Limitation Act which was put into this Boulder Canyon Project Act because Arizona would not ratify the seven-State compact, and then have to suffer the restrictions of their Limitation Act and at the same time give to Arizona the benefits of the seven-State compact, having in mind the fact that the six-State compact, plus the Limitation Act, was made necessary by Arizona's failure to ratify?

Mr. CARSON. It was not made necessary, Mr. Engle. California had the choice of agreeing to that Limitation Act if she wanted the Boulder Canyon Project Act to become effective, and the works therein authorized to be built for her benefit. That was the consideration for the Limitation Act.

Do I understand you to say now that California wants to avoid the Limitation Act?

Mr. ENGLE. No. What we want to find out is where Arizona stands.

Mr. CARSON. Arizona stands squarely within her rights on the California self-limitation statute. We confidently expect the Congress of the United States to hold the sovereign State of California to that Limitation Act. As far as all other States of the basin are concerned, we rely upon the seven-State compact.

Mr. ENGLE. So far as you know, did any of the six States, at the time they consented to a waiver of article XI of the original com-

pact, calling for a seven-State compact, make any proviso for a subsequent seven-State compact?

Mr. CARSON. The one they ratified in terms provided for a seven-State compact. There was no limit of time. There was no necessity, when they ratified it, to make any such thing as you say, and so far as I know, they did not, but it was not necessary, Mr. Engle.

Mr. ENGLE. Let me ask you this question, for I think this will place the issue clearly: If it should develop that Arizona, asserting a position as a member of a seven-State compact, would have the effect of abrogating the conditions imposed upon California under the Limitation Act, then what would you say about it?

Mr. CARSON. It would not have any such effect. Read section IV (a) of the Boulder Canyon Project Act. It is in no sense conditional upon anything.

Mr. ENGLE. I am not arguing the question. I am asking you a hypothetical question.

Mr. CARSON. I want to know from you: Do you have any doubt in your mind that California is bound by that self-limitation statute, whether or not Arizona is a party to the seven-State compact?

Mr. ENGLE. Here is what I doubt——

Mr. CARSON. Will you answer that, please?

Mr. ENGLE. Yes; I will answer.

I doubt very much if you can accept the benefits of a Limitation Act imposed upon the State of California because you would not ratify a seven-State compact, and then come along 22 years later and ratify a seven-State compact and claim those benefits plus the benefits of the Limitation Act imposed upon the State of California. That is the question I am raising.

Mr. CARSON. Read the Boulder Canyon Project Act, section IV (a), Mr. Engle. The benefit to Arizona of the California Self Limitation Act is not in any sense conditioned on whether or not Arizona ever ratified the seven-State compact.

Mr. ENGLE. I am just wondering what the Supreme Court would say about it, not what Arizona would say about it.

Mr. CARSON. You are a good lawyer. Read it.

Mr. ENGLE. I know. Here is what concerns me: Let us assume that we go to the Supreme Court and Arizona is beaten on all or a portion of its contentions. I want to know whether or not Arizona is going to call its legislature together and repeal the act of ratification.

Mr. CARSON. No, sir; Arizona is not going to do any such thing.

Mr. ENGLE. Do you think that Arizona can legally do it?

Mr. CARSON. No; I do not.

Mr. ENGLE. Do you think that the other six States are in a position now to say to Arizona: "You are bound regardless of what the Supreme Court says"?

Mr. CARSON. Yes; I think they are right now, Mr. Engle, but in any event I think Arizona is entitled to the benefit of the California Self-Limitation Act.

Mr. ENGLE. All right.

Mr. CARSON. This whole thing boils right down to that one thing.

Mr. ENGLE. I understand that, but if the Supreme Court says you are not, I want to know what you are going to say about it.

Mr. CARSON. I do not think anybody in Arizona would ever raise a question.

Mr. ENGLE. I am very glad to hear that.

Mr. CARSON. We all consider that we are legally bound by the seven-State compact.

Mr. WHITE. A parliamentary inquiry, Mr. Chairman. Is there a motion before the committee?

Mr. MURDOCK. No; there is no motion before the committee. Mr. Carson was our witness on Saturday, and we asked him questions then and held him over until today for further questioning.

Mr. WHITE. There is no motion?

Mr. MURDOCK. There is no motion at this time.

Mr. ENGLE. There was one discussed, Mr. White, in a preliminary way, but it was not made.

Mr. WHITE. I have to go to a very important hearing in one of the departments.

Is it the gentleman's intention to offer such a motion?

Mr. ENGLE. I do intend to offer such a motion.

Mr. WHITE. Mr. Chairman, I would like to have my vote registered now against the motion, in case I have to leave.

Mr. ENGLE. I do not think there is any procedure for that, unless the gentleman wants to leave a proxy.

Mr. WHITE. I will leave a proxy. I believe the committee provided for that in the organization.

Mr. ENGLE. Does the gentleman know what the motion is going to be?

Mr. WHITE. I have an idea. I believe it has been mentioned here.

Mr. ENGLE. I would suggest that when the gentleman leaves his proxy that he specify the motion on which it is intended to be voted.

Mr. WHITE. I will submit that for the chairman.

Mr. ENGLE. Mr. Carson, I understand that Arizona claims that it is entitled to all the 1,000,000 acre-feet of water under section III (b), is that correct?

Mr. CARSON. We think we are.

Mr. ENGLE. Can you indicate to me the language in the compact which gives you the 1,000,000 acre-feet of water?

Mr. CARSON. No. There is no language in the compact that allots it specifically to Arizona. It is apportioned by the compact to the lower basin.

Mr. ENGLE. Will you show me in the compact where it states that the III (b) water is apportioned?

Mr. CARSON. Yes, sir. I will show you where I think it is.

Article III (a) apportions 7,500,000 acre-feet to each of the two basins.

Article III (b) provides:

> In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

Mr. ENGLE. Let me ask you a question.

Mr. CARSON. Wait just a minute. Let me answer one at a time.

Article (c) provides:

> If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any

waters of the Colorado River system, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b)—

That includes the 1,000,000 acre-feet.

Again, in article (f):

Further equitable apportionment of the beneficial uses of the waters of the Colorado River system unapportioned by paragraphs (a), (b), and (c)—

Including the Mexican obligations now—

may be made in the manner provided in (g) at any time after October 1, 1963, if and when either basin shall have reached its total beneficial consumptive use as set out in paragraphs (a) and (b).

Now, immediately after this compact was signed in November 1922, Mr. Herbert Hoover, who acted as chairman, made statements to the Congress that there was apportioned to the lower basin 8,500,000 acre-feet in perpetuity. That is clear in the record.

Mr. ENGLE. But that is not in the compact.

Mr. CARSON. I mean that is in the record. Let me follow through on that.

Now, then, the 8,500,000 acre-feet is apportioned to the lower basin. The California Self-Limitation Statute excludes California from any claim on III (b) water.

Mr. ENGLE. Let us not jump around.

Mr. CARSON. I am not jumping around. You are asking me how I claim that.

Mr. ENGLE. No, I did not ask you that. I asked you to show me language in the basic compact which gave Arizona the 1,000,000 acre-feet of III (b) water.

Mr. CARSON. It is not put in there specifically. We are relying on the California Self-Limitation Act which excludes California from claiming it.

Mr. ENGLE. We are going to get to that in just a minute. Let us stay with the compact. Let us take that first.

Do you concede that the compact does not give you III (b) water specifically?

Mr. CARSON. It does not specifically give it to Arizona. California made an agreement at the time that the original compact was signed that they would make a compact with us later so providing, but they refused later to make it. We have no such compact now. We are relying on the California Self-Limitation Act.

Mr. ENGLE. You are not relying on the explicit language of the Colorado River compact?

Mr. CARSON. Yes, we are, because it apportions it to the lower basin and California is excluded from any claim on it by the limitation statute.

Mr. ENGLE. We are going to get over to the Limitation Act in just a minute. What I am trying to find out is whether or not you claim——

Mr. CARSON. You asked me if we were relying on the provisions of the compact. Of course, we are. It is apportioned to the lower basin and California is excluded from claiming it.

Mr. ENGLE. If it is apportioned to the lower basin the compact does not use the word "apportioned," does it?

Mr. CARSON. I think it does. It does not in that one clause.

Mr. ENGLE. If it were the intention of the men who wrote the compact to apportion 8,500,000 acre-feet, or 7,500,000 plus 1,000,000 acre-feet, why did they not put it all in III (a)? Why did they write III (b) at all?

Mr. CARSON. I was not there.

Mr. ENGLE. I was not there either, Mr. Carson, but that occurs to me.

Mr. CARSON. Let me call your attention to that. Look up "apportion" in your dictionary. There is no magic in the word "apportion." All it means is "set aside for the use of."

Do you not concede that III (b) waters were set aside for the use of the lower basin?

Mr. ENGLE. Yes. It says so.

Mr. CARSON. Well——

Mr. ENGLE. The point I am getting at is this: The people who drew the compact apportioned specifically 7,500,000 acre-feet and put it in paragraph III (b). Then they said that the lower basin could increase its use by an additional 1,000,000 acre-feet, and Arizona, one of the lower basin States, says, "That is all ours."

Mr. CARSON. The Supreme Court has held that it is apportioned water, Mr. Engle. We have no argument then, do we, that III (b) water is apportioned to the lower basin?

Mr. ENGLE. I say that the compact says that 7,500,000 acre-feet is apportioned, and that under III (b) the lower basin can increase its use by another 1,000,000 acre-feet.

What I am trying to get you to tell me is why is it that if the original contractors, the men who wrote the contract, intended the III (b) water to be apportioned water, in addition to the 7,500,000 acre-feet, they did not put in the water in the section III (a) and be done with it?

Mr. Carson, answer this question specifically: Why did they not say in III (a), "There is apportioned to the lower basin 8,500,000 acre-feet" instead of 7,500,000 acre-feet?

Mr. CARSON. You want me to tell you my understanding of why they did not? I will be glad to do it. I put it in the record in the hearings on S. 1175 in the Senate, and in the hearings before this committee on H. R. 5434.

Mr. ENGLE. I would like to have you say why it is apportioned water, and still admit that the apportioned water is in III (a).

Mr. CARSON. I say it is in III (a) and in III (b).

Mr. ENGLE. Why did they divide it and put it in the two paragraphs? Were they just trying to confuse us?

Mr. CARSON. If you will let me tell you I will tell you my understanding of what happened.

This compact was presented, and I have the sworn testimony of the people that were there to say it, that when this compact was first presented, after it was first drawn, to that conference, they did not have III (b) in the compact. They had III (a) which provided 7,500,000 acre-feet to the uper basin, and 7,500,000 acre-feet to the lower basin. Mr. Norviel, who was the Arizona negotiator and commissioner at that time, refused to sign it and would not sign it because of the inclusion of the Gila River in the over-all definition of the Colorado River system.

Mr. ENGLE. And it is so included?

Mr. CARSON. Yes. Until they worked out that compromise which was accompanied by an oral gentleman's agreement that they would add III (b), and additional 1,000,000 acre-feet, to the lower basin, to compensate for the inclusion of the Gila River water in the over-all definition of the system—they wrote out this language and put it in, and then Mr. Norviel would not sign it until there was a gentleman's agreement between the representatives of California, Nevada, and Arizona, agreeing that that was intended to be for Arizona and that as soon as that compact was signed a tristate agreement would be made so providing.

That tristate agreement, the oral understanding, was the one that was incorporated in the Boulder Canyon Propect Act in the second paragraph of article IV (a).

Mr. ENGLE. Just one question.

Mr. CARSON. We offered to make that compact repeatedly, and the State of California always refused.

Mr. ENGLE. Do you think you can very the terms of a written document by oral and collateral agreements, whatever they may be?

Mr. CARSON. No, but it is not necessary to do so now because of the California Self-Limitation Act.

The Congres wrote that into the Boulder Canyon Project Act, and required California to accept it—if you want to say "required" or "imposed" it is all right—by adopting the California Self-Limitation Statute. California has accepted it just as directly and bindingly as if it were a compact between the two States so stated.

Mr. ENGLE. Then it is agreed, is it not, that the compact itself does not specifically give the III (b) water to Arizona, that it was a matter of oral understanding which you say is implemented by the Limitation Act, is that it?

Mr. CARSON. No, I say it was apportioned by the compact to the lower basin. Then the division as between California, Nevada, and Arizona, was put into the Boulder Canyon Project Act and California was required to agree to it by the adoption of the California Self-Limitation statute. So, when you take the compact and the Self-Limitation statute it is agreed by California that the III (b) water is for the use of Arizona as clearly as if we had a compact between us so stating.

Mr. ENGLE. We are going to talk about the California Self-Limitation Act in a minute. However, I want to get from you, if I can, where you say that the compact gives it to you.

Mr. CARSON. I have told you repeatedly several times this morning, Mr. Engle, that the compact does not say specifically to Arizona alone, but it does apportion it to the lower basin. Then the California Self-Limitation Act excludes California from claiming it. There is no other place it can be used.

Mr. ENGLE. Let us talk about the Boulder Canyon Project Act.

Mr. BARRETT. Mr. Chairman, I wonder if I might ask a question?

Mr. MURDOCK. If Mr. Engle will yield. He has the floor.

Mr. ENGLE. Yes.

Mr. BARRETT. I would like to ask your position on this one point. I do not seem to be in agreement with either you or the witness, Mr. Carson, both of whom are lawyers of outstanding ability, without a question of a doubt.

It does seem to me that the language in this compact is not sufficiently clear and inasmuch as under III (a) certain waters were definitely allocated and apportioned to the lower basin and in addition under III (b) some other waters were set aside or apportioned, whichever way you want to construe it, that there is some ambiguity in the compact itself and, therefore, the understanding of the commissioners at the time of the compact is vital and important and clearly necessary in order to arrive at what the actual agreement was.

I do not think, in this case, that Arizona need rely entirely on the Boulder Canyon Project Act to arrive at that conclusion.

Mr. CARSON. No.

Mr. BARRETT. Can you not prove here the understanding that you had at the time with the representatives of California and Nevada as to the disposition of this other 1,000,000 acre-feet of water?

Mr. CARSON. Well, I think that is settled by the Supreme Court.

Mr. BARRETT. That has already been settled?

Mr. CARSON. Yes; that has already been settled by the Supreme Court in a case in which I was the attorney for Arizona, reported in 292 United States, page 341.

At this time, if I might—I read this Saturday—I would like to go over it again with you, Mr. Barrett.

This is on the sixth ground of the opinion.

We knew by that time that California had begun to claim that they could claim part of this III (b) water, and we wanted to preserve the testimony while the people were still living, the testimony of the people who participated in those negotiations, so I filed a bill in the Supreme Court of the United States to perpetuate that testimony so that everybody could come in and cross-examine and it would be available when and if the conditions arose to make it become material.

I want you to read the sixth ground, which I think has completely settled two of the contentions here made by California adversely to California.

Sixth. The considerations to which Arizona calls attention do not show that there is any ambiguity in article III (b) of the compact. Doubtless, the anticipated physical sources of the waters which combine to make the total of 8,500,000 acre-feet are as Arizona contends, but neither article III (a) nor (b) deal with the waters on the basis of their source. Paragraph (a) apportions waters "from the Colorado River system," i. e., the Colorado and its tributaries, and (b) permits an additional use "of such waters." The compact makes an apportionment only between the upper and lower basin; the apportionment among the States in each basin being left to later agreement. Arizona is one of the States of the lower basin, and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone. It may be that, in apportioning among the States the 8,500,000 acre-feet allotted to the lower basin, Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her; but that is a matter entirely outside the scope of the compact.

The provision of article III (b), like that of article III (a), is entirely referrable to the main intent of the compact, which was to apportion the waters as between the upper and lower basins. The effect of article III (b) (at least in the event that the lower basin puts the 8,500,000 acre-feet of water to beneficial uses) is to preclude any claim by the upper basin that any part of the 7,500,000 acre-feet released at Lee Ferry to the lower basin may be considered as "surplus" because of Arizona waters which are available to the lower basin alone.

In that case the Supreme Court held there was no ambiguity, and that the 1,000,000 acre-feet of III (b) water was apportioned to the lower basin, and then it went on to hold that no part of the 7,500,000 acre-feet to be released at Lee Ferry could be considered as "surplus."

Now, on these two contentions of California, relating to the III (b) water and the question of how to measure beneficial consumptive use, they are leading up to one attempt on their part, and that can be the only attempt they are trying to make. That would be this: To claim as they have stated in some of these hearings that 2,300,000 acre-feet to 2,900,000 acre-feet of water deliverable by the upper basin at Lee Ferry is surplus. They claim a right to use half of it if it is surplus.

That is the only possible way they could seek to gain any benefit from those two arguments, because there is no other water available except that delivered at Lee Ferry that could ever be diverted into California.

On those two points they are trying to cut down the agreement of the upper States to deliver 7,500,000 acre-feet by whatever amount they say, in order to say that part of that 7,500,000 is surplus, of which they could claim one-half.

The Supreme Court has decided adversely to them in this case, in my judgment, on both points.

Mr. ENGLE. The gentleman has quoted, Mr. Barrett, precisely the language to which I was going to allude in answer to the gentleman's question. That is, that the Court has held that the provisions of III (b) are unambiguous in the compact.

Mr. CARSON. Yes.

Mr. ENGLE. Arizona brought a suit to perpetuate certain testimony, which is precisely the oral testimony which Mr. Carson was talking about here as sustaining Arizona's position on its interpretation of the compact, but the Court threw it out and said, "We are not going to listen to that. There is no use in perpetuating testimony that you cannot use."

Mr. CARSON. That is right. They said it was clear that it was apportioned to the lower basin.

Mr. ENGLE. We make quite a different interpretation of the Supreme Court language. Nevertheless, Mr. Carson is perfectly correct when he says that the Supreme Court held that the provisions relating to the III (b) water were unambiguous.

Mr. CARSON. And that it was apportioned to the lower basin.

Mr. ENGLE. That is correct.

Mr. CARSON. O. K.

Mr. ENGLE. That is what the Supreme Court says.

Mr. CARSON. Yes.

Mr. ENGLE. What I am getting at is the point that I started to make: Is it agreed that you do not claim that the basic compact itself specifically gives this water to Arizona?

Mr. CARSON. Yes; I have said that five or six times this morning.

Mr. ENGLE. But you say that the California Self-Limitation Act does it.

Mr. CARSON. Yes.

Mr. ENGLE. Will you show me where that exists in the document?

Mr. CARSON. Yes; I will show you where I think it exists. It is in section 4 (a).

The first paragraph of 4 (a) of the Boulder Canyon Project Act. This all relates to when the Boulder Canyon Project Act should take effect, or the works for California should be built, or anybody could claim water under those works.

It shall not take effect—I will skip down to the part I consider material:

Until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an express covenant and in consideration of the passage of this act, that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River—

And I want to emphasize this—

for use in the State of California, including all uses under contracts made under the provisions of this act and all water necessary for the supply of any rights which may now exist, shall not exceed—

I want to emphasize that, because it has here been argued that is a minimum—

shall not exceed 4,400,000 acre-feet of the waters apportioned to the lower basin States by (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

Now, then, the California argument is that III (b) water is unapportioned, and that is the only way they can claim the benefit of it, because if it is apportioned they are excluded by the Limitation Act from claiming it.

Mr. ENGLE. Do you find any place in section 4 (a) of the Boulder Canyon Project Act where III (b) water is mentioned?

Mr. CARSON. Well, it is not mentioned by calling it III (b) water, but it is mentioned in the second paragraph. In my judgment it is mentioned.

Mr. ENGLE. In other words, it is a matter of interpretation, is it not?

Mr. CARSON. Yes. But you cannot interpret it any other way.

Let me read you a part of that—

of the 7,500,000 acre-feet annually apportioned to the lower basin by (a) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State—

There is the 1,000,000 acre-feet of III (b) set out in the act of Congress at the time.

Now, Mr. Engle, I would like for you to follow me on this for a minute: As the years passed, however, California or its representatives, representatives of these southern California agencies, began to claim that the "and" before this third subdivision did not mean "and" and that it was merely rhetorical and superfluous and meant nothing, and that that Gila River water had to come out of Arizona's share of the 2,800,000, again trying, if you please, to claim that III (b) water was part of the surplus deliverable at Lee Ferry and was part of the 7,500,000 acre-feet the upper basin agreed to deliver at

Lee Ferry, although the Supreme Court has held that it cannot be claimed to be surplus.

Mr. ENGLE. The thing that is going to determine where California stands is what the Supreme Court says about the basic document, is it not?

Mr. CARSON. The Supreme Court has already construed the basic document on these two points in the case I read to you.

Mr. ENGLE. Do you contend that the Supreme Court construed the basic document in the case to which you alluded?

Mr. CARSON. Yes, sir. It had to construe it in order to determine whether or not there was any ambiguity, and whether or not the evidence we sought to perpetuate ever could become material.

It held that it could not become material because there was no ambiguity, and then it went on to say what it provided.

Mr. ENGLE. All the Supreme Court determined was that it was not ambiguous.

Mr. CARSON. To do that they had to read the compact and construe it.

Mr. ENGLE. For the purpose of determining whether or not it was ambiguous.

Mr. CARSON. Yes; and they did read it and construed it. They construed it adversely to you, Mr. Engle, on these two questions. They made it clear that III (b) water is apportioned to the lower basin. They made it clear that no part of the 7,500,00 acre-feet deliverable at Lee Ferry can be claimed to be surplus. Those two points are the big points you are trying to raise here, and the end result of which would be to say that part of the 7,500,000 acre-feet deliverable by the upper basin at Lee Ferry was surplus. The Supreme Court says it is not. It has already so said.

Mr. ENGLE. I do not read the Supreme Court decision in that way.

I would like to ask you this question: When was that Boulder Canyon Project Act passed?

Mr. CARSON. 1928.

Mr. ENGLE. When was the Supreme Court decision referred to granted?

Mr. CARSON. In 1934.

Mr. ENGLE. In 1934?

Mr. CARSON. Yes, sir.

Mr. ENGLE. Did the Supreme Court in its decision construe the Boulder Canyon Project Act or the California Limitation Act?

Mr. CARSON. Not specifically. But we went in for that purpose and it was in the pleadings.

Mr. ENGLE. Do you have——

Mr. CARSON. Wait a minute. It was in the pleadings I filed, since I filed the pleadings in that case, and we set out the California Limitation Act and the provisions of this compact, and the claim of California as to what III (b) meant, and we desired to perpetuate the testimony to be used in a case whenever it would come up, and they took jurisdiction. They said that the bill was properly brought, that it was within their jurisdiction, but that there was no ambiguity, and that the compact was clear and plain on both the points to which I have alluded.

Mr. ENGLE. Do you have before you the Hoover Dam documents?

Mr. CARSON. I have the original. That last document has left out some of the original and put in a lot that was not in the original, and a lot that I think is not properly in there.

Mr. ENGLE. Would you refer to page 25, a footnote?

Mr. CARSON. Of what?

Mr. ENGLE. It relates to the brief filed by Dean Acheson.

Mr. CARSON. Of the Hoover Dam documents? No, I do not have a copy.

Mr. ENGLE. You are familiar, I take it, with the case of *Arizona* v. *California*?

Mr. CARSON. Partially.

Mr. ENGLE. 283 U. S. 423?

Mr. CARSON. Partially.

Mr. ENGLE. In that case, Mr. Dean Acheson, now Secretary of State, represented Arizona, did he not?

Mr. CARSON. Yes.

Mr. ENGLE. He took a position in his brief which was just exactly the contrary to what you are taking now, is that not right?

Mr. CARSON. I do not so read it, Mr. Engle.

At the time of that case and those allegations there, the question had not arisen as to how to measure beneficial consumptive use. The allegations of uses in Arizona to which I am sure you are alluding were not carefully thought out. They were immaterial to anything in the case. It was an attack against the constitutionality of the Boulder Project Canyon Act. They are not material.

The questions here presented had not been raised, so they were inadvertently made and erroneously made, as testified to in these present hearings by these California witnesses who do not agree with Mr. Acheson and who never did agree, probably, with him.

Mr. ENGLE. The point I am trying to make, Mr. Carson, is this——

Mr. CARSON. They were immaterial in that case.

Mr. ENGLE. When we get down to the actual construction of the basic compact, the Court will endeavor to determine the intent of the parties at the time the contract was entered into, and not some theory that they have created afterward.

Mr. CARSON. Yes; but, Mr. Engle, we both know that the Court will not depart from the four corners of a statute or compact or document's provisions if from it it finds the meaning is clear. The Court has so found. By reason of having so found they refused to permit us to perpetuate testimony that would be material if it were in any sense ambiguous.

Mr. ENGLE. I think that is correct, but I want to read you what Mr. Acheson says.

Mr. CARSON. That is immaterial, also. That is not binding on anybody.

Mr. ENGLE. That is right, except that at one time Arizona contended one way and now you contend another way.

Mr. CARSON. It was an immaterial allegation. It was not binding on Arizona, and I think you know it is not binding on Arizona. It serves no useful purpose to refer to immaterial statements that are not binding on Arizona, and on which California never relied.

Mr. ENGLE. I take it, then, that your testimony is not binding on Arizona either, or any statements which you may make as their general counsel.

Mr. CARSON. I think the things that are binding on Arizona are the Colorado River compact and the benefit we claim from the California Self-Limitation Act.

Let me refer to that again. Of course, if somebody later took a different view from mine on these law questions, they could do it. So could anybody in California take a different view from these people.

As I conceive this situation, I think I can illustrate it to you: An attorney for any soverign State cannot bind his State by a statement in a brief or an allegation in a bill of complaint in any manner that affects its sovereignty.

Suppose that some attorney for the United States went into some case and made an immaterial allegation that had never been approved by the Congress, which was tried to be used to bind the United States. You would not, as a Congressman, concede that it had any force or effect, would you?

Mr. ENGLE. I would not agree either, Mr. Carson, that a decision by the Supreme Court that oral testimony should not be perpetuated is bearing upon the construction of a document and is to be considered as a binding statement by the Supreme Court as to the construction of the document.

I think we will have to go back to the Supreme Court for a construction of the basic Colorado River compact.

Mr. CARSON. You may desire to do so, but it has already been decided. The Supreme Court has construed it and determined that it was not ambiguous and that it is clear in its meaning. That is the reason they did not let us perpetuate the testimony, because it was not ambiguous. It was plain from the four corners of the document.

Mr. ENGLE. Has Arizona always contended that the 1,000,000 acre-feet was specifically its water, although in the document itself it was not conceded to be?

Mr. CARSON. We contended that it was intended to be and that we were going to make a tri-State compact with California and Nevada, so providing. They refused to make that compact. Then the Congress put it in the Boulder Canyon Project Act and required California's consent to that division as a condition precedent to the effective date of the Boulder Canyon Project Act, and the construction of the works which California obtained which were therein authorized.

That is the consideration for that act. It is not a question of whether Arizona should ever ratify, or is now a party. It was not at all.

Let me emphasize that to you again:

Shall agree irrevocably and unconditionally with the United States for the benefit of—

the other named States—

as an express covenant and in consideration of the passage of this act—

There is not a thing in the world in there about any condition as to whether Arizona had or would or ever did ratify the Colorado River compact.

Mr. ENGLE. While we are talking about it, there are three classes of water which are in dispute here. First is the III (b) water; and there is the water which will relate to the definition of beneficial consumptive use.

Mr. CARSON. To the measurement.

Mr. ENGLE. Yes. Do you consider the Boulder Canyon Project Act with its reference to "diversions less returns to the river" as a statement of congressional intent as to what the basic compact meant with reference to "beneficial consumptive use"?

Mr. CARSON. No. I consider it to be in accord with the intent of the compact. I do not consider that to be a direct expression by the Congress as to what the original compact meant. But they required California to agree to it.

It can mean nothing, Mr. Engle—diversions less returns to the river—can mean nothing except net depletion.

Now, where we come to the difference in this argument by these southern California representatives of these southern California agencies is that they want to add into that language of the actual "diversions less returns to the river, measured at the site of the use" and those words are not in there and never have been in there.

Mr. ENGLE. Are you familiar with——

Mr. CARSON. They so testified before some of these committees in these current hearings. They epitomize it by saying what is in that act is "diversions less returns to the river measured at the site of the use," and those words "measured at the site of the use" are not in there.

All over the West when you go to measure the depletion or effect of a local use of water you get into this question, you can measure the diversion, but you cannot go immediately below the area and measure the return flow. It may come back to the river several hundred miles or many miles below the point of diversion, and the lower end of the district.

So you, therefore, go to the next control point below where somebody else is depending on water of the river to determine the effect of the upstream diversion on the flow of the river, at the next control point.

I put in here Saturday the statement of the Colorado River Basin States Committee, from which California withdrew. They broke off diplomatic relations with all the rest of us.

I put in their Statement of Principles that under the compact the beneficial consumptive use in the upper basin is, by the terms of the compact, measured by the resulting depletion of the river at Lee Ferry, the delivery point to the lower basin.

Their construction and mine, that the measurement of beneficial consumptive use in the lower basin is by the depletion of the river at the international boundary, in my opinion, is correct.

Mr. ENGLE. Who was Mr. Carpenter?

Mr. CARSON. He was a commissioner for Colorado at the time of the negotiation of the original Colorado River compact.

Mr. ENGLE. He was one of the keymen, was he not?

Mr. CARSON. He was a commissioner for Colorado.

Mr. ENGLE. He was also one of the keymen?

Mr. CARSON. That depends on a matter of personal opinion.

Mr. ENGLE. He says over here in his statement, which I am reading from——

Mr. CARSON. He was a good man and a very able man. I am not making any reflection on him. You asked me if he were one of the keymen. They were all keymen.

Mr. ENGLE (reading):

The term "beneficial consumptive use" is to be distinguished from the amounts diverted from the river. It does not mean head-gate diversions. It means the amount of water consumed and lost to the river during uses of the water diverted. Generally speaking, it is the difference between the aggregate diverted and the aggregate return flow. It is the net loss occurring through beneficial uses.

Mr. CARSON. That is right. That means the net depletion. It can mean nothing in the world but net depletion.

Mr. ENGLE. He says:

It is the net loss occurring through beneficial uses.

Mr. CARSON. That is the net depletion of the stream.

Mr. ENGLE. It also means net depletion from use, does it not?

Mr. CARSON. Yes, man-made use. The net depletion resulting in the stream from man-made use.

Mr. ENGLE. Do you contend that the definition of beneficial consumptive use, "diversions less returns to the river" mentioned in the Boulder Canyon Project Act is the definition which we should accept for the basic compact?

Mr. CARSON. Yes. The only question is: Where are you going to measure it? There is nothing that says, "Measure it at the site of use." It is engineeringly impossible to measure it at the site of use. The only place you can measure it is at the next control point below.

What is the effect of the upstream diversion on the flow of the river at the next control point below?

Mr. ENGLE. That is what Carpenter says. "It does not mean head-gate diversions."

Mr. CARSON. That is right.

Mr. ENGLE. He does not agree.

Mr. CARSON. Yes, he does. Read the rest. I am agreeing with what he said. It means the net loss to the stream.

Mr. ENGLE. Through beneficial uses.

Mr. CARSON. Yes.

Mr. ENGLE. The net loss occurring through beneficial uses.

Mr. CARSON. Yes. The net loss to the stream occurring through beneficial uses.

Mr. ENGLE. You are perfectly willing, then, that the definition of "diversions less returns to the river" as specified in the Boulder Canyon Project Act apply to the basic compact; is that correct?

Mr. CARSON. Where we differ is where you are going to measure it.

Mr. ENGLE. That makes a lot of difference.

Mr. CARSON. The California witnesses, as I said before, have been epitomizing it in these current hearings, and have quoted in some of these hearings records that they say that means, and put it in parentheses, "diversions less returns to the river measured at the site of the use," and that is not in there.

Mr. ENGLE. How else are you going to measure it?

Mr. CARSON. At the next control point below.

For instance, the Metropolitan water district, in my judgment, would have to calculate the net depletion caused by its diversion at the international boundary, and so would the Palo Verde irrigation district in California, and so would the part of the Yuma Indian Reservation in California, and so would the Imperial irrigation dis-

trict be credited with all return flow that seeped out of the All-American Canal down to the Mexican international boundary.

Mr. ENGLE. How do you reconcile your statement with the one here from Mr. Carpenter, who was in on all of these negotiations? He sat there.

Mr. CARSON. I know.

Mr. ENGLE. This is a report after it was all over. He says it means the amount of water consumed and lost to the river during the uses of the water diverted.

Mr. CARSON. That is my definition.

Mr. ENGLE. They consumed it at the site.

Mr. CARSON. At the next control point below is where you have to measure it. It is impossible from an engineering point of view, so the engineers tell me, and I am sure that it is from my own experience in the districts in Arizona, to measure the diversions into the canal of a district, and then go immediately below that district and measure the return flow. That return flow may come back for miles and miles below the lower boundary of the district.

It seeps through the ground, and we are all entitled to measure our consumptive use at the next control point below, or as established by compact. In the Colorado River compact we established Lee Ferry as the point for measuring the beneficial consumptive use in the upper basin, and the international boundary for measuring the consumptive use in the lower basin.

The Arizona compact, which I helped negotiate, puts in an intermediate control point, so far as Arizona is concerned, by providing specifically that our right to withdraw water from storage at Lake Mead shall be diminished to the extent that our uses of water above Lake Mead diminish the flow into Lake Mead.

All up and down the river in all of these documents it is clear that the intention was to measure the beneficial consumptive use by the net depletion of the stream at the control points therein provided, or at the next control point below.

Mr. ENGLE. That refers, I take it, according to your definition, to the original stream itself, because the Colorado River Basin compact refers to the streams.

Mr. CARSON. Yes. That would mean on the Gila River we would actually be entitled under the compact and the documents to measure the net effect on the depletion of the stream by our consumptive use of Gila River waters at the international boundary.

We have, for this purpose, taken the nearest measuring station on the Gila above its confluence with the Colorado River, which is at Dome, Ariz., just before it gets into the main stream of the Colorado River, and we measure our consumptive use at that point because we have a recorded flow there.

Mr. ENGLE. Paragraph III (a) of the compact says that 7,500,000 acre-feet of water allocated to the upper and lower basins shall include the established uses.

Mr. CARSON. Yes.

Mr. ENGLE. Did that include the uses on the Gila?

Mr. CARSON. It is immaterial as between States.

Let me go into that with you a minute. These are sovereign States, Mr. Engle, dealing as such. No State surrenders any jurisdiction or

extraterritorial jurisdiction within its borders to any other State. We deal as sovereign States.

The compact provides, and so does the Boulder Canyon Project Act, that each State within its borders shall be the sole judge on the diversion, appropriation, and use of waters within its borders. No State has surrendered any extraterritorial jurisdiction or control within its State.

California cannot go up into Utah or Colorado or Wyoming or New Mexico or Arizona, and try to take control of the use of water within any of those States.

By that concept of sovereign States dealing as such, they have fixed the territorial points at which their whole depletion must be measured. If California thinks that Arizona, under the original compact, for instance, is overusing water, or the upper basin as a whole is overusing water, it cannot go up in there and go into court and tell John Jones, "You have to cut down the use of water." It has to bring a suit or rely upon the integrity and good faith of those individual States so to regulate uses within their borders that they will not violate this basic compact.

Mr. ENGLE. You mean to say that California has no interest or concern in how much of the 7,500,000 acre-feet Arizona charges against its share on the Gila?

Mr. CARSON. No, but I say you have to measure it at the State borders.

Mr. ENGLE. Where do you find that in the act?

Mr. CARSON. Because of the concept that we are dealing as sovereign States. No State has any extraterritorial jurisdiction within the borders of any other State. We do not claim any in California. We do not claim any in the upstream States, nor can you.

You have to measure the effect of their uses by the depletion at State lines, or, in the case of the upper basin as a whole, at Lee Ferry. As between California and Arizona, at the international boundary.

Mr. ENGLE. Now where do you find that?

Mr. CARSON. It does not say it specifically.

Mr. ENGLE. That is an interpretation, is it not?

Mr. CARSON. It does not say it specifically.

Mr. ENGLE. Here is something else that has puzzled me, Mr. Carson: Why is it that Mr. Hayden on December 5, 1928, in the United States Senate, offered an amendment to H. R. 5773 which I understand to be the Boulder Canyon Project Act, which provided that California and Arizona should share the III (b) water 50–50?

Mr. CARSON. I do not know why he did, but that is not material either, Mr. Engle. We are bound by the act of Congress as it came out. You cannot go back and review individual arguments or statements on the floor, or amendments offered. You go by the final act, if it is clear and unambiguous on its face, and the Court has held that it is, and has excluded us from trying to perpetuate any testimony to show the understandings at the time.

Those are all entirely immaterial and irrelevant, and have no place in any of these hearings, in my judgment. The act is clear. The California Self-Limitation Act is clear. The Colorado River compact is clear on its face.

Mr. ENGLE. Here is the point I am making, Mr. Carson: Taking the Supreme Court, what you say it says there, in our opinion is dicta.

Mr. CARSON. That is the reason they would not let us perpetuate testimony.

Mr. ENGLE. Where it refers to the word "apportion." I think there is a distinction between the Supreme Court declaring a document unambiguous and declaring what a document says.

Mr. CARSON. It has to find it is unambiguous in order to exclude the testimony.

Mr. ENGLE. But it does not have to declare what the document says. When it declares what the document says it is dicta.

Mr. CARSON. No.

Mr. ENGLE. Here is what happened: Just assume for the purpose of this discussion that your views of it are correct. The Supreme Court decision was made in 1934. This debate occurred in 1928. The California Self-Limitation Act is based upon the Boulder Canyon Project Act, which was passed in 1928. If we are going to determine what was meant by the California Self-Limitation Act, we have to determine what was in the minds of the parties at that time, and whether or not they used the words in the same sense, and here we find Senator Hayden, who represented Arizona in the United States Senate, offering an amendment, if you please, which divides this water 50–50.

Mr. CARSON. It was not passed, was it?

Mr. ENGLE. In other words, when you proceed from the basic compact——

Mr. CARSON. Mr. Engle?

Mr. ENGLE. To the Limitation Act, and then say that the Supreme Court decision made 7 years afterward was based upon that and affects what the parties intended at that time, you are talking about something which is impossible.

Mr. CARSON. Mr. Engle, the amendment did not pass, did it? It was not incorporated in the act?

Mr. ENGLE. I understand——

Mr. CARSON. You go by the act. You go by the act, and the Supreme Court says that it is clear on its face.

Mr. ENGLE. I cannot see Mr. Murdock offering any such amendment.

Mr. Chairman, I want to put into the record—and I will prepare it for an appropriate place—the reference which I have made here, referring to the amendment offered by Senator Hayden on December 5, 1928. It bears upon this subject.

Mr. CARSON. It is entirely immaterial and irrelevant. You go by the language of the act, which the Supreme Court has held is clear and unambiguous.

Mr. ENGLE. But it is not the basic Colorado River compact upon which you predicate your right. This claim that the interpretation flows from the Limitation Act, passed in 1928, is not the same.

Mr. CARSON. The Supreme Court passed upon what the original compact meant in the language I read you this morning. The III (b) water is apportioned water to the lower basin. We brought that case to perpetuate the testimony because by that time, in 1934, the Cali-

fornia representatives of these southern California agencies had begun to assert that they were entitled to share in III (b) water.

Mr. ENGLE. That is precisely the point I am making. The claim of Arizona flows from a construction of the California Limitation Act.

Mr. CARSON. From its clear language, which the Court said is unambiguous.

Mr. ENGLE. I know, but they were talking about the compact. They were not talking about the California Limitation Act.

Mr. CARSON. I tell you then that, in my opinion, the California self-limitation statute is clear and unambiguous and forever excludes California from any claim on III (b) water.

Mr. ENGLE. That is your contention.

Mr. CARSON. Yes.

Mr. ENGLE. But here we have Senator Hayden, if you please, offering an amendment which gives California half of it.

Mr. CARSON. That amendment never passed, did it? If you go by the act of Congress as it came out, that is something else. If this act is clear and unambiguous you cannot go back behind it to see what any individual might have done or said in debate on the floor.

Mr. ENGLE. I know, but it is a declaration against interest. It bears upon what the parties thought the situation really was in 1928. Hayden thought we had a right to half the III (b) water or he wouldn't have offered the amendment.

Mr. CARSON. It is entirely——

Mr. ENGLE. And what was intended to be meant in this California Limitation Act then under discussion.

Mr. CARSON. No.

Mr. ENGLE. Mr. Carson——

Mr. CARSON. It cannot bear on that. You have to stay by the language of the act, where it is clear and unambiguous. Everything else is immaterial.

Mr. ENGLE. You are not basing it upon the language of the compact, but upon the act.

Mr. CARSON. I am basing it upon both the compact and the California Limitation Act.

Mr. ENGLE. There is one other thing. There is one other type of water which is in dispute.

We contend that we do not agree with you on the beneficial consumptive use. We think Mr. Carpenter supports our view and not yours.

Mr. MURDOCK. Will the gentleman yield?

Mr. ENGLE. Yes.

Mr. MURDOCK. You asked for permission to include part of the legislative procedure of 1928. Do you ask permission for that to go into the record at this point?

Mr. ENGLE. At an appropriate point. I do not want to destroy the continuity of Mr. Carson's testimony, but I did want the record to show what I was talking about.

Mr. MURDOCK. I think this would be the proper point. This is right after the colloquy has occurred, and the language of the amendment can be inserted.

Mr. ENGLE. I will be glad to put it in.

(The information is as follows:)

SECTION 4 (A), BOULDER CANYON PROJECT ACT

SENATOR HAYDEN'S DRAFT AS PRINTED DECEMBER 5, 1928

(See Congressional Record 70th Cong., 2d. sess., December 6, 1928, p. 162)

70TH CONGRESS
2D SESSION

H. R. 5773

IN THE SENATE OF THE UNITED STATES

DECEMBER 5, 1928

Ordered to lie on the table and to be printed

AMENDMENT

Intended to be proposed by Mr. HAYDEN to the bill (H. R. 5773) to provide for the construction of works for the protection and development of the lower Colorado River Basin, for the approval of the Colorado River compact, and for other purposes, viz: Strike out all of lines 1 to 18, both inclusive, and insert in lieu thereof the following:

"SEC. 4 (a). This Act shall not take effect and no authority shall be exercised hereunder, unless and until the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming shall have ratified the Colorado River compact mentioned in section 12 hereof, and the President, by public proclamation, shall have so declared: *Provided*, That the ratification act of the State of California

(Page 2)

shall contain a provision agreeing that the aggregate annual consumptive use by that State of waters of the Colorado River shall never exceed 4,200,000 acre-feet of the water apportioned to the lower basin by paragraph (a), of Article III of said compact, and that the aggregate beneficial consumptive use by that State of waters of the Colorado River shall never exceed 500,000 acre-feet of the water apportioned by the compact to the lower basin by paragraph (b) of said Article III; and that the use by California of the excess or surplus waters unapportioned by the Colorado River compact shall never exceed annually one-half of such excess or surplus waters; and that the limitations so accepted by California shall be irrevocable and unconditional, unless modified by the agreement described in the following paragraph, nor shall said limitations apply to water diverted by or for the benefit of the Yuma reclamation project for domestic, agricultural, or power purposes except to the portion thereof consumptively used in California for domestic and agricultural purposes.

"The said ratifying act shall further provide that if by tri-State agreement hereafter entered into by the States of California, Nevada, and Arizona the foregoing limitations are accepted and approved as fixing the apportionment of water to California, then California shall and will therein agree (1) that of the 7,500,000 acre-feet annually appor-

(Page 3)

tioned to the lower basin by paragraph (a) of Article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 3,000,000 acre-feet for exclusive beneficial con-

sumptive use in perpetuity, and (2) of the 1,000,000 acre-feet in addition which the lower basin has the right to use annually by paragraph (b) of said article, there shall be apportioned to the State of Arizona 500,000 acre-feet for beneficial consumptive use, and (3) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (4) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (5) that the waters of the Gila River and its tributaries shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico but if, as provided in paragraph (c) of Article III of the Colorado River compact, it shall become necessary to supply water to the United States of Mexico from waters apportioned by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply one-half of any deficiency which must be supplied to Mexico by the lower basin, and (6) that the State of California shall and will further mutually agree with the States of

(Page 4)

Arizona and Nevada that none of said three States shall withhold water and none shall require the delivery of water, which can not reasonably be applied to domestic and agricultural uses, and (7) that all of the provisions of said tri-State agreement shall be subject in all particulars to the provisions of the Colorado River compact."

AS PASSED BY THE SENATE

70TH CONGRESS
2D SESSION

H. R. 5773

IN THE HOUSE OF REPRESENTATIVES

DECEMBER 15, 1928

Ordered to be printed with the amendment of the Senate

AN ACT

To provide for the construction of works for the protection and development of the lower Colorado River Basin, for the approval of the Colorado River compact, and for other purposes.

* * * * * * *

SEC. 4 (a). *This Act shall not take effect and no authority shall be exercised hereunder and no work shall be begun and no moneys expended on or in connection with the works or structures provided for in this Act, and no water rights shall be claimed or initiated hereunder, and no steps shall be taken by the United States or by others to initiate or perfect any claims to the use of water pertinent to such works or structures unless and until (1) the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming shall have ratified the Colorado River compact, mentioned in section 12 hereof, and the President by public proclamation shall have so declared, or (2) if said States fail to ratify the said compact within six months from the date of the passage of this Act then, until six of said States, including the State of California, shall ratify said compact and shall consent to waive the provisions of the*

(Page 2)

first paragraph of Article XI of said compact, which makes the same binding and obligatory only when approved by each of the seven States signatory thereto, and shall have approved said compact without conditions, save that of such six-State approval, and the President by public proclamation shall have so declared, and, further, until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an express covenant and in consideration of the passage of this Act, that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this Act and all water necessary for the supply of any rights which may now exist, shall not exceed four million four hundred thousand acre-feet of the waters apportioned to the lower basin States by paragraph a of Article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to

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the lower basin by paragraph (a) of Article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico but if, as provided in paragraph (c) of Article III of the Colorado River compact, it shall become necessary to supply water to the United States of Mexico from waters over and above the quantities which are surplus as defined by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply, out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin, and (5) that the State of California shall and will further mutually agree with the States of Arizona and Nevada that none of said three States shall withhold water

(Page 4)

and none shall require the delivery of water, which can not reasonably be applied to domestic and agricultural uses, and (6) that all of the provisions of said tri-State agreement shall be subject in all particulars to the provisions of the Colorado River compact, and (7) said agreement to take effect upon the ratification of the Colorado River compact by Arizona, California, and Nevada.

Mr. ENGLE. There are three classes of water. The third class, which we have not discussed as yet, relates to evaporation losses.

Mr. CARSON. Yes.

Mr. ENGLE. As I understand it, Arizona contends that California has to take about 600,000 acre-feet of evaporation losses from Lake Mead.

Mr. CARSON. No. Our contention is that if it ever becomes necessary to take into account evaporation losses in Lake Mead, which we think cannot occur within the foreseeable future, it cannot occur, Mr. Engle, unless and until the upper basin States completely deplete the flow of the river at Lee Ferry by 7,500,000 acre-feet, which they have a right to do. It cannot occur then unless and until all surplus has disappeared from the river.

If the day should ever come when there is too little water in Lake Mead to supply the rights below Lake Mead or out of Lake Mead in Nevada, California, and Arizona, we say that evaporation losses should be shared ratably and proportionately by the people for whose benefit the water is stored, and we will bear our share.

Mr. ENGLE. You know, as a matter of law, do you not, that a limitation act is strictly construed?

Mr. CARSON. Yes; and that is what I want to call attention to in your act.

Mr. ENGLE. That is what I am going to call to your attention.

Mr. CARSON. That is what I was getting at.

Mr. ENGLE. This is the language reiterated in the California Self-Limitation Act:

> Aggregate annual consumptive use (diversions less returns to the river) of waters of and from the Colorado River for use in the State of California, including all uses under contracts made—

and so forth—

> shall be limited to 3,400,000 acre-feet of water.

Mr. CARSON. Wait a minute. Let me correct you on that.

Mr. ENGLE. Let me finish my question.

Mr. CARSON. Let me correct you, Mr. Engle, on the reading. It does not say "shall be limited." It says, "shall not exceed."

Mr. ENGLE. I beg your pardon. That is what it does say, "shall not exceed 4,400,000 acre-feet." That is what I intended to say.

As I understand it, Arizona's position is to write in there "minus evaporation losses."

Mr. CARSON. We are not writing in anything.

Mr. ENGLE. How can we get 4,400,000 acre-feet for California's uses when you are going to take away 600,000 acre-feet of evaporation losses?

Mr. CARSON. I do not think we are going to take anything away. As I said, I do not believe any question on evaporation loss is proper here. It cannot enter into this picture for probably 100 years or more.

Mr. ENGLE. We hope that the upper basin proceeds a little more expeditiously.

Mr. CARSON. We want to help them, where possible.

Let me read you this language again. That is not a minimum. That is "shall not exceed 4,400,000 acre-feet."

Mr. ENGLE. I intended to specify that it was a maximum.

Mr. CARSON. That is the maximum. It does not say it is water diverted into California. It is water diverted for use in the State of California.

Now, when you divert water from the flow of the stream, whether it be an on-stream reservoir or whether it be an off-stream reservoir, that stored water is diverted from the flow of the stream. It is right that minute when it is stopped, diverted for use in the State of California, under the language of this act, so that all the States within their borders and in reservoirs that are constructed for their benefit have to bear ratably and proportionately the evaporation losses that are caused by the storage of water for their benefit.

Mr. ENGLE. Did I not understand you to say that the divisions should be measured at the State line?

Mr. CARSON. What?

Mr. ENGLE. Did I not understand you to say a moment ago that we had to measure on the State line?

Mr. CARSON. On the net effect of it, sir. That includes evaporation losses. Evaporation losses on a reservoir that we build in Arizona on the Gila River or the Salt River we have to bear, for all of the evaporation losses.

Mr. ENGLE. You are not under a limitation act; we are.

Mr. CARSON. You have no minimum?

Mr. ENGLE. When we went under a limitation act you must strictly construe the imitation. It says "$4,400,000 for use in California." It does not say "4,400,000 'minus evaporation losses' for use in California."

Mr. CARSON. It says a maximum of 4,400,000, not a minimum, and it measures it by the diversions less returns to the river of water from the stream for use in the State of California. It is not diverted into California, but diverted for use in California.

Now, I think any court of equity, if it ever went into court—it could never get into court until, as I say, the upper basin has put to full use all its water, all surplus has disappeared from the stream, and there might come such a time, although we have put into evidence material here to show that it is very improbable that there would ever come such a time, even under those conditions. You have to reach the condition that there is not enough water to furnish the rights below. Then, as all of us know, all over the West, it is prorated among the people entitled to it, subject only to the internal priority system of a State.

Mr. ENGLE. Mr. Carson——

Mr. CARSON. I do not think you will disagree with that. I think that is the fair and equitable way to do. That is what we propose to do.

Now, following you just a minute longer on that, if you will, suppose that Arizona took the same position that California takes as against Nevada, and we said, like California is saying, "We will bear no part of those evaporation losses."

Mr. ENGLE. You are not under a limitation act, Mr. Carson.

Mr. CARSON. It does not make any difference. Yours is a maximum, and it is not water diverted into California, but diverted for use in California.

If you are entitled to do that so are we, but we do not propose to do it because if we could throw all this on Nevada they would not have

a drop of water available in Lake Mead if a shortage should ever develop.

Mr. ENGLE. My contention is that when you are under a limitation act it is strictly construed under the law.

Mr. CARSON. That is what I am asking you to do.

Mr. ENGLE. You fellows are going to hold us strictly to it, are you not?

Mr. CARSON. Yes, sir; and I am asking you to construe it strictly.

Mr. ENGLE. Mr. Carson, you are familiar, I take it, with the Bureau of the Budget report in which it says that the legal questions relating to the source of supply are not resolved, are you not, the source of supply for the water for this project?

Mr. CARSON. I read the other letter, too. I read both their letters.

Mr. ENGLE. You are familiar, also, with the statement by the Bureau of Reclamation, and more particularly the statement by Mr. Warne or Mr. Chapman in which is outlined specifically the legal questions which are in dispute, and which those great departments of government consider themselves unqualified to resolve?

Mr. CARSON. They consider that in any way that would be binding on the several States they are not qualified.

Mr. ENGLE. Now, in view of those——

Mr. CARSON. Of course, we all know they are not set up with authority to give orders that would be binding upon any particular State.

Mr. ENGLE. Do you think that this Congress has the power either to interpret a compact or to make allocation of State water rights?

Mr. CARSON. I think Congress has the power and the duty for the purpose of its legislation to interpret and construe the Colorado River compact, and this legislative compact between the United States and the State of California.

I heard you argue here, and I was surprised at the argument, Mr. Engle, that this Congress could not even read, interpret, or construe the California Limitation Act, which is a part of a legislative compact between the United States and the State of California made through the agency of this very Congress of the United States.

Mr. ENGLE. Do you contend that the United States Government is a party to the California Self-Limitation Act?

Mr. CARSON. Yes; of course it is.

Mr. ENGLE. Then you would say that one party to a contract has a right to construe it adversely to the interest of another party?

Mr. CARSON. Yes, sir.

Mr. ENGLE. Do you say that as a lawyer?

Mr. CARSON. For the purpose of its own legislative act; yes. I am not alone in that.

Mr. ENGLE. That is a new thesis. I will have to say that. Thank you very much, Mr. Carson.

Mr. CARSON. Wait a minute. I do not want to leave that right now and leave it like that. You have argued that this Congress cannot construe anything and cannot interpret anything.

Mr. ENGLE. Mr. Breitenstein said that, a witness who testified for you people.

Mr. CARSON. You misconstrued what Mr. Breitenstein said.

Mr. ENGLE. What was that?

Mr. CARSON. You misconstrued what Mr. Breitenstein said. He said in consenting to a compact Congres did not interpret or construe.

Mr. ENGLE. He also said that the Boulder Canyon Project Act was no construction of the basic compact. He very bitterly objected to us writing any language into the upper basin compact because he said we might thereby indicate that Congress had the power to make such interpretation in its legislation. He said that the Boulder Canyon Project Act was no interpretation of the basic compact, and he said, talking about dogs getting kicked, that their dog got kicked first, if these words "diversions less returns to the river" were construed against the upper basin.

Mr. CARSON. I would agree with you.

Mr. ENGLE. You are in disagreement with Mr. Breitenstein?

Mr. CARSON. Yes, and you are with Mr. Howard, as I will show you in a minute.

The Boulder Canyon Project Act, in addition to containing a consent to the Colorado River compact, goes on in section 13 (b), and I want to read this.

Mr. ENGLE. Where is this?

Mr. CARSON. 13 (b) of the Boulder Canyon Project Act:

> The rights of the United States in or to waters of the Colorado River and its tributaries howsoever claimed or acquired, as well as the rights of those claiming under the United States, shall be subject to and controlled by said Colorado River compact.

The Congress subjected the rights of the United States to that compact. Of course, Congress understood it.

Mr. ENGLE. You mean to say as one of the parties we sit down and construe our own compact?

Mr. CARSON. Yes, sir.

Let me read to you what Mr. Howard has to say about that, while you were arguing that way in this committee.

I am reading from the transcript before the Judiciary Committee of the House, given by Mr. Howard on April 6, 1949, on page 307:

> In order that I may not be misunderstood let me say that it is unquestionably within the power of the Congress as an administrative and legislative matter, to ascertain the existence of facts required as the basis for legislative action. Every time the Congress authorizes a reclamation project it necessarily considers the engineering feasibility, which includes the availability of a water supply. It is hard to imagine Congress authorizing a project calling for a large amount of water from a river system incapable of producing the required water. Such legislative determinaton, however, falls far short of being an adjudication or final determination of water rights. In the event that anyone believed that those rights on a river system had been invaded by a project built in response to congressional authority his remedy in court would be open to him.

I agree with that, and it is our position.

Mr. ENGLE. There is a very great difference.

Mr. CARSON. Not a bit in the world.

Mr. ENGLE. There is a very great difference between talking about physical availability of water and legal availability of water.

Mr. CARSON. This availability of water involves both physical and legal availability of water.

We think we have a right in Arizona to come to the Congress for an authorization for this project, realizing as we do that in authorizing it Congress will undoubtedly determine, if it authorized it, that the

project is engineeringly feasible and that in the judgment of Congress the water is available for it.

We realize that, and we take that burden, Mr. Engle.

Mr. MURDOCK. May I interrupt just a moment? Off the record.

(Discussion off the record.)

Mr. CARSON. I think that is the situation. Mr. Howard testified again before the Senate Committee on Interior and Insular Affairs to the same effect.

Mr. ENGLE. I am not in disagreement with Mr. Howard.

Mr. CARSON. What are you arguing about?

Mr. ENGLE. I am arguing this: The rights on the Colorado River are predicated on an interstate contract.

Mr. CARSON. Yes.

Mr. ENGLE. That the jurisdiction for the determination of a dispute between States is the Supreme Court of the United States, and that this Congress cannot make a legal determination. It has no jurisdiction to make a legal determination on the meaning of an interstate contract.

Mr. CARSON. Not if the——

Mr. ENGLE. And especially, if you please, where the Federal Government itself, according to your contention—I am not so sure that it is right—is a party to either the contract or the California Self-Limitation Act.

Then how much more improper becomes any effort of ours to construe a contract to which the Federal Government is a party? The proper place for that is over in the Supreme Court.

Mr. CARSON. I will not read Mr. Howard's testimony again, but I want to call your attention to it, beginning on page 1887 of the hearings before the Committee on Interior and Insular Affairs of May 2, 1949, appearing in the reporter's transcript of that hearing.

Now let me depart with you from these quotations and things and ask you: This is a legislative matter before the Congress. Do you not believe that Congress has a right to go into all questions of availability of water and feasibility of a project to determine whether or not it will authorize it? Do you not agree, Mr. Engle, that Congress has done so in the building of the California works, in the requirement of the California Self-Limitation Act, and in numerous and almost innumerable other instances?

Now, if you take your theory then that Congress cannot, for the purpose of legislation—not as a judicial determination, but as necessary to legislation—go into any such matters as this, what do you do? You render every interstate compact that might be made, that might require legislation for its implementation or use of water, absolutely nugatory. Congress could not inquire into any of those to see whether anybody had any water under that interstate compact or act. The thing would be destroyed.

Congress consented to that compact, and made the interests of the United States subject to it.

For the purpose of legislation now, and not as a judicial determination, will you not agree that Congress has a right to consider these matters and determine that there is or is not an available water supply, in its judgment, and then if it finds there is, it can authorize the project? If California, after it is authorized, believed or could allege that it

in any manner infringed on California's rights of use, they could go immediately to the Supreme Court and bring an action and a direct action against Arizona, and the United States would not have to be a party.

That is what Mr. Howard is saying here, except that he adds in one place that the United States would have to be a party.

Mr. ENGLE. What I am saying here, Mr. Carson——

Mr. CARSON. Will you not agree?

Mr. ENGLE. Is that this committee has to go——

Mr. CARSON. Will you not agree with that statement?

Mr. ENGLE. Let me state it in my own words.

Mr. CARSON. I want you to answer my question if you will, please.

Mr. ENGLE. You are the witness, Mr. Carson.

Mr. CARSON. I want to know the California position.

Mr. ENGLE. I do not know that I can state the California position.

Mr. CARSON. Or your individual position?

Mr. ENGLE. I will state what I think about it. I think that this case has to go to the Supreme Court. I think that this Congress has no jurisdiction to settle this legal question.

You admit yourself, when you say we have a right to go to the Supreme Court if we disagree with the Congress, that that is true.

Mr. CARSON. You cannot get that until Congress acts.

Mr. ENGLE. I think this committee should not be sitting here trying a case which should be heard before the Supreme Court. We are spending a great deal of the committee's time in the hearing of engineering and financial feasibility of this project, when first we ought to get the water rights established.

It is just like going up to the great city of New York and doing work on engineering and financial feasibility on a 100-story skyscraper, without having determined first a quiet-title action as to the lot on which the building is going to be erected.

Mr. CARSON. You cannot get into the Supreme Court until this project is authorized, Mr. Engle. There is no justiciable controversy.

Mr. ENGLE. That is a question, whether or not there is a justiciable controversy.

Mr. CARSON. That is right.

Mr. ENGLE. Let us have the Judiciary Committee settle that.

Mr. CARSON. Then do not bring it up here.

Mr. ENGLE. All right.

Mr. CARSON. Let me read you one paragraph in the case Arizona brought against California that completely answers that argument.

This appears in 283 United States 423:

When the bill was filed, the construction of the dam and reservoir had not been commenced.

That is the Hoover Dam. Let me digress here.

Arizona was fighting the constitutionality of the act. They were opposing the appropriations to build the works. California did not try to get into court. They went right ahead and appropriated money and built the works. They went right ahead after this dispute arose at that time and adopted that intrastate priority agreement which causes all of their trouble now, and after those things were done Arizona filed suit and the Supreme Court refused to take jurisdiction in this language:

When the bill was filed, the construction of the dam and reservoir had not been commenced. Years must elapse before the project is completed. If by operations at the dam any then perfected right of Arizona, or of those claiming under it, should hereafter be interfered with, appropriate remedies will be available.

I will skip the citations in this paragraph.

The bill alleges that plans have been drawn and permits granted for the taking of additional water in Arizona pursuant to its laws. But Wilbur threatens no physical interference with these projects; and the Act interposes no legal inhibitions on their execution. There is no occasion for determining now Arizona's rights to interstate or local waters which have not yet been, and which may never be, appropriated.

Then they cite more cases:

Arizona has, of course, no legal right to use, in aid of appropriation, any land of the United States, and it cannot complain of the provision conditioning the use of such public land.

That last sentence related back to the Boulder Canyon Project Act, in which Congress attached a condition for rights-of-way across Federal lands in Arizona, and they had withdrawn all of the land bordering on the Colorado River clear across the State. You could not get a blacksnake out without crossing Federal land, and they had attached a condition to any right-of-way for any use of water for which those rights-of-way were necessary, that they and the water rights should be subject to and controlled by the Colorado River compact, and they should run with the right of use.

That settles the question of justiciable issues.

Mr. ENGLE. Before we leave that subject, do you contend we have to spend $738,000,000 from the Federal Treasury on the central Arizona project before California has a justiciable case?

Mr. CARSON. No; I do not.

Mr. ENGLE. You just finished reading a citation there that said no dam had been constructed, and so forth.

Mr. CARSON. I do not say that. That was being built while this battle was going on; and Congress was appropriating money.

Mr. ENGLE. How far do we have to go before we can go into court?

Mr. CARSON. You can go into court at any time you think you can allege a threat of Arizona to divert 1,200,000 acre-feet of water from the Colorado River, which you claim adversely affects your right to use 4,400,000 acre-feet, and not until then. Until then there will be no such threat.

Mr. ENGLE. Until after the project is built?

Mr. CARSON. No, there will be no such threat until there is an authorization to build the project.

Mr. ENGLE. You fellows——

Mr. CARSON. In the meantime, Mr. Engle, we are not in the position to make any threat to do it. All we have is a hope. We cannot do it unless Congress authorizes it.

Mr. ENGLE. You are threatening us now.

Mr. CARSON. What is that?

Mr. ENGLE. I said, "You are threatening us now." I cannot imagine a more dangerous threat.

Mr. CARSON. Read these cases.

Mr. ENGLE. You are not going to ask this committee to do a foolish thing?

Mr. CARSON. No, we are not going to ask you to do any foolish thing.

Mr. ENGLE. Certainly the Supreme Court is not going to ask us to do a foolish thing.

Mr. CARSON. We are clear in our minds. We believe we have been able to convince this committee that we have the right to the water, and I believe we have, Mr. Engle. If you members of the committee will make up your minds to hold California to the Limitation Act, in my judgment this 1,200,000 acre-feet will not take away one drop of the water usable in California under that Limitation Act.

If California believes when this authorization bill is passed, that it can, then they could properly allege that Arizona is threatening to divert 1,200,000 acre-feet of water from the river, and then you have to go further than that, in my view, and also allege that that diversion of 1,200,000 acre-feet would, in some manner, interfere with your right to use 4,400,000 acre-feet, to which you are forever limited.

I do not believe you will find any possible way of making that kind of an allegation.

Mr. ENGLE. Wait a minute now.

Mr. CARSON. So it just depends on the California point of view, as to whether or not they now make up their minds, regardless of the intrastate priority agreement in California, to live within their California Limitation Act. If they do, I think they will have no fear nor any desire to litigate.

Mr. ENGLE. But the Bureau of Reclamation has said that if California is right there is no firm water supply for this project.

Mr. CARSON. I think I have shown you here that the Supreme Court has ruled against you on two of your main contentions.

Mr. ENGLE. Wait a minute. You do not agree with the Bureau of Reclamation, do you?

Mr. CARSON. Yes, I agree with them.

Mr. ENGLE. You agree that if California is right you do not have the water?

Mr. CARSON. The Bureau of Reclamation says they do not have the judicial machinery to make a binding award.

Mr. ENGLE. The Bureau went further than that. The Bureau said that if California is right, the water is not there, did they not?

Mr. CARSON. Yes.

Mr. ENGLE. All right.

Mr. CARSON. Well, I do not agree that California has any chance of being right.

Let me show you here again.

The Supreme Court says that in that case that I read you that no part of the 7,500,000 acre-feet deliverable at Lee Ferry can be called surplus.

Now, your whole effort, Mr. Engle, is to claim that the 1,000,000 acre-feet of III (b) water is surplus, and that the 1,300,000 acre-feet, which they claim is our overuse on the Gila, is surplus and is in the main stream of the river, and that they can divert one-half of it. It cannot be in the river unless it be a part of the 7,500,000 acre-feet deliverable

at Lee Ferry by the upper basin, and the Supreme Court has said that it cannot be so called that no part of that 7,500,000 acre-feet is surplus.

Mr. ENGLE. Wait a minute. It is a fact, is it not, that the 7,500,000 allocated to the lower basin includes all established uses; is that not right?

Mr. CARSON. It does not make any difference as between States.

Mr. ENGLE. That would include the use of the Gila.

Mr. CARSON. It does not make any difference between States. You are dealing as sovereign States. No State has any extraterritorial jurisdiction in another State.

Mr. ENGLE. I know, but——

Mr. CARSON. There is apportioned to the lower basin 8,500,000 acre-feet. Of that, California is limited to 4,400,000 acre-feet. The Supreme Court has said that no part of that 7,500,000 acre-feet deliverable at Lee Ferry may be classed or called surplus. If no part of that is surplus then your argument completely fails of any force as against Arizona, or in favor of California.

Mr. MORRIS. Will the gentleman yield for a question?

Mr. ENGLE. Yes.

Mr. MORRIS. Mr. Carson, assuming that H. R. 934 should become law, it is your position, as I understand it, that then California could go into court to determine the rights as between California and Arizona over this water?

Mr. CARSON. I will have to qualify that. They could properly then allege that Arizona was threatening to divert 1,200,000 acre-feet.

Mr. MORRIS. They could go into court?

Mr. CARSON. Yes.

Mr. MORRIS. They would have a justiciable cause.

Mr. CARSON. No. Then, to make a justiciable issue they would have to go further, in my opinion, and allege that that diversion of 1,200,000 acre-feet would, in some way, deprive California of some part of the 4,400,000 acre-feet which we say they are entitled to use.

Mr. MORRIS. Yes. I understand they would have to allege a cause of action.

Mr. CARSON. Yes.

Mr. MORRIS. They would have to allege that it was about to take away some of their rights.

Mr. CARSON. That is right.

Mr. MORRIS. This is an important point to me.

Would you say that they would go into court in the nature of an injunction? Would they seek to enjoin?

Mr. CARSON. Yes.

Mr. MORRIS. Because of a present threat?

Mr. CARSON. A present threat and danger.

Mr. MORRIS. Whom would they enjoin or seek to enjoin?

Mr. CARSON. Arizona.

Mr. MORRIS. From doing what?

Mr. CARSON. From diverting 1,200,000 acre-feet of water.

Mr. MORRIS. Of course, Congress would be the agency that would be giving the authorization.

Mr. CARSON. Yes.

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Mr. MORRIS. They could not enjoin Congress, in the nature of things.

Mr. CARSON. They would not have to enjoin Congress. It would just be the State of Arizona.

Mr. MORRIS. They would, in your judgment, then be able to go into court, if they could make sufficient allegations that they had certain property rights and those rights were about to be destroyed by the action of the State of Arizona, then they could enjoin Arizona from doing what? Would that be from further proceedings before this Congress?

Mr. CARSON. From diverting the water.

Mr. MORRIS. Of course, they could not divert the water until appropriations were made. Even after we passed H. R. 934, there is a point as to whether they could come into court and get the court to adjudicate this matter.

Mr. CARSON. Whether or not they can allege a justiciable cause of action, assuming they could allege there would be an injury to them.

Mr. MORRIS. Yes.

Mr. CARSON. In my judgment they could do it immediately after this authorization bill passes.

Mr. MORRIS. Would they enjoin Arizona from further proceedings before committees of Congress?

Mr. CARSON. Enjoin Arizona from any further activity until that case was settled.

Mr. ENGLE. But Arizona would not be the one who would be active. It would be the Bureau of Reclamation.

Mr. CARSON. Yes, Arizona is.

Mr. ENGLE. Arizona would not be building this works.

Mr. CARSON. I know, Mr. Engle.

Mr. ENGLE. It would be the Federal Government.

Mr. CARSON. As a lawyer you know that a sovereign State is entitled to sue to protect its private citizens against other States, to prevent he acts of private citizens in water matters.

Mr. ENGLE. It is not the State. It is the Federal Government. It is our contention that we can go into court now in the nature of a quiet title action and can prove a present threat of injury.

Mr. CARSON. No.

Mr. ENGLE. We contend, further, that it is perfectly ridiculous for Congress to take its time to pile up huge bales of testimony with respect to a project for which there is no assured legal supply of water and that the way to do it is to get the adjudication first.

Mr. CARSON. In my judgment you cannot get it first.

Mr. MORRIS. That is the thing that certainly I am going to give very careful attention to and consideration of. Can Arizona go into court?

Mr. CARSON. We cannot.

Mr. MORRIS. If you cannot, then certainly it might be a wise thing for this committee to pass this bill out and for Congress to pass the bill out, not on the theory of necessary holding with Arizona at this time, but to afford a remedy to Arizona and to California to determine the issue. If you do have a cause of action, either of you, and you can go into court, that would make a difference.

Mr. CARSON. No.

Mr. MORRIS. That is an important point.

Mr. CARSON. Yes.

Mr. MORRIS. Not as determining the fundamental right between Arizona and California, although I would be happy to help determine that in the proper time and in the best way, but on the proposition of whether or not you will be forever deprived of the right to go into court. I should think that if you convince us that it is necessary to pass H. R. 934 in order to go into court so that you can determine it that this committee ought to act with you on the proposition.

Mr. CARSON. Yes. I think it is necessary.

Mr. ENGLE. Would the gentleman be in favor of passing this act in order to set up a litigation?

Mr. MORRIS. I would certainly be in favor of passing the act for anybody to allow them to be heard in court. If it takes that to give them a right to be heard in court.

Mr. CARSON. Yes.

Mr. ENGLE. I am glad to hear the gentleman say that. We have a simple little bill pending over before the Judiciary Committee which would authorize any party in the Colorado Basin to interplead with the Federal Government and to take the case to court. That is the bill we want brought out.

Mr. MORRIS. I am anxious at all times that anybody who has any cause of action be heard in court.

Mr. ENGLE. The only agency which will ever decide authoritatively whether or not there is a justiciable cause of action at this point is the Supreme Court. You cannot decide it. I cannot decide it. Even the Judiciary Committee cannot decide it. All the Judiciary Committee can decide is that it appears to them that there is a reasonable probability that the justiciable cause of action exists.

When they make that determination it is like an order holding a party to answer, sometimes, in other proceedings. The Judiciary Committee cannot make a decision which is binding on the Supreme Court any more than this committee can.

Of course, the gentleman must bear in mind that there are a great many things in this project other than the legal questions. There is also a question of financial feasibility and a question of engineering feasibility.

It has been my view, Mr. Carson, that Arizona could conduct its affairs in this Congress with a lot less controversy if its legal rights were established first. In other words, if you had your legal rights established you would not be arguing on the floor of the House or anywhere else the question of your water supply. All you would be arguing would be the financial and engineering feasibility.

Mr. CARSON. Mr. Engle, we tried to get into the court twice to do this very thing, and California opposed us both times.

Mr. ENGLE. I know that once you came in for the perpetuation of testimony, and another time for equitable distribution.

Mr. CARSON. There were two suits trying to get water adjudication, and California objected. In the decision the Court held that there was no justiciable controversy. In my view nobody can say that there is a justiciable controversy until this project is authorized, because until then nobody can say that Arizona is threatening to divert 1,200,000 acre-feet of water.

Mr. POULSON. May I ask Mr. Engle one question?

Mr. CRAWFORD. Mr. Chairman, I want to ask for the regular order. If we are going to take up these other bills we will have to get started.

Mr. MURDOCK. The chairman of the full committee has called a committee meeting for this hour. Before I turn the gavel over to him I would like to make just one statement.

Congressman Engle indicated at the opening of the session that he might go on to the conclusion of the hearing in questioning Mr. Carson, but that he wanted to make a motion to discontinue these hearings until a certain date. I, myself, would like to continue the hearings, as I have indicated to most of you.

This committee cannot meet again until 9:30 a. m. Wednesday, since the time will be taken for the full committee tomorrow.

Mr. WELCH. What is the reason, Mr. Chairman, that this committee cannot meet before Wednesday?

Mr. MURDOCK. There is a full committee meeting tomorrow, and the personnel of the subcommittee is identical with that of the full committee. That hampers us, as you know.

Mr. WHITE. I would like to have that in the record, that the personnel is the same and that it hampers the proceeding. I think that the country and the Congress and the public should know the handicap this committee is working under under this streamlined arrangement. I would like to have that in the record.

Mr. MURDOCK. I think that was in the record.

Mr. CARSON. Mr. Chairman, am I through now?

Mr. MURDOCK. No, you are not through, Mr. Carson. I have some questions I want to ask you, and I think a good many of the other members of the committee have questions to ask you.

Mr. WELCH. Mr. Chairman, it was understood that we are adjourning the hearings on this bill, to take up the full committee calendar at 11:45? I feel we should proceed in regular order and dispose of those bills, and then do as you please with reference to further hearings on your bill.

Mr. MURDOCK. I think that comment is correct.

I will ask you, Mr. Carson, to reappear on Wednesday morning at 9:30.

Mr. CARSON. All right.

Mr. MURDOCK. The committee stands adjourned until 9:30 Wednesday morning.

(Thereupon, at 11:50 a. m., Monday, May 9, 1949, an adjournment was taken until 9:30 a. m., Wednesday, May 11, 1949.)

THE CENTRAL ARIZONA PROJECT

WEDNESDAY, MAY 11, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 9:30 a. m., in the committee room of the House Committee on Public Lands, the Honorable John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The subcommittee will now come to order.

We will proceed with the hearing on H. R. 934, with Mr. Carson, of Arizona, on the stand.

Mr. Carson has made his statement and is now being questioned by the members of the committee. Mr. Engle had been raising some questions and will probably want to continue with questioning now.

Mr. ENGLE. Mr. Chairman, I will defer to other members. I have a few brief questions.

Mr. MURDOCK. I suppose there are others, but while they are coming in, you could go ahead, Mr. Engle.

STATEMENT OF CHARLES A. CARSON, PHOENIX, ARIZ., COUNSEL FOR THE ARIZONA INTERSTATE STREAM COMMISSION—Resumed

Mr. ENGLE. Mr. Carson, the day before yesterday we were discussing whether or not Congress has the power or the right to make a determination or an interpretation of an interstate contract and whether or not Congress has the right or the power to interpret an agreement to which the United States Government is a party.

Mr. CARSON. Yes, sir.

Mr. ENGLE. In response to my questions in that connection you stated that Congress does have such power.

I asked you, and the question and answer appear on page 912——

Mr. CARSON. Will you wait a minute? Please wait until I can get a copy of that. When was that?

Mr. ENGLE. That was Monday's transcript of your testimony on page 912.

Mr. CARSON. Yes.

Mr. ENGLE. You recited certain matters in the compact, and then I said to you:

Mr. ENGLE. You mean to say as one of the parties we sit down and construe our own compact?

Mr. CARSON. Yes, sir.

And then you proceeded to read what Mr. Howard had to say.

In another instance I will refer you to page 910 of the transcript, where the questions and answers were as follows:

Mr. ENGLE. Do you contend that the United States Government is a party to the California Self-Limitation Act?

Mr. CARSON. Yes, of course it is.

Mr. ENGLE. Then you would say that one party to a contract has a right to construe it adversely to the interest of another party?

Mr. CARSON. Yes, sir.

Now, I recite that testimony for the purpose of refreshing your recollection.

Mr. CARSON. Yes.

Mr. ENGLE. I want to ask you: If this committee, in effect, interprets these basic documents, the compact plus the California Self-Limitation Act, upon which Arizona relies——

Mr. CARSON. Yes.

Mr. ENGLE. By authorizing this bill and thereby by implication, at least, finding that there is both a physical and legal availability of water——

Mr. CARSON. Yes, sir.

Mr. ENGLE. Then do you contend that that finding by Congress would be binding in the United States Supreme Court?

Mr. CARSON. I would say that for the purpose of its own legislation Congress has the power, and in my judgment, the duty, to construe these documents. If California thinks that the congressional action is wrong, they can go into the Supreme Court of the United States, and, of course, there raise the question of this interpretation.

Mr. ENGLE. That is not the question I asked you. I asked you whether or not, in your opinion, the act of Congress then would be binding upon the United States Supreme Court.

Mr. CARSON. No. Not on these law questions of availability of water.

Mr. ENGLE. Do you contend that such a finding by Congress would have evidentiary weight in a proceeding before the Supreme Court?

Mr. CARSON. It might have some evidentiary weight, but it would not foreclose the Court from going back over and considering any questions that anybody might raise who claimed that they were damaged by the project authorized by Congress.

Mr. ENGLE. In other words, you take the same position with reference to this legislation as I believe you did on the compact. You contended that the fact that Congress consented to the upper-basin compact would have evidentiary weight in the Supreme Court with reference to the interpretations——

Mr. CARSON. Oh, no.

Mr. ENGLE. Of the basic compact written into the upper-basin compact?

Mr. CARSON. I did not.

Mr. ENGLE. Is that right?

Mr. CARSON. I did not so contend, Mr. Engle. We said and I said that when the Congress was considering whether or not to consent to the upper-basin compact that by consenting Congress did not interpret or construe the provisions of that relating to the basic document.

Mr. ENGLE. I know, but you are not answering my question.

Mr. CARSON. Yes; I am.

Mr. ENGLE. Well, now, I do not want to dispute with you, Mr. Carson.

Mr. CARSON. I thought I did. If I did not make it clear, ask me now.

Mr. ENGLE. We have been very friendly, and I do not want to dispute your word, but I did not ask you that.

Mr. CARSON. Yes.

Mr. ENGLE. I asked you whether or not it was your contention that the action of Congress would have evidentiary weight.

Mr. CARSON. No. You said in consenting to the upper-basin compact.

Mr. ENGLE. That is correct. That is just exactly what I am talking about.

I contend that you said that the consent of Congress would be a matter of evidentiary weight before the Supreme Court in construing the interpretation of the basic compact——

Mr. CARSON. No.

Mr. ENGLE. Because of the action of certain interpretations in the upper basin compact.

Mr. CARSON. No; I did not so contend at the hearing before this committee on the upper basin compact.

Mr. ENGLE. I do not have the record here. I am assuming there would be no purpose, particularly, in reading it.

What I am trying to determine is what you think and what will be the effect.

You have said that the action of Congress in authorizing this project will have some evidentiary weight in a controversy in the Supreme Court with reference to the legal availability of water in the event we go there with this litigation, have you not?

Mr. CARSON. It would have this effect, Mr. Engle: By passing this authorization bill, Congress would have determined for the purpose of its own legislative act that this project is feasible, and in the judgment of Congress water is available for it.

Mr. ENGLE. Both legally and physically.

Mr. CARSON. Both legally and physically. Now then, if the project that is authorized by this bill is feared by California, that it would invade any of their rights, they can bring a suit directly against Arizona in the Supreme Court of the United States to enjoin Arizona from diverting that water.

Mr. ENGLE. I know, but what I am trying to keep from happening——

Mr. CARSON. And that question will be open in the Supreme Court.

Mr. ENGLE. That is correct, but what I am trying to keep from happening is for this committee to add to the burdens of California on the legal question by the action that this committee takes.

Mr. CARSON. It will not add to the burden of California on the question of legal availability of water.

Mr. ENGLE. It will, if the action of this committee and this Congress has evidentiary weight in the Supreme Court, when those things are tested.

Mr. CARSON. I do not think it will have weight on that question as to the availability of water, except that it will indicate that Congress, in authorizing this project, believes that the water is available. If

anybody disagrees with that, they can go to the Supreme Court and test out the availability of water.

Mr. ENGLE. Then we have to prove that not only Arizona is wrong, but that Congress is wrong.

Mr. CARSON. You have to prove Congress is wrong only inferentially.

Mr. ENGLE. I thnk we have this clear, and we understand each other clearly, that it does have some evidentiary weight.

Mr. CARSON. Not the weight you are trying to give it.

Mr. ENGLE. We will let the record stand as it is.

Mr. CARSON. Yes.

Mr. ENGLE. I have just one or two other questions, Mr. Carson.

What is the Salt River Valley Water Users' Association?

Mr. CARSON. They are an Arizona corporation that operates the Salt River project in Arizona in its operational point of view as to the delivery of water and power.

Mr. ENGLE. Is it a corporation of landowners?

Mr. CARSON. It is the agent for an agricultural improvement district in which the title to the works that are owned by that district are held. It is the operating agent.

Mr. ENGLE. Is it interested financially in the success or failure of this legislation?

Mr. CARSON. It is interested to this degree: That it wants water from the river. It has to have water for a supplemental supply for the lands that it supplies.

Mr. ENGLE. I notice on page R–12 of the Bureau of Reclamation report, with which I assume you are familiar, that there is an estimated 6,000 farms in the project area.

Mr. CARSON. Well, I am not familiar with that. I would like to see a copy of that. Will you wait a minute, please?

Mr. ENGLE. Perhaps these questions should be directed to Mr. Larson. I see him sitting back there.

Without objection, I would like to direct the question to Mr. Larson.

Mr. LARSON. If you are getting into engineering questions I would prefer that.

Mr. ENGLE. I draw your attention, Mr. Larson, to page R–12. As I understand it, there are 6,000 farms in the project area. Seven percent of these farms are 500 acres or larger in size. That appears on pages R–12 and 13. The 7 percent contains 55 percent of the irrigated land, as I understand it. That would mean 7 percent of 6,000, which is 420 farms. Four hundred and twenty farms, then, have 55 percent of the irrigated land. Is that correct?

STATEMENT OF V. E. LARSON, ASSISTANT REGIONAL PLANNING ENGINEER, REGION III, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR

Mr. LARSON. That is correct.

Mr. ENGLE. The total irrigation costs or benefits of the $420,000,000 which will be spent on irrigation will then go to 420 privately owned farms, is that right?

Mr. LARSON. No. The area would have the 160-acre limitation law that is provided in the Reclamation Act, which means that some of

the larger areas or farms would have to be broken down to fall within the limitation.

Mr. ENGLE. I think that is true, but just looking at it now, if half of the $420,000,000 goes to 420 farms, that is something like $550,000 for each farm, is it not, since they are getting 55 percent of the benefits of this expenditure for irrigation?

Mr. LARSON. No; I do not think you can look at it that way, Congressman Engle, because supplemental water is needed throughout the entire area so that the benefit is to the 6,000 farms.

Mr. ENGLE. I am sure that is true. There are some benefits, perhaps, to 6,000 farms, but 55 percent of the total irrigated acreage is in the ownership of 420 farms, which would mean that 55 percent of your $420,000,000 is being spent for the benefit of what amounts to 420 private ownerships; is that not right?

Mr. LARSON. No; I do not think the benefit is for them, because if those farms are broken down to meet the requirements of the reclamation law it would benefit a much larger number of farmers.

Mr. ENGLE. I know, but there is going to be some enhancement of value, is there not? Let us assume that you vote this project through and they start constructing it. When are you going to start breaking the farms up to 160 acres?

Mr. LARSON. That would have to be done in the contract for the water.

Mr. ENGLE. That is perfectly true, but I cannot see how you are going to avoid some speculative profit.

Mr. WHITE. Mr. Chairman, may I ask the gentleman from California a question?

Mr. ENGLE. Yes.

Mr. WHITE. Does not the provision of the national reclamation law apply to this project, as well as all the others?

Mr. ENGLE. That is correct.

Mr. WHITE. Under that law the Department has the right to withhold water and to set a value to the Government on the land.

Mr. ENGLE. That is correct.

Mr. WHITE. Would that not remedy the difficulty you have just raised?

Mr. ENGLE. I am wondering, if you have 6,000 acres in the project area, and the project is designed to irrigate the 6,000 acres. Fifty-five percent of that is in 420 ownerships.

Mr. WHITE. We have the same condition in the Columbia Basin. In some places the railroads own a whole string of sections, but they cannot have a drop of water on the land until they accept the appraised value from the Federal Government. The speculation angle is eliminated.

Mr. ENGLE. That is true, provided you have other lands which can take the water. I do not know whether that is true in this instance or not. These other lands must come within the limitation.

The presence here of 55 percent of the total area in the hands of 420 ownerships makes me wonder if there are some rather large ownerships in this project.

Mr. WHITE. Would the gentleman care to offer an amendment along the lines of the antispeculation provisions of the Columbia Basin

project, authorizing the Government to hold water from any owners who will not accept the appraised value of land?

Mr. ENGLE. I am not prepared to do that now. I am just asking some questions about it.

Mr. WHITE. Would such an amendment remedy the situation?

Mr. ENGLE. I do not know. It might render the project infeasible, also.

Mr. WHITE. I have never heard of any shortage of land needing water in the State of Arizona.

Mr. ENGLE. It depends on the cost of getting water there, Mr. White.

That is the reason I asked Mr. Carson who the Salt River Valley Water Users' Association was.

I have before me, Mr. Chairman, a compilation of the contributors to the success of this legislation, filed in the clerk's office, and it indicates that the Salt River Valley Water Users' Association has contributed something like $36,000.

The total contributions, if my figures are correct, are something like $107,000, most of it from private sources of one kind or another.

The matter excited my curosity in connection with the tabulation of land ownerships in the project area, because in view of this tabulation and in view of the land ownerships, the natural question arises, "Is somebody figuring on a lot of money out of this thing?"

Otherwise, why should they be putting $36,000 into the pot to get this legislation through?

STATEMENT OF CHARLES A. CARSON, PHOENIX, ARIZ., COUNSEL FOR THE ARIZONA INTERSTATE STREAM COMMISSION—Resumed

Mr. CARSON. Mr. Engle?

Mr. MURDOCK. I think the question is a good one. I wish Mr. Carson would comment on that.

Mr. CARSON. Yes, I will.

You are talking about the contributions to the Central Arizona Project Association. They are made by a great many different people in Arizona who are interested in the economy of the whole State of Arizona.

The Water Users' Association is the operating agent in the deliveries of water to the farmers within the boundaries of the agricultural improvement district, for which it is the agent.

It, of course, is interested in getting supplemental water for the lands within that district which it serves.

There is nothing wrong with that, as far as I can see, when any citizens of Arizona contribute to that Central Arizona Project Association fund. This project is necessary to save the whole economy of the whole State of Arizona. It is not limited to any few acres of land.

Mr. ENGLE. I am not claiming, Mr. Carson——

Mr. CARSON. You will find in that list of contributors bankers, farmers, businessmen, and everybody else who is interested in the State of Arizona's welfare, to save the economy from chaos. There is nothing wrong with that. You cannot tie that——

Mr. ENGLE. I am not saying this is illegal, Mr. Carson.

Mr. CARSON. Wait a minute.

Mr. ENGLE. What I am trying to determine is why there is one outfit which would put in $36,000.

Mr. CARSON. They represent 242,000 acres of land that are in dire need of supplemental supplies of water.

Mr. MURDOCK. Right in that connection I think we ought to have that list complete and correct in the record.

Mr. ENGLE. I would like to put it in the record, Mr. Chairman.

Mr. CARSON. I do not have the list.

Mr. ENGLE. I have it, and I would offer it at this point subject to any review and correction which those representing Arizona would like to make. The list was supplied to me from the clerk's office.

Mr. CARSON. I have never seen the list to which you are referring, Mr. Engle; but, of course, the report on the Central Arizona Project Association is on file with the Congress.

Now, I have no objection to the committee considering that list over the signature of Mr. Howard Smith, I think, as the executive secretary of the Central Arizona Project Association.

Mr. MURDOCK. That is the list to which I referred.

Mr. CARSON. But I want it to be the official list that he signed and filed.

Mr. ENGLE. Let me ask one further question.

Mr. Carson, is there any significant connection between these rather large contributions—and I only have the ones over $500 here listed, and they total over $100,000, which has gone into a pot to support this legislation——

Mr. CARSON. They are all reported.

Mr. ENGLE. That is right. Is there any significance to those rather large contributions, one of them from one group totaling $36,000, and the fact that the records of the Bureau of Reclamation show that, of the 6,000 farms, 55 percent of the ownership is in 420 farms?

Mr. CARSON. No; not a bit in the world.

Mr. ENGLE. I mean, 55 percent of the total irrigated area under this project is in 420 farms.

Mr. CARSON. No, Mr. Engle. For those irrigation companies and districts they adopted the system of contributing 10 cents per acre within their boundaries, to aid the Central Arizona Project Association. Each acre within their boundaries is in dire need of supplemental water, and it amounts to a 10-cents-per-acre contribution by the owners of every acre of land within those projects.

Mr. ENGLE. Are these banks owners of property out there, or holders of mortgages? What about the Phoenix Title & Trust Co. or the Arizona Brewing Co?

Mr. CARSON. Some of them are not at all. They are interested in the economy of the whole State of Arizona, and their businesses depend upon it.

Mr. ENGLE. I see you have one here "Anonymous." Is that within the rules?

Mr. CARSON. I do not know about that one.

However, their businesses depend for continued business upon the obtaining by central Arizona of this supplemental supply of water. Their whole business, which they have built up, and the continued prosperity of that business, is tied up in this authorization bill, and it depends upon authorization of this project and the obtaining of

water from the Colorado River for a supplemental supply for these lands that are now irrigated, or every business in Arizona faces a very hard time and almost an economic collapse.

Mr. ENGLE. I see the Vegetable Growers' Association. The Vegetable Growers' Association, from the information I gather just running through here, is in this list for $5,000 on two occasions, and $2,500 on two separate occasions, making a total of $15,000.

Mr. POULSON. Is not Phelps Dodge also in that for about $5,000?

Mr. ENGLE. Yes. Phelps Dodge is in here. That is a mining outfit.

Senator MCFARLAND. May I interrupt?

Mr. ENGLE. Yes, Senator.

Senator MCFARLAND. Before you get away from that "Anonymous" man, I may suggest that he is probably a California man who is over there.

Mr. ENGLE. All of our money, Senator, comes from tax-supported agencies. We are a little intrigued when you can get this kind of money from private ownerships.

I did not question the legality of it, but I questioned the significance of it, when taken in connection with the fact that 55 percent of the irrigated land in this project is in 420 ownerships.

Mr. CARSON. Well, now, it has no significance at all. Let me go to the Phelps Dodge Corp., which was mentioned here. It operates large mines in Arizona. It is interested in the economy of the State of Arizona.

If we do not get this water in there from the Colorado River, into Arizona, why, the whole agricultural economy collapses.

Mr. POULSON. What connection has agriculture with mining?

Mr. CARSON. I will show you, Mr. Poulson, in just a minute.

If that collapses, the portion of the tax load that the agricultural communities are now taking care of and paying will fall back on the Phelps Dodge Mining Corp., and these railroads and public utilities. That is why they are in here, because they are directly tied in, and their welfare and success is tied in to the question of whether or not Arizona can get some main-stream water for a supplemental supply to maintain its present agriculture.

Mr. ENGLE. I will say this: You are not broke now.

Mr. MURDOCK. May I interrupt just a moment there to say that we read into the record the other day a telegram from Director Dunning of the mineral-resources department.

Furthermore, I have received a second telegram from him which I have not yet furnished for the record. He is the head of the mineral-resources division of the State of Arizona, and yet he comes along and has two telegrams supporting this legislation, indicating its bearing on our mining industry.

Mr. WHITE. May I say something?

Mr. ENGLE. Yes, sir.

Mr. WHITE. For the information of the committee, I will say that, when the vast Columbia Basin was under consideration, not only did the people in the city of Spokane and others make large contributions to get the thing under way, but the State of Washington did so on several occasions. The legislature made very substantial appropriations of $200,000, as I remember it, on one occasion. Even some private in-

terests had to go to the expense of promoting the thing, and the people of Spokane raised a purse to present to the Secretary of Commerce, an eminent engineer, Herbert Hoover, to look over the project.

This is nothing unusual, and nothing illegal.

Mr. CARSON. No.

Mr. WHITE. It is not unusual for the people interested to contribute to promote the development. It has to be started by private financing. This is in line with what is being done all over the country.

Mr. ENGLE. It is not unusual, Mr. White, except as connected with the figure which I gave from the reclamation report that 55 percent of the irrigated land within this project area is in the ownership of 420 people or corporations.

Mr. WHITE. Well, I would like to say to the gentleman from California that this is right in line with the policy of the Federal Government. This committee had a deal with a project down in the State of New Mexico where they did not call it an irrigation district but called it a conservancy district, and all of the beneficiaries, including the businessmen and the properties in the town, were included to pay their pro rata share in the taxes and construction charges and maintenance, under the rules and regulations of the conservancy legislation.

It seems to me that this is right in line with the policy of the Federal Government. Private interests that will benefit come in and contribute their share.

Mr. ENGLE. I will say this: If I owned a ranch out there and my anticipated benefit on an equal-division basis of the $420,000,000 was to be $550,000 to be spent for the benefit of my ranch, I would put up some money, also.

Mr. CARSON. Mr. Engle, I thought I made that clear. Every landowner within the boundaries of the Salt River project——

Mr. ENGLE. Salt River Valley Water Users' Association?

Mr. CARSON. The Salt River Valley Water Users' Association contributes 10 cents an acre to that organization. The big owners and the little owners and everybody else is in there at the same rate.

Mr. ENGLE. And one of them is up to $36,000.

Mr. CARSON. That is the whole water users' association that has within its boundaries and serves 242,000 acres of land. Every landowner is in there, and, in effect, is assessed 10 cents an acre to help pay the expenses of the Central Arizona Project Association.

Mr. MURDOCK. Will the gentleman yield for a question from me?

Mr. ENGLE. Yes; I yield.

Mr. MURDOCK. Mr. Carson, if this legislation should be enacted, will not this project be a Federal reclamation project?

Mr. CARSON. Yes, of course.

Mr. MURDOCK. Will not the 160-acre-limitation law apply as elsewhere?

Mr. CARSON. Yes.

Mr. MURDOCK. Before I get to my last question, I want to make this positive statement: I believe in small-sized family units.

Mr. CARSON. Yes.

Mr. MURDOCK. I want to preserve that in the law and in the carrying out of that law. I am absolutely opposed to land monopoly. I am not a party and I do not propose to be a party to any land monopoly or speculation in this legislation.

So, if the gentleman here can show me where speculation is in the offing, that will have considerable effect, but he has to show me, since I was born in the State of Missouri.

Mr. ENGLE. Will the gentleman yield for a question?

Mr. MURDOCK. There is just one more question I want to ask.

Is it not true that the shortage of water in these outlying areas, included herein, has forced this land into smaller number of ownerships? Has it not forced it into fewer ownerships? The shortage of water has had that effect; has it it not? Does it not make for fewer owners than otherwise would prevail?

Mr. CARSON. That is a rather involved question, Mr. Chairman, with which I am not entirely familiar. These engineers have testified here that it costs about $30,000 to put down a well, and that the economic unit for the operation of that well is not less than 320 acres. So that situation does obtain on parts of this land which depends on pump water.

In the Salt River Valley project the landowners have land which is, most of it or nearly all of it, in ownerships of at least less than 160 acres, and my impression is of less than 100 acres.

Mr. MURDOCK. Yes. We had testimony here by someone representing the Salt River Valley Water Users' Association that the average ownership was of tracts much less than 100 acres.

Mr. CARSON. Yes. There are very few acreages there in the Salt River Valley Water Users' Association that are in excess of 160 acres. I think it would figure out to be less than 5 percent of any ownerships over 160 acres. That comes about through deaths and mortgages and such things as that. They are rapidly being entirely removed now by that association.

Mr. MURDOCK. You are exactly right. I made careful inquiry of the Bureau of Reclamation on that very point, to see whether the 160-acre limitation was being carried out.

Mr. WHITE. Will the gentleman yield for a question?

Mr. MURDOCK. If Mr. Engle will yield. He has the floor. He yielded to me.

Mr. WHITE. By reversing the situation which has just been described of the impoverishment occurring due to the shortage of water, has not the Federal Government, through its Bureau of Internal Revenue, the Income Tax Bureau, a big stake in the prosperity of furnishing supplemental water, which would bring prosperity in the way of income taxes?

Mr. CARSON. Yes. That is in the record here in the testimony of Mr. Bimson and other people who have appeared here as witnesses that the Federal Government, in income-tax receipts each year, receives in excess of, I think, $75,000,000 direct income tax from this agricultural economy in Arizona.

Mr. WHITE. At the present time are not the Salt River Valley water users paying income taxes from their power sales? Are they not paying a very substantial return to the Federal Government?

Mr. CARSON. Their landowners are. Their landowners within that project are.

Mr. WHITE. Does not the district itself have to pay dividends or taxes on dividends in the nature of income from the sale of power?

Mr. CARSON. I do not think that has been entirely settled as yet, as to whether or not they do. It is a nonprofit organization. It represents the farmers of the area. I do not think it has been definitely settled that the association, directly as such, pays income tax.

Mr. WHITE. Are these revenues being impounded from the sale of power?

Mr. CARSON. Yes; I think that is in some argument between the Salt River Valley water users and the Government Internal Revenue Department, as to whether or not they are liable for tax.

Mr. WHITE. That is over and above their regular income taxes on their individual operations?

Mr. CARSON. Yes. I am not including that in the $75,000,000.

Mr. ENGLE. Mr. Carson, I notice on page R–12 of the Bureau report that it states that the largest individual farm, in terms of irrigated acreages, averaged—the average largest individual farm, in terms of irrigated acreages, averaged—10,430 acres under irrigation during the period 1940 to 1944. It is estimated that 7 percent of the farms are 500 acres or larger, and the total acreage is an estimated 55 percent of the irrigated land.

Do you mean to say that these farms with an average irrigated acreage of 10,430 acres under irrigation are going to be all reduced to 160 acres?

Mr. CARSON. Yes, sir. Most of those now are not dependent upon surface diversion. They are pumped areas, Mr. Engle, and not under any Federal reclamation project. These pumps cost a lot of money, so they operate in as big units as they can. They are under no regulation by the Government nor anybody else. They are outside the boundaries of all of the irrigation districts that are established in Arizona, or that share in the Federal reclamation project water.

Of course, when you depend entirely on pumping, then you have to have as big an acreage as you can to be served by the number of pumps you have.

Mr. ENGLE. Mr. Carson——

Mr. CARSON. Wait just a minute. If this project goes through and is authorized, it is my understanding that this would all be Federal reclamation project and that those ownerships would be broken down.

Mr. ENGLE. Do you know of any practical way to apply the 160-acre limitation to underground water?

Mr. CARSON. No.

Mr. ENGLE. I do not, either.

Mr. CARSON. I have not heard of that.

Mr. ENGLE. These are underground waters. If these fellows rely on pumps for these big areas, how are you going to apply the 160-acre limitation underground?

Mr. CARSON. If they get supplementary water from the Colorado River.

Mr. ENGLE. In the underground stream?

Mr. CARSON. No; in the surface diversion.

Mr. ENGLE. In other words, you will not break it up if they pump it out of the underground reservoir?

Mr. CARSON. They cannot continue to do that without supplementary water supply. When they get the supplementary water

supply from the surface diversion of the Colorado River, it is my understanding that they will come under the Federal reclamation law and the ownership will be broken down to 160 acres.

Mr. ENGLE. If you rely on the underground water pool, enhanced by the Federal reclamation project, how do you apply the 160-acre limitation?

Mr. CARSON. I do not think it will be enhanced by this surface diversion under some pump lands.

Mr. ENGLE. I mean in the underground water pool.

Mr. CARSON. There may be some areas there, and I think there are some now, which depends on pump irrigation, to which this surface diversion from the Colorado River would add no water unless they take it in supplemental supply by surface diversion. If they take it by surface diversion then I agree with Mr. Larson that it comes under the Federal reclamation law with a 160-acre limitation on individual ownerships.

Mr. ENGLE. Mr. Chairman, I would like to offer the list.

Mr. CARSON. I object to any list that Mr. Engle offers; but, as I said, I have no objection to the official list.

Mr. POULSON. Mr. Chairman, is Mr. Carson a member of the committee, to be objecting here?

Mr. CARSON. I ask the chairman to see that whatever list is furnished here is over the signature of the executive secretary of the Central Arizona Project Association, which is on file with the Congress.

Mr. MURDOCK. That was the statement of the Chair himself a few moments ago, and if this list conforms to such a list, then it will be received, but we, of course, want the official list over the signature of Mr. Smith, the executive secretary.

Mr. ENGLE. Mr. Chairman, I have no objection to this list being checked for its correctness. It is intended to be the list secured from the clerk's office. If it is not correct, I will be glad to have it corrected, and I will offer it with that understanding.

Mr. MURDOCK. With that understanding it may be received. At the earlier point in the record we had reference to it, but that was some time back.

(The list is as follows:)

List of contributors to central Arizona project taken from the Clerk's Office, House of Representatives

Jan. 13, 1949.	J. C. Penney Co., Phoenix, Ariz	$500.00
Jan. 13, 1949.	Goodyear Farms, Litchfield Park, Ariz	1,000.00
Jan. 25, 1949.	Vern Walton Co., Casa Grande, Ariz	500.00
Feb. 8, 1949.	Korricks, Inc., Phoenix, Ariz	500.00
Feb. 11, 1949.	Vegetable Growers Association, Phoenix, Ariz	5,000.00
Feb. 18, 1949.	J. Diwan Singh Farms, Casa Grande, Ariz	500.00
Mar. 5, 1949.	San Carlos Irrigation District, Coolidge, Ariz	1,785.80
Mar. 22, 1949.	Del E. Webb Construction Co., Phoenix, Ariz	500.00
Mar. 24, 1949.	Hotel Westward Ho, Phoenix, Ariz	500.00
Mar. 29, 1949.	Anonymous	500.00
Oct. 1, 1948.	Pratt Gilbert Hardware Co., Phoenix, Ariz	500.00
Oct. 2, 1948.	Natural Gas Service Co., Phoenix, Ariz	800.00
Oct. 7, 1948.	J. C. Lincoln, Scottsdale, Ariz	500.00
Oct. 7, 1948.	Phoenix Title & Trust Co., Phoenix, Ariz	500.00
Oct. 7, 1948.	Arizona Brewing Co., Phoenix, Ariz	1,000.00
Oct. 7, 1948.	Roosevelt Water Conservation District, Higley, Ariz	1,700.00

Oct.	7, 1948.	Central Arizona Light & Power, Phoenix, Ariz	$2, 500. 00
Oct.	13, 1948.	Arizona Box Co., Phoenix, Ariz	500. 00
Oct.	13, 1948.	Phaenix Clearing House, Phoenix, Ariz	5, 000. 00
Oct.	14, 1948.	Toorea's Parking Co., Phoenix, Ariz	1, 000. 00
Oct.	15, 1948.	O. S. Stapley Co., Phoenix, Ariz	1, 000. 00
Oct.	15, 1948.	Electrical District No. 2, Coolidge, Ariz	2, 500. 00
Oct.	16, 1948.	Maricopa County Farm Bureau, Phoenix, Ariz	750. 00
Nov.	1, 1948.	J. L. Hodges, Phoenix, Ariz	522. 64
Nov.	1, 1948.	J. G. Boswell Co., Litchfield Park, Ariz	500. 00
Nov.	9, 1948.	First Federal Savings & Loan Association, Phoenix, Ariz	500. 00
Nov.	19, 1948.	Western Cotton Products Co., Phoenix, Ariz	500. 00
Nov.	19, 1948.	Southwest Flour & Feed Co., Phoenix, Ariz	500. 00
Nov.	19, 1948.	Arizona Fertilizers, Inc., Phoenix, Ariz	500. 00
Nov.	19, 1948.	Crystal Ice & Cold Storage Co., Phoenix, Ariz	1, 200. 00
Dec.	3, 1948.	Republic & Gazette Newspaper, Phoenix, Ariz	1, 000. 00
Dec.	3, 1948.	Goldwaters, Phoenix, Ariz	1, 000. 00
Dec.	13, 1948.	Clemans Cattle Co., Florence, Ariz	500. 00
Dec.	13, 1948.	J. A. Roberts, Casa Grande, Ariz	500. 00
Dec.	13, 1948.	Arizona Flour Mills Co., Phoenix, Ariz	500. 00
Dec.	13, 1948.	Magma Copper Co., Superior, Ariz	1, 000. 00
Dec.	22, 1948.	Mt. States Tel. & Tel. Co., Phoenix, Ariz	1, 500. 00
Dec.	28, 1948.	Allison Steel Mfg. Co., Phoenix, Ariz	500. 00
Jul.	12, 1948.	Salt River Valley Water Users Association, Phoenix, Ariz	12, 000. 00
Jul.	15, 1948.	Southwest Lumber Mills, McNary, Ariz	500. 00
Jul.	15, 1948.	Inspiration Consolidated Copper Co., Inspiration, Ariz	1, 000. 00
Jul.	15, 1948.	Phelps Dodge Corp., Bisbee, Ariz	5, 000. 00
Apr.	10, 1948.	Arizona Vegetable Growers Association, Phoenix, Ariz	2, 500. 00
Apr.	28, 1948.	Arizona Vegetable Growers Association, Phoenix, Ariz	2, 500. 00
Jan.	3, 1948.	John Jacobs Farms, Phoenix, Ariz	500. 00
Mar.	31, 1948.	John Jacobs Farms, Phoenix, Ariz	1, 000. 00
Oct.	25, 1947.	Valley National Bank, Phoenix, Ariz	1, 000. 16
Oct.	27, 1947.	Florence Chamber of Commerce, Florence, Ariz	551. 00
Nov.	5, 1947.	Maricopa Municipal Water Dist. No. 1, Phoenix, Ariz	1, 600. 00
Nov.	17, 1947.	J. G. Boswell Co., Litchfield Park, Ariz	750. 00
Nov.	22, 1947.	Phoenix Title & Trust Co., Arizona	500. 00
Dec.	4, 1947.	O. S. Stapley Co., Phoenix, Ariz	500. 00
Dec.	26, 1947.	Salt River Valley Water Users Association, Arizona	1, 200. 00
Jul.	3, 1947.	Agricultural Products Co., Phoenix, Ariz	1, 000. 00
Jul.	19, 1947.	Salt River Valley Water Users Association, Arizona	6, 000. 00
Jul.	24, 1947.	Chamber of Commerce, Chandler, Ariz	522. 00
Apr.	1, 1947.	Pinal City Research Committee, Arizona	3, 000. 00
Apr.	29, 1947.	Phelps Dodge Corp., Arizona	2, 500. 00
May	17, 1947.	Roosevelt Irrigation District, Arizona	600. 00
May	17, 1947.	Mt. States Tel. & Tel., Arizona	1, 000. 00
May	26, 1947.	Central Arizona Light & Power, Arizona	1, 000. 00
June	5, 1947.	Electric District No. 2, Pinal City, Ariz	2, 730. 00
June	13, 1947.	George W. Mickle, Arizona	500. 00
June	20, 1947.	First Federal Savings and Loan Association, Arizona	500. 00
June	23, 1947.	Diamond Dry Goods Co., Arizona	500. 00
June	23, 1947.	Dorris-Heyman Furniture Co., Arizona	500. 00
June	23, 1947.	Safeway Stores, Inc., Arizona	500. 00
June	23, 1947.	J. C. Penney Co., Arizona	500. 00
June	23, 1947.	Sears Roebuck & Co., Arizona	500. 00
June	23, 1947.	Goldwaters, Arizona	500. 00
June	23, 1947.	Barrows Furniture Co., Arizona	500. 00
June	23, 1947.	Arizona Box Co., Arizona	500. 00
June	30, 1947.	Korricks, Inc., Arizona	500. 00
Jan.	9, 1947.	Vegetable Growers Association, Phoenix, Ariz	5, 000. 00
Jan.	25, 1947.	O. S. Stapley Co., Phoenix, Ariz	500. 00
Feb.	24, 1947.	Agricultural Products Co., Phoenix, Ariz	500. 00
Feb.	24, 1947.	Western Cotton Producers Co., Phoenix, Ariz	500. 00
Feb.	24, 1947.	J. G. Boswell Co., Arizona	510. 00
Feb.	28, 1947.	Roosevelt Water Conservation District, Higley, Ariz	2, 500. 00
Mar.	5, 1947.	Salt River Valley Water Users Association, Arizona	6, 000. 00

Mr. MURDOCK. Are there any further questions?
Mr. ENGLE. That is all, Mr. Chairman.
Mr. MURDOCK. Mr. Welch, have you any questions?
Mr. WELCH. No.
Mr. MURDOCK. Governor Miles?
Mr. MILES. I believe not.
Mr. MURDOCK. Mr. White?
Mr. WHITE. We have pretty well exhausted our quota.
Mr. MURDOCK. I take it that Mr. Poulson has numerous questions. I think we had better give these other folks a chance before Mr. Poulson.
Mr. Baring?
Mr. BARING. Not right now, Mr. Chairman.
Mr. MURDOCK. Judge Bosone?
Mrs. BOSONE. No questions, Mr. Chairman.
Mr. WHITE. Mr. Chairman, there is one thing that ought to be emphasized here, and that is the fact that the passage of this bill for the authorization and appropriation of this water is necessary to determine by legal procedure the rights of the two States, California and Arizona, to the water.
As I understand it, it has been emphasized over and over again that unless this bill is passed Arizona would not have any standing in court, because they had not appropriated the waters or attempted to appropriate the waters, and there would be nothing to adjudicate in the legal proceedings.
If this bill is authorized Arizona would then be in line to appropriate the water, and to subject this to adjudication by the courts.
Mr. MURDOCK. That is my understanding.
Mr. WHITE. I have taken the precaution to go to the Committee on the Judiciary, and I have brought here a copy of one of the 26 bills that have been introduced by practically every member of California to the committee, and I think one should be incorporated in the record at some point, to show just what is under consideration.
Mr. ENGLE. I want to say, Mr. Chairman, if the gentleman will yield, that we do not agree by any means that the authorization of this project is a necessary prerequisite to adjudication of the issues. That is a matter which is being considered now by the Judiciary Committee.
Mr. WHITE. I think some of the lawyers for the State of Arizona have made that contention.
Mr. ENGLE. They certainly have.
Mr. WHITE. That contention is to be decided by this committee, whether this is a part of the plan to get a judicial decree on the waters of the Colorado River. I may say that in the State of Idaho we cannot appropriate water in some rivers until it has passed through the courts and has been decreed according to the water rights that are filed and are in operation on these rivers.
Mr. ENGLE. That is what we are asking.
Mr. WHITE. That is a firm principle in Idaho, that no legal proceedings should be had until the courts have made a decree as to the appropriation of the waters.
Mr. ENGLE. That is what we are asking.
Mr. WHITE. We have a principle here. We cannot go back to this principle of appropriation. First, you make your filing, and it is of

no effect. You can hold water for a certain time, and if you do not appropriate it at the proper time then that filing is null and void.

Mr. MURDOCK. I would like to have Mr. Carson comment, but before he does so, I would like to make a little statement there.

Neither you nor I, Mr. White, are lawyers. But, I want to point out that Arizona is in a different situation from that of any other western State. We depend upon the Federal Government under the compact entered into among the seven States to provide us the water that is justly ours.

Now, "possession is nine points in the law," I have heard lawyers say, whatever that means.

The point that I want to emphasize is this: In this dispute between Arizona and California, California has been afforded by the Government, by Congress, the facilities—especially the All-American Canal and the great Hoover Dam—and Arizona is asking for the same thing. Put us on exactly the same legal status.

That is what I said to the Subcommittee on the Judiciary. California did not ask for an adjudication prior to 1928, prior to the passage of the Boulder Canyon Project Act.

Mr. CARSON. Nor thereafter.

Mr. MURDOCK. Nor thereafter. But we do feel, and I feel this quite emphatically and sincerely, that if this matter is started on the road of litigation as these court-suit resolutions would do, all necessary legislation will be stymied until the litigation is completed. Meanwhile, California having the facilities adequate to take at least twice the amount of water to which she is entitled out of the river, will build up a certain claim through usage and that will minimize the chances of Arizona tremendously, if not thwart her chances altogether. That is the way I feel about it.

Mr. WHITE. Mr. Chairman, may I also observe at this point that the matter of delay, as a result of litigation, I think is beyond the control of this committee. I think the matter has to be litigated and that the courts have to make a decree on these existing agreements that have been entered into by the several States.

I might say that I will agree with the eminent chairman of this committee on certain water rights, but I will add that I paid $3,000 to go through a very extended litigation over nonexisting water, not a valid water right, if you understand what I mean.

Mr. MILES. May I ask a question?

Mr. MURDOCK. Yes, Governor Miles.

Mr. MILES. I do not know just what the legal terms are, but why do they have to wait to bring suit to test this case in the Supreme Court until the start of this hearing? Could that suit not have been brought earlier?

Mr. ENGLE. We think that it can be, Governor, but here is what has happened: When we tried to get into court, the court held that the Federal Government had to be a party. You cannot sue the Federal Government without its consent.

Senator MCFARLAND. Pardon me. Did you say "we"? Did California try to get into court?

Mr. ENGLE. I am not referring to anyone in particular.

When this thing came into court it was thrown out because the Federal Government was not a party. The court held that the Federal Government has to be a party.

The Federal Government cannot be sued without the consent of Congress, so some 26 resolutions are pending over in the Judiciary Committee to give any party to the Colorado Basin argument—Arizona, California, or anybody else—the right to interplead the Federal Government. The passage of that legislation is a prerequisite to a full adjudication of the rights on the Colorado.

That is the trouble. We cannot budge until we can bring the Federal Government in, so we have to get this litigation resolution through.

Mr. CARSON. Well, do you want me to answer that?

Mr. ENGLE. Does that answer your question, Governor?

Mr. MILES. Yes.

Mr. CARSON. Mr. Miles, do you want me to answer that?

Mr. MILES. Yes.

Mr. CARSON. The passage of that resolution, if it should ever be considered, will not create a justiciable controversy between Arizona and California. Under the Constitution of the United States the jurisdiction of the court is limited to a justiciable controversy within its original jurisdiction as between States.

Now, the Court has held—and that is not the sole ground, Mr. Engle, of the opinion to which you refer—the Court held in that case that there was no justiciable controversy because the water rights were not established. That is, Arizona had not put to use any water that was threatened by California development.

They will not accept any jurisdiction, in my judgment, now or at any time unless one State can go into court and allege that the activities of another State threaten to invade its rights to water under these documents.

Now, if they can allege that, then there is a justiciable controversy and the Court will take jurisdiction, and we will then have a determination, but until that time the Court will not take jurisdiction, so I say that we have to have an authorization for the project before we can ever get into court and expect any judicial determination.

I would again say further that the purpose of these resolutions, forsooth, in my judgment, are not in an effort to get a final adjudication out of the court, but are solely for the purpose of the effect on the Congress of the United States to so confuse and befuddle that they would not authorize this project.

Mr. ENGLE. Mr. Carson, let me ask you this question: Do you contend that the Federal Government has to spend $738,000,000 in the authorization of this project, and an actual diversion of water has to occur before California has a suit, because there is a justiciable case?

Mr. CARSON. No. I have answered that question many times in my testimony before this committee, Mr. Engle.

In my judgment, as soon as this project is authorized, which would authorize Arizona to divert 1,200,000 acre-feet of water from the main stream of the Colorado River, if California believes that that diversion would in any way infringe on their right to use 4,400,000 acre-feet, to which California is forever limited under its Limitation Act, it could immediately go to the Supreme Court of the United States.

Mr. ENGLE. Well, Mr. Carson——

Mr. CARSON. And if it went to the Supreme Court of the United States under that set of facts it would not have to join the United States in the suit.

Mr. ENGLE. Well, I do not agree with that.

Mr. CARSON. I know you do not.

Mr. ENGLE. I am not discussing that.

Mr. CARSON. That is the way I see it.

Mr. ENGLE. It is necessary to have a justiciable cause of action.

Mr. CARSON. Yes.

Mr. ENGLE. To show a present threat or injury?

Mr. CARSON. That is right.

Mr. ENGLE. The question is when the present threat or injury occurs. Does it occur when Arizona spends $200,000 and the Federal Government spends $200,000, which totals $400,000, plus another $100,000 contributed, to put this project into execution?

Mr. CARSON. No, sir.

Mr. ENGLE. You say it does not.

Mr. CARSON. It does not.

Mr. ENGLE. Does it occur when a bill is voted through Congress authorizing the project?

Mr. CARSON. When the bill is passed through Congress.

Mr. ENGLE. Wait a minute. It might not occur then. Maybe then you will say that it occurs only when the authorization bill is passed and the appropriation is granted.

Mr. CARSON. No.

Mr. ENGLE. And does it occur then? Maybe you could say it would be when the first shovelful of dirt is turned. Then you might say that it does not occur until the project is built. Then you might say, "Oh, no; it does not occur then. It occurs when Arizona, through the Bureau of Reclamation, diverts the first acre-foot of water."

In other words, when do you approach a present threat of injury? There is not any congressional committee which can decide that. This committee cannot decide it. The Judiciary Committee cannot decide it. The Supreme Court will decide that.

All we ask is to let us go to the Supreme Court.

Mr. CARSON. Well, you are asking——

Mr. ENGLE. That is where you go to get an answer, and you are not going to get it until you have gone to the Supreme Court.

Mr. CARSON. You are asking my opinion. You are trying to put words in my mouth which I did not say.

Mr. ENGLE. I would not think of putting words in your mouth, Mr. Carson.

Mr. CARSON. Let me answer it my own way.

I am going by the language of the Supreme Court which dismissed the case by Arizona to try to get a determination of our rights to water of the river, and California moved to dismiss it, because there was no justiciable controversy.

Let me read you the paragraph in that decision, which I think is good law then and now.

Mr. ENGLE. I would say, Mr. Carson——

Mr. CARSON. Wait a minute.

Mr. ENGLE. That that particular argument ought to be addressed to the Judiciary Committee.

Mr. MURDOCK. Wait a minute. Let the witness answer the questions.

Mr. CARSON. I am addressing it to you.

Mr. MURDOCK. There has been too much evasion of questions thus far, and too much hampering the witness in answering questions.

Mr. ENGLE. Well, Mr. Chairman——

Mr. CARSON. Let me read this paragraph which I think is good law now. It is the language of the Supreme Court, and it is not mine.

Mr. D'EWART. Mr. Carson, would you give the number of that page?

Mr. CARSON. Page 463, volume U. S. 283.

Mr. D'EWART. Is it not in this testimony?

Mr. CARSON. Yes.

Mr. D'EWART. You do not know the page?

Mr. CARSON. I do not know the page in my statement.

When the bill was filed the construction of the dam and reservoir had not been commenced—

That is Boulder Dam.

Mr. ENGLE. Do you mean to say that we have to commence construction of the central Arizona project?

Mr. CARSON. I do not.

Mr. ENGLE. That is the Supreme Court decision.

Mr. CARSON. Let me read this paragraph and then I will answer the question. Let me finish reading this paragraph.

When the bill was filed the construction of the dam and reservoir had not been commenced. Years must elapse before the project is completed. If, by operations at the dam, any then perfected right of Arizona, or of those claiming under it, should hereafter be interfered with, appropriate remedies will be available—

This is the part I want to get at—

the bill alleges, that plans have been drawn and permits granted for the taking of additional water in Arizona pursuant to its laws. But Wilbur threatens no physical interfernece with these projects; and the Act interposes no legal inhibitions on their execution. There is no occasion for determining now Arizona's rights to interstate or local waters which have not yet been, and which may never be, appropriated.

That is the situation now. We have been making plans, of course. The State legislature put up a sum of money to help the Bureau. They assisted the Bureau in making plans in that way.

Mr. ENGLE. Just one question. That case was to test the constitutionality of the Boulder Canyon Project Act, was it not?

Mr. CARSON. Also to get a determination of water rights. California moved to dismiss it because there was no justiciable controversy. The plans were drawn and the permits granted which were good under Arizona law for the appropriation of water, but we had no authority. There was no authorization bill to build the works that were necessary.

My conclusion, then, is that when this authorization bill is passed, then we do have an authorized project and we are making efforts by an overt act to divert 1,200,000 acre-feet of water from the Colorado River.

If, at that time, California thinks that that would interfere at all with their use of 4,400,000 acre-feet of water to which you are forever limited by the California Self-Limitation Act, they could bring a suit

against Arizona directly in the Supreme Court to enjoin any further progress in that project until that law question was determined. Because then you would be in a position actually to allege that Arizona was threatening to divert that 1,200,000 acre-feet of water.

Mr. ENGLE. You are threatening now.

Mr. CARSON. Wait a minute.

Mr. ENGLE. You are threatening now.

Mr. CARSON. We are not now.

Mr. ENGLE. You spent $400,000 to threaten us.

Mr. CARSON. No. That was to make plans. We had to spend the money. We had spent money on plans at the time of this decision. "The bill alleges that plans have been drawn."

Mr. ENGLE. I know.

Mr. CARSON. Wait a minute.

Mr. ENGLE. To read that we would have to actually have you divert water before we could get to court.

Mr. CARSON. No. We have no authority to build the works. All we have, until we get this authorization bill passed, Mr. Engle, is a hope that Congress will pass it. We cannot build these works without the authorization bill, and until we get in a position to build those works, all we have is a hope, and California cannot say we have made any threat until we are in a position to go ahead with the works.

Mr. MILES. May I ask one more question?

Mr. MURDOCK. Yes, Governor.

Mr. MILES. When this $400,000 was spent, and you thought you were being threatened, then why did not California enter a suit?

Mr. ENGLE. Because we have to have the consent of Congress to sue the Federal Government.

Mr. CARSON. No.

Mr. ENGLE. We had a bill pending last session, Governor, to authorize interpleading the United States Government, but the fact is that we cannot get to court. If this bill is passed we still cannot get to court because we do not have any authority to bring in the United States Government.

Mr. CARSON. You do not need the authority of Congress to bring in the United States Government if Arizona is threatening to divert water from the river which you think would interfere with your right to use 4,400,000 acre-feet.

Mr. ENGLE. It is the Bureau of Reclamation which is going to divert water and sell it to the Arizona farmers.

We have to have the Federal Government, and we have to have a consent by Congress to interplead and to sue the Federal Government. That is why I think that this committee ought to have this matter settled over in the Judiciary Committee on the resolution there first, and then the matter could be taken to court.

Mr. CARSON. No, Mr. Engle. You know that a sovereign State has a right to bring an action as a representative of its citizens against another State as a representative of its citizens, which is threatening to injure the first State.

Mr. ENGLE. I know.

Mr. CARSON. And that the United States Government is not a necessary party to that type of action.

Mr. ENGLE. The United States Government, according to the Supreme Court, is a necessary party to the settlement of rights on the Colorado River.

Mr. CARSON. No; not in this situation I am saying. Under those facts California could proceed directly against Arizona alone. It would not involve the United States, in my opinion, nor would it involve all the other States of the basin, except to the extent they wanted to intervene and come in on the question of the construction of those documents.

Mr. ENGLE. Well, Mr. Carson, you fellows would just fold your hands and say, "Why, we do not have a thing to do with this. We hope that when the Bureau gets the water diverted we can buy some of it."

Mr. CARSON. I do not intend to say that, Mr. Engle. Again, you are trying to put words in my mouth.

Mr. ENGLE. No; I am not.

Mr. CARSON. I am just giving you my opinion that California could immediately bring an action against Arizona. If they could allege that the diversion of 1,200,000 acre-feet of water from the main stream of the Colorado River by Arizona would take away one drop of the 4,400,000 acre-feet to which California is forever limited——

Mr. ENGLE. We are entitled to have some surplus, too.

Mr. CARSON. Well——

Mr. MILES. May I ask one more question?

Mr. MURDOCK. Governor, you are asking some good questions.

Mr. MILES. What action will have to be taken before you feel that you have a justiciable right to go into court? What action has to take place?

Mr. ENGLE. We have to get the consent to sue the Federal Government.

Mr. CARSON. This authorization bill being passed, Mr. Miles, would, in my judgment, mean they could go into court immediately.

Mr. ENGLE. Mr. Carson says, Mr. Miles, that you should pass this bill and that you can go into court. We say that if you pass the bill we cannot get into court because we still have to have authority to interplead the Federal Government.

Mr. CARSON. Well, I say you do not.

Mr. MURDOCK. Now, Governor Miles, would you like a partial answer to your question from one who is not an attorney?

Mr. MILES. Yes.

Mr. MURDOCK. I want this for the record: Arizona is never going to get any water out of the Colorado River which rightfully belongs to her, except by act of Congress. I think nobody can deny that.

Now, we have some main-stream water in the river. The Angel Gabriel himself would say so, if we could put the question to him.

We cannot get an act of Congress if this matter is thrown into litigation. We have to get an authorizing act first.

We do not have to go ahead and spend $738,000,000, but we have to get the authorization. If we do not get it, even if the suit resolution that Mr. White referred to is not passed by Congress, but even if it is only reported out by one committee of this House, that fact would be held as a bar against any legislative action for a long time.

Meanwhile, without a justiciable issue, the court cannot take action

and will not take jurisdiction. Therefore, possession being nine points of the law, California is getting her water, and can get all that she needs, call it what she may, and Arizona is bound hand and foot and is unable to get that which all recognize as rightfully hers, even if it is only a bucketful. A move to throw this dispute into litigation before an authorization act is passed is a move to give away Arizona's water. I want that for the record.

Mr. MILES. Mr. Chairman, if Gabriel comes in here as a witness, I have some questions I want to ask him. They are not pertaining to this case, however.

Mr. MURDOCK. Well, I think I ought to modify the record there a little for we cannot get a judgment from the high heavenly or even earthly authority.

May I say just one more thing. I said to the Judiciary Subcommittee: "I have great confidence in the Supreme Court of the United States." I hear my friends on both sides say, "What is more logical than to present this to the Supreme Court and let them decide it?" That is logical. Ordinarily I would say, "That is the thing to do," but the circumstances now are very different.

I do not want anyone to assume that I lack confidence in the Supreme Court. Certainly I do not want anyone to assume that I lack confidence in the Great Judge of the world or in the ultimate Day of Judgment. However, if I step out here where my automobile is parked, intending to enter it and drive home, even though it is my automobile parked there, if just before I get in I find a great hulk of a man having the power of Jack Dempsey and Joe Louis combined just ahead of me in the front seat, turning on the ignition, and I say to him, "Hold on, there, that is my car and I need it," and he says to me, "You are kidding. This is my car and if you do not like it see me about it on the Day of Judgment," I will not be satisfied with his proffer of an adjudication in that case.

Mr. WHITE. I want to ask the chairman a question.

Mr. MURDOCK. My refusal in that case is not because I lack any confidence in the Great Judge of the future, nor in the ultimate Day of Judgment.

Mr. WHITE. Mr. Chairman, may I ask the Chair a question?

Mr. MURDOCK. Yes, Mr. White.

Mr. WHITE. In the event that this bill is passed and reported favorably by the committee and passed by the Congress and signed by the President and becomes law, is there any power in this committee to keep California from taking it to the Supreme Court?

Mr. CARSON. No.

Mr. MURDOCK. No. I really think there will be litigation after Congress has acted on a bill.

Mr. ENGLE. We cannot get into court, Mr. White, unless somebody gives us consent.

Mr. WHITE. We cannot forestall litigation by passing this bill, can we, Mr. Chairman?

Mr. CARSON. No.

Mr. MURDOCK. Let us pass the authorization.

Mr. WHITE. That is as far as we can go?

Mr. CARSON. That is right.

Mr. WHITE. The Court will have to take it on from there?

Mr. MURDOCK. And that is our duty as Members of Congress.

Mr. WHITE. I think the proceedings could be eliminated if we would go ahead and discuss the bill on its merits, and get it passed.

Mr. MURDOCK. I appreciate that suggestion.

Mr. Aspinall, do you have some questions?

Mr. ASPINALL. I might have one or two. I have become a little bit confused here.

How much water, Mr. Carson, is currently being used by Arizona from the Colorado River?

Mr. CARSON. Taking into account that which we are now using and projects that we have authorized over all the basin, not limited to the main stream, we are using approximately 2,400,000 acre-feet, when all these projects that are authorized and being constructed are finished, which leaves us in the river more than enough water.

We take into that calculation plans along the river for the irrigation of the Parker Indian Reservation and some small areas.

We say we are now using it because we have it in the plan as if it were an authorized project.

With all of that we still have left in the river quite a bit more than this 1,200,000 acre-feet that we plan to take for the central Arizona project supplemental water supply that is apportioned to us and is within our rights.

Mr. ASPINALL. That is your claim? You mean that you claim that much more from the Colorado River?

Mr. CARSON. Yes, and we claim it within our right without infringing on California's right to one drop of water.

Mr. ASPINALL. Where are these present diversions and the contemplated authorized diversions to be made?

Mr. CARSON. Well, all of these areas on here [indicating on map] that are marked in green are irrigated now. There is another authorized project that would take water out of the main stream of the Colorado River up in this area [indicating], a small part of which is in green on the lower Gila River.

Mr. ASPINALL. How much would be diverted from that?

Mr. CARSON. There will be a total additional diversion of 566,000 acre-feet, which is included in the figure I gave you.

Mr. ASPINALL. Let us keep away from the Gila River. I am not interested right now in the Gila River.

Mr. CARSON. I will have to get one of these engineers to figure separately for me on the main stream.

As I recall it now, on the main stream of the river, which would come out of Arizona's share of 2,800,000 acre-feet of main stream water, for which we have a contract from Lake Mead, which we reduce by the amount the Bureau calculates might ultimately possibly be used in Utah from tributary streams and in New Mexico from tributary streams, that leaves us in the reservoir at Lake Mead 2,670,000 acre-feet of water.

All the uses below there that are now being used and are contemplated for use by us in Arizona amount to approximately—wait until I get that figure. I think they are figuring it for me now.

Mr. BARING. Will the gentlemen yield there?

Mr. ASPINALL. Yes, just so long as you are not asking the witness a question.

Mr. BARING. Well, I will wait until later.

Mr. CARSON. About 1,200,000 acre-feet with all projects on the main stream that are now using water or are authorized or planned.

Mr. ASPINALL. Let me get this right.

Mr. CARSON. For which no authorization bills have yet been secured.

Mr. ASPINALL. Does that include the 566,000 acre-feet you formerly mentioned?

Mr. CARSON. Yes, sir.

Mr. ASPINALL. Unless this project or projects at this place of diversion, where you would have your four pumping plants constructed, is authorized——

Mr. CARSON. Yes.

Mr. ASPINALL. Will you be able to use any other water along the main stem of the Colorado River?

Mr. CARSON. Not any part of this 1,200,000 acre-feet.

Mr. ASPINALL. I think that is all.

Mr. BARING. Mr. Chairman?

Mr. MURDOCK. Mr. Baring.

Mr. BARING. How much reserve, Mr. Carson, would you figure on taking out of Hoover Dam or Lake Mead? How many acre-feet would you take if this were passed out of Lake Mead?

Mr. CARSON. Under this authorization?

Mr. BARING. Yes.

Mr. CARSON. 1,200,000 acre-feet.

Mr. BARING. Well, Mr. Chairman, at this time I would like to put in the record a statement by Mr. Debler during the Eightieth Congress, where he admitted that water cannot safely be drawn down more than 900,000 acre-feet per year.

Mr. CARSON. Then, I would also like for you to put in the record that Mr. Debler testified that with that diversion of the average flow the 17-year dry cycle of the river would permit the draw-down on Lake Mead, assuming the main flow, main stream flow is the lowest it has ever been in history for a period of 17 years—that he says in his statement that it would permit a draw-down of Lake Mead of that quantity of water over that entire 17-year period, and there would still be water in Lake Mead when that dry cycle ended.

Mr. BARING. Who would have to make up the difference? Would that be the five upper basin States, making up the difference during the dry years?

Mr. CARSON. No, it would be made up by the accumulated storage in Lake Mead. He starts that calculation in the report, Mr. Baring, and carries on that draw-down for 17 years, which he says would be necessary to supply all the rights below Lake Mead or out of Lake Mead.

Mr. WHITE. I believe you said that Arizona is appropriating 2,800,000 acre-feet of water now?

Mr. CARSON. No.

Mr. WHITE. Altogether?

Mr. CARSON. No, about 2,400,000 acre-feet, including all our uses on all these tributaries.

Mr. WHITE. As a matter of fact, the appropriations from the Salt River and Gila River were made long ago, long ahead of any controversy on the Colorado River; were they not?

Mr. CARSON. Yes.

Mr. WHITE. As a matter of fact, the Salt River Valley people have paid out their construction?

Mr. CARSON. Almost entirely, but not quite entirely.

Mr. WHITE. That is aside from any uses of any water from the main stream of the Colorado River?

Mr. CARSON. Yes.

Mr. WHITE. It was appropriated before there was any view of taking water out?

Mr. CARSON. That is right.

Mr. MURDOCK. Mr. D'Ewart, have you any questions?

Mr. D'EWART. In your opinion, would this committee have any right to allot the water in the lower basin as between those States?

Mr. CARSON. To allot water?

Mr. D'EWART. Yes.

Mr. CARSON. I would not think so, as an original action in this bill, Mr. D'Ewart, but the Congress has done so in the Boulder Canyon Project Act and indicated its intent that Arizona would get 2,800,000 acre-feet of main-stream water; and then required California to agree to that division in the California Self-Limitation Act.

We claim the benefit of that Self-Limitation Act which is made expressly for our benefit, so we are relying upon the Congress to now help us implement the agreement which Congress made with California, to help us take part of this water into Arizona to save the economic situation all over the State of Arizona; and Congress has already so indicated and California has already so agreed.

Mr. D'EWART. The intent, however, was that the States of the lower basin should, among themselves, enter into a compact, not that the Congress should allocate it.

Mr. CARSON. Congress required California to accept that proposed tri-State allotment by requiring it to adopt its Self-Limitation Act limiting it to the exact share which Congress intended the compact should provide.

We have suggested that to California and Nevada, as we see it, in the exact intent of the Congress of the United States in that permission for a tri-State compact.

We offered it directly by an act of our legislature and passed it with the same provisions in it that are in the congressional act, and offered it to California and Nevada, if they would accept it within a 2-year period, and they refused to accept it and refused to carry out the intent of Congress.

In our judgment, in so refusing they indicated a flat desire which they have never abandoned to violate and pay no attention to the California Self-Limitation Statute, which they had enacted pursuant to the provisions of the Boulder Canyon Project Act.

Mr. ENGLE. Will the gentleman yield?

You agree, though, do you not, Mr. Carson, that the Bureau of Reclamation said that if California's contentions are correct, there is not any water for this project?

Mr. CARSON. Yes; of course, but then I do not think that there is any assumption there that California could be right, and, in my judgment, they cannot possibly be right.

Mr. ENGLE. Well, I am just saying that the Bureau of Reclamation has said that, regardless of what Arizona says.

Mr. CARSON. I know; but I am putting it to this committee and to the Congress that California cannot possibly be right.

Mr. ENGLE. I know; but this committee has no jurisdiction to decide.

Mr. CARSON. On any of these points.

Mr. ENGLE. To decide questions of that sort.

Mr. CARSON. Congress does have jurisdiction to decide that for the purpose of its own legislation and must, in my judgment, consider those matters for the purpose of its own legislation.

Mr. MURDOCK. You hold that this committee has the same right to frame legislation to build the Bridge Canyon Dam and an aqueduct to carry water into central Arizona that it had in 1928 to authorize the building of the Hoover Dam and the All-American Canal. Is that your contention?

Mr. CARSON. Yes, and that act could not become effective under the express language of the Boulder Canyon Project Act, nor could that be built, Mr. Chairman, until the State of California had, by act of its legislature, agreed irrevocably and unconditionally with the United States and for the benefit of Arizona, that the total of apportioned waters diverted for use in California should never exceed 4,400,000 acre-feet.

That was a legislative compact between the United States and the State of California, through the instrumentality of the Congress of the United States and the Legislature of California.

So that is all we are asking, that California live up to that agreement and that the Congress hold her to that agreement.

Mr. MURDOCK. I did not quite follow you. Did you say there that California should live up to the limitation of 4,400,000 acre-feet of firm water or apportioned water?

Mr. CARSON. Yes.

Mr. MURDOCK. Mr. D'Ewart?

Mr. ENGLE. I just want to say one thing more.

You say that this Congress, the legislative branch of the Federal Government, can make a construction and interpret the California Self-Limitation Act to which the Federal Government is a party adversely to the other party.

Mr. CARSON. Yes, for the purpose of legislation, of course, you can, Mr. Engle. You would not say that because there was a compact, a legislative compact or otherwise, between California and the United States, that the Congress could not pass legislation to implement the congressional understanding of what they meant; and that if California objected to it, you know and I know that the Supreme Court would be open to California.

Mr. ENGLE. But you have also said that the action of this Congress could have evidentiary weight in the Supreme Court on that point.

Mr. CARSON. I said not to the extent you were trying to get it.

Mr. ENGLE. The question is whether it has any or not. The contention is that Congress should not take action prejudicial to another party to a contract with the Federal Government.

Mr. CARSON. Of course Mr. Engle, you cannot actually mean that for the purpose of legislation, otherwise the Congress of the United

States has given an absolute veto power to the State of California over the understanding of Congress and the power of Congress to legislate.

Mr. ENGLE. No; we have not, because if this resolution is passed in the Judiciary Committee giving us the right to interplead the Federal Government, Arizona, or California can go into the Supreme Court and settle the matter. It is equally beneficial to you.

Mr. CARSON. You cannot go into the Supreme Court and settle it now. We have been over there time and time again. There is no justiciable controversy within the jurisdiction of the Court until this authorization bill is passed by the Congress.

Mr. ENGLE. You are not the Supreme Court.

Mr. CARSON. I say that.

Mr. ENGLE. The Supreme Court will decide these matters.

Mr. CARSON. I say that if California thinks that Congress is wrong the Supreme Court is open to them. They could bring a suit directly against Arizona and would not need to join the United States.

Mr. ENGLE. In the face of this action of the Congress of the United States, which you say will have evidentiary weight against us, I think it is unfair to ask this committee to do that.

Mr. D'EWART. Mr. Chairman?

Mr. ENGLE. I yield back to the gentleman from Montana. I am sorry.

Mr. D'EWART. That is all right.

Mr. MURDOCK. Mr. D'Ewart.

Mr. D'EWART. If I get the picture clearly, if this committee does not act we prejudice the rights of Arizona; if we do act we prejudice the rights of California. Is that the situation?

Mr. ENGLE. The situation is, Mr. D'Ewart, that the litigation should precede the authorization.

Mr. CARSON. No.

Mr. ENGLE. And should precede any action on this bill. Because, if Arizona establishes its rights in the Supreme Court to the waters which it contends it has—and the Bureau has said that if California is right they do not have any water—then the legal questions are out of the way. Then it would be questions solely of engineering and financial feasibility.

Mr. D'EWART. I have heard you make that statement, but I read the statement of the Supreme Court. While I am not a lawyer, it appears clear to me that you have to show damage before you can get into court.

Mr. ENGLE. You have to show present threat of injury, not present injury.

Mr. D'EWART. That is right.

Mr. ENGLE. Our contention is that we can show it, but the only agency which can decide that authoritatively is the Supreme Court itself.

Mr. D'EWART. How would you show a threat of injury at the present moment?

Mr. ENGLE. Because if this project goes through we are injured.

Mr. MURDOCK. "If."

Mr. ENGLE. We contend that if this project goes through we do not get the water.

Mr. D'EWART. But I said "at the present moment." Not if this goes through, but at the present time, how can you go into court without our taking action?

Mr. ENGLE. Here is the threat of injury. In fact, it is present injury. We are building not for the next year but for the next 25 or 50 years. We have to plan ahead of the actual requirements, and we cannot plan ahead when our title to the property, which we own, is in jeopardy.

If you own a piece of land, Mr. D'Ewart, and somebody on the basis of some instrument, some legal document, is clouding your title, you cannot build on that land. You cannot build a fence. You cannot predicate your farming operations on it. You cannot predicate your industrial operations on it in the form of an investment.

We built a vast aqueduct. We will finish parts of it. We want to plan for the future of California, predicated upon what we know our rights to be under the law, to the water which we claim we have.

We cannot proceed to make those plans or to do anything, when we are threatened with the loss of that water by Arizona through this legislation or otherwise. We want to get it into the Supreme Court and get it settled.

If the Supreme Court says that Arizona has this water and we do not, then we will readjust our programs and plans on some other basis. However, when you are planning for a great metropolitan area like the southern part of California, you have to plan water far ahead.

I suspect that if we do not get this water here to southern California that southern California is going to start looking north for diversions and will make plans maybe for 50 years in advance.

Mr. D'EWART. It occurs to me that exactly that same type of damage would be applicable in the case of Arizona.

Mr. ENGLE. That is right, but we have to have the consent of the Federal Government——

Mr. CARSON. No.

Mr. ENGLE. To bring them into the action, and we cannot get it through this legislation. It is over there in the Judiciary Committee.

Mr. MILLER. Will the gentleman yield?

I was going to ask the Chair or the witness: Is it not possible and feasible and right for the committee to study carefully both sides of this question?

Mr. CARSON. Surely.

Mr. MILLER. Someone has said that a pancake is never so flat but that it has two sides.

Then if the committee decides to report out the bill, with or without amendment, and the Congress decides to pass it, then it might be a matter of litigation by the Supreme Court.

If someone says that the legislation is not right and Congress went further than they should have gone, then, of course, it would be quite right and proper for either California or Arizona to go to the proper legal procedure to determine whether the legislation is correct or not. Is that right?

Mr. CARSON. Yes, sir; that is right.

Mr. MURDOCK. Doctor, may I answer that? You asked the chairman to answer that.

Mr. MILLER. All right.

Mr. MURDOCK. That is one of the best expressions I have heard in this committee for a long time. You are exactly right. That is what we are contending for, just what you said.

Now, on a serious moment like this I cannot joke, but I, myself, have been tremendously complimented, and Senator McFarland here has been paid a tremendous compliment, by the statement that when we introduce a bill it constitutes a threat by the mere introduction of these bills.

Senator, they think that you and I can so becloud the judgment and so prevail upon Congress that the introduction of a bill regardless of merit, we will get its passage as is.

Senator MCFARLAND. I hope you are right.

Mrs. BOSONE. Will the chairman yield? Off the record.

(Discussion off the record.)

Mr. MILES. Mr. Chairman, may I say that with Mr. Engle's able ways and persuasive manner, sometimes I think he is a threat.

Mr. MORRIS. Mr. Chairman, may I make an observation?

Mr. MURDOCK. We are infringing on Mr. D'Ewart's time.

Mr. MILLER. Will the gentleman yield once more?

Mr. MORRIS. We all know that we cannot get into court, just because we want to get into court. We must have a justiciable issue always. That is fundamentally known, of course, by lawyers and those who have had experience.

Quite often States and individuals will want to go into court, and quite often, as a matter of convenience and a matter of right, maybe they should be in court, but they cannot get in court. There is no way to get in court unless there is an actual issue.

Now, Arizona's contention is that this matter can never be settled unless we do pass this bill, because when we pass this bill then there will be a present threat and then they can go by injunctive process and raise the issue.

Mr. D'EWART. I would like to ask this question right there: Do you think it is necessary that this Congress authorize the expending of $700,000,000 in order to make a justiciable cause?

Mr. MORRIS. I am not sure as to that, yet. I am not saying I agree with Arizona as yet.

Mr. D'EWART. Yes.

Mr. MORRIS. But I say they have a point there that should be given most careful consideration. I am not saying I do not agree with them, either. I think if it is the only way they can get into court that we certainly ought to permit them to go into court, because California cannot possibly be heard on the matter; but the issue will be determined by a tribunal that we all have respect for, the Supreme Court of the United States.

Mr. ENGLE. Will the gentleman yield?

Just to be sure that my friend from Oklahoma has this quite clearly in mind, even if we have a justiciable issue, and we claim we have it now, we still cannot get into court unless we have the consent to sue the Federal Government, because the Federal courts have held that the Federal Government is a necessary party. We still have to have the consent, and the Supreme Court has so ruled.

Mr. MORRIS. I believe I will take issue. You do not have to make the Federal Government a party to the suit.

Mr. ENGLE. Will the gentleman reserve his opinion on that until I can show him what the Supreme Court says?

Mr. MORRIS. I certainly will.

I think that the State of California could sue the State of Arizona, and could enjoin them from making any further efforts along this line.

Mr. ENGLE. Wait a minute.

Mr. MORRIS. I believe that would raise the issue.

Mr. ENGLE. No.

Mr. MORRIS. But I want to reserve my opinion for my distinguished colleague, subject to what the Supreme Court might have said. I would be glad to examine it.

Mr. ENGLE. I want the gentleman to bear that in mind, because it is our position that the Supreme Court has held that the Federal Government is a necessary party, and when we file a petition to sue the Federal Government they will immediately throw us out on the basis of this decision, unless we have an authorization to join the Federal Government, or unless the Federal Government voluntarily interpleads.

Mr. MURDOCK. Mr. D'Ewart, you have the floor.

Mr. D'EWART. I will yield the floor to Dr. Miller.

Mr. MILLER. In reading the testimony of May 9, I noticed there was going to be some sort of a motion to postpone.

I personally feel, Mr. Chairman, that we ought to hear both sides of the question. I like to see both sides of the pancake. Then, if the Congress or this committee sees fit to take action one way or another, we at least have the full information before us.

I am not saying at this time how I might vote. I do not want to take a step which would preclude hearing both sides of the argument. Then we might draw the issue into focus, if we do report out legislation and it becomes law, so that there would be some litigation.

Mr. MURDOCK. Yes. I am very glad to hear you say that. I am very glad, because there are two sides to this matter, as well as to every pancake. I have taken a good deal of time here because I felt that Arizona's side had not been adequately presented, and I also want California's side adequately presented.

Mrs. BOSONE. Mr. Chairman, at this point I would like to say that I agree with Judge Morris. My mind is certainly still open, but I have appreciated the testimony as given by Mr. Carson and various others, and by our colleague, Mr. Engle. I have been enjoying the tilt back and forth, but I would like to say here that whatever salary Mr. Carson get from Arizona is not half enough. He has been a wonderful witness.

Mr. MURDOCK. I do not know what it is, but I know it is not half enough.

Mr. CARSON. Thank you.

Mr. MURDOCK. I believe Mr. Poulson has some questions.

Mr. POULSON. Mr. Chairman, Mr. Carson, in his original presentation here before the committee, came up with a 47-page typewritten discussion of all the legal questions. Just reading his testimony alone, without hearing the able contradiction by my colleague, Mr. Engle, would lead anyone to believe that even by his

own statements this is a very highly controversial legal problem because, with the vein that he brought out in his argument, it would show that he was trying to defend something. He was trying to defend a theory.

First of all, I think that Mr. Engle has very ably brought out that this is definitely a legal controversy which certainly is not within the confines of this committee of this nature. We have some very able attorneys on the committee. The majority of us are not attorneys. For that reason I am not going to get into the legal discussion.

I still cannot understand why both Mr. Carson and our very able chairman can be stating that they have such implicit confidence in the Supreme Court and are using every means possible to keep this from being settled by the Court.

I noticed, also, the dispute on the amount of water California has, and they never disputed the fact that California was entitled to the water when these projects were authorized.

Mr. CARSON. No. May I interrupt? We have just a contract——

Mr. POULSON. I would like to finish my statement.

Mr. CARSON. Oh.

Mr. POULSON. I believe that the records will show that the projects were authorized on the basis of water which was definitely allotted to them. This particular project, the water applicable to this particular project, the title to which is definitely under dispute between the States, is very controversial. I think even my very able representative of Arizona, Mr. Carson, will admit that there is a dispute there.

I see no reason why we should try to argue this thing, when this is a matter that is going to have to be settled in the Supreme Court.

I do not want to ask any questions.

Mr. CARSON. I was going to tell you that in the Arizona contract that we made with the United States, we recognize the right of the United States and the State of California to contract for the diversion for use in California of 4,400,000 acre-fee of the apportioned water of the river, and that California is, by its statutory legislative compact with the Congress, limited to that quantity of apportioned water.

Mr. POULSON. Grade A water?

Mr. CARSON. Yes; of apportioned water.

We think that this project will not, in any way, jeopardize the use of that 4,400,000 acre-feet of water for California, and that we are not making a threat to divert this water, 1,200,000 acre-feet, into Arizona, to constitute a legal threat in the language of the Supreme Court, until this authorization bill is passed.

Immediately that we do that, California could then properly allege in court that Arizona was threatening to divert 1,200,000 acre-feet of water from the river, and if California believed that that would interfere in any way with their 4,400,000 acre-feet of water they could immediately go to the Supreme Court and bring a suit to enjoin Arizona from that diversion and in such a suit the United States would not be a necessary party.

Mr. ENGLE. Would the gentleman yield just a moment?

Mr. POULSON. Yes.

Mr. ENGLE. Mr. Carson, I would like to read to you from *Arizona* v. *California* (298 U. S. 558). I am reading the next to the last paragraph:

> Every right which Arizona asserts is so subordinate to and dependent upon the rights and the exercise of an authority asserted by the United States that no final determination of the one can be made without a determination of the extent of the other. Although no decree rendered in its absence can bind or affect the United States, that fact is not an inducement for this Court to decide the rights of the States which are before it by a decree which, because of the absence of the United States, could have no finality.

Then the cases are cited:

> A bill of complaint will not be entertained which, if filed, could only be dismissed because of the absence of the United States as a party.

And then they cite authorities.

Mr. CARSON. Yes. Let me answer you now, if I may.

Mr. ENGLE. Yes, answer it if you can.

Mr. CARSON. That suit was not an injunction suit, Mr. Engle, but was one State against the other. It was an attempt on the part of Arizona—I did not participate in this case because, in my opinion, it could not be maintained—in the nature of a suit for an equitable apportionment between the two States, not to enjoin anything in California, but to apportion water for future use in the river.

Let me refer you back to page 570 of that same opinion, and the language of the court, in which they said:

> The decree sought has no relation to any present use of the water thus impounded which infringes rights which Arizona may assert subject to superior but unexercised powers of the United States.

In other words, we had no water right. We had no authorized project. We did have plans made, but they did not rise to the dignity of justiciable issue. California moved to dismiss it because it was not a justiciable issue, and the court sustained the motion to dismiss on that ground, as well as on the ground that in that character of the suit the United States was an indispensable party.

Mr. ENGLE. Is it your contention, then, that an injunction suit would not settle the water rights on the river?

Mr. CARSON. No. It is my contention that the moment this project is authorized, if California thinks that Arizona's diversion of 1,200,000 acre-feet of water would infringe in any way on California's right to 4,400,000 acre-feet, they could immediately bring an injunction suit against Arizona, and these questions could be settled by that means.

Mr. ENGLE. But, Mr. Carson, Arizona is not making the diversion.

Mr. CARSON. Nor threatening this project until authorized.

Mr. ENGLE. The Federal Government would be making it through the Bureau of Reclamation.

Mr. CARSON. As I said, Mr. Engle, you know and I know that the State of California, as the representative of its citizens—I forget the legal term, patria, whatever it is—could bring an action against Arizona as the legal representative of users of water in our State under the same theory as a direct injunction action, and all of these questions could be determined by the Supreme Court in a final and determinate way.

Mr. ENGLE. That is just exactly the opposite of what this Supreme Court decision says.

Mr. CARSON. What?

Mr. ENGLE. That is just exactly the opposite of what this Supreme Court decision says.

Mr. CARSON. No. I read you page 570.

Mr. ENGLE. It says:

> Although no decree rendered in its absence can bind or affect the United States, that fact is not an inducement for this court to decide the rights of the States which are before it by a decree which, because of the absence of the United States, could have no finality.

In other words, when you go to court on the rights of the river the Federal Government has to be in or there is no finality.

Mr. CARSON. It would not have to be in, in my judgment.

Mr. WHITE. Let me ask the gentleman from California a question.

Mr. ENGLE. Yes.

Mr. WHITE. Will not the passage of this bill put the United States in?

Mr. ENGLE. No; because there is no consent in this bill to interplead the United States Government. That is pending over in the Judiciary Committee.

Mr. WHITE. The United States will step in to appropriate the water for Arizona; will it not?

Mr. ENGLE. Yes.

Mr. WHITE. Will that not bring it in?

Mr. ENGLE. No; because you cannot sue the Federal Government without its consent. That is the point I am making. Putting this bill through is not going to get us into court even if it would create a justiciable issue, which Mr. Carson says it would, but which we say now exists. Even if it would make the issue justiciable, we are still not in court because we do not have consent under this decision to interplead the United States Government, and the bill for that purpose is pending in another committee of this House. It is my contention that that matter should be settled first.

Mr. WHITE. Is it the contention of the gentleman from California that we have reached a stalemate and that Arizona's portion of this water must forever run into the sea?

Mr. ENGLE. The only way we are ever going to get to the point where everybody can use water freely is to put the matter into the Supreme Court and have the Supreme Court adjudicate the water rights. If the Supreme Court gives Arizona this water, as I have said before, they can gargle with it, mix it with their whisky, or give it back to the Navajos; and it does not make any difference to us.

Mr. CARSON. I think I have made clear my position on the question of the justiciable issue.

Mr. MURDOCK. Mr. Poulson?

Mr. POULSON. He has made it clear that that there is a great difference of opinion.

I think the question was brought up by Mr. D'Ewart, and answered by Mr. Engle, about the fact that the large metropolitan areas have to plan ahead of time. It was called to our attention just in the last few days when we were up in New York that the city of New York has entered into a tri-State compact and started an aqueduct for water

which they will not even use for 100 years, for the simple reason that large cities have to plan.

Now, we have spent the great portion of the discussion here on the legal rights, as to whether Arizona has the right to this water, and we have not spent as much time on the feasibility of it.

In fact, I believe about the time we were discussing this several times our chairman said that we must hurry along with Mr. Larson. I do not know whether it was to protect him or not, but I know we brought out the fact that there was about $400,000,000 which he had not included in his report. I still see Mr. Larson here. I just want that for the record. It was stated he had to go back to Arizona, that it was a week late, and yet he is still here.

Mr. CARSON. Do you want to question him?

Mr. POULSON. Later on, yes.

Mr. WHITE. Mr. Chairman, we have gone into this matter rather exhaustively with this witness. I wonder if we can go along to the next witness.

Mr. MURDOCK. That is a good comment.

Are there any further questions to ask Mr. Carson?

Senator McFarland, we are glad to have you here today.

Senator MCFARLAND. Thank you, Mr. Chairman. I think it is pointed out in the other evidence, but if I may, just for the benefit of my good friend, Congressman Engle, I would like to answer the question that was asked as to the number of farmers on lands embraced in the central Arizona project. Congressman Murdock asked Mr. Carson if the drought were not encouraging a lesser number.

I wish to say, Mr. Engle, that in the valley in which I live, as was brought out in the testimony last year, they did not have water to farm more than one-third of the land in the San Carlos project. This meant that a man just had to get more land in order to have an economical unit to farm.

You cannot buy machinery and farm 60 or 70 acres, and it takes a larger acreage to make an economical unit where you can only farm part of your land.

A farmer will sell, because he cannot make a living on a small number of acres. So if this project is constructed it will encourage more farmers, and you will have more farmers for the same number of acres.

Now, the next thing that was highlighted here by my good friend, Congressman Engle, was that the passage of this act would have some evidentiary value in the Supreme Court. He asked a question to that effect, intimating that it would be unfair to give Arizona this advantage. I know my friend wants to be fair, and I know that he wants Arizona to have the same chance in the Supreme Court that California has.

As he well knows, they talk about all of these projects already being built, and these structures in California being built to take this water. They were built largely with Federal money, and Arizona did not come in and make any objection to it. Authorization of an Arizona project certainly would not be of more evidentiary value than the authorization of California projects. Surely California should not have an advantage.

Mr. POULSON. Senator, do you know that the metropolitan water district was built by the State of California?

Mr. MURDOCK. That is an exception.

Senator MCFARLAND. You did not borrow any money from the Federal Government to do it?

Mr. POULSON. Yes, but we are paying it.

Senator MCFARLAND. I understand.

Mr. POULSON. We bought bonds.

Senator MCFARLAND. But you borrowed the money from the Federal Government.

The Metropolitan and the All-American Canal were built by the Federal Government.

I want to conclude, because I know that the witnesses here want to finish their testimony.

All that Arizona asks is that you do the same by Arizona that the Federal Government has done for California. Give us an equal chance.

Mr. Engle, I do not think there is any question that if this project is authorized and if rights of California are threatened, you would be able to get the Attorney General to interplead, as you suggest. However, if the project is not authorized and we go into the court, and the court takes several years to determine whether there is a justiciable issue, which may be the case, where are we? We have accomplished nothing.

I want to express my appreciation to the members of your committee for your fairness in stating here that you wanted the opportunity to hear both sides of this case. We have other evidence on the question of a justiciable issue, but it should come in the form of rebuttal, and not in the case in chief.

I thank you very kindly, Mr. Chairman, and I want to express again my great appreciation to the members of this committee who have stated that they want to hear this whole case.

Mr. POULSON. Would you yield 1 minute?

Senator MCFARLAND. Yes.

Mr. POULSON. I have just been informed by the representatives of our district that the RFC bought the bonds and made $14,000,000 on the sale. That certainly could not be compared in any way with the financing of this project.

Senator MCFARLAND. I venture to say that if the Federal Government lends this money to build this project, they will get more than that back out of it in the form of revenue and taxes, and so forth.

Mr. POULSON. That did not include the revenue from taxes they made in southern California.

Senator MCFARLAND. I just want to say to my good friend that this project will pay out just the same. All we ask is the same chance that you people had in California. We helped you get money for your projects, including your Central Valley project of California. We want to have the same treatment, and that is all, with the same rights before the Supreme Court of the United States.

Mr. MURDOCK. Thank you kindly.

Mr. WHITE. I would like to ask the gentleman from California a question.

Mr. MURDOCK. Yes, Mr. White.

Mr. WHITE. You were saying that the Metropolitan water users raised $14,000,000 and expended it. I want to ask you if the Federal Government has not gone in and spent $140,000,000 to build Boulder Dam and also to build the diversion of Parker Dam and to install the aqueduct, and to make the three lifts to get it over the mountains to California? Considering that, is your investment of $14,000,000 very much?

Mr. POULSON. Every cent was paid back. Besides that, they got the interest back, which is not going back in this project. The interest here is being used to pay some of the principal on irrigation. In fact, California had to sign a firm contract to take all that power.

Mr. WHITE. All predicted upon the investment of the United States Government of $140,000,000 for Boulder Canyon, and also the diversion and the pumping for the three lifts over the mountains to get it to California.

Mr. POULSON. Yes.

Mr. WHITE. Without that, your investment does not amount to anything.

Mr. POULSON. $140,000,000 compared to $786,000,000 makes quite a little difference.

Mr. MURDOCK. Mr. D'Ewart?

Mr. D'EWART. I have one more question, Mr. Carson, before you leave the stand.

How many acre-feet of water do you maintain there is in the main stream available for the use of Arizona at this time?

Mr. CARSON. 2,670,000 acre-feet.

Mr. MURDOCK. Thank you, Mr. Carson. I had some questions I wanted to ask you, but I am going to forego them. We have taken a long time.

Mr. Carson is the last of the affirmative witnesses. He may be excused. I understand that Mr. Shaw has been listed as the first opposition witness.

Mr. ENGLE. Mr. Chairman, before Mr. Shaw takes the witness stand, I have a motion which I wish to make, and about which I previously informed the Chair, which is not a dilatory measure but which is for the purpose of establishing what I consider to be a very important principle on the hearing of this bill.

Mr. Chairman, at this time I want to move that further consideration and testimony on the central Arizona project be postponed until the legal availability of water is determined or until the first day of the second session of the Eighty-first Congress.

The purporse of the motion, Mr. Chairman, is to get a determination from the committee as to whether or not this committee believes that it has the jurisdiction to construe an interstate contract, because implicit in this legislation is a construction of the interstate contract.

If the committee votes out this bill it has, in effect, said that the water for the project is legally available under the basic Colorado compact.

Secondly, my purpose is to determine whether or not this committee feels that it has the jurisdiction or that it is proper for the legislative branch of the Government, this committee and the Congress, to interpret a contract to which the Federal Government is a party.

Mr. MURDOCK. Just a moment, Mr. Engle. You are making a 5-minute speech on the motion. Would you put the motion formally? I believe there are 12 members present. Is that correct?

Mr. ASPINALL. Mr. Chairman, may I raise this point at this time: There is not a quorum present. This matter will take much longer than 15 minutes, which is allotted to us at the present time. If we have to go into it, I would suggest that you adjourn and let us come back for discussion.

Mr. ENGLE. I have no objection to that, except that I want to say that I intend to be reasonably brief. I did not intend, Mr. Chairman, to argue the motion unless it were considered in order. I have made the motion. The motion is complete. I am stating the purpose, and then I intend to argue the reasons for it.

Mr. MURDOCK. I want to make a distinction between the motion and the offer to support the motion.

Mr. Aspinall, the question concerning a quorum is: Is there a quorum of a committee of 25? However, we have now only 24 members.

Mr. ENGLE. I think it takes 13.

Mr. ASPINALL. It takes 13, Mr. Chairman.

Mr. WELCH. Mr. Chairman, if it is the intention of Congressman Engle to press his motion——

Mr. MURDOCK. Will you withhold your point of order just a moment, please?

Mr. WELCH. It is my opinion that special notice be sent to each and every member of the committee to be present on a day certain when the motion of our colleague from California will be taken up.

I observe there are only three members of the minority present. I do not know how any of them are going to vote.

Mr. MORRIS. Off the record.

(Discussion off the record.)

Mr. WELCH. Mr. Chairman, I do not hesitate to state how I am going to vote. We have heard the proponents of H. R. 934 and the members have sat here very attentively and listened to the testimony adduced by the proponents of the bill. Personally, I would like to hear the testimony of the opponents of the bill. I think we should have a complete record.

I want to say that so far as I am concerned, it is not binding on me on my final vote as to whether or not I will vote to report this bill. I think that we should have for the record not only the testimony of the proponents, but the testimony of those who are opposed to the bill.

Mrs. BOSONE. Mr. Chairman, that would be my sentiment, also, without committing myself on the final bill.

Mr. MURDOCK. I think that is a fair statement. Mr. Aspinall, there seems to be a quorum present now.

Mr. ASPINALL. Yes.

Mr. MURDOCK. One or two members have come in.

Would you restate your motion, please, Mr. Engle, as briefly as you can, which will still leave us 10 minutes, or 5 minutes for each side?

Mr. ENGLE. Mr. Chairman, I move that further consideration and testimony on the central Arizona project to be postponed until the

legal availability of the water is determined or until the first day of the second session of the Eighty-first Congress.

Mr. MURDOCK. You have heard the motion. Mr. Engle is recognized for 5 minutes in support of his motion.

Mr. ENGLE. Mr. Chairman, the purpose of this motion is to get a determination precisely along the line that we have had some expression of by these committee members.

What I would like to do with this motion is to have this committee determine, if it will, whether or not this committee thinks it has the jurisdiction or the power or the right to make a determination of the legal availability of water for this project. If you think that this committee and this Congress has no power and no right to construe an interstate compact or to interpret a contract to which the Federal Government is a party, then you should vote for this motion.

If on the other hand, you think that the Congress has both the right and the power to determine the legal availability of water by construing an interstate compact, and by construing the California Self-Limitation Act, to which the Federal Government is a party, then, of course, you should vote against this motion; but I think we should know clearly what we are doing.

We have a bill pending in another committee of this House. That committee is hearing the legal aspect of this controversy for the purpose of determining whether or not there is a justiciable cause of action, and whether or not the United States Government will be interpleaded in an action to determine the legal availability of water on the Colorado River.

It is my opinion that that committee and not this committee should settle those legal questions. This motion will have that effect.

This motion would seek to postpone the consideration of this bill until that matter is determined or until the first day of the second session of the Eighty-first Congress, which brings the matter up automatically at the beginning of the next session for a redetermination of precisely where we are.

Mr. MILLER. Will the gentleman yield?

Mr. ENGLE. Yes.

Mr. MILLER. Even if this committee reported this bill out, it is not likely that the Rules Committee or the House would take final action.

Mr. ENGLE. I do not know about that.

Mr. MILLER. Have you any objection as to the committee hearing the other side of the pancake?

Mr. ENGLE. The other side is our side.

Mr. MILLER. Are you in a position for rebuttal?

Mr. ENGLE. Yes; we are prepared to proceed, but my position is this: On the showing which has been made by Arizona, it is demonstrated that there is a controversy which has to be settled in a legal way. My position is that another committee of this House is already considering legislation to do that, and that we should proceed with the legal aspect of this case before we proceed with the financial and economic feasibility aspects. That is the proper way to do it.

The Bureau says that if California is right, there is no water for this project.

Mr. MILLER. Will you yield for one more question?

Mr. ENGLE. Yes.

Mr. MILLER. If the committee should act upon this bill, that does not preclude the other committee from going ahead, does it?

Mr. ENGLE. That is correct, but that is the point I want to make. If you vote this bill out, we cannot get to court anyway. We are not in court even if the bill gives Arizona or California a justiciable cause of action, because we are still lacking a necessary party, the United States Government. Voting this bill out does not put us into court.

Mr. MILLER. Do you not think in justice to the committee members here that we ought to hear both sides of the question before we act upon that? Is not your motion premature?

Mr. ENGLE. No; it is not, because when we are all through, you do not postpone the testimony, and you do not postpone consideration; but you vote on the merits of the bill. The purpose of this motion is to determine whether or not this committee will face the legal issues in this and say that it ought to be decided in the way it ought to be decided.

Mr. MILLER. The committee could postpone consideration of the bill after hearing both sides?

Mr. ENGLE. Yes. In that event you have the effect of tabling the measure, at least for a time, because you can always withdraw a bill from the table.

What I would like the committee to decide is whether or not it believes that this committee has the power to make these legal determinations which are a necessary prerequisite to any proper consideration of this project at all.

I hope that the committee will not engage in any fuzzy thinking and want to listen to all sides and then want to determine the thing on a very nebulous basis. Let us get down to the legal issues. If this committee has the jurisdiction to determine these legal questions, vote against this motion. If this committee does not have that jurisdiction, vote for this motion and put the determination of those questions where it belongs.

Mr. MORRIS. Very well. The chairman has asked me to preside because of his particular interest in this matter. I understand it will be fair and proper to allow Mr. Murdock 5 minutes in rebuttal.

Mr. MURDOCK. Mr. Chairman, I appreciate that.

I feel that this would be a very unwise thing for the committee to do. We have heard the proponents of the case, and it occurs to me that it would be rather foolish not to proceed with the hearings. That there ought to be a sort of gentleman's agreement that we will give the opposition the same time for constructive presentation as the proponents have had.

Surely this committee does not wish to gag itself and does not wish to say, "We do not want to hear both sides of the question because we might be confused." I do not think the committee or Congress should put itself in that position. We are a deliberative body.

Mr. Chairman, everything depends upon straight thinking here. Several members of the committee have said this morning and at other times, "We must hear all sides of this question." That is what we propose to do by continuing, so that we may get a complete case.

Several members have said, "I do not want to express an opinion on the bill, or how I am going to vote on the bill, but I have a pretty positive feeling about wanting to hear both sides of the question."

That is exactly my attitude. I have never asked any member of this committee to jump to conclusions or to pass snap judgment on this important measure. All that I have said is that the very future of my State hangs in the balance. I know that the future of the southern part of the great State of California hangs in the balance on this. I urge complete consideration.

Mr. MILLER. Will the gentleman yield?

Mr. MURDOCK. I want to say that I am interested in southern California and in the great city of Los Angeles. As I said at the opening of the hearings, I do not propose to jeopardize the water supply of the great city of Los Angeles.

There is another side of that question that has not been brought out.

Yes, Dr. Miller, I will yield.

Mr. MILLER. I think it was the great Voltaire who said, "I may not agree with the things you say, but I will defend to the death your right to say them."

Mr. MURDOCK. That is correct.

Mr. MILLER. That is the controversy here. I may not agree with what Mr. Carson has said, and I may not agree with the opposition, but I want to give them the right to say what they wish.

Mr. MURDOCK. Thank you for that.

The thing I want to stress is this: Arizona is dependent upon the action of Congress. If this matter is thrown entirely into litigation, we are hog-tied in a legislative measure. We cannot act.

Therefore, I beg the committee to do its congressional duty, and that is to carry out your legislative program as you understand it. We have the court as a last resort to decide whether we have exceeded our legislative powers in any legislation. That, I think, is our remedy in case we should go wrong.

However, if Arizona is left hog-tied without any legislation for the long future, it will go far toward destroying the State. That is the point I want to stress, also.

Mr. Chairman, I think that is all. I ask for a vote.

Mr. MORRIS. May I make this observation, ladies and gentlemen of the committee: We only have 3 minutes until 12 o'clock. This motion should be disposed of before 12 o'clock.

Mr. MILLER. I move that we proceed.

Mr. MORRIS. You have heard both sides. Unless someone insists on speaking, we should proceed.

Mr. MILLER. A point of order. The debate must close after each side has had 5 minutes.

Mr. MORRIS. That is true. Congressman Welch wanted to ask a question.

Mr. WELCH. Mr. Chairman, and members of the committee, three members of this committee are from the State of California. Every member of the California delegation filed identical joint resolutions which are now pending before the Judiciary Committee of this House. Personally, my position has not changed from the time I filed a joint resolution with my other colleagues from the State of California. On the other hand, I see no reason why we should not hear both sides of this case for the record.

Mr. MORRIS. Are you ready for the question? You have heard the motion. All in favor the motion will say "Aye."

Mr. BENTSEN. Will you repeat the motion, please? I was out.

Mr. MORRIS. The substance of it is that the hearing be postponed.

Mr. ENGLE. Let me read it.

Mr. MORRIS. Mr. Engle, will you read it rapidly, please. The time is about to run out.

Mr. ENGLE. The motion is that future consideration of the central Arizona project be postponed until the legal availability of water is determined or until the first day of the second session of the Eighty-first Congress.

Mr. MORRIS. All in favor of the motion will say "Aye."

(General response of "Aye.")

Mr. MORRIS. Those opposed "No."

(General response of "No.")

Mr. MORRIS. The "Noes" appear to have it. Do you want the committee polled? The "Noes" have it.

Mr. ENGLE. I ask for a division, Mr. Chairman.

Mr. MORRIS. You ask for a division.

All in favor of the motion will stand up. Three.

All opposed to the motion will rise. Twelve. The motion is defeated.

Mr. Chairman, will you take over?

Mr. MURDOCK. Thank you, Mr. Morris.

Mr. Baring, I understand, will be the first witness in opposition, followed by Mr. Shaw.

Mr. POULSON. Mr. Chairman, may I say for the benefiit of the rest of the comittee that I think when Mr. Shaw comes before the committee you will find that he will give a comprehensive over-all picture of our program as to our type of opposition, and that I think it would be to your interest, and it would be very valuable for your decision in the future, if you were to hear Mr. Shaw when he comes before us.

Is that tomorrow?

Mr. MURDOCK. Yes.

Mr. POULSON. After Mr. Baring?

Mr. MURDOCK. Yes. The committee stands adjourned until 9:30 tomorrow morning.

Mr. ENGLE. Mr. Chairman, I believe I have a meeting of my subcommittee in the morning.

Mrs. MCMICHAEL. (The clerk). No, I think you do not, Mr. Engle.

Mr. ENGLE. When is it?

Mrs. MCMICHAEL. (The clerk). I do not know, but I believe the Subcommittee on Territories will meet in here and the Subcommittee on Irrigation will meet in the anteroom.

Mr. ENGLE. That will be all right, then.

Mr. MURDOCK. The subcommittee stands adjourned until 9:30 tomorrow morning, and we will meet in the adjoining room.

(Thereupon, at 12 noon, Wednesday, May 11, 1949, an adjournment was taken until 9:30 a. m., Thursday, May 12, 1949.)

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THE CENTRAL ARIZONA PROJECT

HEARINGS

BEFORE A

SUBCOMMITTEE ON IRRIGATION AND RECLAMATION

OF THE

COMMITTEE ON PUBLIC LANDS
HOUSE OF REPRESENTATIVES

EIGHTY-FIRST CONGRESS

FIRST SESSION

ON

H. R. 934 and H. R. 935

AUTHORIZING THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF A DAM AND INCIDENTAL WORKS IN THE MAIN STREAM OF THE COLORADO RIVER AT BRIDGE CANYON, TOGETHER WITH CERTAIN APPURTENANT DAMS AND CANALS, AND FOR OTHER PURPOSES

PART 2

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THE CENTRAL ARIZONA PROJECT

THURSDAY, MAY 12, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION,
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 9:30 a. m., in the committee room of the House Committee on Public Lands, the Honorable John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The subcommittee will come to order.

I think in the interest of conserving time we might begin now.

Mr. Carson was our last witness on the affirmative presentation, among the proponents, except for later refutation. We have listed a number of opponents, but I understand that Congressman Baring wishes to lead off ahead of Mr. Shaw, who is the first witness we have listed in opposition.

Congressman Baring, are you ready to proceed?

Mr. BARING. Yes, sir.

Mr. MURDOCK. You may take the witness stand.

STATEMENT OF HON. WALTER S. BARING, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEVADA, AND A MEMBER OF THE COMMITTEE ON PUBLIC LANDS

Mr. BARING. Mr. Chairman, I have the statement of Senator Pat McCarran, the senior Senator of Nevada, which I would like to read into the record at this point. [Reading:]

The Senate Committee on Interior and Insular Affairs has under consideration S. 75, a bill to authorize the construction of the Central Arizona project.

THE PROJECT

The project would consist primarily of the Bridge Canyon Dam on the Colorado River above Boulder Dam, and an aqueduct to carry Colorado River water to central Arizona, through tunnels over 80 miles long, bypassing Boulder Dam. Initially, however, instead of building these tunnels, a branch or alternate aqueduct would be built from Parker Dam, lifting the water by pumping nearly a thousand feet, to join the ultimate Bridge Canyon aqueduct route at junction point part way to the Phoenix area, and using about a third of the Bridge Canyon power for pumping. The remaining two-thirds would be sold. The potential customers are supposed to be in California, Nevada, and Arizona.

COST

The ultimate project will cost over $1,000,000,000, about as much as has been spent in 47 years of reclamation in 17 Western States. The initial part of it, involving the Parker pumping route, will cost over $750,000,000. This latter

figure is about the same as the cost of the TVA, about the same as the estimated cost of the St. Lawrence seaway, and is five times the cost of the Boulder Canyon project.

FINANCING PLAN

Under the plan set up by the bill, no part of the capital cost will be repaid by the Arizona irrigators. Either the Federal Treasury, or the power users, are expected to pay for all of it. The water will be sold to the irrigators at $4.50 per acre-foot, which, according to the Reclamation Bureau, is less than the cost of operation and maintenance alone.

IMPORTANCE OF POWER TO NEVADA

Abundant cheap power is essential to Nevada. Bridge Canyon power site, properly developed, can be an asset to Nevada and the other intermountain areas within transmission distance. But, as proposed in this bill, a million and a quarter acre-feet would ultimately bypass Boulder and Davis Dams, reducing the power Nevada is entitled to at such projects. More important, Bridge Canyon power itself would be loaded with over $300,000,000 of subsidy to an Arizona irrigation project. When the Boulder Canyon Project Act was debated, Nevada insisted that power at Boulder Dam should not have to pay for any part of the All-American Canal. The power users of Nevada are entitled to have the same principle apply to Bridge Canyon.

SUBSIDIES REQUIRED—RELATION TO NATIONAL DEBT

The power users or the Federal taxpayers will have to provide not only the $750,000,000 to $1,000,000,000 of capital costs, but also several million dollars per year in operating expense.

The scheme set up in S. 75 does not contemplate that the Treasury will get out of this project any money which can be used to pay interest on the billion dollars of new national debt which it will represent. The interest collected from the power customers is all used to retire capital invested in the aqueduct, as a subsidy to Arizona's irrigators. The lost interest alone, for 80 years at 2 percent, is over a billion dollars, even if the capital is recovered; and during the same period the Federal taxpayers or the power users would also have to carry the burden of over a quarter billion dollars of operating expense that the water users cannot pay.

Coming on the heels of a proposal to increase Federal income taxes $4,000,000,000, or to reduce the current budget by a comparable figure, any project that adds over a billion to the national debt and fails to provide revenues to pay interest to the bondholders deserves mature consideration.

THE ESSENCE OF THE PLAN

Essentially, what Arizona proposes in that the Government build her an aqueduct and get the cost back, not from the Arizona irrigators (who are not going to pay even for the power required for pumping water through this aqueduct) but by building a power dam at Bridge Canyon, over 300 miles upstream, and selling this power to California, Nevada, and Arizona users for a price high enough to pay for both the aqueduct and the power dam. California is the biggest power market. In short, Arizona proposes that California shall pay for the Arizona aqueduct to take away the water that California's own projects have been built to use. Arizona invites the Government to risk the taxpayers' money on the assumption that California will cooperate in depriving her own projects of water.

RELATION OF COSTS AND VALUES

The whole area to be served is less than 600,000 acres. The best land in central Arizona is worth $300 per acre. If it were all worth that much, the whole service area would be worth $180,000,000. The project will cost over $750,000,000, or more than four times the maximum value of all of the land to be benefited. But water for most of this 600,000 acres has been provided by projects already constructed. If the project is not built, perhaps 150,000 acres of war-boom land will go back to the desert state it was in before 1940; $750,000,000 divided by 150,000 is $5,000 per acre, or, if only half the project cost is allocated to irrigation, $2,500 per acre, to "rescue" land worth a tenth as much. There are no poor homesteaders living on that 150,000 acres. They are

large operators who put down pumps, to "mine" an underground water supply which they knew to be limited, to cash in on high prices. Neither the Federal Treasury nor the power users of California and Nevada should be called on to "rescue" them.

EFFECT ON THE OTHER RECLAMATION STATES

If construction of the billion-dollar central Arizona project takes 10 years, it will absorb, out of the annual construction budget available in all 17 Western States, an average of $100,000,000 per year, and, during the peak years of activity, several times that amount. The whole reclamation construction budget for all the States this year is about $350,000,000, and this is the largest in history. Do the other Western States want to get along on what is left after this all-time giant devours the annual construction appropriations?

REACTION OF THE EASTERN STATES

The East has supported western reclamation because it has paid its way. The central Arizona project is the first project ever presented to Congress on which the irrigators are unable to repay any part of the investment, and are unable to pay even the operating costs and cost of power for pumping. Do the Western States who have good projects want to forfeit eastern support and endanger the whole reclamation program by identifying themselves with this promotion?

WATER

The enormous investment proposed in S. 75 is a gamble on an uncertain water supply. As the direct result of the Mexican water treaty, which was opposed by two of the three lower division States, and by most of the water users in Arizona, but which was supported by the sponsors of S. 75, the lower basin is confronted with a catastrophic water shortage. Commissioner Bashore furnished the Senate, at my request, figures published in Senate Document 39, Seventy-ninth Congress, showing that the face amount of the Government's commitments in the lower basin would exceed the supply available in a dry decade like 1931–40, after the upper basin is fully developed, by well over 2,000,000 acre-feet per year, and that even after drawing down Boulder Dam storage 1,500,000 acre-feet a year, there would be a deficit of over three-quarters of a million acre-feet annually. In the hearings on S. 1175, a bill like this in the Eightieth Congress, Arizona's expert, Mr. Debler, admitted that Boulder cannot safely be drawn down more than 900,000 acre-feet per year, and that in order to make good on the Mexican treaty, the upper basin must be called upon to increase its deliveries at Lee Ferry and reduce its own uses for periods as long as 20 years at a time.

REPORTS OF THE BUREAU OF THE BUDGET

On February 4, 1949, the Director of the Bureau of the Budget wrote the Secretary of the Interior quoting the Commissioner of Reclamation's admissions that "assurance of a water supply is an extremely important element of the plan yet to be resolved"; saying that the Department of Agriculture "questions whether the benefits actually exceed costs"; quoting the Federal Power Commission's criticism "that there is no essential physical relationship between the Bridge Canyon power project and the Central Arizona diversion project but that the two are linked together in the report because of the need for subsidies from electric power income"; quoting the State of Nevada's official comments that "studies have been made by California and Nevada engineers which show that there will be little or no water for the central Arizona project," and Nevada's reference to "the limited storage behind the dam which in a few years would fill with the silt," and ending with the statement of the Director of the Bureau of the Budget that:

"From an examination of the report, of the comments of the affected States, and of the remarks of other interested Federal agencies, it is apparent that there are a number of important questions and unresolved issues connected with the proposed Central Arizona project. The provision of adequate water supply, if found to be available, is admittedly a high-cost venture which is justified in the report essentially on the basis of an urgent need to eliminate the threat of a serious disruption of the area's economy. Even so, the life of certain major parts of the project is appreciably less than the recommended 78-year pay-out

period. The work could be authorized only with a modification of existing law or as an exception thereto. Furthermore, there is no assurance that there will exist the 'extremely important element' of a substantial quantity of Colorado River water available for diversion to central Arizona for irrigation and other purposes.

"The foregoing summary and the project report have been reviewed by the President. He has instructed me to advise you that authorization of the improvement is not in accord with his program at this time and that he again recommends that measures be taken to bring about prompt settlement of the water rights controversy."

Later, under pressure from the sponsors of the project, the Director wrote on February 11 that litigation was not the only method to settle the controversy, but that it might be determined through negotiation or by Congress. As to that, more later. But the Budget Bureau has not retracted its condemnation of the project's economics.

NECESSITY FOR ADJUDICATION

Obviously, the Government should not risk a billion dollars nor any part of it on a project dependent on an uncertain water supply. This project's supply is uncertain. It has a supply, at all, only if the Colorado River compact is construed as Arizona wants it construed. Nevada and California are not in agreement with Arizona's interpretations. Governor Warren, of California, and Governor Pittman, of Nevada, offered to Governor Osborn, of Arizona, to either negotiate, arbitrate, or join in obtaining authorization by Congress for a suit in the Supreme Court. The permission of Congress is necessary to the latter course, because the United States is a necessary party. Arizona has replied, refusing to negotiate or arbitrate or litigate. She wants a political settlement in Congress. The water rights involved here are State's rights, not subject to disposition by Congress. For 75 years the Western States have denied any power in the Federal Government to determine or apportion their water rights, which are founded in State law. The Constitution provides only two methods for settling a dispute between States: By interstate compact or by original action in the Supreme Court. California and Nevada have patiently tried the former approach for a quarter century. The remaining alternative is litigation. The Western States cannot safely acquiesce in the erroneous notion that the Federal Government can constitutionally dictate and divide the uses of their water.

To put this matter at rest, the Senators from Nevada and California have joined in introducing a resolution, Senate Joint Resolution 4, Eighty-first Congress, to authorize suit. This jurisdictional bill should be speedily considered and passed. Pending its disposition, no action should be taken on any large consumptive use projects in the lower basin. No Senator would vote to build a million-dollar structure on land whose title was in dispute. This project involves a thousand times a million dollars. Nevada and California are not afraid to submit their cases to the Supreme Court. If Arizona will not risk her case in the Supreme Court, let her not ask Congress to risk a billion dollars on the same gamble.

Mr. MURDOCK. We thank you for reading the Senator's statement. We would have welcomed the Senator himself. However, Senators are pretty busy folks.

Mr. BARING. They are.

Mr. MURDOCK. We appreciate that. Have you any statement you would like to make on your own?

Mr. BARING. Yes, I wish to confirm the report of Senator McCarran. I have a resolution similar to Senate Resolution 4 introduced in the House myself.

Mr. MURDOCK. Yes.

Mr. BARING. I believe at this time we should wait for the result of that bill in the Judiciary Committee.

Mr. MURDOCK. Perhaps there are some questions the committee would like to ask you. Did you have a question, Mr. D'Ewart?

Mr. D'EWART. Yes.

Mr. MURDOCK. The questions will necessarily be, I presume, on the Senator's statement.

Mr. D'EWART. Perhaps that is true.

I gather, Mr. Baring, that Nevada does not object to the construction of portions of this project.

Mr. BARING. The question is just the uncertainty of the availability of the water.

Mr. D'EWART. There is a question as to whether the benefits actually exceed the cost, quoting the Federal Power Commission:

> That there is no essential physical relationship between the Bridge Canyon power project and the Central Arizona diversion project but that the two are linked together in the report because of the need for subsidies from electric power income.

They have no objection, I take it, to the Bridge Canyon project and those projects in the upper reaches of the lower basin?

Mr. BARING. We are objecting to the whole thing, Mr. D'Ewart.

Mr. D'EWART. Objecting to all of them?

Mr. BARING. In view of the circumstances right now, adding $1,000,000,000 to the public tax roll, at the same time that they do not believe the question can be answered until we find out just how much water there is, there is an objection.

Mr. WELCH. Is Nevada receiving water at the present time from the Colorado River?

Mr. BARING. Under the Boulder Canyon Project Act I believe it is 300,000 acre-feet. I believe that is the figure.

Mr. MURDOCK. That is the amount Nevada has contracted for with the Secretary of the Interior?

Mr. BARING. Yes.

Mr. WELCH. My question is: Is Nevada actually receiving water from the Colorado River at the present time?

Mr. BARING. I do not believe it is.

Mr. WELCH. What was that?

Mr. BARING. I do not believe it is, Mr. Welch. We have that right given to us by the Colorado River project.

Mr. WELCH. I know that to be a fact.

Mr. MURDOCK. Mr. D'Ewart, have you any further questions?

Mr. D'EWART. Do you and the Senator concur in the statement on page 7 to the effect that litigation is not the only method to settle a conroversy, but that it might be determined through negotiation or by Congress? Do you think there is any possibility of either of those methods?

Mr. BARING. No, I do not, Mr. D'Ewart. I believe we must have it settled once and for all. We have heard testimony here for several months, and I believe it is just the way you look at it. If it is Arizona's side they have the water and if it is California's side they do not have it.

Mr. D'EWART. The remainder of the statement and the necessity for adjudication, it seems to me, presents a misunderstanding. There is no question of the adjudication of the water rights within the States. It is a question of the division of water between the States. I believe there is a misapprehension there as to the purpose. That is all, Mr. Chairman.

Mr. MURDOCK. Mr. Welch, have you any further questions?

Mr. WELCH. No; Mr. Chairman.

Mr. MURDOCK. Mr. Marshall?

Mr. MARSHALL. No questions.

Mr. MURDOCK. Mr. Poulson?

Mr. POULSON. No questions.

Mr. MURDOCK. I think I do not have any further questions myself, Mr. Baring, so we are glad to accept the Senator's statement as you have presented it for the record.

In answer to Mr. Welch's question a moment ago, I think Nevada is using some water. I think that has been in the testimony. However, it is a very small amount of water, less than 50,000 acre-feet.

Mr. BARING. Is that in Boulder City?

Mr. MURDOCK. I think it is for municipal use.

Mr. BARING. Yes; I think so.

Mr. MURDOCK. I just want to make this little comment: I will make no reference to Congressman Baring's immediate predecessors, but the first man I met on coming to Washington was Congressman Jim Scrugham, of Nevada.

I talked these matters over with him at great length, as well as mining matters, on which he was an authority. I always felt I could talk with Congressman Scrugham better than most anybody else on this river matter, because he was Nevada's representative at the Santa Fe compact meeting in November 1922.

I was particularly anxious to find out from Congressman Scrugham regarding the benefits which Nevada was getting from power at Hoover Dam. The original Boulder Canyon Project Act provided that both Arizona and Nevada should receive certain benefits in power. I believe each might receive 18 percent of the power produced.

I think the facts are that neither Arizona nor Nevada actually received that percentage of the power that is being produced at Boulder Dam up until the Rate Readjustment Act. In it there was a slight change in percentage, and a slight change in the arrangements after that. There has been a great deal of misunderstanding in Arizona, and possibly in Nevada, with regard to how they are to get the 17.6 percent of power or how to get the 18 percent of power which the law seems to accord these two States. That has necessitated certain action which I think I may want to allude to later, but I will not go into it further here.

Mr. D'EWART. Will the chairman yield?

Mr. MURDOCK. Yes.

Mr. D'EWART. Do you know of any other power construction by the Federal Government where the power was allotted to a particular State by percentage?

Mr. MURDOCK. I cannot recall now, Mr. D'Ewart, that there are any. This was involved in the question of payment in lieu of taxes.

Mr. D'EWART. I see.

Mr. MURDOCK. In the original act I think that was it.

Mr. D'EWART. We do have cases where blocks of power have been allotted to Indians in payment for the return of the use of the site.

Mr. MURDOCK. Yes; we do have such.

Unless there are further questions of Mr. Baring, we will proceed with Mr. Shaw, who is, I believe, our next witness.

Mr. POULSON. Mr. Chairman, inasmuch as this happens to be one of our main witnesses, I am going to call a point of order that there is no quorum.

Yesterday I believe the committee went on record as saying they wanted to hear the evidence, and yet here we only have seven members.

We have what we consider our most important witness to testify, and I do not think it is fair that we proceed under this basis, so, therefore, I call a point of order that there is no quorum.

Mr. MURDOCK. Obviously, there is no quorum present. Would it be satisfactory, Mr. Poulson, if we recessed until the members could be notified.

Mr. POULSON. Yes. I just want to have the members here. That is the point.

Mr. MURDOCK. Without objection, the committee stands recessed until 10:30, and Mrs. McMichael, the clerk, is asked to notify the members.

(Thereupon, a short recess was taken.)

Mr. MURDOCK. A quorum is present. Mr. Shaw is the next witness. Mr. Shaw, we will be glad to hear your statement.

STATEMENT OF ARVIN B. SHAW, JR., ASSISTANT ATTORNEY GENERAL FOR THE STATE OF CALIFORNIA

Mr. SHAW. Mr. Chairman, you have a new map before you this morning, and you will see some new faces and I hope receive some new ideas as to what this matter is all about.

I am assistant attorney general of California, assigned exclusively to advise the Colorado River Board of California. That is a State board, set up by statute to protect and conserve the interests of California in the Colorado River. Incidentally, I have also for 30 years acted as attorney for one or more irrigation districts in the Colorado River desert in southeastern California, which depend for their water supply on the Colorado River. I appear here on behalf of the State and am making this statement generally on behalf of the opponents to H. R. 934, namely, the States of California and Nevada.

Mr. MURDOCK. Mr. Shaw?

Mr. SHAW. Yes, sir.

Mr. MURDOCK. Could you supply for the record a list of the members of the Colorado River Board of California?

Mr. SHAW. Yes, sir.

Mr. MURDOCK. That can be inserted.

Mr. SHAW. I can give their names immediately.

Franklin Thomas is chairman. Evan T. Hewes.

Mr. WELCH. Would you mind giving for the record their addresses?

Mr. SHAW. Certainly, Mr. Welch. Franklin Thomas, whose address is the California Institute of Technology, Pasadena, Calif.

Mr. Hewes' address is El Centro, Calif.

Walter Bollenbacher, whose address is Los Angeles, Calif.

J. W. Newman, whose address is Thermal, Calif.

Fred Simpson, whose address is San Diego, Calif.

S. B. Morris, whose address is Pasadena, Calif.

Mr. POULSON. Mr. Morris is with the department of water and power, is he not?

Mr. SHAW. Mr. Morris is the chief engineer and general manager of the Department of Water and Power of the city of Los Angeles.

Let there be no mistake about one thing. As will be shown by documents which will be put before you, the State of California, not merely some public agencies of California, opposes this legislation.

Mr. ENGLE. Mr. Shaw, do you have copies of your statement?

Mr. SHAW. Copies are on the clerk's desk, and I will be glad to present them to the committee.

Mr. POULSON. Will the clerk pass them out?

Mr. MURDOCK. Mrs. McMichael will pass them out, Mr. Shaw.

Mr. SHAW. Thank you.

I offer for the record and will read resolutions adopted by the Legislature of California and the State Water Resources Board of California.

First is a copy of Assembly Joint Resolution No. 10, adopted January 27, 1949, by the Legislature of the State of California, certified by the secretary of state, which reads as follows:

Whereas more than 3,500,000 inhabitants of this State are dependent upon the Colorado River as a source of supplemental water supply for domestic purposes; and

Whereas the metropolitan areas of southern California, including those within approximately 2,200 square miles of coastal plain and foothills extending from Los Angeles to Riverside and San Bernardino and those in San Diego and vicinity are dependent upon the Colorado River as a source of supplemental water supply for municipal and industrial purposes; and

Whereas over 1,000,000 acres of lands of this State are solely dependent upon the Colorado River as a source of water supply for irrigation purposes; and

Whereas there is now pending in the United States Senate a bill (S. 75) which, if enacted, would authorize the central Arizona project; and

Whereas there is insufficient water available in the lower basin of the Colorado River to supply the central Arizona project without depriving the people of California of their right to use that water and jeopardizing their investment in distribution facilities which amounts to more than $500,000,000; and

Whereas the States of California and Arizona have been unable to agree as to their respective rights to the use of the water of the Colorado River; and

Whereas resolutions (S. J. Res. 4 and H. J. Res. 3) are now pending before the United States Congress which would, if adopted, authorize a suit in the United States Supreme Court to determine the respective rights of the States of Arizona, Nevada, and California to the use of the water of the Colorado River; and

Whereas the authorization of the central Arizona project prior to an adjudication of water rights would greatly intensify the dispute between the States of California and Arizona and result in the possible expenditure of hundreds of millions of dollars of public money to construct a project for which there would be an inadequate water supply: Now, therefore, be it

Resolved by the Assembly and the Senate of the State of California, jointly, That the United States Congress is respectfully memorialized and urged to adopt one of the resolutions authorizing a suit in the United States Supreme Court to adjudicate the respective rights of the States of Arizona, Nevada, and California to the use of the water of the Colorado River; and be it further

Resolved, That the United States Congress is respectfully memorialized and urged to suspend further consideration of the proposed central Arizona project pending the determination of the respective rights of the States of Arizona, Nevada, and California to the use of the water of the Colorado River; and be it further

Resolved, That copies of this resolution be transmitted to the President of the United States, the President of the Senate of the United States, the Speaker of the House of Representatives of the United States, and to each Senator and Represenative from California in the Congress of the United States.

That resolution, Mr. Chairman, was adopted by unanimous vote of each house of the California Legislature, and should settle beyond dispute any question as to the position of the State of California.

Mr. MURDOCK. Does the resolution bear a date?

Mr. SHAW. It was adopted and filed with the secretary of state on the 27th day of January 1949.

(The document is as follows:)

STATE OF CALIFORNIA

OFFICE OF THE SECRETARY OF STATE

I, Frank M. Jordan, secretary of state of the State of California, hereby certify:

That I have compared the annexed transcript with the record on file in my office, of which it purports to be a copy, and that the same is a full, true, and correct copy thereof.

In witness whereof, I hereunto set my hand and affix the great seal of the State of California this 21st day of February 1949.

[SEAL]

FRANK M. JORDAN,
Secretary of State.
By CHAS. J. HAGERTY,
Deputy.

ASSEMBLY JOINT RESOLUTION No. 10

Adopted in assembly January 25, 1949.

ARTHUR A. OHNIMUS,
Chief Clerk of the Assembly.

Adopted in senate January 26, 1949.

J. A. BEEK,
Secretary of the Senate.

This resolution was received by the secretary of state this 27th day of January 1949, at 11 o'clock a. m.

CHAS. J. HAGERTY,
Deputy Secretary of State.

CHAPTER 57

ASSEMBLY JOINT RESOLUTION No. 10—RELATIVE TO MEMORIALIZING THE CONGRESS OF THE UNITED STATES IN RELATION TO THE WATERS OF THE COLORADO RIVER

Whereas more than 3,500,000 inhabitants of this State are dependent upon the Colorado River as a source of supplemental water supply for domestic purposes; and

Whereas the metropolitan areas of southern California, including those within approximately 2,200 square miles of coastal plain and foothills extending from Los Angeles to Riverside and San Bernardino and those in San Diego and vicinity are dependent upon the Colorado River as a source of supplemental water supply for municipal and industrial purposes; and

Whereas over 1,000,000 acres of lands of this State are solely dependent upon the Colorado River as a source of water supply for irrigation purposes; and

Whereas there is now pending in the United States Senate a bill (S. 75) which, if enacted, would authorize the central Arizona project; and

Whereas there is insufficient water available in the lower basin of the Colorado River to supply the central Arizona project without depriving the people of California of their right to use that water and jeopardizing their investment in distribution facilities which amounts to more than $500,000,000; and

Whereas the States of California and Arizona have been unable to agree as to their respective rights to the use of the water of the Colorado River; and

Whereas resolutions (S. J. Res. 4 and H. J. Res. 3) are now pending before the United States Congress which would, if adopted, authorize a suit in the United States Supreme Court to determine the respective rights of the States of Arizona, Nevada, and California to the use of the water of the Colorado River; and

Whereas the authorization of the central Arizona project prior to an adjudication of water rights would greatly intensify the dispute between the States of California and Arizona and result in the possible expenditure of hundreds of millions of dollars of public money to construct a project for which there would be an inadequate water supply: Now, therefore, be it

Resolved by the Assembly and the Senate of the State of California, jointly, That the United States Congress is respectfully memorialized and urged to adopt one of the resolutions authorizing a suit in the United States Supreme Court to adjudicate the respective rights of the States of Arizona, Nevada, and California to the use of the water of the Colorado River; and be it further

Resolved, That the United States Congress is respectfully memorialized and urged to suspend further consideration of the proposed central Arizona project pending the determination of the respective rights of the States of Arizona, Nevada, and California to the use of the water of the Colorado River; and be it further

Resolved, That copies of this resolution be transmitted to the President of the United States, the President of the Senate of the United, States, the Speaker of the House of Representatives of the United States, and to each Senator and Representative from California in the Congress of the United States.

SAM L. COLLINS,
Speaker of the Assembly.
GOODWIN J. KNIGHT,
President of the Senate.

Attest:
[SEAL]

FRANK M. JORDAN,
Secretary of State.

Mr SHAW. I also offer for the record and ask that there be printed in the record in full a resolution adopted by the State Water Resources Board of the State of California on February 4, 1949. I will not read the entire resolution, but I will read the "resolved" clause:

Now, therefore, be it resolved by the State Water Resources Board of California, That the board support the position of the Governor of California, that the controversy with respect to the waters of the Colorado River should be disposed of in the most speedy and practicable manner possible before authorization for construction of the central Arizona project is considered by the Congress, and to that end joins with the Colorado River Board of California and other interested agencies, public and private, in support of the passage of a resolution providing for a suit in the Supreme Court of the United States with the objective of adjudicating the rights of the States of the lower basin of the Colorado River and of the United States to the waters of the Colorado River system for use in the Colorado River basin as defined in the Colorado River compact; and be it further

Resolved, That copies of this resolution be sent to the Senators from California, the Members of the House of Representatives from California, the chairman of the Committee on Interior and Insular Affairs of the Senate and the chairman of the Committee on the Judiciary of the House of Representatives.

(The document is as follows:)

RESOLUTION No. 55, MEMORIALIZING THE CONGRESS OF THE UNITED STATES RELATIVE TO THE WATERS OF THE COLORADO RIVER

Whereas a controversy has existed for many years among the States of the lower basin of the Colorado River as to their respective claims to the water of the Colorado River system; and

Whereas the Governor of California has proposed that the controversy be resolved by negotiation between the States, by arbitration, or by suit in the Supreme Court of the United States; and

Whereas all attempts during recent years to settle this controversy by negotiation or to reach any agreement for the arbitration of the controversy have failed; and

Whereas there are pending before the Congress of the United States resolutions introduced by representatives of California and Nevada giving consent to the joinder of the United States as a party in any suit commenced in the Supreme Court of the United States by any State in the lower basin of the Colorado River for the adjudication of claims asserted by such State, by any other State, or by the United States, with respect to the water of the Colorado River system available for use in that basin; and

Whereas there is also pending before the Congress legislation looking to the authorization for construction of a water and power project called the central Arizona project which project would require the use of water in Arizona, the

respective rights to which are under controversy and should be determined prior to authorization of the central Arizona project: Now, therefore, be it

Resolved by the State Water Resources Board of California, That the Board support the position of the Governor of California, that the controversy with respect to the waters of the Colorado River should be disposed of in the most speedy and practicable manner possible before authorization for construction of the central Arizona project is considered by the Congress, and to that end joins with the Colorado River Board of California and other interested agencies, public and private, in support of the passage of a resolution providing for a suit in the Supreme Court of the United States with the objective of adjudicating the rights of the States of the lower basin of the Colorado River and of the United States to the waters of the Colorado River system for use in the Colorado River basin as defined in the Colorado River compact; and be it further

Resolved, That copies of this resolution be sent to the Senators from California, the Members of the House of Representatives from California, the chairman of the Committee on Interior and Insular Affairs of the Senate and the chairman of the Committee on the Judiciary of the House of Representatives.

The foregoing resolution was adopted by the State Water Resources Board, State of California, on February 4, 1949.

EDWARD HYATT, *State Engineer, Secretary.*

RESOLUTION NO. 48

Whereas it is common knowledge that the available volume of water in the Colorado River system is far from being sufficient to satisfy the claims and demands of the States of the basin of said river system, particularly as to the States of the lower basin, and interstate controversies exist and have existed for 25 years between said States, or some of them, as to the amount of water from said Colorado River system each is entitled to utilize, and such controversies have tended to hamper the development and maintenance of civic, agricultural, and industrial life within the States of the lower basin particularly; and

Whereas so long as there remain undeveloped economically feasible hydroelectric potentialities on said river, the use of oil and other fuels for the purpose of generating electric power is unduly expensive, uneconomic, and wasteful of the national resources of our Nation; and

Whereas so long as there remain undeveloped economically feasible reclamation potentialities which can be supported by the use of the waters of said river system, the full development of the national agricultural economy is retarded to the detriment of the Nation as a whole: Therefore, be it

Resolved by the sixty-seventh convention of the American Federation of Labor, That such interstate controversies are against the best interests of the Nation and should be determined, and that the Federal Government should take and support such action as may be necessary to have such controversies speedily adjudicated by the appropriate court of the United States, and to this end the American Federation of Labor recommends speedy enactment by the Congress of such legislation as will enable such judicial determination of existing interstate controversies which hamper and delay the full utilization of the waters of said river system.

Adopted by American Federation of Labor at its convention held at Cincinnati, Ohio, November 15 to 22, 1948.

STATE OF CALIFORNIA,
GOVERNOR'S OFFICE,
Sacramento, April 16, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Senate Committee on Interior and Insular Affairs,
Senate Office Building, Washington, D. C.

MY DEAR SENATOR: This letter is addressed to you in support of the passage of Senate Joint Resolution 4, with reference to the adjudication of the water rights of the States of the lower basin of the Colorado River. I had hoped to be able to appear personally before your committee on this matter, but my obligations in California do not permit me to do so. It would be appreciated if you would receive this communication and make it a part of the record of your hearings.

It is unfortunate that a controversy exists over the rights to the use of the waters of the lower basin of the Colorado River. It is unfortunate also that

another year has passed without anything constructive having been accomplished toward the solution of the existing problems. In May 1948 Senator Knowland, at my request, appeared before the Subcommittee on Irrigation and Reclamation of the Committee on Interior and Insular Affairs, and presented my views urging the adoption of Senate Joint Resolution 145, to authorize commencement of an action by the United States to determine the rights of the lower-basin States to Colorado River water. The resolution failed to be adopted.

The controversy is essentially a dispute over the meaning of certain statutes and documents, including particularly those known as the Colorado River compact, the Boulder Canyon Project Act, the California Limitation Act, and certain water-delivery contracts made by the Secretary of the Interior. Conferences held on this subject throughout the years have not brought about a solution, and as the present and future needs become more critical the situation will properly become more acute.

On March 3, 1947, I made the written suggestion to the Governor of Arizona that we endeavor to resolve our differences by one of three methods. These methods are, in order of preference, (1) by written agreement between the States, (2) by arbitration, or (3) by suit in the Supreme Court of the United States. No agreement resulted from this proposal of mine, but I am of the firm belief that such action is still highly desirable and in the best interests of both Arizona and California. Since there seems to be no possibility of terminating the controversy by agreement or arbitration, the means of adjudication set forth by Senate Joint Resolution 4 is the only alternative.

The future economic development of the lower-basin States is dependent upon a solution of the existing controversy. The Secretary of the Interior has recognized the necessity of a determination of the controversy in order to permit further development of the water resources of the Colorado River by the Federal Government.

Since the major issues of the controversy are matters of law and not of fact, it is probable that within a comparatively short time the Court could hear legal arguments, without the necessity of taking extended evidence regarding facts, and adjudicate the rights of the affected States promptly. I believe the case could be presented to the Court on an agreed statement of facts. Each year that the settlement of the controversy is delayed means additional years of delay in the development of the areas affected by the use of Colorado River water.

In the event the Congress authorizes the suit by acceptance and passage of Senate Joint Resolution 4, I assure you that California's part in the proceeding will be carried on with all possible promptness.

I urge your favorable consideration of the resolution.

Sincerely,

EARL WARREN, *Governor.*

Mr. SHAW. In addition, Hon. Earl Warren, Governor of California, has directly and plainly stated his opposition to this legislation on behalf of California in the official comments which he has filed with the Department of Interior on the Secretary's report on the central Arizona project. I offer for the record the comments of the State and Governor Warren's letter to Secretary Krug relating thereto.

May I ask that the clerk distribute copies of this report among the members of the committee, and may I read only a paragraph or two of Governor Warren's letter of December 29, 1948, addressed to Secretary Krug, transmitting this report.

The last two paragraphs of this letter read:

Until there is a final settlement of the water rights by some method, the aggregate of Arizona and California claims to Colorado River water will exceed the amount of water available to the lower-basin States under the Colorado River compact and relevant statutes and decisions. It is only because a determination of the respective rights of the lower-basin States to the waters of the Colorado River system has not been made that California submits any criticism of your proposed report.

Whenever it is finally determined what water belongs legally to Arizona, it should be permitted to use that water in any manner or by any method considered best by Arizona, so long as that use does not conflict with the right of California to the use of its water from the Colorado River system. However, as

long as the present unsettled situation exists, it is my opinion that each State in the lower basin must of necessity interest itself in the others projects which would overlap its claims. For this reason the State of California cannot concur in the proposal of the Secretary of the Interior for the authorization and construction of the central Arizona project. Accordingly the attached report of the Division of Water Resources deals with matters of water supply, water requirements and utilization, and feasibility of the central Arizona project.

That is Governor Warren's position.

(The document referred to was filed for the information of the committee.)

Mr. SHAW. I am not sure, Mr. Chairman, how much of the official reports on this project by Federal departments and agencies have been included in this record.

I offer for the record the letter from the Director of the Budget to the Secretary of the Interior, dated February 4, 1949, which concludes with this statement which I consider to be the official position of the President and the administration:

The foregoing summary and the project report have been reviewed by the President. He has instructed me to advise you that authorization of the improvement is not in accord with this program at this time and that he again recommends that measures be taken to bring about prompt settlement of the water rights controversy.

That is signed by Frank Pace, Jr., Director.

I also wish to offer a supplemental letter.

Mr. MURDOCK. Without objection the letter referred to may be included in the record at this point.

(The letter is as follows:)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., February 4, 1949.

MY DEAR MR. SECRETARY: In Director Webb's letter of September 16, 1948, concerning your report on the central Arizona project, he pointed out that the Bureau of the Budget had not completed its review and analysis but agreed with your suggestion that the report should be forwarded to the Congress. I am now able to advise you that the Bureau of the Budget has completed its study of the report and a determination has been made of the relationship of the proposed project to the program of the President.

The report proposes the construction of the Bridge Canyon Dam and power plant, a pumping plant at Lake Havasu, and an aqueduct from there to Granite Reef Dam in central Arizona, together with other appurtenant works for the purpose of providing supplemental water to irrigation areas in central Arizona and hydroelectric power in the Arizona-southern California area. The total estimated cost of the project as of January 1948 is $738,408,000, of which (based on existing law) $420,000,000 would be allocated to irrigation, $291,000,000 to electric power, $18,000,000 to municipal water supply $6,000,000 to flood control, and about $3,000,000 to fish and wildlife. It is proposed to install 750,000-kilowatt capacity of power generation at Bridge Canyon Dam, with about 2 percent additional generation at smaller dams on the project.

The report calls for an ultimate annual diversion of 1,200,000 acre-feet of water from the Colorado River at Lake Havasu (Parker River Dam) with a pump lift of 985 feet to the Granite Reef aqueduct through which it would be conveyed for a distance of 241 miles to the Phoenix area of Arizona as a supplemental supply of irrigation water. The use of such supplemental water would be "(1) to replace the overdraft on the ground-water basins, (2) to permit the drainage of excess salts out of the area and maintain a salt balance, (3) to provide a supplemental supply to lands now in production but not adequately irrigated, (4) to increase the water supply for the city of Tucson, and (5) to maintain irrigation of 73,500 acres of land formerly irrigated but now idle for lack of water." It is proposed to charge the district $4.50 per acre-foot of water. The duty of water varies between projects and between surface and

pumped water. However, diversion demand of surface water at district headgate is given as an average of something about 5 acre-feet per acre. The rate for power would be (under existing law) 6.22 mills.

It is the opinion of the regional director of the Bureau of Reclamation that the "project has engineering feasibility in the sense that there are no physical obstacles * * * that could not be overcome." He states, however, that "financial feasibility of the project is more difficult to determine," and further in his report to the Commissioner of Reclamation, he raises the question of adequacy of the water supply for this project.

It is pointed out in the report that the project as proposed is economically infeasible under existing reclamation laws, and that it is essentially a "rescue" project designed to eliminate the threat of a serious disruption of the area's economy. Modifications in these laws are therefore proposed in the report to extend the repayment period for the entire project, including power, to 78 years, and to use one-fifth of the interest component on the commercial power investment to aid in the repayment of irrigation features.

The State of Arizona says that under the Colorado River compact, other agreements, and California's self-limitation act, Arizona has allocated to its use 3,670,000 acre-feet of water per year. It states that it is now using from the main stream of the Colorado and its tributaries in Arizona a grand total of 1,408,000 acre-feet of water per year, thus leaving 2,262,000 acre-feet for additional consumption which cannot be lawfully used elsewhere than in Arizona. It estimates the (consumptive) use for the central Arizona project at 1,077,000 acre-feet which together with the other planned uses will still leave in the main stream, according to the State's estimate, a balance of 619,000 acre-feet apportioned to Arizona for future use and for reservoir losses. Arizona bases its case for diversion of water from the Colorado River upon these figures and proposes to use such water as a supplemental supply for lands now inadequately irrigated. It states further that the irrigation of lands in central Arizona has been expanded beyond the water supply of central Arizona and that this is resulting in an exhaustion of their underground supply with insufficient surface stream flow to maintain production in the lands now irrigated. To avoid the danger to the entire economy of the State, it considers it essential that the central Arizona project be expedited.

The Comissioner of Reclamation states that assurance of a water supply is an extremely important element of the plan yet to be resolved; that the showing in the report of there being a substantial quantity of Colorado River water for diversion to central Arizona for irrigation and other purposes is based upon the assumption that claims of the State of Arizona to this water are valid. He states that the State of California challenges the validity of Arizona's claim and that if the contentions of the State of California are correct, there will be no dependable water supply from the Colorado River for this diversion. He further states that the Bureau of Reclamation and the Department of the Interior cannot authoritatively resolve this conflict between States, and that it can be resolved only by agreement among the States, by court action, or by an agency having proper jurisdiction.

The comments of the several affected State governments and interested Federal agencies with respect to his report contain a number of objections and reservations with respect to the proposed project. Specifically, the Department of Agriculture questions whether the benefits actually exceed costs. It questions, as it has on numerous other occasions in commenting on proposed reclamation projects, the use of the gross rather than the net-crop-return method of computing benefits. The Department further says, "The actual relation of benefits to costs is still further obscured by what appears to be a failure to use the market value of power in estimating for evaluation purposes the cost of pumping the water supply. Market value must be used in economic evaluation because the power has alternative uses." Commenting further on benefits, the Secretary of Agriculture states, "* * * while it is necessary that benefits exceed costs of a project is to be considered economically justified, this alone is not sufficient. Sound economics and common sense require: First, the consideration of possible alternatives; and, second, the choice of that alternative yielding the largest return on the investment." The comments of the Department of Agriculture go even further and state, "At least in the respects mentioned above the benefits used in testing the economic soundness of the project are in error. We would recommend, therefore, that further and more careful consideration be given to the economic evaluation of the proposed project."

The Federal Power Commission points out that there is no essential physical relationship between the Bridge Canyon power project and the central Arizona diversion project but that the two are linked together in the report because of the need for subsidies from electric power income to help finance the irrigation improvement. It also indicates that the burden of the irrigation costs are considerable and that the proposed charges for electric power consequently approach a level where such power cannot be classed as "low cost" in this region. The Federal Power Commission also suggests that further studies are required before the proper installed capacity at Bridge Canyon power plant can be finally determined and that it could probably be considerably more than the 750,000 kilowatts proposed.

The State of Nevada says: "There is a grave question regarding the availability of water to Arizona to supply the project. * * * Studies have been made by California and Nevada engineers which show there will be little or no water for the central Arizona project. * * * Investigations and reports should be held up or be only preliminary in character where there is a question as to availability of water." The State of Nevada further says that some engineers have expressed an opinion that the Bridge Canyon Dam and Reservoir cannot be utilized properly and to its full extent as a power project because of the limited storage behind the dam which in a few years would fill with silt and power service would depend on natural fluctuating river flow. The raise questions as to whether it would not be desirable to construct Glen Canyon, which would provide much additional storage capacity, at the same time as Bridge Canyon.

The State of Nevada, in commenting on the economic justification of the project, computes the net irrigation construction costs on the acreage which will be salvaged by the project at $1,469 per acre and questions the justification of such costs in the face of an estimated farm-land value with irrigation of $300 per acre.

The States of California says that a controversy has existed between California and Arizona for many years as to their respective claims to Colorado River water and that conferences held on this subject throughout have not brought a solution. The State further says that until there is a final settlement of the water rights, the aggregate of Arizona and California claims to Colorado River water will exceed the amount of water available to the lower basin States under the Colorado River compact and relevant statutes and decisions. It states that as long as the present unsettled situation exists, each State in the lower basin must, of necessity, interest itself in the others' projects which would overlap its claims. Accordingly, the State of California submits the following conclusions: (a) The plan for construction, operation and maintenance of the proposed project is not financially feasible under existing Federal reclamation law and the modifications thereof considered in the report; (b) consideration of an authorization for the central Arizona project should be withheld until a determination has been made of the respective rights of the lower basin States to the waters of the Colorado River system; and (c) extensive and detailed studies and investigations should be made by the Bureau of Reclamation of local water supply and use in order to determine accurately the amount of supplemental water needed for existing irrigated lands in the Salt River and Middle Gila River valleys and to formulate plans for additional conservation of local water supplies.

With reference to the controversy that exists between the claims of the States of the lower basin, it is concluded that the situation has not changed since your interim report of July 14, 1947, on the status of your investigations of potential water resource developments in the Colorado River Basin. In the report of the Commissioner of Reclamation, approved by you, it is stated "that further development of the water resources of the Colorado River Basin, particularly large-scale development is seriously handicapped, if not barred, by lack of a determination of the rights of the individual States to utilize the waters of the Colorado River system."

On July 23, 1947, Director Webb replied to your letter of July 19, 1947, as follows:

"* * * Acting under authority of the President's directive of July 2, 1946, I am able to advise you that there would be no objection to submission of the proposed interim report to the Congress, but that the authorization of any of the projects inventoried in your report should not be considered to be in accord with the program of the President until a determination is made of the rights of the individual States to utilize the waters of the Colorado River system.

From an examination of the report, of the comments of the affected States, and of the remarks of other interested Federal agencies, it is apparent that there are a number of important questions and unresolved issues connected with the proposed central Arizona project. The provision of adequate water supply, if found to be available, is admittedly a high-cost venture which is justified in the report essentially on the basis of an urgent need to eliminate the threat of a serious disruption of the area's economy. Even so, the life of certain major parts of the project is appreciably less than the recommended 78-year pay-out period. The work could be authorized only with a modification of existing law or as an exception thereto. Furthermore there is no assurance that there will exist the "extremely important element" of a substantial quantity of Colorado River water available for diversion to central Arizona for irrigation and other purposes.

The foregoing summary and the project report have been reviewed by the President. He has instructed me to advise you that authorization of the improvement is not in accord with his program at this time and that he again recommends that measures be taken to bring about prompt settlement of the water rights controversy.

Sincerely yours,

FRANK PACE, JR., *Director.*

Mr. SHAW. I also offer a supplemental letter from the Director to Senator O'Mahoney, dated February 11, 1949, which relates more directly to the question of litigation than to the project report.

Mr. MURDOCK. Without objection, the letter to Senator O'Mahoney may also be admitted at this point.

(The letter is as follows:)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
February 11, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

MY DEAR SENATOR O'MAHONEY: Members of the Congress have raised a question as to the interpretation to be placed upon the last clause of the last sentence of my letter of February 4, 1949, addressed to the Secretary of the Interior advising him of the relationship to the program of the President of the central Arizona project. The clause referred to reads as follows: "* * * and that he (the President) again recommends that measures be taken to bring about prompt settlement of the water-rights controversy."

During the last Congress in connection with consideration of Senate Joint Resolution 145 and House Joint Resolution 227, this office advised the Attorney General that it would be in accord with the program of the President to resolve the water-rights controversy by waiving immunity of the United States to suit and by granting permission to the States to bring such actions as they might desire, if the Congress felt it to be necessary to take such action. This advice was transmitted to the Congress by the Attorney General. Similar advice was also transmitted by the Secretary of the Interior, together with specific suggestions as to a form of a resolution which the Congress might consider.

In order that there may be no misunderstanding of the President's position, I shall be gratetful if you will advise the members of your committee that the President has not at any time indicated that suit in the Supreme Court is the only method of resolving the water rights controversy which is acceptable to him. On the contrary, the letters addressed to the Congress last year, as indicated above, stated specifically that enactment of the resolution authorizing suit would be acceptable to the President" * * * if he Congress feels that it is necessary to take such action in order to compose differences among the States with reference to the waters of the Colorado River * * *."

The project report and materials relating to the positions of the several States affected are now before your committee for consideration. If the Congress, as a matter of national policy, makes a determination that there is a water supply available for the central Arizona project, the President will consider all factors involved in any legislation to authorize the project and will inform the Congress of his views respecting the specific provisions of this legislation.

Sincerely yours,

FRANK PACE, JR., *Director.*

Mr. SHAW. I also offer the letter of transmission from the Secretary of the Interior to the chairman of the Senate Committee on Interior and Insular Affairs dated September 16, 1949, which transmits the central Arizona project report. That report states in part:

Assurance of a water supply is an important element of the plan yet to be resolved.

Omitting some matter, it further states:

If the contentions of the State of Arizona are correct, there is an ample water supply for this project. If the contentions of California are correct, there will be no dependable water supply available from the Colorado River for this diversion.

Mr. MURDOCK. Without objection, that letter may be admitted to the record at this point.

(The letter is as follows:)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, September 16, 1948.

HON. HUGH BUTLER,
Chairman, Senate Committee on Interior and Insular Affairs,
United States Senate.

MY DEAR SENATOR BUTLER: Pursuant to the Federal reclamation laws (act of June 17, 1902, 32 Stat. 388 and acts amendatory thereof or supplementary thereto), and in response to a request from the Subcommittee on Irrigation and Reclamation of the Senate Committee on Interior and Insular Affairs, I transmit herewith my report and findings on the central Arizona project. The report proposes, subject to the conditions set forth in the report of the Commissioner of Reclamation, dated May 20, 1948, the construction of Bridge Canyon Dam and power plant on the Colorado River above Hoover Dam to develop power which is urgently needed particularly for California and the Lower Colorado River Basin, and to provide electric energy for pumping water from Lake Havasu which is created by Parker Dam, for diversion through project works to the highly developed irrigated area in central Arizona. There is urgent need for this water to avert economic stagnation. The proposed construction includes pumping plants, aqueducts, related dams, irrigation and drainage system, power plants, transmission lines, and incidental works as described in the report.

The project has engineering feasibility and the proposed reimbursable costs probably can be repaid in 78 years under the plan outlined. The benefits exceed the cost by 50 to 60 percent. The total estimated cost of the project based upon present prices is $738,408,000 of which $658,096,000 can probably be repaid by power, irrigation, and municipal water users, and $80,312,000 would be charged to flood control, the preservation and propagation of fish and wildlife, silt control, recreation, and salinity control. Detailed studies show that operation and maintenance expense can be met from the various sources of project revenue. The establishment of a local agency of the conservancy district type, as provided by recommendation 8 (b) of the regional director's report would make possible the realization of substantial revenues in addition to those shown in the Commissioner's proposed report of January 26, 1948, which I approved on February 5.

The ability of the United States to discharge its obligations under its treaty with Mexico for delivery of water to Mexico would not be adversely affected. The 78-year period required for return of the reimbursable costs of the project is considered fully justifiable. If such a project as this is not undertaken, the economy of the heart of Arizona is destined to deteriorate seriously with consequent losses to the State, the region, and to the Nation. These losses would far exceed the costs of the physical works that are necessary to assure continued productivity of the land and the existing values of commerce, industry, and the extensive civilization that already prevail. The requirement for an adequate ground-water law is to assure continued stability of the developments and to avoid recurrence of the present conditions which make this type of project imperative. Such a law will also contribute to the security of the necessary Federal investment.

Copies of the report have been sent to the Secretary of the Army and to the States of Arizona, California, Colorado, New Mexico, Nevada, Utah, and Wyoming for their views and recommendations pursuant to the provisions of section

1 of the Flood Control Act of 1944 (58 Stat. 887). The views of Arizona, New Mexico, and Utah—in which States impoundments and project works are proposed—and of Colorado and Wyoming are, with but minor qualifications, favorable to development of the project in accordance with the plan set forth. The State of Nevada opposes the development of the proposed project mainly on the grounds of its contention that Arizona's claims to water of the Colorado River are invalid. Nevada contends, furthermore, that there are more practical ways to use the water of the Colorado River for the welfare of the Southwest and the United States. The views of the State of California have not been received. I have assured the representative of that State, however, that the views of the State, when and if received, will be forwarded promptly to the President and the Congress. The Secretary of the Army does not object to the proposed project.

Assurance of a water supply is an important element of the plan yet to be resolved. The showing in the report of the availability of a substantial quantity of Colorado River water for diversion to central Arizona for irrigation and other purposes is based upon the assumption that the claims of the State of Arizona to this water are valid. It should be noted, however, as the regional director and the Commissioner of Reclamation have pointed out, that the State of California has challenged the validity of Arizona's claim. If the contentions of the State of Arizona are correct, there is an ample water supply for this project. If the contentions of California are correct, there will be no dependable water supply available from the Colorado River for this diversion. While the necessary water supply is physically available at the present time in the Colorado River, the importance of the questions raised by the divergent views and claims of the States is apparent. The Bureau of Reclamation and the Department of the Interior cannot authoritatively resolve this conflict. It can be resolved only by agreement among the States, by court action, or by an agency having jurisdiction. The report is, therefore, transmitted to the Congress for its information and such action as it deems appropriate under these circumstances. I feel confident that, in considering the project, the Congress should and will give this conflict the full consideration it deserves. The submission of this report is not intended in any way to prejudice full consideration and determination of this controversial matter.

In view of the urgent need for power from Bridge Canyon Dam and for irrigation and domestic and industrial water supplies in central Arizona, I recommend that if the claims of Arizona are correct to a degree which will provide the necessary water supply, the project be authorized for construction in accordance with the recommendations of the Commissioner of Reclamation.

Sincerely yours,

J. A. KRUG,
Secretary of the Interior.

NOTE.—Similar letters have been sent to the Speaker of the House of Representatives and the President pro tempore of the Senate.

Mr. SHAW. I offer, also, the letter of the Secretary of the Interior to Senator O'Mahoney dated March 18, 1949, which was a report upon S. 75—and I assume a similar letter has been addressed to the chairman of this committee as to H. R. 934.

Mr. MURDOCK. I think there is such a report which is presently in the record.

Mr. SHAW. Very well.

(The document is as follows:)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., March 18, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate.

MY DEAR SENATOR O'MAHONEY: This Department has been requested by the Senate Committee on Interior and Insular Affairs to report on S. 75, a bill authorizing the construction, operation, and maintenance of a dam and incidental works in the main stream of the Colorado River at Bridge Canyon, together with certain appurtenant dams and canals, and for other purposes.

Some time ago this Department submitted to the President and the Congress its report on the central Arizona project. That report was, subject to certain conditions precedent therein enumerated, favorable. By letter dated February 4, the Director of the Bureau of the Budget advised me that he had been instructed by the President "to advise you * * * that he again recommended that measures be taken to bring about prompt settlement of the water rights controversy." In a subsequent letter to you, dated February 11, Mr. Pace explained that this advice was not to be taken as meaning that "the President * * * at any time indicated that suit in the Supreme Court is the only method of resolving the water-rights controversy which is acceptable to him" and that "If the Congress, as a matter of national policy, makes a determination that there is a water supply available for the central Arizona project, the President will consider all factors involved in any legislation to authorize the project and will inform the Congress of his views respecting the specific provisions of this legislation." Mr. Pace's letter of February 4 was published in the Congressional Record for February 7 at page A595. A copy of his letter of February 11 is attached.

Should the Congress, in the light of the very real need that exists in certain areas of Arizona for supplemental water for irrigation and of the urgent need for more power in the Southwest, determine upon the enactment of legislation along the lines of S. 75, then your committee may wish to consider the recommendations contained in paragraph 49 (8) of the report dated December 19, 1947, by the Bureau of Reclamation's regional director, region III, I urge your committee to consider also including, at an appropriate point in the bill, a provision affecting the Indians and reading along the following lines:

(a) In aid of the construction, operation, and maintenance of the works authorized by this act, there is hereby granted to the United States, subject to the provisions of this section, (i) all the right, title, and interest of the Indians in and to such tribal and allotted lands, including sites of agency and school buildings and related structures, as may be designated from time to time by the Secretary in order to provide for the construction, operation, or maintenance of said works and any facilities incidental thereto, or for the relocation or reconstruction of highways, railroads, and other properties affected by said works; and (ii) such easements, rights-of-way, or other interests in and to tribal and allotted Indian lands as may be designated from time to time by the Secretary in order to provide for the construction, operation, maintenance, relocation, or reconstruction of said works, facilities, and properties.

(b) As lands or interests in lands are designated from time to time under this section, the Secretary shall determine the just and equitable compensation to be made therefor. Such compensation may be in money, property, or other assets, including rights to electric energy developed at any of the generating plants herein authorized. In fixing such rights to electric energy, including the rates and other incidents thereof, the Secretary shall not be bound by section 4 of this act. The amounts of money determined as compensation hereunder for tribal lands shall be transferred in the Treasury of the United States from funds made available for the purposes of this act to the credit of the appropriate tribe pursuant to the provisions of the act of May 17, 1926 (44 Stat. 560). The amounts due individual allottees or their heirs or devisees shall be paid from funds made available for the purposes of this act to the superintendent of the appropriate Indian agency, or such other officer as shall be designated by the Secretary, for credit on the books of such agency to the accounts of the individuals concerned.

(c) Funds deposited to the credit of allottees, their heirs or devisees, may be used, in the discretion of the Secretary, for the acquisition of other lands and improvements, or the relocation of existing improvements or the construction of new improvements on the lands so acquired for the individuals whose lands and improvements are acquired under the provisions of this section. Lands so acquired shall be held in the same status as those from which the funds were derived, and shall be nontaxable until otherwise provided by Congress.

(d) Whenever any Indian cemetery lands are required for the purposes of this act, the Secretary is authorized, in his discretion, in lieu of requiring payment therefor, to establish cemeteries on other lands that he may select and acquire for the purpose, and to remove bodies, markers and appurtenances to the new sites. All costs incurred in connection with any such relocation shall be paid from moneys appropriated for the purposes of this act. All right, title, and interest of the Indians in the lands within any cemetery so relocated shall terminate and the grant of title under this section take effect as of the date the Secretary authorizes the relocation. Sites of the relocated cemeteries shall be held in trust

by the United States for the appropriate tribe, or family, as the case may be, and shall be nontaxable.

(e) The Secretary is hereby authorized to perform any and all acts and to prescribe such regulations as he may deem appropriate to carry out the provisions of this section.

(f) Nothing in this act shall be construed as, or have the effect of, subjecting Indian water rights to the laws of any State.

The Bureau of the Budget has advised that there is no objection to the presentation of this report to your committee. A copy of Director Pace's letter of March 17 transmitting this advice is enclosed for your information.

Sincerely yours,

OSCAR L. CHAPMAN,
Acting Secretary of the Interior.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
February 11, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington 25, D. C.

MY DEAR SENATOR O'MAHONEY: Members of the Congress have raised a question as to the interpretation to be placed upon the last clause of the last sentence of my letter of February 4, 1949, addressed to the Secretary of the Interior advising him of the relationship to the program of the President of the central Arizona project. The clause referred to reads as follows: "* * * and that he (the President) again recommends that measures be taken to bring about prompt settlement of the water-rights controversy."

During the last Congress in connection with consideration of Senate Joint Resolution 145 and House Joint Resolution 227, this Office advised the Attorney General that it would be in accord with the program of the President to resolve the water-rights controversy by waiving immunity of the United States to suit and by granting permission to the States to bring such actions as they might desire, if the Congress felt it to be necessary to take such action. This advice was transmitted to the Congress by the Attorney General. Similar advice was also transmitted by the Secretary of the Interior, together with specific suggestions as to a form of a resolution which the Congress might consider.

In order that there may be no misunderstanding of the President's position, I shall be grateful if you will advise the members of your committee that the President has not at any time indicated that suit in the Supreme Court is the only method of resolving the water-rights controversy which is acceptable to him. On the contrary, the letters addressed to the Congress last year, as indicated above, stated specifically that enactment of the resolution authorizing suit would be acceptable to the President "* * * if the Congress feels that it is necessary to take such action in order to compose differences among the States with reference to the waters of the Colorado River * * *."

The project report and materials relating to the positions of the several States affected are now before your committee for consideration. If the Congress, as a matter of national policy, makes a determination that there is a water supply available for the central Arizona project, the President will consider all factors involved in any legislation to authorize the project and will inform the Congress of his views respecting the specific provisions of this legislation.

Sincerely yours,

FRANK PACE, Jr., *Director.*

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., March 17, 1949.

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: On February 19, 1949, you transmitted to me the report which the Department of the Interior proposes to make to the chairman of the Senate Committee on Interior and Insular Affairs on S. 75, a bill authorizing the construction, operation, and maintenance of a dam and incidental works in the main stream of the Colorado River at Bridge Canyon, together with certain appurtenant dams and canals, and for other purposes.

The President has authorized me to inform you that there is no objection to the presentation of this report to Senator O'Mahoney. It will be appreciated if you will attach a copy of this letter when you forward your report to the committee.

Sincerely yours,

FRANK PACE, JR., *Director.*

Mr. SHAW. I offer, also—which I do not have available but will supply to the reporter—copies of the comments of the State of Nevada upon the central Arizona project and the comments of the Department of the Army, of the Federal Power Commission, and of the Department of Agriculture, all bearing upon the central Arizona report.

Mr. MURDOCK. How long are those documents? Do you have them with you?

Mr. SHAW. I have copies. They are comparatively brief. Each is only a few pages.

Mrs. BOSONE. Mr. Chairman, as a member of the committee, I should certainly be interested in some of those letters.

Mr. MURDOCK. For the record, or to be read now?

Mrs. BOSONE. To be read.

Mr. MURDOCK. To be read.

Mr. SHAW. What was that, sir?

Mr. MURDOCK. Mrs. Bosone would like to have some of those read.

Mr. SHAW. Very well.

Mr. MURDOCK. Have you any preference, Mrs. Bosone?

Mrs. BOSONE. I would like to have the report from the Department of Agriculture.

Mr. Chairman, if it is long, I shall withdraw my request.

Mr. BARRETT. It is already in the record; is it not?

Mr. ENGLE. I do not believe so. I have alluded to it several times and have quoted from it, but it has never been read at length.

Mr. SHAW. This report is addressed to Commissioner Straus of the Bureau of Reclamation, signed by Charles F. Brannan, Assistant Secretary—who is now Secretary—dated May 5, 1948:

DEAR MR. STRAUS: In compliance with your request of February 6, 1948, the Department of Agriculture has reviewed the proposed report of the Secretary of the Interior, dated December 1947, on the Central Arizona project. Our review has been limited to a study of the report by technicians, economists, engineers, and agriculturists, under instructions to make an objective analysis and to submit suggestions that might be of real value to you in improving the proposed project. In the following the principal results of the analysis are briefly set out.

Your report deserves the most careful and sympathetic consideration of all those concerned with the social and economic well-being of the Southwest and of the Nation. As the Federal agency most concerned with the health and prosperity of the Nation's agriculture, this Department, quite naturally, would like nothing better than to be able to say that your proposed remedy for the agricultural problems of central Arizona constituted an acceptable and final solution. However, the present report does not, in our opinion, provide satisfactory answers to all of the questions that must be raised in considering a project of this nature.

The first and most important question that must be asked about any proposed public work is: Will the total benefits produced equal or exceed the total costs? Our first concern, then, was to find out if the Central Arizona project would satisfy this requirement. Frankly, we were unable to determine from your report whether or not the benefits actually would exceed the costs. In the estimation of benefits, gross, rather than net, crop values have been used in the calculation of irrigation benefits. You will recall that in commenting upon previous reports prepared by the Bureau of Reclamation, we have pointed out that this procedure disregards the cost of producing the crops. In the present

report, it is indicated that this cost of production is assumed to equal the indirect benefits accruing to the project. But, in our opinion, this is not a valid way of estimating indirect benefits. In this connection, we want to make it clear that we are not questioning the propriety of utilizing indirect benefits in justifying the project, but merely pointing out that an incorrect procedure has been used in estimating these benefits.

The actual relation of benefits to costs is still further obscured by what appears to be a failure to use the market value of power in estimating, for evaluation purposes, the cost of pumping the water supply. Market value must be used in economic evaluation because the power has alternative uses. (This does not mean, of course, that market value must be used in fixing rates to be charged for water, an operation separate and apart from economic evaluation.) Here, again, it is to be understood that we are pointing out a procedural error; not questioning the estimates of construction cost.

In at least the respects mentioned above, the benefits and costs used in testing the economic soundness of the project are in error. We would recommend, therefore, that further and more careful consideration be given to the economic evaluation of the proposed irrigation project. It is not possible to predict the effect that the suggested procedural changes might have on the benefit-cost ratios set out in the report.

Mr. MURDOCK. Does that meet your inquiry?

Mr. SHAW. I have not finished, Mr. Chairman.

While it is necessary that benefits exceed costs if a project is to be considered economically justified, this alone is not sufficient. Sound economics and common sense require, first, the consideration of possible alternatives; and, second, the choice of that alternative yielding the largest return on the investment. We presume that the Bureau of Reclamation has given consideration to various alternative solutions for the water problems of the central Arizona area. This leads us to suggest that these be briefly reviewed in the report so that the Congress and the public will be assured that optimum returns will result from the investment of the public funds required.

Turning now to a consideration of the scope of the proposal, we suggest that, despite the magnitude of the project, it cannot stand alone; that it must be considered as an integral part of an even broader scheme of development. This is because the proposed project is related to, and dependent upon, numerous other projects and programs needed in the Colorado River Basin. As an illustration, optimum returns cannot be obtained from the proposed Bridge Canyon Dam without the construction of storage reservoirs in the upper basin to regulate the flow through the Bridge Canyon powerhouses. This, of course, you recognized in your March 1946 report on the Colorado River, in which consideration was given to the need for a basin-wide engineering plan. As you will recall, our comments upon that report were favorable to the principle of basin-wide planning, although critical of the plan presented on the grounds that it was not sufficiently comprehensive. In particular, we pointed out that a truly comprehensive program would have to provide for measures to minimize erosion and slow down the rate at which reservoirs would fill with sediment. We must repeat this warning with respect to your present proposal. The contemplated reservoirs will be rendered useless by sediment within a comparatively few years if nothing is done to reduce erosion.

It seems clear from the foregoing that the proposed central Arizona project must be supported by projects and activities not contemplated in the report; in particular, by upper-basin reservoirs and a program of land treatment. We are persuaded, therefore, to urge a return to the basin-wide program concept underlying your March 1946 report; at the same time, again calling your attention to the need for a truly comprehensive plan in the Colorado Basin, prepared jointly by all agencies able to make worth-while contributions thereto. We cannot help but feel that, in the long run, piecemeal planning and authorization of the basin program will be inefficient and wasteful.

The present report seems to be deficient in still another important respect. So far as we can determine, once the new water supply becomes available, there could be a repetition of the unfortunate overexpansion that gave rise to the present problems of the central Arizona area. We suggest that in revising the report Federal participation be conditioned upon dependable assurances that the area to be irrigated will be limited, in perpetuity, to that acreage for which an adequate water supply will be available. The requirement that a State ground-water-control law be enacted is a step in the right direction.

The Department of Agriculture will be very glad to assist you in any way possible. As we have indicated previously, we would be particularly pleased to participate in the preparation of a comprehensive basin-wide plan for the development, utilization, and conservation of both the land and water resources of the Colorado River Basin.

May I ask that the entire text of these Federal reports be placed in the record, Mr. Chairman? We will supply them to the reporter.

Mr. MURDOCK. Yes. Did you read all of that report?

Mr. SHAW. I read all of the Department of Agriculture's report.

Mr. MURDOCK. These reports may be received and placed in the record at this point.

(The documents are as follows:)

STATE OF NEVADA,
OFFICE OF STATE ENGINEER,
Carson City, Nev., February 26, 1948.

Hon. MICHAEL W. STRAUS,
Commissioner, United States Bureau of Reclamation,
Washington, D. C.

DEAR SIR: This letter is in reply to your communication of February 5, 1948, requesting that the views and recommendations of Nevada regarding the report on the central Arizona project be submitted at an early date.

It is with regret that we are impelled to take exception to the findings on several points in the report that are of importance to Nevada. In order to facilitate future reference to our comments and questions, if any should be made, they have been numbered.

1. There is a grave question regarding the availability of water to Arizona to supply the project. Your study and recommendation is apparently based upon an assumption by Arizona officials that sufficient water will be available. This assumption is strongly endorsed by political and financial interests in Arizona. As you have proceeded to make an exhaustive report based on Arizona's contention, it is assumed that those views are endorsed by the Bureau. On the other hand, studies have been made by California and Nevada engineers which show that there will be little or no water for the Central Arizona project. There are some references in the text to the effect that the Bureau is taking no stand regarding a division of water. Pending a determination of the availability of water, and the legal right to use it, which consideration should come first with any project, why did the Bureau proceed with and complete this detailed study with the use of public funds?

Investigations and reports should be held up, or be only preliminary in character, where there is a question as to availability of water. There are various projects in the upper basin that can be reported on in detail, where there is as yet no question of sufficient water.

It seems to me that the Arizona report, and all other reports, should be based upon the present reclamation law. When the law is amended, revised reports can be prepared with very little additional expense. The Arizona report in its present form advocates the project, if changes in the law are made, and as such may be considered as propaganda for new policies of the Bureau of Reclamation.

2. Mr. Straus states (p. 1, Authority for the Report) that "the report was prepared in compliance with a directive from the Irrigation and Reclamation Subcommittee of the Public Lands Committee of the United States Senate, 1947, the report to be in accordance with the Millikin-O'Mahoney amendment to the Flood Control Act of 1944." Were not the requirements of said act exceeded in getting out this exhaustive report, while other States, with projects of greater merit under present reclamation law, await the Bureau's attention later?

3. Does not the report go somewhat further than what was contemplated by the Millikin-O'Mahoney amendment to the Flood Control Act of 1944?

4. Referring to the 376,000 acre-feet of saline waters to be released from the project (p. R-35, par. 9). It is estimated that the release of 376,000 acre-feet a year into the channel of the Gila River at Gillespie Dam, would result in an increase of flow at the mouth of the Gila River amounting to 123,000 acre-feet per year. This will be highly saline water (p. 2, par. 10). Do you contemplate delivering this saline water to Mexico as a part of her treaty water? It would seem that the treaty calls for water to Mexico suitable for irrigation. If it is not usable, can you claim it as a credit return flow to the Colorado River? Will the

releases from Gillespie Dam to handled in such a way that the 123,000 acre-feet reaching Mexico will carry the bulk of the salt?

5. Should you not have included in your estimates an ultimate delivery of 240,000 acre-feet of Arizona's main-stream water for delivery at Parker Dam or the Mexican boundary, satisfactory for all uses, as Mexico undoubtedly will demand? That would be Arizona's proportion of the 750,000 acre-feet due Mexico from the lower basin.

6. I herewith present a tabulation of uses and depletions of the water allocated to the lower Colorado River Basin. If the items are correct, where can water be obtained for the Arizona project under full development of the Colorado River system?

Average annual virgin flows of the Colorado River

1. Main stream at Lee Ferry, 48-year period, 1897–1943	16,270,000
2. Net increment between Lee Ferry and Boulder Dam, being inflow from tributaries less natural river channel losses	1,060,000
3. Inflow from tributaries between Boulder Dam and Mexican boundary (except Gila)	150,000
Total	17,480,000

Existing burdens on river below Lee Ferry (except on Gila River)

1. Water apportioned to upper basin	7,500,000
2. Mexico's treaty right (guaranteed minimum)	1,500,000
3. Net reservoir losses:	
(*a*) Lake Mead	640,000
(*b*) Davis Dam and Lake Havasu	140,000
4. River channel losses below Boulder Dam (with full river development)	610,000
5. Conceded by Arizona to California, by Arizona contract, California's prior appropriations that do not exceed her statutory limitation	5,362,000
6. Conceded by Arizona to Nevada by Arizona contract	412,000
7. Conceded by Arizona to New Mexico and Utah by Arizona contract	131,000
8. Projects completed and under construction in Arizona:	
(*a*) Yuma project, 61,000 acres at 4 acre-feet	244,000
(*b*) First unit Gila project; North and South Gila, 15,000 acres at 4 acre-feet	60,000
Yuma Mesa, 51,000 acres at 11 acre-feet	561,000
(*c*) Colorado Indian Reservation, 100,000 acres at 3 acre-feet	300,000
(*d*) Aggregate uses, present projects on Little Colorado, Virgin River, etc	130,000
9. Allowance for regulations and unavoidable losses (principally in delivery of 1,500,000 acre-feet to Mexico)	300,000
Total	17,890,000

Total available water	17,480,000
Total present and authorized project	17,890,000
Water permanently available in stream for Arizona project	—410,000

7. The Bureau's report quite frankly states that this is a rescue project, designed to eliminate the threat of a serious disruption of the area's economy. It appears to be an effort to justify approval of the project on grounds other than its merits for reclamation. It is questionable if the Bureau has authority to act on the related social problems.

My reading of the law does not indicate that such reasons for creating a $730,000,000 supplemental irrigation project comes within its purview. The water-shortage situation in the Salt River Valley is due to Arizona's disregard of the necessity of preventing overdraft on a limited ground-water supply. All of the Colorado River water contemplated for delivery will provide only supplemental irrigation for presently cultivated lands. The diversion will create an overdraft upon the river in order to correct the results of Arizona's misuse of ground-water resources. It can only be approved if new legislation is passed by Congress spreading the cost of repayment over a very long period of years, and allocating a part of reclamation to power. Do you think the Bureau of

Reclamation is within its authority in promoting the special legislation necessary to make such a project legal? One answer to this question could be that it is just as important to maintain present development, or more so, than to create new developments. However, such an unjustifiable development should not be maintained at the cost of water to other existing projects. Arizona was shortsighted in allowing overdevelopment before determining if they could rescue themselves economically. If you set this project upon such grounds is it not a dangerous precedent? Very probably California is now in the same boat in regard to some projects. Later on others could develop in other States.

8. With reference to paragraph 8, page 13, which sets out four prerequisites to the construction of Granite Reef Aqueduct (an elemental part of the project) subsection (a), provision for future protection of ground water is specified. It seems that this provision, as well as a determination of available water, also might well have been prerequisite to making a detailed study, in consideration of the public funds required for it, and the uncertainty as to whether Arizona will enact such a protective law. It is also assumed in the report that one-fifth of the interest component on power over a 78-year period be included as project revenue. There is no legal provision for this, hence the major financial summary (p. 3, letter to the secretary) is somewhat a matter of conjecture.

Farm land in the Salt River Valley has an average value of $300 per acre. Land values there are high and may decrease due to agricultural competition. The cost of supplying water for irrigation under this project will be about $1,469 per acre. In addition there will be operation and maintenance. Is this seemingly unsound set-up justified on a socialistic instead of an economic basis? It is clear that as a new project it would not be feasible.

9. The report apparently does not contemplate the irrigation of new lands. The water is to be used for supplemental irrigation of existing cultivated lands, and for municipal purposes. It would seem that the project does not provide for much new population, or the establishment of new families, which is one of the objectives of reclamation projects. There are other prospective developments in the Colorado River basin which would provide such new farms for veterans and their families, and for the increasing number of homeseekers. Why were not such other projects for new land development considered before recommending a vast expenditure of public funds on this project?

10. Some engineers have expressed an opinion that the Bridge Canyon Dam and Reservoir cannot be utilized properly and to its full extent as a power project because of the limited storage behind the dam, 3,720,000 acre-feet. In a few years the reservoir would fill with silt, and power service would depend on natural fluctuating river flow. Would it be desirable at the same time to construct Glen Canyon Dam and Reservoir which provides 8,600,000 acre-feet capacity for river control and silt protection? A combination of these two dams and power plants would create an effective river control and power project which may not be accomplished by construction of Bridge Canyon Dam alone, or of Glen Canyon alone, as Glen will not provide enough power head. Was the construction of Bridge contemplated mainly to supply pumping power for the Arizona project, without giving full consideration to a proper ultimate development of the river? Assuming that Bridge and Glen together are necessary for proper river development, why were not both of these dams and reservoirs included in the Arizona project?

It seems that with the Bluff and Coconino Reservoirs in there would still be 70,000 acre-feet of silt depositing in Bridge, which would fill it up in 53 years. As Bridge Reservoir capacity decreased the firm power production would be seriously affected before the end of project repayments. Decrease of silt due to upstream developments may be very slow. Even if power capital costs can be amortized in 33.4 years (p. F–28), the loss of the power resources would be serious.

11. On page 7, paragraph 28, the report states: "Financial feasibility of the project is more difficult to determine (than the engineering feasibility)." Notwithstanding this, much of the report seems to be a mathematical effort to devise a financial program that will be acceptable to the Congress based on the urgent need for more water for present irrigated lands. Is this opinion correct?

12. The proposed allocation of 300,000 acre-feet plus a share of surplus water to Nevada in the Colorado River is of great value to this State. That interest is imperiled by lack of the tri-State compact authorized between Arizona, California, and Nevada. Without the tri-State compact Nevada must rely upon State laws for the water, and our rights are junior to those of California. Our present contract with the Bureau of Reclamation to use water stored in Lake

Mead at a charge of 50 cents per acre-foot for storage is not a firm water right, and delivery is contingent upon mutual consent by Arizona and California. In time of water shortage or drought they might demand our water. We would not care to go into the courts and fight either Arizona or California for that water. It will be greatly to our advantage to have the water promptly adjudicated by the United States Supreme Court, after which all downstream rights can be made firm by said compact. Certainly no great additional demand should be made on the river, such as is contemplated by the Arizona project, until the language of the Colorado River compact and the Boulder Canyon Project Act with respect to the division of the lower basin water has been clarified.

Very truly yours,

ALFRED MERRITT SMITH, *State Engineer.*

DEPARTMENT OF THE ARMY,
Washington, D. C., May 12, 1948.

The honorable the SECRETARY OF THE INTERIOR.

DEAR MR. SECRETARY: Reference is made to the letters from the Commissioner of the Bureau of Reclamation dated February 5 and 6, 1948, to the Secretary of the Army and Chief of Engineers, respectively, with which there were enclosed for the information and comment of the Department of the Army copies of your proposed report on the central Arizona project.

Your proposed report recommends the construction of dams, power plants, transmission lines, pumping plants, aqueducts, irrigation and drainage systems, and other incidental works at a total estimated cost based on July 1947 price levels, of $738,408,000, of which $658,096,000 would be reimbursed from charges made for power, irrigation, and municipal water supply. The project would include a dam and power plant on the Colorado River at the Bridge Canyon site to develop power for California and the lower Colorado River Basin and to provide energy for pumping Colorado River water to irrigated areas in the central portion of Arizona.

The legal and economic premises upon which the project as a whole is based appear to be open to serious question, particularly with respect to water rights and to the analysis of the economics of the works. However, since the central Arizona project is composed of individual units and interrelated groups of units which are not mutually interdependent for adequate functioning, it is believed that action on certain of these units and groups need not be delayed pending settlement of legal and economic questions for the project as a whole but that they may properly be considered on their own merits as separate units or groups of related units.

The Corps of Engineers is now studying a group of related units included in the central Arizona project. These units consist of improvements in the Safford Valley, the Buttes Dam and power plant, the Charleston Dam, and the Tucson water supply aqueduct. This group is urgently needed and does not depend on importation of Colorado River water or on subsidization by Colorado River power. This group will be reported upon separately by this Department at a later date.

Other than as outlined in the foregoing comments, the extent to which plans of the Department of the Army would be affected by the plan recommended in your proposed report cannot be determined until presently authorized investigations by the Corps of Engineers in the Colorado River Basin are completed.

Sincerely yours,

KENNETH C. ROYALL,
Secretary of the Army.

FEDERAL POWER COMMISSION,
Washington, May 21, 8198.

Subject: Central Arizona project.

Mr. MICHAEL W. STRAUS,
Commissioner, Bureau of Reclamation,
Department of the Interior, Washington, D. C.

DEAR MR. STRAUS: The comments herein with respect to the Secretary of the Interior's proposed report on the central Arizona project, approved by the Secretary on February 5, 1948, and the regional director's report, dated December 19, 1947, are transmitted in response to your letter of February 6, 1948. This is in

accordance with the established procedures of the Federal Interagency River Basin Committee.

The project, described in the regional director's report, involves the construction of the Bridge Canyon Dam and power plant on the Colorado River above Hoover Dam, to develop power for California and the lower Colorado River Basin, and provide energy for pumping water from Lake Havasu behind Parker Dam for diversion to the irrigated area in central Arizona. The project also involves the construction of pumping plants, aqueducts, related dams, irrigation and drainage systems, power plants, transmission lines, and incidental works.

The recommendations of the report for construction of the project are contingent on the establishment of the validity of the claims of the State of Arizona to the right to divert Colorado River water to central Arizona for irrigation and other purposes. This right is challenged by the State of California. It is expected that the Congress will give full consideration to the divergent views of these two States before providing funds for construction of the project.

The report shows the estimated total cost of the project, based on prices as of July 1, 1947, to be $738,408,000. Of this amount, $658,096,000 is indicated as chargeable to irrigation, power, and municipal water supply, and $80,312,000 to flood control, fish and wildlife conservation, silt control, recreation, and salinity control. The regional director recommends that the former group be treated as reimbursable and the latter as nonreimbursable. The money required to repay the reimbursable cost of the project would be obtained by the sale of water to the irrigation district at $4.50 per acre-foot delivered to the farms, the sale of power in Arizona and southern California at a rate of 4.82 mills per kilowatt-hour delivered to the load centers, 15 cents per thousand gallons of water delivered to the city of Tucson, and taxes to be levied by a conservancy district which would include all of the area affected by the project and would have the power to levy taxes on all of the area benefited. The amount of revenue to be obtained from the conservancy district has not been estimated, as the district has not yet been formed.

The report of the regional director shows that the central Arizona project is infeasible under the terms of existing reclamation law. However, the project would be economically feasible with the modifications to these laws provided by the terms of pending legislation. Assuming an amortization period of 78 years and an interest rate of 2 percent, the annual benefits were estimated in the report at $41,971,000, the annual charges at $25,783,500, and the benefit-cost ratio at 1.63 to 1.0.

Under the plan shown in the report, it is intended to divert to the central Arizona area from Lake Havasu, formed by Parker Dam, approximately 1,200,000 acre-feet of water per year. Diversion would be made by pumping, with a total lift of 985 feet in four lifts to Granite Reef aqueduct. This aqueduct would terminate on the Salt River at the existing Granite Reef Dam. Water would be delivered through the aqueduct at a constant monthly rate, except for a 1 month shut-down each year for repairs. Initial diversions would be 850,000 acre-feet annually, which would increase uniformly to 1,200,000 acre-feet in 50 years.

The McDowell pumping plant and reservoir would be constructed near the terminus of the Granite Reef aqueduct to raise and store any water that could not be immediately used for irrigation. There would also be a power plant constructed at the McDowell Dam, using the pumped water and additional natural and regulated inflow; an aqueduct from the Salt River above the existing Stewart Mountain Dam and power plant to the Gila River; the enlarged Horseshoe Dam, reservoir and power plant on the Verde River; the Hooker Dam and Reservoir on the upper Gila River; improvements to the irrigation system in Safford Valley; the Buttes Dam, Reservoir, and power plant on the Gila River; the Charleston Dam and Reservoir on the San Pedro River and an aqueduct from that reservoir to Tucson; an irrigation distribution system; a drainage system for salinity control; and an extensive power-transmission system. Power for pumping and for commercial uses would be obtained from the Bridge Canyon power plant. The Bluff Dam and Reservoir on the San Juan River and the Coconino Dam and Reservoir on the Little Colorado River would be constructed, primarily for storage of silt to protect Bridge Canyon Reservoir.

The Bureau proposes, as a part of the central Arizona project, the installation of four power plants—at the Bridge Canyon, McDowell, Horseshoe, and Buttes Dams respectively. The project plan includes four additional dam and reservoir projects: Bluff, Coconino, Charleston, and Hooker, at which no provision is made

for the generation of power. The power features of the Bureau's plan are summarized in the report, as follows:

Power plants	Installed capacity (kilowatts)	Gross average power head (feet)	Annual firm energy at plant, millions of kilowatt-hours		
			Initial conditions	Average during first 50 years of operation	Ultimate conditions
Bridge Canyon	750,000	612	4,675	4,395	4,114
Horseshoe	10,000	141	40	40	40
McDowell	4,100	54	23	21	19
Buttes	6,000	144	35	35	35
Total	770,100		4,773	4,491	4,208
Energy replacement at Stewart Mountain			25	28	31
Total			4,748	4,463	4,177
Energy requirements at Havasu and McDowell pumping plants			1,154	1,393	1,633
Firm commercial energy			3,594	3,070	2,544

The plan of development presented in the report is predicated on the assumption that the Congress will give the full consideration that it deserves to the conflict between the States of Arizona and California as to the right of Arizona to divert from the Colorado River the additional amounts of water contemplated in the report. The Commission has no jurisdiction in the determination of the respective rights of the two States to divert water from the Colorado River. The comments herein, therefore, are not to be construed in any manner as being directed to or prejudicial to the respective claims of these two States. The comments herein are made objectively from the viewpoint of the Commission's statutory interest in the conservation and utilization of the water-power values inherent in river basins and in individual project sites.

The Commission staff has reviewed the Bureau's report and points out that the Bridge Canyon project and its two auxiliaries, Bluff and Coconino Reservoirs have no essential physical relationship with the central Arizona diversion project. These reservoirs are not needed to regulate flow for the central Arizona diversion, nor would the Bridge Canyon power plant necessarily be the only source of power available for pumping from Lake Havasu into the Granite Reef aqueduct. The only relationship between the three reservoirs as a group and the diversion project appears to be the assumed financial relation in order to provide means for repayment of a large percentage of the reimbursable costs of the diversion project chargeable to irrigation.

The staff is not prepared at this time to comment on the justification for the proposed allocation of $60,715,000 of the cost of the Bridge Canyon, Bluff, and Coconino Reservoirs to silt control, recreatoin, and fish and wildlife conservation. It is pointed out, however, that this cost, which would be nonreimbursable and which includes about $36,000,000 allocated to recreation, amounts to more than 25 percent of the estimated cost of these reservoirs.

The report states that the return from the sale of commercial power at the proposed rate of 4.82 mills per kilowatt-hour will yield an estimated annual revenue from power of $12,918,000. The generation from the plants other than Bridge Canyon is relatively inconsequential in amount and on this basis it appears that your Department anticipates the sale commercially of some 2,700,000,000 kilowatt-hours of Bridge Canyon power. This amounts to approximately two-thirds of the net Bridge Canyon generation, one-third being utilized for pumping from Lake Havasu into the central Arizona irrigation conduit. The rate of 4.82 mills for the commercial sale of power has been estimated in the report upon the basis of a 78-year amortization period and an interest rate of 2 percent, and in general accordance with other features of recently proposed legislation which would modify the existing Reclamation Project Act. As compared with this rate the report estimates that the rate would be 6.22 mills per kilowatt-hour, on the same basis of sale of 2,700,000,000 kilowatt-hours, if computed in accordance with the existing Reclamaiton Project Act which provides for an amortization period of 50 years and an interest rate of 3 percent.

If it be assumed that Bridge Canyon, Bluff and Coconino Reservoirs are constructed solely for power, including incidental benefits of silt control, etc., but without money allowance therefor, and also without allowance for purposes of the irrigation project, the staff estimates the cost of power at 4.1 mills per kilowatt hour on the usual basis of 50 years amortization period and 2½ percent interest rate.

Thus it appears that power users would be directly contributing, as a subsidy to irrigation, the difference between 4.1 mills per kilowatt hour and the 4.82 mills per kilowatt hour proposed in your report.

It is observed that the burden of irrigation costs on power would be considerable and that costs of commercial power would be approaching a level that cannot be classed as low-cost power in the region. This raises the question of whether subsidies for irrigation should not be looked for from sources other than power if the irrigation features of the project are adopted.

The staff is of the opinion that considerable further studies must be carried forward before the proper installed capacity at Bridge Canyon power plant can be finally determined. At present the staff believes that the installation of 750,000 kilowatts suggested in the report represents the minimum capacity that should be provided for at this project. The installation should be determined having in view the maximum reasonable upstream regulation and with regard for future depletions of water supply.

The Commission staff believes that the Glen Canyon Reservoir project on the Colorado River upstream from the Bridge Canyon site should be initiated very soon after the Bridge Canyon Reservoir is constructed. This will be necessary to prolong the period of usefulness of the storage capacity at Bridge Canyon which would otherwise probably be entirely filled with silt in from 40 to 50 years, even with the Bluff and Coconino Reservoirs constructed with the capacities proposed in the report. Bluff and Coconino Reservoirs, being off the main stream, would be of no assistance in reregulating the depleted flows from the upper basin above the confluence of the San Juan River to meet the 10-year average requirements under the Colorado River compact. Without major upstreams storage on the main Colorado River, such as at the Glen Canyon site, as the Bridge Canyon active storage capacity is gradually reduced by silt deposits, this project and the firm power available therefrom, would become more sensitive to upper basin depletions and withholdings of water in headwater storage, and would gradulily assume the character of a run-of-river plant. The Glen Canyon Reservoir would obviate the necessity of the Bluff Reservoir, insofar as silt storage is concerned, or at least would defer the necessity of Bluff.

If the Bluff and Coconino Reservoirs are to be constructed with storage capacities comparable to those shown in the report, provision should be made for the generation of power at each of those reservoirs, in view of the proposed heights of dams, the average flows, and the Bureau's estimated rates of sedimentation and consequent length of useful life of the respective reservoirs. It is noted that the report of your Department on the Colorado River dated March 1946, suggested an installation of 52,000 kilowatts for the Bluff project.

In regard to the McDowell power plant, if local conditions at the terminus of the Granite Reef aqueduct are favorable, it might be feasible to construct a pond of sufficient capacity to serve as a combined forebay for the McDowell pumping plant and afterbay for the McDowell power plant, thus permitting a large installation at the latter plant for peaking operation. The McDowell plant would be within short transmission distance of the Phoenix load area.

The staff believes that the generating capacity at the proposed enlarged Horseshoe Reservoir and power plant on the Verde River should be considered upon the basis of its use for peaking operations, with the fluctuating discharges being regulated by the existing Bartlett Reservoir. This plant would also be within short transmission distance of the Phoenix area. It is noted that the development of power at the Bartlett Dam was suggested in your report of March 1946 on the Colorado River.

Power possibilities at the proposed Charleston Reservoir on San Pedro River do not appear attractive, as this reservoir would be depended upon increasingly for municipal water supply for the city of Tucson, requiring hold-over storage, in an area subject to severe protracted droughts and excessive rates of evaporation. The Hooker Reservoir on the upper Gila River does not appear attractive for power, although detail studies might indicate that small amounts of seasonal byproduct energy could be economically produced. The Colorado River report of your Department showed an installation of 3,000 kilowatts at the Hooker Dam.

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An application for a preliminary permit for a dam and power plant to be constructed at the Bridge Canyon site on the Colorado River (Project No. 1503) was filed with the Commission on August 3, 1938 by the State of Arizona. Public hearing on the application has been postponed from time to time on request of the applicant. Further action on the application by the Federal Power Commission is being held in abeyance at the present time.

The Commission appreciates the opportunity of reviewing and commenting on the Bureau's report on the central Arizona project.

Sincerely yours,

NELSON LEE SMITH, *Chairman.*

Mr. SHAW. I will read a part of the Federal Power Commission report, for what interest it may have:

The recommendations of the report for construction of the project are contingent on the establishment of the validity of the claims of the State of Arizona to the right to divert Colorado River water to central Arizona for irrigation and other purposes. This right is challenged by the State of California. It is expected that the Congress will give full consideration to the divergent views of these two States before providing funds for construction of the project.

Quoting again:

The Commission staff has reviewed the Bureau's report and points out that the Bridge Canyon project and its two auxiliaries, Bluff and Coconino Reservoirs have no essential physical relationship with the central Arizona diversion project. These reservoirs are not needed to regulate flow for the central Arizona diversion, nor would the Bridge Canyon power plant necessarily be the only source of power available for pumping from Lake Havasu into the Granite Reef aqueduct. The only relationship between the three reservoirs as a group and the diversion project appears to be the assumed financial relation in order to provide means for repayment of a large percentage of the reimbursable costs of the diversion project chargeable to irrigation.

Mr. D'EWART. Mr. Chairman, was it the Commissioner of the Bureau of Reclamation who asked for these supplemental reports?

Mr. SHAW. These reports, Mr. D'Ewart, were the result of the submission by the Commissioner of Reclamation or the Secretary to these agencies of his central Arizona report under the 1944 Flood Control Act.

Mr. D'EWART. I see.

Mr. SHAW. That is how this information happens to be elicited.

The report goes on at a later point:

The Commission staff believes that the Glen Canyon Reservoir project on the Colorado River upstream from the Bridge Canyon site should be initiated very soon after the Bridge Canyon Reservoir is constructed. This will be necessary to prolong the period of usefulness of the storage capacity at Bridge Canyon which would otherwise probably be entirely filled with silt in from 40 to 50 years, even with the Bluff and Coconino Reservoirs constructed with the capacities proposed in the report.

That statement is of extreme importance when you realize that the power revenues from Bridge Canyon Dam are expected to pay out this entire project and to pay it out over a period of 70 or 78 years.

The question will be developed by our engineering witneses as to how a reservoir which will be filled up with silt in 40 or 50 years is going to produce maximum power output for 70 or 78 years. I do not wish to go into that at this moment.

Returning to my statement, Mr. Chairman, there is a grave interstate controversy.

For over 25 years, a very serious and deep-seated interstate dispute has existed in one form or another between the States of Arizona and California over their respective rights to use of the water of the lower basin.

May I emphasize there the phrase "in one form or another" because the issues which have been at stake between the two States have changed from time to time as—and I think we will be able to demonstrate this to you—Arizona has changed her objectives and changed the arguments which she has used to support those objectives.

The States have endeavored, in scores of conferences, to reconcile their views and reach an agreed settlement. While California has never closed the door to negotiation of a compact, it is not believed that an agreement can be reached.

This controversy has seriously hampered and now hampers the development of the lower basin. It comes right down to this. In the lower basin there is an insufficient water supply for the development of all the irrigation projects which the States desire. In the upper basin, on the other hand, there is an ample supply for all projects which come within the range of feasibility, or, I might add, anywhere near the range of feasibility.

Existing and authorized projects in the lower basin and those for which commitments exist require all the water supply of the lower basin. Accordingly, there is no water available for any new project unless it is taken from projects which are either constructed and operating or authorized and under construction or are otherwise committed.

That phrase "or are otherwise committed" refers to projects such as those in Utah and New Mexico and Nevada for which, obviously, water must be reserved, but which are not now authorized projects.

Under these circumstances, the State of Arizona presents a new project which it earnestly desires to have authorized. That project can only be supplied water by taking the water from existing projects in Arizona or from existing projects in California. That is the chief reason why California is here.

LITIGATION RESOLUTIONS

The Congressman from Nevada, and each of the 23 Congressmen from California, have introduced resolutions which are now pending before the House Committee on the Judiciary. They have been joined by the four Senators from Nevada and California. Two of the three lower-division States, California and Nevada, seek a judicial determination of the controversy by submission of their case to the United States Supreme Court. Arizona is unwilling to submit her case to the Court on the merits.

DELAY

Here may I stop to point out what seems to me to be a "red herring" argument. The argument made by Arizona, and the main one, and so far as I am concerned the only one, is that litigation would delay the construction of this project.

Still Senator McFarland testified in the Judiciary Committee on April 5 of this year this way in response to a question by Mr. Keating:

> I think that the Senator's position is that if he could only get the central Arizona project through then the matter has assumed sufficient magnitude that there is a justiciable controversy which would command standing in court.

Senator McFarland's answer was:

That is correct. I do not think we could ever get appropriations and get that project constructed until the controversy was decided or unless California gave up and did not fight as hard as she is fighting now. She would have to relent a little bit in her efforts or we would be in court and the project would not be built.

Now may I make this comment: What difference on earth to Arizona does it make if litigation is started after a project bill is authorized or before? The number of days from the commencement to the conclusion of that action is presumably exactly the same.

Mr. WHITE. Is that a question?

Mr. SHAW. Yes, sir; that is a question.

Mr. WHITE. Do they not require certain steps? Do they not require one step after another? Would this not be a step in carrying this case to litigation?

Mr. SHAW. I think Mr. Carson gave you the answer yesterday, sir. The answer was——

Mr. WHITE. The contention is that if we do not authorize this project there is nothing to litigate about.

Mr. SHAW. I want to comment on that a little later in fairly expanded form.

The answer is that Mr. Carson hopes that by the passage of this bill the United States' power and the power of this Congress will be loaded into the Arizona side of the scales. In other words, that the passage of the bill itself would be evidence in favor of Arizona in the Supreme Court.

I think that was a frank statement by Mr. Carson. I think that is exactly what he hopes to get: the weight of Congress in the scales in favor of Arizona.

Mr. WHITE. Do you take account of the fact that this has already been tested in the courts and that the courts have decided they did not have anything to litigate about because there was no appropriation?

Mr. SHAW. That, sir, is a statement which was made.

Mr. WHITE. This is a step toward an appropriation, to carry this toward a judicial adjudication.

Mr. SHAW. That, sir, is a statement that has been placed before you time and time again and has been repeated and is absolutely unfounded.

While we have been in litigation with Arizona three times in the past, it was on different subjects, and not the subject we propose to litigate. The issues were different, and, therefore, the case is different.

If you will pardon me, I would like to get into that subject a little later.

Mr. WHITE. I do not want to interrupt. I just want to get the facts.

Mr. SHAW. I would like to get into that a little later, and I will try to satisfy you, sir.

I believe that the chairman of this committee yesterday morning made a remark rather similar to that one of Senator McFarland's. That is, that he did not expect that appropriations would actually be made under this proposed bill or that Arizona would get any further than the passage of the bill if the bill were passed; that the dispute has to be determined by a court, and that is the only way it can be finally set at rest.

Mr. MURDOCK. May I interrupt you there?

Mr. SHAW. Yes.

Mr. MURDOCK. I also need to be careful that you do not put words in my mouth. We will examine the record so that I can see what I actually did say on that, but this is the observation which I wanted to make: In regard to this delay I agree with you, Mr. Shaw, that it is going to take a long time to build this, just as it took a long time to build the Hoover Dam; so that, if litigation should result immediately after passing an authorization act such as H. R. 934, we could have the litigation perhaps with no great additional delay.

However, the point I want to make, and the thing I have been stressing before this committee, is that Arizona is absolutely dependent upon an Act of Congress to get a bucketful of water out of the Colorado River. Until we can get some authorization, we cannot get any water, regardless of the justice of our claim to that water; and, so long as this matter is in litigation, Congress will not take any legislative action to give us any water, regardless of the merits of our case.

The delay would be caused by this committee or Congress or the Judiciary Committee or any committee of Congress starting the settlement in the direction of litigation, rather than in the direction of legislation such as the Boulder Canyon Project Act started off the full development in 1928.

Mr. ENGLE. Will you yield, Mr. Chairman?

Mr. MURDOCK. Well, I wanted to make that clear. I hold that to start now on litigation would tragically delay needed legislation.

Mr. ENGLE. If it is conceded—and it seems to be—that this case is going to have to be litigated sooner or later and that Congress should not, in good sense, appropriate the money to build a project on which there is a case to be litigated, it would seem to me that the way to start would be to get the litigation resolution through which would authorize joining the Federal Government, and moving as fast as we can with it; and then to consider the project on the basis of its economic and engineering feasibility without respect to the legal questions.

Mr. MURDOCK. And the tragic delay would not be the fault of the Court. Can you or Mr. Shaw guarantee that we would have a judicial decision on this matter within a reasonable length of time? Say within a year or two?

Mr. ENGLE. I think so; yes.

Mr. SHAW. That is my opinion, Mr. Chairman.

Mr. MURDOCK. Too much is at stake for opinions.

Mr. ENGLE. Of course, all the other cases have not taken any longer.

Mr. BARRETT. I will make this comment, Mr. Chairman, in the light of the experience in Wyoming on the North Platte River: Recognizing the legal ability of the State of California, if that case is settled in our lifetime I would be surprised.

Mr. SHAW. As I will point out a little later, Mr. Barrett, this case is not the kind of a case you had with Colorado, nor the kind of case you had with Nebraska. Those cases were cases which demanded the examination of a tremendous volume of facts. This case is one which depends upon the solution of three major questions of law.

As we have found out in the three cases that we have had in the past between Arizona and the other six States in the basin, the Supreme Court of the United States is equipped to determine questions of law within a reasonable time.

The actual time period in those three cases from the day the bill was filed in court to the day that the Court rendered its decision was 5 months, 3½ months, and 8 months.

Granting that this proposed litigation may take a longer time, I feel reasonably sure that the Court will, within a shorter time than we have been arguing about this Arizona project in this Congress, have it disposed of.

I will give you a little further discussion of that later, possibly, but that is the basis of my opinion.

Mr. MILES. Mr. Chairman, may I ask a question here?

Mr. MURDOCK. Mr. Miles.

Mr. MILES. It says here that—

Two of the three lower-division States, California and Nevada, seek a judicial determination of the controversy by submission of their case to the United States Supreme Court.

When was that case filed?

Mr. SHAW. They now seek it, Governor; I do not mean that they have litigated it.

Mr. MILES. Do the same conditions exist? How long have the same conditions existed that exist now relative to seeking that judicial determination?

Mr. SHAW. The condition which existed within the last 3 or 4 years, since Arizona has been moving actively in a program to get this central Arizona project authorized, is the thing which has created a threat to the peace of the other States.

The reason why such a resolution is necessary is that, in the last of the three suits which have been litigated in the Supreme Court between Arizona and the other six States in the Colorado River Basin, the Court held that the United States is an indispensable party to any litigation of interstate water rights in the lower basin of the Colorado River. The United States cannot be sued without the consent of Congress.

Yesterday, I believe, Mr. Engle read to you the concluding portion of that opinion.

The opinion in the third Arizona case amplifies the reasons why the United States is a necessary party. The Court states this, and I quote:

The Colorado River is a navigable stream of the United States. The privilege of the States through which it flows and their inhabitants to appropriate and use the water is subject to the paramount power of the United States to control it for the purpose of improving navigation. * * * The Boulder Canyon Project Act authorized the Secretary of the Interior to construct, at the expense of the United States, the Boulder Dam, with storage reservoir, and a hydro-electric plant.

Then the Court says this:

It provides, sections 5, 6, for control, management, and appropriation of the water by the United States, and declares, section 1, 8, (a), that this authority is conferred subject to the terms of the Colorado River Compact "for the purpose of controlling the floods, improving navigation and regulating the flow of the Colorado River, providing for storage and for the delivery of the stored waters thereof for reclamation of public lands and other beneficial uses exclusively within the United States, and for the generating of electrical energy as a means of making the project herein authorized a self-supporting and financially solvent undertaking."

Then, after referring to the fact that the Secretary is directed to make contracts between the United States and the organizations of

water users, and that the Secretary has under such contracts, the Court goes on to say:

> Without more detailed statement of the facts disclosed, it is evident that the United States, by congressional legislation and by acts of its officers which that legislation authorizes, has undertaken, in the asserted exercise of its authority to control navigation, to impound and control the disposition of the surplus water in the river not already appropriated.

It is on that basis that the Court found that the United States has interests in the lower Colorado River. It has contracts. It has structures. It has interests in public lands which it is to reclaim.

In addition to that, the Secretary of the Interior, in his letter to the chairman of these congressional committees last year on Senate Joint Resolution 145 and House Joint Resolution 227 very much amplified the statements of the Court as to the interests of the United States in the Colorado River.

He pointed out, for example, the Indian projects, in which the United States is the guardian of Indians, and which the United States holds in trust for Indians.

He pointed out a number of other features which necessitate that the United States be brought into any litigation, and his statement is flat that the United States is a necessary party.

Mr. Carson disagrees with that, but we have the Supreme Court and the Secretary of the Interior on definite record on that subject.

Mr. D'EWART. Mr. Chairman, may I ask a question?

Mr. MURDOCK. Yes, Mr. D'Ewart.

Mr. D'EWART. In general, Mr. Shaw, does that same argument apply to compacts?

Mr. SHAW. To compacts anywhere in the United States? I think not, because the United States is not a party to compacts just because they have been executed by the States and Congress has consented to them. They are still compacts of the States and they are agreements between the States, and I understand the United States is not necessarily brought into them.

Mr. D'EWART. As I remember, Mr. Stone stated before our committee on the matter of the upper basin compact that it was not necessary for the United States to take part.

Mr. SHAW. That is correct.

Mr. D'EWART. Ordinarily we do in writing legislation authorizing a compact ask that the United States be represented on the commission.

Mr. SHAW. That is because the United States has interests in any stream, particularly any navigable stream, that should be looked after.

The main objection which has been presented by Arizona to these resolutions is that the controversy is, in her view, technically not a justiciable controversy. It is unnecessary to repeat to you all the arguments which have been made before the other committees—that is, the Judiciary Committee and the Senate committee—as to why this contention is not sound, but is worth while bringing to your attention that the Secretary, in his report to the congressional committees last year regarding similar resolutions, declared that, in his opinion, there were at least four great unsolved questions between the

States, which involve in the aggregate more than 2,000,000 acre-feet of water, and he records his opinion that—

> The bare statement of these questions, the knowledge that there is disagreement between Arizona and California about the answers to be given them, and the fact that, if the contentions of either State are accepted in full and if full development of the upper basin within the limits fixed by the Colorado River compact is assumed, there is not available for use in the other State sufficient water for all the projects, Federal and local, which are already in existence or authorized, would seem to indicate that there exists a justiciable controversy between the States.

The Secretary goes further and quotes from the court decisions, but that is enough to show his position.

Perhaps, at this time, Mr. Chairman, I might go directly to the legal issue which has been very fully discussed before the Judiciary Committee and which, in my opinion, is not in the field of this committee here. Nevertheless, it is of such interest to you, because the two hearings are going on simultaneously, and the arguments have been more or less mixed up in this committee, that I think you should know what our views are as to the existence of a justiciable controversy.

Now, that phrase "justiciable controversy" is simply a term that is used to describe what kind of a case the United States Constitution has awarded to the Supreme Court to decide as between States.

The Court has held, in numerous cases, and it is unquestioned law, that there must be, to justify an interstate case generally, either actual damage of magnitude against one State and in favor of the other State, or else there must be a substantial threat of injury.

It has never defined exactly what constitutes a threat and it has never held—and I wish you to consider this very seriously—that it is necessary to authorize a reclamation project for construction before there is a threat to another State.

The arguments in the Judiciary Committee have gone into great detail on this subject, but there has been nothing before that committee or before this committee to establish the proposition that adoption of an authorization bill is necessary to create a threat. There has been no authority in the way of a statute or judicial decision presented, although many very able attorneys have argued the question before the Judiciary Committee.

Mr. WHITE. Might I ask a question at that point, Mr. Chairman?

Mr. SHAW. Yes, sir.

Mr. MURDOCK. Yes, Mr. White.

Mr. WHITE. The gentleman seems to disregard the previous Supreme Court decision on the litigation between California and Arizona, and says that it is not the same issue involved.

Mr. SHAW. That is right.

Mr. WHITE. I want to ask this: In your opinion, as an attorney, is there a justiciable issue now existing between the State of California and the State of Arizona that the Supreme Court could pass upon?

Mr. SHAW. In our opinion, there is, sir, presently, before there is any authorization bill passed.

Mr. WHITE. Without this authorization is there such an issue that the Court could pass upon it?

Mr. SHAW. Yes, sir; we think so.

Mr. WHITE. What would you say that is?

Mr. SHAW. Those issues are three in number. They have been outlined in our memoranda on this subject. I have a brief statement which I can read to you more concisely than I can state it, perhaps.

I do not seem to have it. I can state it, however.

Mr. WHITE. Just roughly, what would be the issue?

Mr. SHAW. The issues are these: Is California barred by any provision of law or any other cicumstances from having its share of the 1,000,000 acre-feet of the so-called III (b) water? That is one.

No. 2: Is "beneficial consumptive use" to be measured as actual beneficial consumptive use occurring where it occurs or is it to be measured and determined according to what Arizona presents as its "depletion" theory, whereby the use of water at a particular locality is somehow to be determined by the depletion of the main stream hundreds of miles away from where the use takes place? That is the second question.

The third question is: Is California, under the terms of its Limitation Act, required to reduce its 4,400,000 acre-feet of III (a) water by reason of reservoir evaporations occurring at Lake Mead, 150 miles or so north of the nearest point where California takes any water?

Those are the three questions.

Mr. WHITE. That would have to be shown in the pleadings, that somebody is requiring California to reduce it. Nobody is trying to force California to reduce it, are they? No action has started?

Mr. SHAW. No, sir; there has been no action started.

Nevertheless, Mr. White, as I have told you, and as the Secretary of Agriculture has told you, and as the Secretary of the Interior has told you, the presently authorized and existing projects in the lower basin require all the water supply of the lower basin.

Mr. WHITE. How do you account for the fact that those issues you have enumerated were omitted in the pleadings in the case that has already gone to court and has been decided?

Mr. SHAW. I would be glad to get at that, because I think it is very significant.

Mr. WHITE. I beg your pardon?

Mr. SHAW. I think it is very significant.

As a later witness will tell you in detail, in the first Arizona case the State of Arizona, by its pleadings and its briefs in the Supreme Court, agreed with California's contentions as to two of the three issues, and the third issue had not yet arisen. At that time, therefore, there was no dispute on those two issues. They were in agreement.

Mr. ENGLE. Make that perfectly plain, will you, Mr. Shaw?

Mr. SHAW. Yes.

Mr. ENGLE. Dean Acheson, in filing his brief with the Supreme Court, contended precisely what California is contending today on two of those issues.

Mr. SHAW. That is exactly the situation. There was not any dispute about it, and there was nothing to litigate.

Mr. WHITE. If those issues can be litigated, why does California delay in taking it into court?

Mr. SHAW. We could not litigate with Arizona when they were in agreement on those two issues, could we?

Mr. WHITE. Is it your contention that those two States are in agreement now?

Mr. SHAW. Oh, no. Ingenious counsel for Arizona have developed new theories since that time.

Mr. WHITE. Since this has arisen, why does not California proceed to litigate it and settle it?

Mr. SHAW. Why does not California proceed to litigate it and settle it? Because the decision of the Supreme Court in the last case is that we cannot do it unless the United States is made a party to the suit, and we cannot join the United States without the consent of Congress. That is cold and clear and as settled as can be.

Mr. WHITE. The best way to put the United States into this litigation is to pass this resolution, is it not?

Mr. SHAW. To pass the resolution pending before the Judiciary Committee.

Mr. WHITE. This authorization is what I am talking about.

Mr. SHAW. That authorization is entirely unnecessary, in our view, to make a threat of a justiciable cause of action, and I would like to go right to that and tell you why, now, if I may proceed.

Mr. WHITE. What is holding California back, and what procedure does California propose to take to get this matter adjudicated by the courts?

Mr. SHAW. What is holding us back is that we cannot sue at all because the United States cannot be made a party without the consent of Congress. The Supreme Court so held, directly and clearly.

Mr. WHITE. What steps do you propose to take to bring it to an action?

Mr. SHAW. We have in the last Congress and in this Congress filed resolutions looking toward the litigation of these issues by permitting the joinder of the United States in a suit. We have presented our arguments to the Judiciary Committee, concluding only last week.

Mr. WHITE. You do not think that the previous action and previous judgment of the Court has any bearing on this?

Mr. SHAW. No, not on these issues, Mr. White, for the reasons I have stated.

In the first case we were in agreement. In the second case the issues were not involved at all. They just were not there. When anybody tells you that the issues have been decided by the Supreme Court, it just is not so.

Mr. MILLER. Will the gentleman yield at that point?

The two issues in agreement between California and Arizona were what?

Mr. SHAW. Were as to the III (b) water and the meaning of consumptive use.

Mr. MILLER. They are still in agreement on those two issues?

Mr. SHAW. Not at all. Counsel for Arizona have now switched their position directly opposite to what Arizona argued at that time and have developed a very ingenious new theory as to each of them.

Mr. MILLER. Besides those two issues there is another issue?

Mr. SHAW. The matter of reservoir evaporation.

Mr. MILLER. Which is in controversy?

Mr. SHAW. Yes.

Mr. MILLER. What is that?

Mr. SHAW. That is the reservoir-evaporation issue.

Mr. MILLER. Yes. The issues that were formerly settled by the Supreme Court, the two issues between California and Arizona which

they had no difference on at that time, are now a subject of controversy?

Mr. SHAW. Very, very violent controversy.

Mr. MILLER. I want the record to show that.

Mr. MURDOCK. I must flag that at that point. I do not wish to interrupt the witness further, but I merely wish to point out that those two issues were decided by the Supreme Court, in my judgment, and that the two States were not in agreement on those two issues at that time. I simply wanted to flag that and come back to it at a later time.

Mr. SHAW. A later witness will demonstrate that, I think, to your satisfaction, Mr. Chairman.

Mr. MURDOCK. Go right ahead, Mr. Shaw.

Mr. ENGLE. Mr. Chairman, I would like to insert at this point in the record, for the examination of anyone who cares to look at it, the statement made by Dean Acheson in his brief, which appears in the footnote at the bottom of page 19 of the Hoover Dam documents, House Document 717.

In other words, we contend that Dean Acheson contended precisely what we say is the law, and that he represented Arizona, and that he stated it in his brief, and then Arizona did a somersault and is now going in the other direction.

I just submit that for the record.

Mr. BARRETT. I do not think either side contends that the State of Arizona is bound by any statement in the brief on behalf of Arizona.

Mr. SHAW. Let us just put it this way, Mr. Barrett: That was not a stipulation.

Mr. BARRETT. No.

Mr. SHAW. It did not bind Arizona, but it prevented us from realizing that there was any controversy. We could not expect to fight with them about a thing they said was so and to which we agreed.

Mr. BARRETT. Except that if Dean Acheson, in the course of the discussion of the issues in a brief, made some extracurricular statements that he was not authorized to make, certainly the sovereign State of Arizona would not be bound by the statement.

Mr. SHAW. That would obviously be true, but there was nothing extracurricular about it.

With respect to the III (b) water in that brief—and a later witness will give you the whole text—he was answering an argument made by Colorado to the effect that the III (b) water was apportioned water. Mr. Acheson, in a very brilliant and clear and definite statement, pointed out why the III (b) water was unapportioned water. We could not quarrel with him about that, and that is one of the great issues now.

Mr. BARRETT. I think it must be admitted that if you take that as the position of Arizona at that time, then Arizona has switched positions.

Mr. SHAW. Yes, sir.

Mr. BARRETT. But, of course, they dispute that.

There is one other point I would like to clear up at this point, if I may, Mr. Chairman.

This one question that you say has never been agreed upon between the parties under the Limitation Act is that California is required to reduce its apportionment by reason of evaporation. Is that such an issue that might involve the upper basin States?

Mr. SHAW. Not at all. I think that has been stated by Judge Howell before the Judiciary Committee within the last few days. As to that, he did not see any involvement of the upper basin in the question.

The one issue where there was thought to be an interest was the consumptive-use issue.

Let us be a little more specific about this reservoir evaporation proposition. By tabulations which Arizona has produced and put in the record, I believe in this hearing, and at least in the Senate committee hearing, it is claimed that California is not entitled to the 4,400,000 acre-feet specified in the Limitation Act, but that by reason of these reservoir losses they are to be reduced to somewhere around 3,700,000 acre-feet. That is the effect of what I am talking about, and what that issue means. Obviously that cuts us down below the limitation.

Mr. BARRETT. But so far as the matter of consumptive use is concerned the upper basin States might be involved in that particular phase of it?

Mr. SHAW. Yes. I think there is a misapprehension, possibly, as to what the position of the upper States is. They have agreed, in their compact, that they will measure their consumptive use by the depletion theory, so long as they choose to, and whenever their commission chooses to adopt some other theory, that shall be their theory. That is the sense of article VI of the upper basin compact. Whenever the commission agrees to adopt some other measure that is it. So the upper basin is not committed to the depletion theory beyond all recovery, and if they find it to their advantage to adopt some other system, that will be what they will follow.

Mr. BARRETT. Do you conceive that there is any possibility that if the resolution is adopted in the Congress that the Supreme Court might say in the preliminary hearings in that court, "We do not have all the parties before us to properly decide this issue. We want to get it decided once and for all, and we think that the upper basin States ought to be brought in, also."

Mr. SHAW. If that should happen, then the Court would order the upper basin States brought in, and I assume the litigation would be brought to a head.

Mr. BARRETT. Then, if that were true, and if I am correct that this litigation is going to last for a long time rather than for a comparatively short period of time such as you suggest, then we would all be tied up under my theory for perhaps 20 years or more, and under your theory, for perhaps 4 or 5 years. In the meantime, this committee, which would have adopted this motion yesterday to discontinue any hearings on the Colorado River Basin, would have stopped things for a good many Congresses yet to come.

Mr. SHAW. I am very glad you put your finger on that point, Mr. Barrett. I think I can show you that that is not a consequence which would follow, as to the upper basin at all. I mean, I do not think that there would be an embargo against upper basin projects.

You will recall, I think, that the only three projects in the upper basin that have been brought before this Congress in the last few years have been the Paonia, the Mancos, and the Eden project pending in this Congress.

As to the first two of those projects, two of them, the State of California, through its Colorado River Board, filed resolutions with this committee favoring the authorizations for the Paonia and the Mancos projects.

On the third project, the Eden project, introduced by Senator O'Mahoney in the Senate very recently, Senator Downey of California, in the hearings before the Senate Interior and Insular Affairs Committee announced that he expected to vote for the project.

Those are small projects, but what I have said illustrates the point that California, as a State, does not expect to oppose upper basin projects within a reasonable limit of water.

I want to go further than that and give you the statement made by the State of California in its comments upon the comprehensive report on the Colorado River. I cannot quote that, because I do not have a copy immediately available, but I will put a copy in the record.

(The document is as follows:)

EXCERPT FROM "VIEWS AND RECOMMENDATIONS OF STATE OF CALIFORNIA ON PROPOSED REPORT OF SECRETARY OF INTERIOR ENTITLED 'THE COLORADO RIVER'" DATED FEBRUARY 1947

(At pp. 98, 99)

3. In response to recommendation (1) set forth in paragraph 70 of the regional directors' report, which invites submission of projects for construction, it is recommended:

* * * * * * *

C. That prior to determination of the allocation of the waters of the Colorado River System among the States of the upper basin, new consumptive-use projects in that basin be authorized, under the following conditions:

(a) That the consumptive use of each project be assuredly within such water allocation as is considered to be minimum for the State for which the project is to be constructed, after due allowance for all existing and authorized projects;

(b) That, concurrently with the construction of any new projects in the upper basin which involve large additional use of water, hold-over storage capacity be provided in that basin, to such extent as may be required to assure that the flow of the river at Lee Ferry will not be depleted below that required by article III (d) of the compact.

Mr. SHAW. The statement made in 1947 by the State in response to the Secretary's comprehensive report was that the State of California favored the construction of the projects in the upper basin, with two conditions or qualifications, which I think anyone would agree would be reasonable.

The first was that the quantity of water to be used for those projects be reasonably within the share of the upper basin water probably to be allotted to the States. That was before the upper-basin compact had been made, and that was a natural qualification.

The second I think you will also agree is reasonable and natural, and that was that there should be established substantial storage in the upper basin, which would enable the upper basin to make good on its compact obligations.

Mr. BARRETT. I agree with you, Mr. Shaw, and I appreciate the position California has taken on that matter.

The only question that arises in my mind is that the time will come when there will be an argument over what is a reasonable point at which you might stop the developments.

Mr. SHAW. I am very glad you have mentioned that. It is anticipated that the development of the upper basin will be comparatively gradual and slow, and that it will take 30 or 50 or 60 or 75 years before its water is completely put to use.

It is recognized right now, and has been for many years, that the share of the waters of the Colorado River belonging to the upper basin is ample for its needs, and therefore we do not come to any question of conflict until you approach right close to the 7,500,000 acre-feet limit.

Mr. BARRETT. What would you say is "right close"?

Mr. SHAW. I would say within the last 1,000,000 acre-feet or so.

However, I will go further than that. The ostensible purpose for which the upper-basin States designed their use of the depletion theory was to promote and increase their 7,500,000 acre-feet to some larger figure. I have heard engineers say that they could figure out that as much as 800,000 acre-feet more than that might be coming to them under the depletion theory. Until you get fairly close to that marginal area beyond the 7,500,000 acre-feet, I do not think there is any question of interference by the lower-basin people, or of an embargo, because we concede there is no question about the right of the upper basin to make full use of its agreed 7,500,000 acre-feet of water.

We will probably some day, if you ever get to that point, argue with you as to whether you are entitled to promote your use from 7,500,000 acre-feet to 8,300,000 acre-feet, or some larger figure. You can understand that.

Mr. BARRETT. As a practical matter, if we should get involved in your lawsuit, if you were successful in getting Congress to authorize a lawsuit, then of course the Congress would say, "We cannot authorize any project at all in the entire basin, or appropriate money for any project at all in the entire basin, until the lawsuit is settled."

Mr. SHAW. I think that there are lawsuits and lawsuits. If I am sued for $10 it will not affect my credit very much. On the other hand, if I am sued for $100,000 nobody would want to deal with me in a business way. That is the difference.

This lawsuit, so far as the upper basin is concerned, can only concern this last 800,000 acre-feet, or whatever it is, that they want to add to the 7,500,000 acre-feet allotment by the device of this depletion theory.

I do not think there is any reason to believe that Congress would hesitate to authorize projects or appropriate money for projects up to the 7,500,000 acre-feet.

Mr. BARRETT. Thank you.

Mr. D'EWART. You have listed three points of controversy?

Mr. SHAW. Yes, sir.

Mr. D'EWART. My notes indicate that there is a fourth point of controversy, and that is the water required for delivery into Mexico.

Mr. SHAW. The Secretary of the Interior has suggested there is a fourth field of contention; and that is as to how the Mexican burden should be treated.

Frankly, that is not a subject that we have given any particular consideration to, and we rather doubt that it will be involved in this litigation, but the Secretary has suggested it.

Mr. D'EWART. You are going to go into this justiciable issue a little further, are you not?

Mr. SHAW. I would like to go into it right now, if the committee will bear with me.

Mr. MURDOCK. Proceed, Mr. Shaw.

Mr. SHAW. As I have stated, in order to make a justiciable case in the Supreme Court between States, it is necessary that there be either actual injury or a threat of injury of magnitude. And, as Senator McFarland testified before the Judiciary Committee some weeks ago, a threat is something that just does not exist in a man's mind. The entertaining of an intention does not make a threat. It is necessary also, said the Senator, that there be overt acts coupled with that intent.

There is no question that the State of Arizona intends to take the water necessary to supply the central Arizona project. They have gone on record adequately for that. There is no question about intent.

Now, then, the question is, "What are the overt acts by which Arizona has followed up its intent?"

No. 1: For a period of 10 years, from the year 1934 to 1944, Arizona pursued a campaign of negotiation with the Secretary of the Interior to obtain a State-wide water contract whereby Arizona would be assured a large fund of water for future development. That contract is the cornerstone upon which Arizona started to develop this central Arizona project.

The contract gives to Arizona, if it were not for some qualifications and limitations contained in it, a fund of water which overlaps the water rights under their contract with other States, Nevada and California.

There is not enough water available to the lower basin to supply the nominal quantity of 2,800,000 acre-feet specified in that Arizona contract, and so it was that the contract itself contained a provision that nothing contained in the contract should be considered a settlement of issues between Arizona and the other States.

The Secretary of the Interior, on the day he signed the contract, in a memorandum which he issued declared that those issues were reserved for future judicial determination. That material will be placed before you by a later witness.

The second step was that Arizona attempted to button up water rights on the lower river in another manner, by litigating three cases in the Supreme Court, in which she made some claims adverse to those of California, but not the claims she is making now.

The third point is that Arizona appropriated some years ago at least $200,000—we think more—to contribute to the Bureau of Reclamation's engineering study of the central Arizona project, to do engineering work necessary to prepare plans and consider estimates; and that we point out as a specific overt act that there can be no question is substantial. It is a definite sum of money, and it is to be used for the purpose of promotion of this project.

Fourth, Arizona introduced bills for the authorization of the Gila project. This is sort of a side diversion on the subject. California permitted those bills, as the members of this committee will recall, to pass on the Consent Calendar, after giving plain notice that there were 600,000 acre-feet that were required for the Gila project and that it was the last noncontroversial water in the lower basin, and that if

Arizona chose to use that water on vacant, uncultivated land she was making her choice between doing that and saving it for this important so-called "rescue" project in central Arizona.

Mr. MURDOCK. I would like to flag that point, too. It will be the judgment of the committee as to whether your statement there is exactly correct, because many of the present members of the committee were upon the committee at that time.

Mr. SHAW. Certainly, and the committee will recall the text of the report of this committee on that bill, which will be placed in evidence, which included roughly the statement that the committee recommended that this——

Mr. MILES. May I ask a question?

Mr. SHAW. Controversy be disposed of by negotiation if possible, or by judicial action.

Mr. WHITE. Mr. Chairman, Governor Miles asked for recognition.

Mr. MILES. Did you say there was a threat made as far back as 1934?

Mr. SHAW. That was the beginning of it, sir, the first development of what we consider to be a large and aggressive public program planned by the State of Arizona for the bringing into existence of the central Arizona project. They had to start with the secretarial contract, because the rule of law is that no one shall be permitted use of water from Lake Mead without a secretarial contract.

Mr. MILES. When was this resolution to bring suit filed?

Mr. SHAW. The first resolution, I believe, was filed at the beginning of last year, sir; and the second in this Congress this year.

Senator MCFARLAND. The first bill, if I am correct, Mr. Shaw, was filed in the previous Congress.

Mr. MURDOCK. In the Eightieth Congress?

Senator MCFARLAND. In the Seventy-ninth Congress.

Mr. SHAW. I am speaking of the resolution to authorize litigation.

Senator MCFARLAND. I beg your pardon. I thought you were talking about the project.

Mr. SHAW. Next, the State of Arizona has caused to be introduced by her very able Representatives bills in three successive years, as Senator McFarland indicated, in the Seventy-ninth, Eightieth, and Eighty-first Congresses, to authorize the central Arizona project. That is another step.

Next, it has appropriated substantial sums of money to carry on this contest.

Senator MCFARLAND. The first bill was in the Seventy-ninth Congress.

Mr. SHAW. Yes.

Arizona has employed engineers and attorneys, and has arranged for other persons to appear and testify at extended hearings in 1947, 1948, and again in 1949.

Next, directly or in cooperation with private organizations, it has circulated masses of propaganda material among Members of Congress and among the public generally.

Next, it has associated allies in the upper basin to assist them in presenting their case before congressional committees.

All of those things, Mr. Chairman, are simply evidence of the building up of a program or a movement toward the consummation

of a project. They are substantial. They involve expenditures of money and great effort, with very able service on behalf of Arizona's Representatives; and they are not to be brushed aside as being trivial in any sense.

Mr. MURDOCK. I hope the press will take notice of that statement.

Mr. SHAW. In our opinion this has some likeness to a military operation. We do not understand that a general waits until his tent is on fire before he concludes that the enemy is probably going to take some kind of offensive action, and that he had better meet them.

Mr. D'EWART. Mr. Chairman, I believe I should comment on one of those points as a member of the committee, when the situation comes up, concerning the Gila.

I believe it was in the report that was not to prejudice action which might follow.

Mr. SHAW. The report will be placed in the record, Mr. D'Ewart; and I am entirely open to be corrected, if necessary.

In our opinion, therefore, there is a threat. It is not insubstantial. It is actual. It is something of which men in their business, in ordinary affairs, would certainly take notice of and act on.

That is what we understand to be about the test that the Supreme Court applies to any lawsuit, where the issue of a threat is involved.

On March 3, 1947, Governor Earl Warren, of California, addressed to Governor Osborn, of Arizona, and Governor Pittman, of Nevada, identical letters in which he suggested that the States either negotiate or arbitrate or litigate the controversy. Governor Pittman agreed that, since no other method of disposing of the matter appeared promising, it should be litigated. Governor Osborn's reply indicated that there was nothing to negotiate, arbitrate, or litigate; that in his view, Arizona was right on all counts; that they had all been already settled in favor of Arizona.

May I remind you of Mr. Carson's very emphatic statement yesterday, "California cannot possibly be right on any issue."

That is a matter of opinion, is it not?

If Governor Osborn had then been willing to accept the views of the other two Governors, in my judgment the litigation could have been completed before today and the States would know where they stand.

Instead of that, in my opinion, we have wasted more time, energy, and money in this political contest before Congress than would have been required to get through the Supreme Court and arrive at a decision.

Copies of the correspondence between the three governors are submitted for inclusion in your record.

(The documents are as follows:)

STATE OF CALIFORNIA,
GOVERNOR'S OFFICE,
Sacramento 14, March 3, 1947.

Hon. SIDNEY P. OSBORN,
Governor of Arizona, Phoenix, Ariz.
and
Hon. VAIL N. PITTMAN,
Governor of Nevada, Carson City, Nev.

MY DEAR GOVERNORS: We have just completed our review of the comprehensive plan for the Colorado River system as presented by the Bureau of Reclaramtion, and I am more than ever impressed by the staggering size and complexity of the proposal.

It is quite apparent, and it is admitted in the comprehensive plan, that the 134 projects inventoried will, if constructed, use more water than is available in the river system. This fact will undoubtedly emphasize the differences of opinion concerning the water to be made available to each State. It is therefore of the utmost importance to the lower-basin States that we reconcile our differences as soon as possible.

The negotiations of the past have failed to bring about agreement between Arizona and California and I am of the opinion that there must be some fair basis upon which their respective rights can be determined. The only methods that occur to me are (1) negotiation of a compact; (2) arbitration; and (3) judicial determination.

I would therefore like to suggest that we three Governors of the affected States endeavor first to enter into a compact which will resolve our differences and finally determine our respective rights.

In the event you believe for any reason that this cannot be done, I suggest that we submit all our differences to arbitration, agreeing to be bound by the results thereof.

If this is not feasible, I propose that we join in requesting Congress to authorize a suit to determine our rights in the Supreme Court of the United States, which suit could, if agreeable to the States, be submitted on an agreed statement of facts.

I believe that either method could produce the desired results. If you agree with me, I suggest that the three of us meet at some time and place mutually agreeable for the purpose of further exploring the subject. If we can place our three States in position to maintain a common front in urging the speedy and orderly development of the Colorado River system, we will have rendered a great service to our people.

Hoping that I may have your reaction to this proposal and with best wishes, I am,

Sincerely,

EARL WARREN,
Governor.

STATE OF NEVADA,
Carson City, March 6, 1947.

Hon. EARL WARREN,
Governor of California, Sacramento, Calif.

DEAR GOVERNOR WARREN: Replying to your letter of March 3, 1947, will say that I fully agree with you as to the necessity of the three lower Colorado River Basin States reconciling their different views regarding division of the water allotted to them under the provisions of the Colorado River compact, and for maintaining a strong unified front for the proper development of the great system. The report of the Bureau of Reclamation on the Colorado River is an inventory of all possible projects, and while of much value, it does not advocate the construction of propects beyond the limit of available water, but if the States do not reach an agreement, such a chaotic condition might develop.

All through the administration of Governor Carville in Nevada, sincere efforts were made by Nevada to bring California and Arizona to an agreement on the tri-State compact authorized under section 4 (a) of the Boulder Canyon Project Act, for division of the downstream water. Nevada's interest was to make secure her small allotment of 300-000 acre-feet, together with an appropriate share of the surplus water, however that surplus might be divided between California and Arizona. Neither Arizona nor California took exception to Nevada's position, so in effect, we were only trying to bring Arizona and California to an agreement.

A great number of meetings were held, the three States being represented by the Colorado River Commission of Arizona, the Colorado River Board of California, and the Colorado River Commission of Nevada, with Governor Carville or his representative usually presiding. Nothing was accomplished by these conferences. At last Nevada discontinued negotiations and contracted directly with the Bureau of Reclamation for 200,000 acre-feet of water from Lake Mead storage, as water was urgently needed for the basic magnesium project.

Our experience leads us to an opinion that California and Arizona will be unable to negotiate a compact and may be unwilling to agree on terms of arbitration. Nevada has spent much time and money in efforts to bring the tri-State compact into being, completely without results.

I am in accord with your thought that the three States, in the absence of other agreement, should join in requesting Congress to authorize a suit in the Supreme Court of the United States to determine our respective rights, and suggest that a method of presentation before the Court be agreed upon between Arizona and California, with which agreement Nevada will concur.

My kindest personal regards.

Sincerely yours,

VAIL PITTMAN, *Governor.*

EXECUTIVE OFFICE, STATE HOUSE,
Phoenix, Ariz., March 12, 1947.

Hon. EARL WARREN.
Governor, State of California, Sacramento, Calif.

MY DEAR GOVERNOR WARREN: I have your letter of March 3, addressed to Gov. Vail Pittman and myself, concerning the report of the Bureau of Reclamation on the development of the water resources of the Colorado River Basin.

I presume from your letter that you have completed and sent to the Bureau your comments on the above-mentioned report. I, too, have furnished the Bureau with my comments and am enclosing a copy to you herewith. It will be appreciated if you will furnish me with a copy of your report.

Ever since I have been Governor of Arizona I have endeavored to cooperate with all other States in the Colorado River Basin in all matters of common interest. Arizona has at all times been represented on the Committee of Fourteen and Sixteen, whose name has now been changed to the Colorado River Basin States Committee. Arizona is now represented on the Colorado River Basin States Committee, which committee as presently constituted and as heretofore constituted, has been very helpful in all matters affecting the interests of the respective States in the Colorado River. Arizona is now cooperating in plans for the utilization of Colorado River water in the respective States within the allocation of water available to them.

I will be pleased to meet with you, or with you and Governor Pittman, or with the governors of other interested States, to discuss all matters of common interest to our respective States.

All seven of the Colorado River Basin States—Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming—five of which States are still represented on the Colorado River Basin States Committee—are parties to the Colorado River compact which apportions the water of the Colorado River system as between the upper basin and the lower basin and to Mexico. The compact contains provisions which make utilization of water over and above the apportionment made by the compact of interest to all of the States of the basin.

Portions of Utah and New Mexico are in the lower basin and are entitled to share in the apportionment made to the lower basin and in the use of any available water which is unapportioned by the Colorado River compact.

California, in consideration of the passage by the Congress of the Boulder Canyon Project Act and as a condition precedent to the taking effect of that act and the construction of Boulder Dam, Imperial Dam, and the All-American Canal, by chapter 16, California Statutes, 1929, entered into a statutory agreement with the United States and for the benefit of each of the Colorado River Basin States, irrevocably and unconditionally limiting California's claim to water of the Colorado River to 4,400,000 acre-feet per annum of the apportioned water, plus not more than half of the water unapportioned by the Colorado River compact. The quantity of surplus water, that is, water unapportioned by the compact, varies from year to year and is subject to further apportionment by agreement between all of the compact States after 1963.

Arizona recognizes the right of California to use the quantity of water to which California, by the statutory agreement, is forever limited.

Arizona recognizes the right of Nevada to use 300,000 acre-feet of apportioned water per annum, plus one twenty-fifth of available unapportioned water, subject to further apportionment of the unapportioned water by agreement between the compact States after 1963.

Arizona has a contract with the United States for delivery for use in Arizona from the main stream of the Colorado River, subject to its availability for use in Arizona, under the Colorado River compact and the Boulder Canyon Project Act, of so much water as is necessary to permit the beneficial consumptive use in Arizona of main stream water to a maximum of 2,800,000 acre-feet of the

apportioned water, plus one-half of the available surplus, less such part of the one twenty-fifth thereof as Nevada may use, the quantity of which surplus, of course, varies from year to year, and which surplus is subject to further apportionment by agreement between all of the compact States after 1963.

Arizona does not claim the right to the use of any water to which California is entitled, nor the right to the use of any water to which Nevada is entitled, and I am sure that Nevada does not claim the right to the use of any water to which California is entitled, nor the right to the use of any water to which Arizona is entitled.

It therefore appears that California and Nevada are now in a position to join Arizona in urging the speedy consideration and passage of S. 433 now pending in the United States Senate and H. R. 1598, its companion bill, now pending in the House of Representatives, which are authorization bills to authorize the construction of the central Arizona project, and H. R. 1597, which is an authorization bill to relocate the boundaries of the Gila project heretofore authorized.

I am certain that the passage of these bills and the construction of the works which they seek to authorize, will be of great and incalculable benefit, not only to Arizona, but to California and Nevada and to the United States as a whole.

They are vitally necessary to the welfare and to the economy of the whole southwest region. They do not in any way interfere with the full use in California and in Nevada of the water to which California and Nevada are respectively entitled.

If either California or Nevada are interested in the promotion and construction of projects for the utilization of water to which they are respectively entitled, I would like to know it in order that I may render such aid as seems appropriate.

It is difficult for me to understand what, if anything further, need be done to place either California or Nevada or Arizona in position to support the utilization in our respective States of our respective shares of the water of the Colorado River, which shares have already been determined by the Colorado River compact, the Boulder Canyon Project Act, the California Limitation Act, the water-delivery contracts of the California agencies, the Nevada water-delivery contracts, and the Arizona water-delivery contract.

However, I will be glad to meet and discuss with you and the Governors of the other Colorado River Basin States, jointly or severally, any matters of common interest, and if at such conference or conferences it should develop that there are any substantial differences, we can consider and perhaps resolve such differences, and if it should develop that anything further is necessary, we can consider the proper course to pursue.

During your incumbency we in Arizona have not had the pleasure of a visit from you. We would like to see you over in our State, and I will greatly appreciate it if you can arrange to come to Phoenix as soon as possible, either alone or with Governor Pittman, or with such other Governors of the Basin States as you may desire to have present, in order that any matters which you may desire to further discuss can be gone into fully and thoroughly.

With all good wishes, I am

Sincerely,

SIDNEY P. OSBORN, *Governor.*

Mr. BARRETT. Mr. Shaw, I was concerned about one point raised by Governor Warren. That was the question of arbitration.

Mr. SHAW. Yes, sir.

Mr. BARRETT. Has that method ever been used between the States?

Mr. SHAW. I cannot answer that specifically. It is a well-known method of disposing of controversies, if people choose to do it.

Mr. BARRETT. I understand that. I am just wondering if it has ever been used on a controversy between States.

Mr. SHAW. On principle, I do not know why it should not be, but I do not know that it has ever been done. That sort of action would have to be taken by agreement. The States must determine what they want to arbitrate, and how they want to arbitrate, and whether they will be bound by the decision or not.

Mr. BARRETT. And probably it would require an act of the legislature to bind the States?

Mr. SHAW. I suppose so. If the policy of the States were established, that that was the thing to do, I do not think there would be any difficulty, probably, in getting those acts through the legislatures. But it seems to have dropped out of sight. Governor Osborn was not willing to undertake it, and that is that.

Here I might refer, if you please, to a comment that was made by Mr. Carson on yesterday. I refer to his statement that in the year 1927 the governors of the upper-basin States were constituted an informal board of arbitration to decide all issues, as I gathered it from him, between California and Arizona. His statement was that Arizona accepted the result of the upper-basin governors' deliberations, and that California did not. Unfortunately, the record is very plain, and it will be put in by a later witness, that Arizona, while purporting to accept that adjudication or that arbitration, actually attached to her acceptance conditions which the upper-basin governors did not approve. That is where the arbitration, so-called, ended. From our point-of-view it never was an arbitration at all.

The upper-basin governors did not constitute themselves, nor were they accepted by either of the States, as a board of arbitration. They simply offered their good offices, as friends should do, to try to find some solution of a difficult problem.

Mr. MURDOCK. If I may interrupt there for just a moment, I would like to make this statement for the record: Mr. Carson yesterday asked that all the letters—I think there were six rather than two—be included in our record, and they are included in the record. He called the attention of the committee to those and all should be read.

This is the point I wanted to make: For a long period before his death Governor Osborn was a very sick man.

Mr. SHAW. Yes.

Mr. MURDOCK. That, of course, should be taken into consideration in connection with this controversy.

Mr. SHAW. Was he not, though, a very brilliant man right up to the point of his death? Was he not very capable of carrying on his business, Mr. Chairman? I so understood it.

Mr. MURDOCK. With great perseverence he stuck to his post to the very day of his death, almost.

Mr. SHAW. Yes.

Mr. MURDOCK. Under great handicap. I wanted the record to show that, because I have a great admiration for the man's "stick-to-itiveness" and his sense of duty.

Mr. SHAW. I think we all have. I do not want to trespass on your time, Mr. Chairman.

Mr. MURDOCK. Off the record.

(Discussion off the record.)

I think we might proceed for 15 minutes, say, or until a quorum call.

Mr. SHAW. Very well.

Mr. MURDOCK. Go right ahead, Mr. Shaw.

Mr. SHAW. This discussion has been necessary so that you may understand the relationship between the litigation resolution and the bill which is before you. It is not necessary for you to decide whether there is a justiciable cause of action between the States. That is a matter which is pending before the Judiciary Committee, and will be decided and only decided by the Supreme Court when it gets the case.

It is important, however, that you realize that Congress, because it has no judicial power, cannot make a final decision as to whether or not Arizona has any right to water of the Colorado River which could be used to supply the central Arizona project. Plainly and obviously, no decision by Congress will settle the issue between the States. That can only be done by the Supreme Court and it will some day be done, whether or not the present resolutions are adopted.

I say that because it is indispensable to the peace and security of the lower basin that these questions be settled. Therefore, I am sure that Congress, whether it is today or tomorrow or some other day, will authorize the United States to be sued, so that this trouble can be settled.

The first prerequisite of a reclamation project is a dependable water supply. It is suggested to you that it is utterly improvident for Congress to give any serious consideration to a bill authorizing a project for which no dependable water supply is known to exist. The Secretary of the Interior has reported to you that if California is correct in its conclusions, there is no water supply for a central Arizona project. On the other hand—and this might be worthy of particular note—Arizona must be 100 percent correct in all its contentions, or there is not a sufficient supply for the project.

There, might I raise a question. This bill would authorize a project calling for 1,200,000 acre-feet of water. Let us speculate a little bit, and assume that the Supreme Court might hold Arizona was wrong on contention No. 1, right on contention No. 2, and wrong on contention No. 3, or any other assortment of those conclusions that you can imagine. Obviously there would not be, and Arizona's figures themselves admit, it 1,200,000 acre-feet available for the central Arizona project.

There might be, we will say, 300,000 acre-feet of water. Then you would have to consider whether or not a feasible project of public value could be made up which would provide for the use of 300,000 acre-feet. It would not be this bill at all. It would not authorize spending $738,000,000 or $1,500,000,000. It would be something different. It would call for smaller works and less expensive works.

So the idea that you must commit yourselves to an authorization of a project costing $738,000,000 in order to open the door of the Supreme Court, as some of these witnesses have indicated, just does not quite make sense. You are committing yourself to something, when you do not know whether or not it can be carried out; and you do not know but what something entirely different, under the decision of the Supreme Court, might have to come about.

Anyway, it seems to be generally admitted by most witnesses except Mr. Carson that if the resolution were adopted then the litigation could proceed; and it would proceed, and there would be whatever delays would be entailed. We do not think they would be great, but whatever delay there is, would happen.

Finally, when the Supreme Court speaks, we hope we will know what could be done for the benefit of central Arizona.

Mr. MURDOCK. Mr. Shaw, 2 or 3 years ago I made a statement in the Congressional Record, and if you are right then I am wrong. I maintain that California must not be proved wrong nor Arizona proved right on all three of the points that you indicated, but that any

two of the three would still yield water enough for the central Arizona project. We are safe if Arizona is right on any two of three.

I may want to refer to that record, even though Mr. Shaw says I am wrong.

Mr. SHAW. I do not mean to be so dogmatic about it as to say that the chairman is wrong about that subject. I will leave it to the engineers, who will advise you as to what water supply there would be under the assumptions I have indicated; and that would be the answer, because it is really an engineering question.

Mr. WHITE. Mr. Shaw, in the event that the authorization bill is passed, approved by this committee and passed by the Congress, you would still have the courts open to you, and you could still fight it out before the Appropriations Committee before any money is appropriated.

Mr. SHAW. Well, as to the first part of that suggestion, we cannot get into court unless Congress says that we can sue the United States; that is just absolutely essential, Mr. White.

Mr. WHITE. You would have an action against Arizona, would you not?

Mr. SHAW. No; because the Supreme Court has already said that in order to bring any suit relating to water rights on the Colorado River we must include the United States as a party.

Mr. WHITE. Have we reached a stalemate, so that the waters of the Colorado River must flow away to the sea unused because we cannot get the proper procedure from Congress?

Mr. SHAW. Partially so, Mr. White. There is a stalemate in the lower basin until the Supreme Court decides who is entitled to this water. We think that is so.

Mr. WHITE. Do you not think the best way to get the Supreme Court to decide who is entitled to this water is to authorize this project?

Mr. SHAW. We do not think it is necessary at all. We think there is a justiciable cause of action today. We think there is a threat of injury.

Mr. WHITE. In the event you are unsuccessful in getting the bill through the Judiciary Committee, how does California propose to proceed then?

Mr. SHAW. I cannot answer that. It is pretty "iffy."

Mr. WHITE. There is just one "if." If the Judiciary Committee says that they do not approve the bill, then the water must flow unused to the sea?

Mr. SHAW. Well, there is a misconception that I want to tag right now, if you please, Mr. White, as to this water running away to the sea.

There is, we will say, 6,000,000 or 7,000,000 acre-feet flowing into the Gulf of California. Five million acre-feet of that is upper basin unused water, or more than 5,000,000. If you want to consider that 5,000,000, though, ask Mr. Barrett whether he wants that water permanently used by Arizona, and you will find out what the answer to that is.

Mr. BARRETT. We will take care of that.

Mr. WHITE. I am talking about California's imposed limit of 4,400,000 acre-feet. If she uses up to her limit, what will happen to the rest of the water? You have already passed legislation and imposed a limitation upon your State.

Mr. SHAW. Yes.

Mr. WHITE. For 4,400,000 acre-feet.

Mr. SHAW. Plus half the unapportioned excess and surplus.

Mr. WHITE. If you use that up to the limit, that is your limit?

Mr. SHAW. Yes.

Mr. WHITE. What happens to the rest of the water, if it does not run away into the sea?

Mr. SHAW. If we could use that, we would not be arguing with Arizona. The unfortunate part is that Arizona cannot get this water without taking the water away from California and rendering a $200,000,000 aqueduct that we have built utterly useless.

Mr. WHITE. You do not hold that the act of the California Legislature which imposes the limitation of 4,400,000 acre-feet is a scrap of paper?

Mr. SHAW. No.

Mr. WHITE. You think that is valid?

Mr. SHAW. It is valid, and we expect to honor it and abide by it.

Mr. WHITE. You are limited to 4,400,000 acre-feet, are you not?

Mr. SHAW. No, sir. That has been stated to you, but it is not the truth. We are limited to 4,400,000 acre-feet plus not to exceed one-half of the excess or surplus waters unapportioned by the compact; and that half of the excess or surplus is where we have provided for the 962,000 acre-feet that our contracts cover in excess of 4,400,000 acre-feet.

Mr. WHITE. Who gets the other half of that excess?

Mr. SHAW. Arizona, presumably, or Mexico. Remember that Mexico is to be served out of surplus.

Mr. WHITE. Mexico already has an allocation?

Mr. SHAW. Yes, sir.

Mr. WHITE. Of 1,000,000 feet?

Mr. SHAW. 1,500,000 acre-feet. That is one of the things that has precipitated this trouble, because Arizona supported that treaty and we opposed it, and the treaty has very much increased the pinch on the lower basin.

Mr. WHITE. I would not want to suggest that California is putting itself in the position of opposing Arizona's use of her share of the water, but it certainly takes that appearance.

Mr. SHAW. Have I made myself plain, Mr. White, that we are opposing the diversion of 1,200,000 acre-feet, which happens to be the amount required to serve the metropolitan aqueduct?

Mr. WHITE. If the United States should withdraw from any administration or action in developing the Colorado River, could Arizona or California, either one, get any water out of the river?

Mr. SHAW. Possibly not.

Mr. WHITE. Suppose the United States withdrew from the financing?

Mr. SHAW. Possibly not.

Mr. WHITE. If the United States handed this back to Arizona and California, what could you or Arizona do with the water?

Mr. SHAW. Possibly very little, Mr. White.

Mr. MURDOCK. Pardon me; I did not hear your reply.

Mr. SHAW. I said, "Possibly very little"; but there are some developments that could be made by State or private action.

Mr. BARRETT. Off the record?

Mr. SHAW. Small developments.

Mr. MURDOCK. Just a moment on that. If the United States withdraws neither State, do I understand, could get any further?

Mr. WHITE. They would not be financially able to. That is the inference.

Mr. MURDOCK. The All-American Canal is finished and is functioning.

Mr. SHAW. That is correct.

Mr. MURDOCK. At a cost of upward of $40,000,000. It is supplying all the water needed by the Imperial irrigation district and is capable of carrying more than is needed. If the United States would withdraw that would still continue.

However, if the United States withdraws, and if the Bureau of Reclamation is able to do nothing because Congress passes no legislation, Arizona cannot continue to get any additional water, not even a bucketful. Of course, we do have a small project in Yuma County.

Mr. WHITE. Would that not result, Mr. Chairman, in Mexico getting an undue share of this water, because it would not be used by us and would go into Mexico?

Mr. MURDOCK. I feel certain that it would. The Hoover Dam regulates the flow of the river. Before the erection of the Hoover Dam, Mexico could not use a great deal of water, but now that the dam is built they could divert it into the delta area of Old Mexico, and inaction on our part simply gives that precious water away to foreigners.

Mr. WHITE. Would not that same thing hold for California? If the Hoover Dam had not been constructed the flow would be spasmodic, and there would be periods when California would get very little water.

Mr. MURDOCK. Yes. That was the contention before the erection of the first great dam.

Mr. ENGLE. Mr. Chairman, let us decide whose water is whose, and then we will go right ahead and divide it up, and not protest any project of reasonable cost.

Mr. MURDOCK. I wanted the question answered, though. That is what I meant yesterday by the statement that possession is nine points in the law. California is now in the possession of facilities and is getting the water, and Arizona is not getting much, just what is diverted at the Imperial diversion dam in Yuma County and one or two small diversions. We cannot get water without action by Congress, by the Federal Government.

Mr. ENGLE. Mr. Chairman, if you will establish your legal right to the water necessary for this project, you can just figure on our getting out of your way.

Mr. MURDOCK. Clair, I wish you could speak for the opposition.

Mr. SHAW. The Governor has so stated, Mr. Chairman, in his letter.

Mr. MURDOCK. I recognize your willingness to abide by the court's decision. I feel the same, but we cannot get it now. I did not intend to take so much time on that, but I wanted to emphasize that point. Go right ahead, Mr. Shaw. I think we have a few minutes yet.

Mr. SHAW. I would like to refer to one subject now that the chairman has just mentioned in passing. He says that California has works which would carry water greater in amount than its entitlement would call for.

You will remember, possibly, a discussion the chairman had with Mr. Debler, who testified that the California works were designed and built to supply 5,362,000 acre-feet of water; whereupon the chairman led him by a series of questions to the statement that the All-American Canal would supply as much as 11,000,000 acre-feet of water if flowed continually throughout the year.

Mr. ENGLE. Mr. Shaw, I was very interested in that. It indicated that we would just divert the whole Colorado River; is that right?

Mr. SHAW. Yes. I wanted to point this out: Mr. Debler had a great deal to do, as an engineer, with the All-American Canal. He designed it to serve the purpose for which it was intended, namely, to irrigate the lands of the Imperial and Coachella Valleys. He designed it for a proper capacity.

The chairman suggests that the canal might be run continually full throughout the year. If you gentlemen have any acquaintance with irrigation, as I am sure you do, you know that is not the way an irrigation canal is used, by virtue of the fact that we have climatic differences between summer and winter and different use of water by crops in summer and winter. There is not as much water flowing through the irrigation canal on Christmas Day as there is on the Fourth of July.

For that very reason the possibility that the water could be flowed, bank full, the year round is a theoretic possibility that has nothing to do with the issues in this case.

Mr. MURDOCK. You mean that it need not be flowing full on Christmas Day as on the Fourth of July?

Mr. SHAW. It is not.

Mr. MURDOCK. If the water is in the river, what is to prevent it from being flowed full? If the water is not needed for irrigation it could be dumped back into the Colorado River below the international line.

Mr. SHAW. Well, Mr. Chairman, is there any reason on earth why the water which is idle in the winter should not be used to make power and dumped back into the river at the Mexican line? If nobody upstream has used it, why should it not be used for power purposes before we pass it into Mexico?

Mr. MURDOCK. I expected that answer. A certain part of that surplus water I am willing to see developed into power, but how much?

Mr. SHAW. For instance, at Syphon Drop, you will remember, just above Pilot Knob, there is a plant on the bank of the river which is used to divert the water from the All-American Canal for the benefit of the Yuma project in Arizona. Right there a power plant uses that water and drops the excess over Yuma's needs back into the river where there is a surplus. That is exactly the operation contemplated at Pilot Knob. If it is all right for Arizona, why is it not all right for California?

Mr. MURDOCK. It is all right to the extent of 500,000 acre-feet per year at Pilot Knob, and I would like to see power produced there, but just the moment you go beyond that you have created a paying proposition which will mitigate against any legislation that would minimize that flow of water which is being put through that pipe.

Mr. SHAW. All this will be developed by other witnesses, Mr. Chairman. I do not mean to go further with it, except to say——

Mr. ENGLE. Let us get back to your proposition about the size of this canal.

Mr. SHAW. Yes.

Mr. ENGLE. I got from what Mr. Debler said an implication that California had deliberately constructed a vast canal with a secret and selfish motive to some day steal the whole blasted river, and as the best evidence of it, there is the canal.

It is like the fellow who said, "I have a dog that killed six coyotes, and if you do not believe it I will show you the dog."

What I would like to have you answer, Mr. Shaw, is whether or not the large canal was built because, from an engineering standpoint, and in the kind of operation you have down there, you have to have a canal of that size to get the big flow of water when you need it?

Mr. SHAW. Mr. Engle, that canal was designed to a size which would furnish an amount of water needed on the hottest day in the summer, the day when the peak demand for water occurs on the system. That is all there is to it. The canal has to be designed to serve the peak demand in the summer, and the fact that it has capacity which is unused in the wintertime is rather a red herring that I am sure the chairman did not introduce into the matter except innocently and without appreciating the mechanics of the thing.

Mr. MURDOCK. No; not innocently—and not as a red herring.

Mr. SHAW. Pardon me.

Mr. MURDOCK. Very deliberately. The committee will hear much about the possibilities of that canal. It has possibilities for evil.

Mr. WHITE. Mr. Shaw?

Mr. SHAW. Yes, sir.

Mr. WHITE. I thought the construction of Boulder Dam was to stabilize and regulate the flow of the Colorado River in all seasons?

Mr. SHAW. That was one of the purposes, and it does go a long way toward that, but other storage will be necessary besides that.

Mr. WHITE. By releasing the stored water at Lake Mead you do stabilize and regulate the flow of the river. What is the variation between summer and winter flow, when the water is released? That was made to regulate the flow of the river. Is there very much difference?

Mr. SHAW. I do not want to go too far into that power question.

Mr. WHITE. I am not talking about power; I am talking about the flow on the river.

Mr. SHAW. The flow out of Hoover Dam was designed to take care of two things. It was to provide the generation of the amount of power required, and to provide irrigation flow as required below Hoover Dam, for irrigation. Those are the two general objectives.

Water is flowing down the river below Hoover Dam, sufficient to serve both those purposes.

That operation of the dam, however, controls the amount of water that could be diverted into the All-American Canal. The Bureau of Reclamation is standing there as gate opener and closer at Hoover Dam, and if the Bureau of Reclamation thought, for example, that we were going to steal 12,000,000 acre-feet of water in California that we had no right to, they presumably would shut down the gates and not allow that water to flow down the river.

Mr. WHITE. The question is the flow of the river?

Mr. SHAW. Yes.

Mr. WHITE. To regulate it at Boulder Dam?

Mr. SHAW. Yes.

Mr. WHITE. To have firm power at the power plant at the dam you must have a regular flow of water. Is the water regulated to flow evenly throughout the year?

Mr. SHAW. Not evenly, sir. There is quite a little variation.

Mr. WELCH. May I say something off the record?

(Discussion off the record.)

Mr. MURDOCK. The committee will stand adjourned until 9:30 tomorrow. The Chair will make an effort to get permission to sit during general debate this afternoon. If that is not possible, we will meet in the morning.

(Thereupon, at 12:21 p. m., Thursday, May 12, 1949, an adjournment was taken until 9:30 a. m., Friday, May 13, 1949.)

THE CENTRAL ARIZONA PROJECT

FRIDAY, MAY 13, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 9:30 a. m., in the committee room of the House Committee on Public Lands, the Honorable John R. Murdock (chairman of the subcommittee), presiding.

Mr. MURDOCK. I think, in the interest of conserving time, the committee might come to order.

Mr. POULSON. However, I want to make a point that though we will start out now, Mr. Murdock, if the members are not going to come, we might just as well find out about it; 9:30 seems to be a difficult time to meet.

Mr. MURDOCK. In view of the fact that we have been accustomed to meeting at 10 o'clock instead of 9:30 it may be that we will have more members here in a few minutes. It is only to hurry the matter along that I was rash enough to suggest an earlier hour.

With the expectation, then, that we will have a fuller attendance in a few minutes, shall the committee proceed to hear Mr. Shaw?

Mr. BARRETT. I think we should proceed.

Mr. MURDOCK. Mr. Shaw, you were in the midst of your prepared statement.

STATEMENT OF ARVIN B. SHAW, JR., ASSISTANT ATTORNEY GENERAL, STATE OF CALIFORNIA—Resumed

Mr. SHAW. I had arrived at the top of page 6 of my statement, Mr. Chairman.

With your permission, I will proceed at that point.

Mr. MURDOCK. Yes.

Mr. POULSON. Would you ask the clerk to call the members again?

Mr. MURDOCK. Yes. I think she is calling the members.

Mr. SHAW. You will recall that this is an opening statement intended to outline the case on behalf of the opponents of the bill.

The next title is "The Central Arizona Project," and here I proceed to discuss the engineering and economic feasibility of the project.

Engineering witnesses for opponents will endeavor to show the following:

1. Cost: The cost of the project is $738,400,000 at a minimum. The bill before you authorizes in addition, but defers for construction, an 80-mile tunnel, which would extend from the top of Bridge Canyon

Dam to a connection with the proposed aqueduct. That tunnel would add in the neighborhood of half a billion dollars more to the cost of the project, making in all about $1,250,000,000.

May I interpolate that if the tunnel were built and the water taken by gravity from the Bridge Canyon Reservoir that would render useless the pumping plants and part of the aqueduct leading from Lake Havasu to the main canal, the cost of which is estimated by the Bureau at something like a little under $50,000,000. Even the $738,000,000 would be one of the greatest public-works projects ever undertaken by the Federal Government. It is more than the cost of the Panama Canal, of the TVA, or the St. Lawrence seaway. It is about five times the cost of the Boulder Canyon project.

2. Area benefited: Unlike TVA or the St. Lawrence seaway, on which a great expenditure would benefit a considerable number of States, this project is to "rescue" 150,000 acres of land in one State, which the proponents say would otherwise have to go out of production. It so happens that this 150,000 acres of land is about equal to the acreage in central Arizona which was rushed into production during the war boom as a purely speculative venture, to make war profits. That land has been irrigated by wells drilled in an area where the underground water supply was well known to be inadequate, and it was, therefore, purely and simply a "mining" venture. Let it be clear that the land sought to be "rescued" is not an old-established civilization but is the direct result of speculative large-scale operations induced by high prices for farm products during the war period.

A second asserted justification for the project is to put under irrigation 73,000 acres of land which is now idle for lack of water but which it is said has been in cultivation at some time in the past. It is rather startling to find that, of the total water supply which is proposed to be applied to irrigation of land in the project, approximately one-half would be required to serve this 73,000 acres of land which is not now being farmed.

3. Cost and values per acre: The land in the project is predominantly ordinary general farming land. It is worth at most $300 per acre. At that price the whole irrigated area of central Arizona, less than 600,000 acres, could be bought for $180,000,000, and 150,000 acres at stake would be bought for $45,000,000. By contrast, the project would cost approximately three-quarters of a billion dollars, and the costs allocated to irrigation alone amount to close to $400,000,000. By dividing this $400,000,000 by 223,000 acres of land, including the land now farmed and the 73,000 acres of land not now farmed, the cost per acre of the irrigation features of the projects amounts to $1,750 per acre. Looking at it in another way, half of the $400,000,000 will be used to irrigate only 73,000 acres, which means that the Government would invest for each of those acres, for irrigation features alone, over $2,650 per acre.

No reclamation project ever dreamed of in the United States has ever approached in expense what is proposed for the central Arizona project. It is respectfully submitted that nothing can be more harmful to the cause of sound reclamation nor more apt to deter projects of moderate cost throughout the West than a proposal of these extravagant proportions.

4. Financing: The capital cost of the project is not expected to be repaid by Arizona. The irrigators can only pay a maximum of $4.50

per acre-foot for the water, and this will produce less than the cost of operation and maintenance—I mean irrigation operation and maintenance—even if a nominal charge is made for power for pumping. Either the power users or the Federal taxpayer will have to pay, not only all the capital costs of the project, but also part of the money for the operating expense of the aqueduct—several million dollars a year.

5. Nonreimbursables: Since the irrigators cannot repay any part of the capital cost, it is planned to write off as nonreimbursable about $80,000,000 capital. About half of this will be allocated by an inflated process of reasoning to recreation alone.

I think I should be more specific on that, Mr. Chairman. The $38,000,000 or the $40,000,000 which is to be written off for recreation—and which is, as you know, a vast sum in comparison with any appropriations which have ever been made for the National Park Service; for example, by the Federal Government—is arrived at in this manner, realizing that recreation is a somewhat intangible value: The Park Service has furnished the Bureau of Reclamation, and the Bureau has incorporated in its report, this suggestion: That an estimate be made of the number of people who would visit Bridge Canyon Lake, for example, and other points on the project, for recreation purposes. Then, because there is no other easy way of determining what the benefit of the project for recreational value to them is, they proceed to estimate the number of dollars that the estimated number of people would spend in going to the point of recreation and staying there for a few days or a week or whatever.

Then they jump to this idea: That it must be presumed that these people have gotten their money's worth, and, therefore, what they spent in going to these places and staying there is the value of the recreation. So they build up an annual figure as to what these costs to the individuals will be. Then they capitalize that figure (that annual figure) into a capital sum on a small interest basis, and say that the resulting $38,000,000—I believe that is the figure—is the value of recreation.

That I have characterized as an inflated process of reasoning.

Mr. D'EWART. Mr. Chairman, may I make a comment there?

Mr. MURDOCK. Yes, Mr. D'Ewart.

Mr. D'EWART. Mr. Shaw brought out the very point that I tried to make with respect to H. R. 1770, when I offered the amendment to that bill. The amount charged for these nonreimbursables should be the amount invested by the Government, and not capitalize on the benefits of those items.

I think this illustration is very good in connection with the point I tried to make at that time. I think that we should, in that bill, have adopted this principle, but that bill, of course, has been voted out of this committee. Perhaps I should say that we should have written a yardstick by which we should measure how nonreimbursables should be measured.

Mr. MURDOCK. Off the record.

(Discussion off the record.)

Mr. MURDOCK. Will you proceed, Mr. Shaw?

Mr. SHAW. This question of these intangible benefits is, of course, a matter of judgment and proportion. What I wish to mention now is that this $38,000,000, I believe it is, for recreation, amounts to one-

fourth of the cost of Bridge Canyon Dam. So, it becomes a matter of judgment as to whether the dam is really only three-fourths for power and irrigation and one-fourth for recreation.

As another more imaginative way of measuring an intangible, although the amount is comparatively small, we have the way the fish and wildlife benefit was arrived at, which was this: The Fish and Wildlife Service estimated the number of fish in the top acre-foot, I believe, of the reservoir at Bridge Canyon. They then evaluated that fish at 50 cents a pound and assumed that every year all of the fish would be fished out by visitors. They then took that annual figure and capitalized that into a capital sum which they allowed as a fish benefit.

Returning to my statement, at paragraph 6 on page 8, "Power subsidy." The great bulk of the costs of the project would have to be loaded on rates for power. This power would primarily be sold in California, which constitutes the bulk of the power market in the Southwest. The power users of California are thus expected to pay for the Arizona aqueduct, which would take the water away from projects which California has built and bound itself to pay for.

7. Water requirements: The California witnesses disagree with the estimates of the project's proponents as to the water requirements of the area now cultivated in Arizona, and will state their reasons.

8. Life of the project. The bill provides in section 3:

> Before any construction work is done or contracted for, the Secretary shall first determine that costs allocated to power, municipal water supply, irrigation, or other miscellaneous purposes as herein provided will probably be returned to the United States: *Provided*, That the repayment period for costs so allocated shall be such reasonable period of years, not to exceed the useful life of the project, as may be determined by the Secretary.

Although the Bureau of Reclamation has intimated that it would like to have the "useful life of the project" set up as the rule by which repayment of reclamation costs shall be governed, Congress has never in any project up to this date established such a vague and extravagant rule, and it should not do so.

If you give your thought to the permanent character of such great concrete works, such great structures as are being built, and then compare them in your mind with the Roman roads and Roman aqueducts, some of which are in use after 2,000 years, you begin to see the reason. I do not mean to compare those works, however, with this project.

As for the present problem, the question is, What is the useful life of the project? The Bureau has made various statements as to how the project could be paid out in from 70 to 78 years. At least, some such length of time would be required, with all possible short cuts and write-offs. It will be remembered that all the capital cost of the project will have to be paid out of power revenues from Bridge Canyon Dam. It is, therefore, impossible for the project to be paid out according to any schedule which has been submitted by the Bureau of Reclamation. Bridge Canyon Reservoir, even with the aid of the Bluff and Coconino Dams to protect it against silt, will be substantially filled up by silt in from 40 to 50 years.

You will recall the statement made by the Federal Power Commission in its report which I have read to you.

Thereafter, it would be a "run of the river" plant, producing firm power during about 9 months of the year only from the low flow of the

river, and large quantities of power only during the flood season, instead of the year around. Engineering witnesses will show you that, without the concurrent construction of a large storage dam upstream from Bridge Canyon—for example, at Glen Canyon—Bridge Canyon power plant cannot supply over 78 years the quantity of power which would be necessary to repay the costs of the project. The cost of the Glen Canyon Dam, which may be another quarter of a billion dollars, has not been taken into account in the present bill. If all of the power revenues from Bridge Canyon are taken to subsidize the central Arizona aqueduct, it is not seen how Glen Canyon Dam can be financed. On the other hand, engineering witnesses will satisfy you that Bridge Canyon Dam, plus Glen Canyon Dam, can be set up together as an integrated and financially sound project which would produce power which will be needed in the Southwest and which would relieve to the extent of millions of barrels a year the drain on our dwindling national oil supply.

Just a word of comment on that subject, Mr. Chairman.

Glen Canyon Dam is a project long projected and seen to be of tremendous importance, not only to the lower-basin States but to the upper-basin States. Such a dam, with a capacity of 30,000,000 to 35,000,000 acre-feet, is absolutely essential to enable the upper-basin States to comply with their obligation under the compact to deliver 75,000,000 acre-feet to the lower basin every 10 years. It is believed that the early development of a dam at Glen Canyon, in coordination with the one at Bridge Canyon, is the proper approach to the development of the lower river.

May I comment on one or two more points before closing.

A great deal of effort has been given in these hearings by proponents of the project to excuse the fact that the irrigators on the project cannot pay any part of the costs of the project by saying that by firming up the agricultural area in central Arizona large income taxes will accrue to the Federal Government. This seems to us a false quantity.

We will say it is true, as claimed by Arizona witnesses, that Arizona may be paying into the Federal Treasury in taxes $75,000,000 a year. I believe that was their figure.

On the other hand, it happens to be the case that the State of California is paying into the Federal Treasury currently approximately $3,500,000,000 a year. So, there is a question of balance of judgment as to whether you should tear town the income-tax-paying ability of California in order to build up the income-tax-paying ability of Arizona.

I point out to you, as has been evidenced particularly by the area within the Tennessee Valley Authority, that anywhere that the Federal Government goes in and spends $1,000,000,000 business is stimulated, people become prosperous, and they are able to increase their payments of income taxes. That will happen whether you spend the billion dollars in Minnesota or in New York or in Mississippi or anywhere in the West, so it rather seems to us that this issue of income taxes is rather irrelevant. It is not a thing peculiar to Arizona, alone.

Something has been said and resaid and repeated by Mr. Carson as to the "gentleman's agreement" which he says was made by representatives of the lower basin States at Santa Fe in 1922, that they would make a particular subcompact between the lower basin States after the main compact was arrived at.

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We expect to meet our agreements. We expect to abide by all agreements that we make. There is no evidence on the California side of the river that there was ever any such agreement made. The evidence which has been produced from the Arizona side of the river is evidence that was developed approximately a dozen years after the compact was made, out of the memory of certain persons in Arizona as to certain conversations they held at Santa Fe.

I have carefully read the testimony which the Colorado River Commission of Arizona took in the early 1930's on this subject, and it is my judgment that it, carefully read, does not support Mr. Carson's interpretation that there was a bargain the III (b) water should belong to Arizona alone. Carefully examined, that testimony really means that the Arizona people expected to have an agreement from the other States that they should retain and hold the use of the waters of the Gila River exclusively for themselves, not in addition to what they might expect to receive otherwise under the compact out of the lower basin's share of the water, but as a part of it. That is all we say on that matter.

I repeat that we expect in California to live up to the obligations of our State. We have in all respects and at all times since the Limitation Act was adopted in 1929, abided by and intended to adhere to the obligations of that limitation agreement, and any references by Mr. Carson or anyone else to the idea that we do not intend to abide by it is, in our belief, unfair and untrue.

Mr. Chairman, that completes my opening statement. I would appreciate any questions.

Mr. MURDOCK. Mr. Shaw, we appreciate your statement. I regard you as a very able lawyer.

I have heard it said that an able lawyer is one who can show that black is white, but you have gone further. You have shown, in my judgment, that white is black.

Are there any questions that you would like to ask Mr. Shaw? Mr. D'Ewart?

Mr. D'EWART. I noticed the last statement at the end of your presentation, Mr. Shaw, which said:

> On the other hand, engineering witnesses will satisfy you that Bridge Canyon Dam, plus Glen Canyon Dam, can be set up together as an integrated and financially sound project—

Where are those items on page 2 of the bill?

Mr. SHAW. Pardon me?

Mr. D'EWART. Where do we find those items on page 2 of this bill? Page 2 of the bill recites the different parts authorized in this construction.

Mr. SHAW. Item No. 1 is on line 8 of page 2.

Mr. D'EWART. It shows (1), (2), (3), (4), and so on.

Mr. SHAW. Item No. (1) is the Bridge Canyon Dam. That is at line 8 on page 2.

Item (2) is the main canal from Parker including a tunnel and main canal from the reservoir above the dam at Bridge Canyon.

Later on, at the foot of page 3 of the bill, you will find that the construction of the tunnel is to be deferred.

It has been admitted and agreed by the proponents of the bill that that tunnel and the connecting link of the canal is not now feasible, not

economically possible to build. Nevertheless, they ask the Congress to authorize something now that they say is infeasible.

Mr. D'EWART. Your proposal then would be to delete (2) from the bill?

Mr. SHAW. I leave that to your judgment, sir. I have never heard of Congress authorizing a project that is admittedly infeasible.

Mr. D'EWART. As I read your statement, you are in favor of two items in this bill, namely Bridge Canyon and Glen Canyon. You are not in favor of the others, is that correct?

Mr. SHAW. No. I do not think that it should be confined to those items. Glen Canyon Dam is not mentioned by name in this bill, but I will point out language to you which could be stretched to cover it, although it is not named in the bill nor in the report.

The point that I refer to is item (5) at line 3 of page 3:

such appurtenant dams and incidental works, including interconnecting lines to effectuate coordination with other Federal projects, flood-protection works, desilting dams, or works above Bridge Canyon—

That language is sufficient to authorize the Secretary to build Glen Canyon Dam, but he has not given you a word in his report as to the cost of that dam, which we generally understand to be in the neighborhood of a quarter billion dollars.

If he had intended that the dam would be built, obviously we think he would have mentioned it by name in his report and would have given you the cost figures, which would then increase this project, without the tunnel, to about $1,000,000,000, instead of the $738,000,000.

May I proceed with analyzing the works to be built?

Mr. D'EWART. Yes.

Mr. SHAW. Paragraph (3) at line 18 of page 2:

such other canals, canal improvements, laterals, pumping plants, and drainage works as may be required to effectuate the purposes of this act.

I do not know what those works are, as distinguished from the main canal mentioned in item (2), and they are rather indefinitely indicated in the report.

Item (4) is:

complete plants, transmission lines, and incidental structures suitable for the fullest economic development of electrical energy generated from water at the works constructed hereunder for use in the operation thereof and for sale in accordance with Federal reclamation laws—

Now, if Bridge Canyon is to be built, as we think it should be, of course, there should be a power plant provided and presumably transmission lines, so that item is obviously in order.

This item No. (5), "such appurtenant dams and incidental works—" which I read to you a few minutes ago, is a pretty broad indication of power in the Secretary to build anything that he chooses to build in the way of dams on the Colorado River, above Bridge Canyon.

I do not think that it could be reasonably interpreted to mean that the Secretary can go ahead and build a dozen dams in the upper basin under the authority of this act, but the words are sufficient for the purpose.

In the middle of page 3 it goes on to incidental matters at line 10, "to effect exchanges of water" and so on, and those things are not particularly important.

What I would like to call your attention to is that there are six or eight more or less independent projects in Arizona which seem to be

justified independently of the importation of water of the Colorado River. I am referring to the Buttes Dam on the Gila River, the enlargement of the Horseshoe Dam on the Verde River, the building of the Hooker Dam in New Mexico on the upper Gila, the building of the Charleston Dam on the San Pedro in southern Arizona, and the municipal aqueduct to Tucson. Those things appear to be entirely independent of the central Arizona aqueduct, so far as we can see it, and we think that they can be built far more promptly and afford relief to the area far more quickly than the aqueduct proposition, which will take many years to build.

Incidentally, since I have mentioned the time element, in the Senate hearings Mr. Larson testified, I believe, that plainly the project itself would require appropriations to complete it, we will say in 7 years, at the rate of $100,000,000 a year. If built in a more natural way, the appropriations might be limited to, say, $50,000,000 a year, and it would take 15 years to build it. The "rescue" of this land, in his view, would be postponed by 15 years from now.

What Congress will find it is able to do, assuming that we may go into a period of low national income, in the way of supplying $50,000,000 or $100,000,000 a year for the one project, is a little hard to foresee; but it is very clear that something has to be done to maintain the economy of central Arizona, other than the aqueduct, and we suggest that the committee should give its close attention to the authorization of the local central Arizona improvements, such as Butte Dam, Hooker Dam, Horseshoe Dam, and Charleston Dam. as a means of quick relief.

Those things could be built in a comparatively short time.

Mr. D'EWART. Do you concede that there is adequate water supply for those projects?

Mr. SHAW. Sir?

Mr. D'EWART. Do you concede an adequate water supply for those projects?

Mr. SHAW. Those projects are intended to supplement the supply of local water by further conservation for the existing projects. They do not add new areas, except that the Charleston Dam on the San Pedro will supply a new supply of water for Tucson which can be built within a relatively short period of time. There is no reason on earth why those should not be built, so far as we can estimate it, and they do not depend upon importing Colorado River water which is in controversy.

Mr. D'EWART. Do you think those are authorized under (5) on page 3?

Mr. SHAW. They are authorized somewhere in here, Mr. Chairman, because the Bureau's report covers them.

Mr. D'EWART. I am reading the bill. I have a little difficulty in determining what (1), (2), and (3), (4), and (5) refer to.

Mr. SHAW. When you read the language in (3) "such other canals, canal improvements, laterals, pumping plants, and drainage works as may be required to effectuate the purposes of this act" and then the language in No. (5), "such appurtenant dams and incidental works," and so on, "as may be necessary in the opinion of the Secretary," and so on, "herein authorized," without tying that language to his report, you do not know what he might build.

He might, as I said, build Glen Canyon Dam and then add 2 or 3 billion dollars onto these projects without showing you how it can be paid off.

We have a good deal of hesitation, Mr. D'Ewart, in believing that Glen Canyon Dam, by reason of its great distance from the market for power, can support itself and pay itself out. It will be expensive power. It will produce some power, a considerable amount, but we suggest that particularly the people concerned with the upper basin of the Colorado should study the problem in the light of whether Bridge Canyon should not contribute to some extent to the building of Glen Canyon, rather than to have all of the Bridge Canyon revenues taken to build the central Arizona project, and leave Glen Canyon in a position where you may have to defer the construction of that dam for a long time.

As I have indicated in my statement, Bridge Canyon alone will silt up in 40 or 50 years. There will not be any reservoir there after that.

The assumption that it will produce a full supply of firm power for 78 years just cannot be made out of the record unless you get Glen Canyon built above, with a storage of 20 or 25 or 30 million acre-feet to conserve water, to protect Bridge Canyon both against silt and to equate the flood season and low season flow of water, so that Bridge Canyon will have a constant supply regulated from Glen.

Mr. D'EWART. As I understand your testimony, your main objection which California has to this legislation, is in the item number (2); that is, speaking generally and not specifically.

Mr. SHAW. Well, sir, that is the thing which steps on our toes and which we think would have to be supplied with our water.

Now, I do not want to be put in the position of calling names. Arizona says we are stealing her water. We think they are stealing ours. That is the kernel of the debate.

If this extremely expensive aqueduct, which we think throws the economy of the Southwest more or less out of joint, were not to be built, we would not have any objection whatsoever to the local improvements in central Arizona which, at the Bureau's estimate, would supply, I believe, 168,000 acre-feet for the central Arizona irrigated area.

Mr. ASPINALL. Mr. Chairman.

Mr. D'EWART. I understand that the water supply figures given us are such that even California concedes some 400,000 acre-feet of water that are not claimed at all by California and are still in the river.

Mr. SHAW. No, sir. As you will remember at the time of the authorization of the Gila project we considered that the allowance of the 600,000 acre-feet for that project would exhaust the noncontroversial water.

As we see it now, there is a slight deficit in the water in the lower basin, a shortage.

Mr. D'EWART. In looking over a study that was made in your appearance before the Senate committee the other day, I understand that Arizona claims there is some 2,600,000 acre-feet in the river that belongs to Arizona. The same table of figures shows 2,273,000 acre-feet.

This table shows that California, in the presentations they made before the Senate committee, thought there were some 400,000 acre-feet.

Mr. SHAW. I think that is an erroneous figure, Mr. D'Ewart.

Mr. D'EWART. You do not agree with that figure?

Mr. SHAW. That is not correct.

Mr. D'EWART. You think there is none.

Mr. SHAW. We think there is none for the central Arizona project and that is what the Secretary of the Interior stated in his report. He said that if California is correct in its contention, there is no water supply for the central Arizona project. It is not our judgment, alone.

Mr. MURDOCK. Mr. D'Ewart, would you yield to Mr. Aspinall?

Mr. D'EWART. Yes.

Mr. ASPINALL. I just wish to ask a question there of Mr. Shaw to see if I understand what he is saying.

You do not object, Mr. Shaw, or California does not object to any improvements in California, just so long as it does not take any water from the Colorado River?

Mr. SHAW. You mean any improvements in Arizona?

Mr. ASPINALL. That is right.

Mr. SHAW. Of course not. The issue is as to who is entitled to this Colorado River water, and whether this project can be built without taking water from existing projects in California. That is the crux of it.

Mr. MURDOCK. Is this a fair statement, then, Mr. Shaw: That you would approve these improvements within the State of Arizona, so long as they do not call for any water out of the Colorado River? For instance, the Buttes Dam on the Gila River, the Charleston Dam on the San Pedro, those might be justified; and you have no objection to them so long as they do not call on the Colorado River for any water?

Mr. SHAW. Yes, sir. We have been a little surprised and a little perplexed as to why these local improvements, which justify themselves and which can be constructed independently and quickly, have been thrown into this great project which which seems to involve them all in a controversy. There is no controversy, so far as we are concerned, on the Buttes Dam or the enlargement of the Horseshoe Dam, or the Hooker Dam, or the Charleston Dam.

Mr. MURDOCK. The piling up of a bunch of concrete in those rivers will not produce any more rainfall. I grant you that such will conserve some floodwaters.

Mr. SHAW. That is correct.

Mr. MURDOCK. You are agreeable to that, of course, and I am more than agreeable to it. I am anxious for it.

However, these are parts of a comprehensive plan. We have taken the whole area and even extended it beyond the borders of Arizona, into New Mexico and Utah, in the consideration of this planning, so that while I appreciate your favorable attitude toward these parts, and while I do not want to seem sarcastic, that is not the whole picture.

You were with us in 1946, I remember, when we had the Gila reauthorization bill set-up, and you gentlemen said that there was a lot of distressed land down there along the Gila and that it should have water. I think you were even willing to see a bucket brigade established to carry water to that land, or maybe to set up a garden hose for those lands.

We do appreciate this. There is one suggestion, Mr. Shaw, that I wish to make: You folks have not done all you could in helping us out, and that is that if all of the crocodile tears that have been shed regard-

ing our distressed lands could be gathered together, that would be a little moisture for us.

Mr. D'EWART. What I am trying to point out, Mr. Chairman, is this: Is there any area in which California and Arizona are in agreement? I was hoping we could develop some area on which there is an agreement.

Mr. MURDOCK. Here is a very small area. Mr. Shaw, as I understand it, has said that there ought to be a dam built at the Bridge Canyon site, as this bill provides.

Mr. D'EWART. Yes.

Mr. MURDOCK. And there should be a dam built at the Glen Canyon which is not mentioned in the bill, but which he thinks is implied.

We are all agreed that there are two great dams on the main stream of the Colorado River above Hoover Dam that ought to be built. The point is that is that he would like to have them produce power for a power-hungry area—and so would I—but he is not willing that any water shall be diverted for irrigation in Arizona.

He says, of course, that Arizona does not have any water coming, and I firmly believe that the Angel Gabriel would say that we do have some water coming—more than is called for in this bill. That is my opinion.

Mr. D'EWART. Well, at least it appears that we are in agreement as to building those dams, anyway.

Mr. MURDOCK. That is right, but we differ greatly in purpose and use. The river should be used to give life and power.

Mr. POULSON. Mr. Chairman, you keep referring to the Angel Gabriel. Are you wanting to depend entirely upon a good angel to bring you the water, rather than upon your basic rights?

Mr. MURDOCK. No, I just used the Angel Gabriel, not with an impious thought, but simply to show that there is a fundamental sense of right and justice involved here.

I would like to call that to the attention of the committee, whoever the supreme authority might be.

Mr. LEMKE. Mr. Chairman, I feel that it is really the work of the other fellow between Arizona and California, rather than the angel, but I would like to ask one or two questions because I must leave soon.

Mr. MURDOCK. Very well.

Mr. LEMKE. Let us go back to these nonreimbursables.

Mr. SHAW. Yes, sir.

Mr. LEMKE. You say it was inflationary reasoning. What do you call reimbursable, and how would you figure it?

Mr. SHAW. I cannot give you a clean-cut or detailed answer to that question, Mr. Lemke.

Some of these nonreimbursables which are proposed, such as recreation and fish and wildlife, are, themselves, so intangible and indefinite that it is very difficult for me to understand how you can turn those things into money.

I believe that somebody should sit down and produce a scientific and sensible and fair way of estimating those things, and that Congress should decide what the yardstick should be.

I think it is so easy to get into these inflationary and fantastic and imaginary ways of treating the subject that are not quite sound. I wish that I could give you a computation of some kind or a formula by

which that could be done, but I think that people who are more expert in the subject than I, should really get the thing down and give it some thought, instead of just putting a word into a statute and saying, "The Bureau can go from there and do as they please."

Mr. D'EWART. If Mr. Lemke will yield to me for just one minute, may I say that the Hoover Commission has made, in their report, considerable comment on that, and they name seven different methods by which a yardstick for figuring nonreimbursables can be established.

In addition to that, I am advised that the Bureau has made an extensive study of this matter of reimbursables and they have an extensive report. However, the report is not yet complete and has not yet quite reached the stage that they would like to have it to present it to Congress. There is a study, and they do have quite an extensive report on it.

Mr. LEMKE. I am glad to know that, because to me, these so-called fantastic intangibles are just as real as an acre of land.

Mr. SHAW. I wish to concede that.

Mr. LEMKE. They should be taken into consideration and they should be willing to pay for those.

Mr. SHAW. I conceded that fully.

Mr. LEMKE. I think they ought to be allowed, and it ought to be a part of this project.

Mr. SHAW. I am quite clear, Mr. Lemke, that the nonreimbursables are real and that there should be an allowance for them, and my only thought is that they should be put on a carefully considered and rational basis, whatever it is, and that Congress should know about what it is before turning people loose to use their pencils.

Mr. LEMKE. If you and I can agree what is rational, we are in full accord.

Mr. SHAW. I will take your judgment, sir.

Mr. LEMKE. I want to ask you one other question. You make the statement on page 8 that the purpose is to make power pay for this to a large extent, and that the power is to be sold to California.

You really have no objection to Arizona furnishing power to California, if the people want it, and they get it at a reasonable price?

Mr. SHAW. No, sir.

Mr. LEMKE. Later on you say that the way to do it is to build these two dams, and that you will get more power from Arizona.

Mr. SHAW. I hardly think that will be the result. Glen Canyon Dam I have mentioned is so far from the southern California area, a matter of 500 miles or so, that it is at least an extreme of its capabilities, in my opinion, so that it will have to be used, we think, pretty largely in Arizona, southern Utah, southern Nevada, and possibly in western New Mexico.

Mr. LEMKE. To me it makes absolutely no difference where it is used. I want it produced, if it is there.

Mr. SHAW. So do I. It should be done, and we should stop or reduce the consumption of oil for these stand-by plants.

May I say this: We, in southern California, are having to build steam plants at the rate of about 200,000 kilowatts per year to keep pace with our population. Each of those plants consumes oil. If water power can be substituted for that oil, then, of course, we are all gaining.

Mr. LEMKE. As I understand you, finally, the trouble between California and Arizona is solely a question of who is entitled to a certain amount of water that, to a certain extent, at least, was supposed to have been settled by the compact. Am I right on that?

Mr. SHAW. Well, you are right as to the first part of the question, as to the essential issue being that of water supply. I do not quite understand the second part, that that was supposed to have been settled by the compact. The compact was only a division between the two basins, the upper and lower basins, and it did not assign any water to any particular State, so it did not settle that question.

Mr. LEMKE. But the States got together and you agreed that California was to have 4,400,000 acre-feet of water out of the 7,500,000?

Mr. SHAW. Plus half of the unapportioned excess or surplus.

Mr. LEMKE. Okay. I feel that you had the best of the bargain, but that was Arizona's own fault, if they were sleeping at the switch. However, I still feel that outside of that there is considerable water, according to the testimony here.

Mr. SHAW. That outside water is the upper basin unused water which the upper basin can take tomorrow or 10 years from now, or any day they please, under the compact, and put to use, and we cannot build any project that depends on that water.

Mr. LEMKE. California and Arizona could not stop them.

Mr. SHAW. The upper basin could not stop us?

Mr. LEMKE. California, or the lower basin, California or Arizona, could not stop the upper basin from getting its share of the water.

Mr. SHAW. That is absolutely obvious, because they are at the upper end of the stream, and they can take it before it gets to us.

Mr. LEMKE. So you do not have any quarrel with the upper basin. They signed a compact, and they knew what they were doing?

Mr. SHAW. Yes, sir.

Mr. BARRETT. Everybody agrees that that water has to run downhill, I take it, so we have a small agreement.

Mr. SHAW. Unless somebody interrupts it and takes it away and uses it.

Mr. LEMKE. Now, as I see it, the situation is this: I am familiar, somewhat, with the case California is trying to bring in the Supreme Court, and I feel that they will finally decide those issues.

Mr. SHAW. I hope so. No one else than the Court can do it.

Mr. LEMKE. They are the only ones who can do it, when there is a dispute between States.

Mr. SHAW. Certainly, and it has to be settled, Mr. Lemke. It cannot go on forever, leaving people in a fog of uncertainty and a hazard as to what their investments in water and power are going to be.

Mr. LEMKE. So, building this dam, so far as I see it—I may be wrong; you correct me if I am—cannot take any water from California that California is entitled to under its agreements and compact.

Mr. SHAW. That is absolutely clear.

Mr. LEMKE. From my own observation, I think two of these claims are rather weak, but one of them may have real merit. That is for the court to decide, and the court will decide the other two, also.

Mr. SHAW. As I pointed out, Arizona must be right on all counts, or there is not an adequate water supply for this project.

Mr. LEMKE. On the other hand, the Supreme Court may make a decision that you do not agree with, or Arizona does not agree with.

Mr. POULSON. Will the gentleman yield? However, when the Supreme Court makes a decision we are going to have to comply with it, whether we like it or not.

Mr. LEMKE. It is final, until they reverse themselves.

Mr. SHAW. I would like to be frank. Mr. Carson sat here the other day and pounded the table and said: "California cannot possibly be right about any of these issues." That is a firm position to take about a lawsuit.

Mr. LEMKE. I do not take it. Even lawyers admit that anything is possible in a lawsuit.

Mr. ENGLE. Fifty percent of the lawyers are wrong in any lawsuit.

Mr. LEMKE. I do not agree with that. Fifty percent of them may be right and the court may be wrong. However, then you have the issues determined finally, and that, it seems to me, cannot affect this project so much one way or another.

You want the power. Why not go ahead and build it and then let the court decide who is entitled to the water?

Mr. SHAW. I think that is a rational approach, Mr. Lemke, and before you get through with your deliberations, it may be suggested to you that this bill be revised to provide for the things that are not in dispute. Let them go ahead today. Plainly the Bridge Canyon Dam is the thing that is going to take the longest time to build. It may be 5 or 6 or 8 or 10 years until that is built, and there cannot be any diverson of water to central Arizona because there will not be the power to pump the water.

It would seem, just as an offhand suggestion, which I think may be followed up by members of the committee later on, possibly, that it might be good judgment to go ahead and authorize the things which are not in dispute, before the Bridge Canyon Dam can be completed. Then this lawsuit can be tried and be disposed of and the decision rendered, and then you will know whether you should build an aqueduct to central Arizona for 1,200,000 acre-feet or for 500,000 acre-feet, or for 300,000 acre-feet, or else you will know that there is no water for it at all. Then you would be in a sensible position to decide the merits of the central Arizona aqueduct. Before that you are not.

Mr. LEMKE. I am satisfied that if the attorneys for both Arizona and California are diligent and hurry this thing through, that they can get a decision within 6 or 7 months.

Mr. SHAW. I feel that way, sir.

Mr. ENGLE. Will the gentleman yield there?

Mr. LEMKE. I will.

Mr. ENGLE. Mr. Shaw, I think you should make it perfectly plain that the passage of this authorization bill does not put this matter into court. Assuming, as has been stated by Arizona, that an authorization bill is necessary to create a justiciable controversy, that does not put this matter into court for the reason that we have no authority to interplead the Federal Government, and the Supreme Court has held that that is necessary to a final determination of rights; is that not correct?

Mr. SHAW. That is absolutely correct, Mr. Engle. We cannot today or tomorrow or any other day commence a lawsuit until the Congress of the United States permits the United States to be sued, because the Supreme Court directly told us that in the last Arizona case.

Mr. ENGLE. To follow the matter one step further: If this commit-

tee should see fit to authorize those portions of this suggested project which are not in controversy—say the Bridge Canyon Dam, which would take some years to construct—it still must be borne in mind that such an authorization does not get us into court because we do not have the consent to sue the Federal Government, a necessary prerequisite to a full determination of the rights on the river.

Mr. SHAW. That is correct.

Mr. LEMKE. May I ask the gentleman who introduced the Jurisdictional Resolution? Are you not taking that up before the Judiciary Committee? What are you doing?

Mr. ENGLE. I do not know. Arizona is over there opposing that. Arizona is here claiming that this authorization bill should be given to make a justiciable controversy which can be taken to the Supreme Court, and Arizona is making that claim in the face of the language of the Supreme Court which says that it is true that we have to have the consent to sue the Federal Government, so the action of this committee in authorizing this project or any portion of it, does not put us into the Supreme Court. It is the resolution which gives us the power to interplead the Federal Government, which will put us into the Supreme Court. In the absence of that we cannot go there. That is the reason I made the motion which I made the other day, to get this case where it belongs, over there in the Judiciary Committee, and to get the legal issues out in front of the other issues, where they should be.

Mr. MURDOCK. Mr. Lemke has the floor, and he has yielded to Mr. Engle. I wonder if he would yield to me?

Mr. ENGLE. I yield back to Mr. Lemke.

Mr. MURDOCK. Do you have to get away?

Mr. LEMKE. Yes.

Mr. MURDOCK. Mr. Lemke has said that he must get away, but if he will yield to me I would like to make one statement for the record before you do get away, Mr. Lemke.

I said here the other day that Arizona can get no water, whether it is hers or not hers, out of the Colorado River without an act of Congress. Arizona is uniquely dependent on Congress now for water out of that river.

We are not going to get any more water out of the Colorado River for Arizona unless there is an act of Congress. This bill before us is such an act of Congress. If we cannot pass this bill or some modification of it until there has been a judicial decision in the matter, then everything depends upon a judicial decision, which we are unable to get. Mr. Lemke, I grant you that there is going to have to be litigation over details. However, the thing we ought to do is to authorize a project so as to get into the court, and then we can have a judicial settlement.

Mr. POULSON. Mr. Chairman?

Mr. MURDOCK. Otherwise we cannot. Just a moment, until I make myself clear. I value the Supreme Court, but if these opponents block legislation and enact a suit resolution it will freeze the status quo. If any committee of this Congress throws this matter into litigation without a guarantee of when that litigation is going to terminate and when a settlement will be effected by judicial process—and there can be no such guarantee—just that long is Arizona forever barred

from getting any water out of the Colorado River, whether it is hers or is not hers.

That is merely one man's opinion, but I say it with all the solemnity of my soul. I do not want to charge false pretenses of anyone or questionable motives. I believe that the effect of action toward a suit on the part of this committee or any Judiciary Committee of the House or Senate, throwing this problem into litigation, would be, as I said before, the cause of a long, long delay, and that delay works in favor of California and against Arizona, and thereby Arizona is hogtied to the extent that she may be destroyed.

Mind you, ladies and gentlemen, the compact does provide a class of water known as surplus and it also provides that that surplus water shall be used. I am not objecting to that use if properly used. That surplus water shall be divided in the year 1963, which is only 14 years in the future. Now, if we let this matter be tied up in litigation even for 14 years—whereas a similar controversy between two other States was tied up in litigation for 42 years—you might as well give Arizona back to the Indians.

I wanted to say that to you, Mr. Lemke, before you got away.

Mr. LEMKE. I want to say this to my distinguished chairman: My suggestion is that the court will finally determine it. All the parties seem to want this dam and the water, and we should, perhaps, go ahead with the construction and then go ahead with the case. You will not get any water except that which the court will allow you.

Mr. MURDOCK. I agree with you on that in the long run, but first Congress must act. If not, Arizona's water goes elsewhere. Where?

Mr. ENGLE. Would the gentleman yield?

Would the gentleman suggest that this Congress appropriate money to be spent on irrigation works which may be left high and dry?

Mr. LEMKE. It will take 10 or 12 years.

Mr. ENGLE. That is precisely what Mr. Shaw is talking about.

Mr. LEMKE. You can build it in such a way so that you can irrigate with it.

Mr. ENGLE. But, Mr. Lemke, the authorization of this project will not get us into court.

Mr. LEMKE. I have not studied that question, but I will say this: I am satisfied that if you get the resolution through, which you claim you will, that if the attorneys will work together, they can get a decision from this court and from the previous courts in less than a year.

Mr. ENGLE. That is what we think.

Mr. BARRETT. I am not a gambling man, but I would like to take a bet on that, or have somebody else take it with you.

Mr. LEMKE. I have been before the Supreme Court several times, and I have never waited over 8 months.

Mr. BARRETT. We have had experience in this, also, and I would be very happy if it were settled in 5 or 6 years, rather than 5 or 6 months.

Mr. ENGLE. Mr. Barrett, your cases involved controverted facts; this case involves the interpretation of legal documents.

Mr. LEMKE. And the attorneys did not agree.

Mr. BARRETT. From my understanding of it, there is some controversy here over the facts, as to the amount of water consumed down on the Gila River, and a few other things which would be

involved in this matter. A master would have to be appointed, and he would make a study which would take about 2½ years, and this thing is not going to be settled in any 6 or 7 months. You know that, Mr. Shaw.

Mr. SHAW. I have suggested a period of 2 years. I believe that is a reasonable period, considering this, Mr. Barrett: That if it is determined that the matter shall be litigated, the position of the State of Arizona will then be one of desiring to get it completed instead of standing here and objecting to its being litigated. Arizona is now, as we see it, delaying its own game by refusing to allow the suit to progress.

Mr. MORRIS. Will the gentleman yield?

Mr. SHAW. I call your attention, if you please, to the fact that the chairman, in making the extended statement which he made a few moments ago, commenced by granting that there must be litigation. If that is the fact, and we think it is, what difference does it make how long we wait to start the litigation as to the total length of time that the litigation will take? That will take just the same length of time, whether started tomorrow morning, or whether it waits 2 years or 5 years or longer before we start it.

Mr. MORRIS. Before Mr. Lemke leaves, may I make this observation on this very important point about a justiciable issue and about whether or not it is necessary for this committee to pass on this matter before they can go ahead into the Supreme Court, or whether or not by passing on it, we put them in a position to get into the Supreme Court or get into the courts: As we all know, the decision of any case depends on the issues in that particular case.

Mr. SHAW. Yes, sir.

Mr. MORRIS. The issues involved in the case that my good friend, Congressman Engle, refers to—and I certainly respect him very much as a Congressman; for I have a real affection for him, as well as for our chairman, and I respect his ability as a lawyer—may not be the same. I may be absolutely wrong and you may be absolutely right, Mr. Shaw, but there is some grave doubt in my mind about the situation for this reason, and I will take just a minute to present my view on the matter: In this case we are talking about the case of *Arizona* v. *California* (298 U. S. 558). The Court said this:

> It is argued that the constitutional power of the United States to exert any control over the water stored at Boulder Dam is subject to the rights of Arizona to an equitable share in the unappropriated water "until such a time as commerce is actually moving on the river," and that in any case Congress has subordinated that power to Arizona's rights by the provisions of section 4 (a) of the Boulder Canyon Project Act, which authorizes Arizona, California, and Nevada to enter into an agreement as to their relative rights in the water or the river. But these and similar contentions, so far as they were not answered adversely to Arizona in *Arizona* v. *California*, supra, 456, cannot be judicially determined in a proceeding to which the United States is not a party and in which it cannot be heard.
>
> Every right which Arizona asserts is so subordinate to and dependent upon the rights and the exercise of an authority asserted by the United States that no final determination of the one can be made without a determination of the extent of the other. Although no decree rendered in its absence can bind or affect the United States, that fact is not an inducement for this Court to decide the rights of the States which are before it by a decree which, because of the absence of the United States, could have no finality.

In other words, it held in that case that the United States was a necessary party.

Mr. SHAW. Yes, sir.

Mr. MORRIS. And because it had superior rights to either State and certain definite rights that there could be no decision made until the rights of the United States were determined. It was a correct decision of the Court, and there is no question about that. However, in this instance, I am not saying this is absolutely correct, but it is the thing I am giving consideration to: If we should report this bill out, then there at least is strong reason for me to believe at this time that Arizona could have filed against her an injunction suit and that the Federal Government would not necessarily be interested in it in any way and would not necessarily be a party to the proposition. In other words, Arizona could come in and enjoin California, or California could come in and enjoin Arizona or seek to enjoin Arizona from diverting this water to this dam.

Therefore, I say that this decision is not necessarily controlling of the issues before us, although it may be, but we must remember that the court decides law, depending upon the facts of the case.

You will agree, of course, as to rules of law that they follow the facts involved. While the court might make a ruling in some particular case, unless the facts were similar in another case, the ruling would be different.

I say that this case is not absolutely on all fours, although it is related.

Mr. SHAW. I would like to get right at the meat of your suggestion, Mr. Morris, because I think it is highly important.

Mr. MORRIS. Yes, sir.

Mr. SHAW. We agree, of course, immediately, that the issues in the case, the facts, and what is in dispute, control the decision.

Mr. MORRIS. They determine the rules of law laid down.

Mr. SHAW. Yes, certainly.

Mr. MORRIS. That is right.

Mr. SHAW. Let us isolate exactly what the situation would be after the bill were passed and after an appropriation were made and the money was available to the Secretary of the Interior. It would be the Secretary of the Interior who would be building any works under this project, and not the State of Arizona. We could not enjoin the State of Arizona from doing anything, because the State of Arizona would not be doing anything. We would have to bring our suit against the Secretary of the Interior to prevent him from doing what we thought would threaten injury to us, by reason of an act of the United States Congress.

In that case the Court would immediately say, "You are suing an agent of the United States for doing, in his official capacity, what the Congress has commanded him to do. Therefore, your suit is essentially against the United States and not against the man."

Then we are immediately precipitated into the exact situation we were in in the previous case. That is to say, the United States would be an indispensable party, because we would be suing the United States.

Now, there are two or three other things that should be, I think, brought into any serious consideration of this particular subject. I would like to give you a paragraph or two from the report of the Secretary of the Interior of last year, May 14, 1948, addressed to the chairman of the Judiciary Committee of the House, with respect to this particular subject of litigation. Here he goes a great deal more

into detail than the Supreme Court did in that case that you have just been reading from, in which the Court stressed the authority of the United States to control the river and the power of control by the United States over navigation and flood control.

Those were the things the Court mainly mentioned, but here is how the Secretary amplifies this same subject matter, quoting from page 25 of the hearings before the House Judiciary Committee of last year:

I have spoken thus far as if this controversy were of concern only to the States. Let me state briefly the interest of the United States. The United States has invested heavily in developments for the benefit of both sides of the river. These works include the Hoover, Davis, Parker, and Imperial Dams, the All-American Canal, the San Diego aqueduct, and the Yuma, Gila, and Salt River reclamation projects. They also include the Colorado River and San Carlos Indian irrigation projects, and the Headgate Rock, Coolidge, and Ashurst-Hayden Dams serving those projects. All of these developments are tangible evidence of the Federal and Indian interests in a development of the area that is not yet complete. But they are more than this. They are also the means by which thousands of families live and by which the Nation benefits from a region which is rich with water and poor without it. In these people and in a continuation and expansion of the benefits which the area can yield, even more than in its financial investment, the United States has an interest to protect.

Among these people the United States has an especial interest in the protection of the Indians. That their stake in the Colorado River Basin is a very large one is made plain in the pages of House Document 419 devoted to the present and prospective development of Indian lands. That their rights to the use of the waters of the Colorado River system for the irrigation of these lands will be an important element in any settlement of the lower basin's problems, whether that settlement is accomplished by litigation or otherwise, is made plain by many legal precedents. Notable among these is the decision of the Supreme Court in *Winters* v. *United States* (207 U. S. 564 (1908)), that a reservation for Indian use of lands within the area of an Indian cession carries with it a reservation of such waters, within the ceded area, as may be needed to make the reserved lands valuable for agricultural pursuits or otherwise adequate for beneficial use, and that such a reservation of waters has priority from the date, at least, when the lands involved were reserved for Indian use. The obligation of the United States to maintain the prior water rights of the Indians of the Colorado River Basin, and to enforce the immunity of these rights against displacement by action inconsistent with their status as interests protected by Federal law, is one that has been recognized by all seven States of the basin in the provisions of the Colorado River compact itself.

The vital concern of the United States in the waters of the Colorado River also stems from its traditional guardianship over navigable streams, the particular responsibility which it has taken on itself with respect to the Colorado by having entered into a treaty with Mexico—

and the Mexican international obligation is a very important one, if I may interject that—

and its authority (asserted in sec. 5 of the Boulder Canyon Project Act) to control the use and disposition of the waters impounded behind Hoover Dam—all of which clearly make it an indispensable party to any general litigation involving water rights in the Colorado. But, quite apart from these broad policy considerations, the specific Federal developments, existing and potential, on both sides of the river are, as I have pointed out, so extensive and so important that, if those on either side are threatened by claims asserted on the other, the United States has a clear interest in seeing those assertions defeated.

It likewise has an interest in knowing what its obligations are under the various water storage and delivery agreements that the Secretary of the Interior has entered into with Arizona, Nevada, and several California agencies under the authority given him by section 5 of the Boulder Canyon Project Act. The validity, meaning, and effect of those agreements depend upon their conformity to the relevant provisions of the Boulder Canyon Project Act and the documents related to it, and, therefore, depend in part at least upon the answers to such questions as those previously outlined in this letter.

That is the view of the Department, Mr. Morris, very carefully considered and worked out, as you see, which details quite a number of indisputable circumstances that involve the United States' interests in this subject.

We cannot conceive that the Court would allow two States to go off in a corner and settle a battle between themselves without reference to what the United States has to say about it, and that is the gist of he decision you read from.

Mr. MORRIS. I do not want to prolong this.

Mr. SHAW. Yes, sir.

Mr. MORRIS. You make a very strong presentation, but there is still one weakness, as I see it, and that is this: The Court will decide the issues between the parties although there might be some parties who would be proper parties in the lawsuit not there. Just because there might be proper parties in the lawsuit, it does not necessarily prove that the Court cannot decide valid issues between the parties that are before it. I still maintain that there is a strong argument in favor of the proposition, on the theory that Arizona could or California could come in with an injunction suit. I will admit that there is argument the other way. I am going to consider that matter.

Mr. MURDOCK. Will you yield to me?

Mr. MORRIS. I will yield to the chairman.

Mr. MURDOCK. I do not admit there must be a suit before starting this project, but there may be later. On the assumption that Mr. Shaw has convinced you that the United States ought to be made a party to any suit——

Mr. MORRIS. I would say that he has not convinced me that it is necessary, but probably that they ought to be a party.

Mr. MURDOCK. I am basing my question on that assumption.

Mr. MORRIS. All right.

Mr. MURDOCK. On that assumption, Mr. Morris, suppose that Congress has granted that the Government may be sued. In what position does that leave Arizona with respect to this vital matter? Can Arizona bring suit against anybody in regard to the river, do you think? Can either State allege injury?

Mr. MORRIS. You are asking a very pertinent question. That is an important question.

Mr. MURDOCK. I think if the pending suit resolution should be passed before an authorization measure was enacted, it would simply mean that Congress shirked its legislative duty and passed it to the Court which would not solve it. I think Arizona would not be in a position to bring suit to get her share of the water. The only way we are going to get any water out of the river is by action of Congress.

On the other hand, suppose that this matter has been taken up in such a way that Congress has said, "We are going to settle it all by litigation through the enactment of the suit resolution." In that case what would be the chance of getting any act through Congress any time in the future until the whole thing has been settled by litigation? Do you think there would be a chance for Arizona to get any new legislation for her water?

This bill is said to be bad. It has been painted very black already several times. This one may be bad, and maybe we cannot even amend it to make it good, but what chance would Arizona have of ever get-

ting any good legislation through this Congress after the matter had been turned over to the courts? Would there be a chance? None which California chose to oppose.

Mr. MORRIS. Well, I will not answer that at this time, but I will say that you raise a very pertinent question.

If I still have the floor may I ask the witness, who heard the question, to assume that the Judiciary Committee brought out a bill and that this Congress passed a bill permitting the United States to be made a party to the litigation as involving Arizona and California. Then what kind of a suit could Arizona file now without any authorization?

Mr. SHAW. I do not think they can file any because the Supreme Court said not.

Mr. MORRIS. If they could not file any action, how is Arizona ever going to get the matter settled, if California does not want it settled?

Mr. SHAW. By joining with us in this resolution pending before the Judiciary Committee, instead of opposing it. That legislation would permit Arizona to sue immediately. There is not any question about that.

Mr. MORRIS. What would be their choice in action? What would be their cause of action. Could they settle the property rights, the water rights? Could they settle the thing that is in issue in this bill here? Could they determine in that suit whether or not this bill ought to be passed?

Mr. SHAW. No; not in those terms, Mr. Morris.

Mr. MORRIS. You think they could settle a division of the waters?

Mr. SHAW. Let me put it this way: Arizona asserts that it has rights in the lower-basin water. That is where we start. Those rights, if they exist, are vested property rights which, under the law of the Western States, support an action to quiet title.

Mr. MORRIS. You think they can settle those rights, and then if they settle them satisfactorily to Arizona, of course this kind of a bill or similar legislation would be proper.

Mr. SHAW. Just as soon as Arizona finds, and we all find, that there is water available for the project, there is no reason that we would be concerned with why Congress should not proceed to consider a proper bill for building the project.

Mr. ENGLE. Will the gentleman yield to me?

Mr. MORRIS. Yes.

Mr. ENGLE. I think Mr. Shaw has given the answer. If we get a resolution which authorizes the interpleading of the Federal Government, any State of the basin can bring a suit to quiet title to its property under the contract. The contract creates property rights. A water right is a property right.

A man can quiet title to a property right, just as he can quiet title to real property, but we have to have the consent to sue the Federal Government.

To specifically answer the Chairman's question, "What could Arizona do?" Arizona could bring a suit, provided that Arizona permitted us to get through the resolution to interplead the Federal Government.

That is not the point I wanted to talk about, and for which I asked the gentleman to yield.

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I want to get back to this injunction. It has been suggested here that although the Federal Government is a necessary party for the Supreme Court to decide the rights of the States on the river that an injunction suit could be brought if this Congress authorizes this bill to stop Arizona from using the water.

Now, Mr. Shaw has already said that you cannot enjoin somebody who is not doing anything.

Mr. MORRIS. Pardon me.

Mr. ENGLE. Yes.

Mr. MORRIS. You can enjoin the party actually interested, regardless of whether the party happens to be the one. Money is going to be loaned to those people out there in Arizona. They are the ones who have the actual interest, Mr. Engle.

Mr. ENGLE. I cannot see how you can enjoin Arizona to stop Arizona from doing something that the Federal Government is doing.

Mr. MORRIS. Well, the Federal Government is merely their agent.

Mr. ENGLE. No. You cannot say that. What the Federal Government is doing through the Bureau of Reclamation is building a project to sell this water to Arizona. We would have to bring an injunction suit against the Secretary of the Interior, the Commissioner of the Bureau of Reclamation, and the man out there on the project who was actually starting to turn the dirt, and we would start the injunction suit against them perhaps as individuals, but we would be met with the defense that we were actually enjoining was the Federal Government and that we had no consent to sue the Federal Government.

If we did get beyond that hurdle and the Court held that we could put an injunction against the individuals, to stop them from operating under the act passed by Congress, then what would the Court decide? The Court would decide whether or not the act under which the individuals were operating was ultra vires or a true function of the Congress under the Constitution of the United States.

Mr. SHAW. That is exactly it.

Mr. ENGLE. If the Court held that the act of Congress was a proper act of Congress within its legislative function and that, therefore, the actions taken by its executive officers under that law were in pursuance of the law properly passed by Congress, the injunction suit would be dismissed. And that might be construed to be in effect the holding that the Congress has the right to allocate water and can allocate water under an interpretation of an interstate compact and can allocate water under the California Limitation Act, to which the Federal Government is a party.

Mr. SHAW. Pardon me, Mr. Engle. I do not agree with you that far. I could not go to that extent. I think that the decision would simply be, as you have indicated, that the Secretary was authorized by a valid act of Congress to build the works.

Mr. BARRETT. That is right.

Mr. SHAW. That would be the end of the lawsuit, and that is all that would be decided.

Mr. ENGLE. I agree with you.

Mr. SHAW. There would still be left the festering sore we have been worrying about.

Mr. ENGLE. I am coming to that.

In other words, the court would not sit down to determine the rights on the river.

Mr. SHAW. Right.

Mr. ENGLE. It would determine the validity of the congressional act under which the executive officers were proceeding, and nothing more, and there would be no determination at that point of the very thing we are trying to find out. So if injunctive procedure is available it is not available for the purpose of deciding the basic questions which must be decided in this matter before we can ever proceed with any really organized development along the Colorado River. That is what I wanted to say.

Mr. MORRIS. I would like to make this final observation: This is a very vital point in this matter with me, at least.

Mr. ENGLE. I think it is, also.

Mr. MORRIS. They would have to determine the water rights to determine the injunction. If the injunction would lie at all, and I think it would, notwithstanding what you very able gentlemen have said—I am not sure about it, but I believe it would—then that would be the thing they would have to determine. If the injunction would lie at all that would be the meat in the coconut.

Mr. ENGLE. Will the gentleman yield?

Mr. MORRIS. Yes.

Mr. ENGLE. Let us assume that the court decided that Congress had a right to pass this act, period. Then the Secretary of the Interior, the Bureau of Reclamation, would actually be proceeding on the work under a valid act of Congress. That would end the lawsuit.

Mr. MORRIS. I do not think so.

Mr. ENGLE. I am just as sure as I sit here that it would end it, and you would never have an actual determination of the basic rights on the river.

Mr. MORRIS. How would that determine it, without determining whether or not Arizona is correct?

Mr. ENGLE. They would determine under the Constitution of the United States and other relevant legal theories whether or not the Congress of the United States has the power and the right to pass this kind of an act, and if the Congress has the power and the right to pass this kind of an act, with whatever implications it may have, then the executive officers of the Federal Government operating under that act are within their authority, and we have no right to restrain or enjoin them, but it does not touch the basic rights on the river. I think Congress has the power to authorize the construction of a dry ditch—if it wants to.

Mr. MORRIS. The power to pass this act is the power to impound water, and that will give irrigation facilities to Arizona. The only way in the world the Court could determine it would be to determine whether or not they had a right to impound that water and use that water. You cannot escape that. If they can sue without bringing the United States in, they certainly can determine that issue. They would have to determine the issue to determine the injunction. There is no way to get around it.

Mr. BARRETT. Let me ask my colleague a question.

Mr. MURDOCK. Will you yield?

Mr. BARRETT. Suppose that we pass this bill just as is and add one amendment to it and provide that no water should be diverted from the Colorado River into any of the works implemented under the bill.

Then, under that case suppose California came in and wanted to enjoin the construction of the works. There would not be any water involved.

Mr. ENGLE. You would not get to first base.

Mr. MORRIS. They could not, under those circumstances.

Mr. SHAW. May I get into this argument, Mr. Barrett, for a moment, if you please?

Mr. WELCH. May I ask a question before you proceed, Mr. Chairman?

Mr. MURDOCK. Yes, Mr. Welch.

Mr. WELCH. The question of oil and electricity was raised here a few minutes ago.

Mr. SHAW. Yes, sir.

Mr. WELCH. What is the objection to building the dams and generating electricity pending litigation?

Mr. SHAW. We think there is no objection to it. We are firmly of the belief that the duty of the United States is to do so.

Mr. WELCH. In the committee just a few days ago I recited certain facts which I secured from the Department. On December 31, 1947, California's known oil reserves were 3,295,000,000 barrels. In 1948 California produced 340,000,000 barrels of petroleum for that year.

Thus, it will be seen that California's known oil reserves will be exhausted in approximately 10 years. Despite that alarming fact California uses more petroleum in the generation of steam than any other State in the Nation.

Gentlemen, we might as well look at the facts. We are talking about water. Southern California will run out of gasoline and oil long before it will run out of water. There is no reason that I can see why they should not proceed to get authorization from the Government by an act of Congress to build those dams and generate electricity and save this oil which cannot be reproduced. If you build the dam you can reproduce electricity so long as the stream flows down the Colorado River, but every barrel of oil taken from the ground is gone forever. Our oil reserves are within 10 years of exhaustion.

Mr. SHAW. We firmly believe, Mr. Welch, that your position is unassailable; that on any consideration of a broad national policy there must be a duty upon the part of the Federal Government to conserve its oil supplies and that the obvious and plain way to do that is to get these large productions of hydroelectric power into operation as soon as can be.

Mr. MURDOCK. I certainly agree with you on the need of producing all power possible, Mr. Welch, but not at the expense of irrigation and life. We must use it for both. Governor Miles seeks recognition.

Mr. MILES. Mr. Chairman, before these lawyers started on their arguments, I had what I thought were some pertinent questions which would throw light upon the view that I take of this matter.

While I do not agree with the statement made by the man who read on the epitaph of a tombstone, which read as follows, "Here lies the body of John Doe, a lawyer and an honest man," who said, "They buried two in the same grave;" while I do not take that view, sometimes by the interpretations and the arguments I get so far off the track that I am not able to get back.

First I want to make a little inquiry as to an observation that was made about the desperate condition of some of the area on the Gila

River, where they talked about a bucket brigade and probably a hose. I want to know if that was on the New Mexico side or the Arizona side.

Mr. SHAW. I think the chairman was referring to his beloved State of Arizona, Governor.

Mr. MILES. I thought it existed on the New Mexico side.

Mr. MURDOCK. It exists on both sides of our State line.

Mr. MILES. As I understood you, Mr. Shaw, I thought there were certain portions of this dam which were included in this bill where the benefits derived would justify the building of certain improvements and certain dams.

Mr. SHAW. Yes, sir.

Mr. MILES. Which, as I understand it, is all included in this bill.

Mr. SHAW. Yes, sir.

Mr. MILES. Not being familiar enough with the engineering construction of the dam, I was wondering why in the authorization of the bills—I do not know whether that would bring the suit in or not, for I am so confused now I do not know what it would take to get a suit—if this bill authorized the building of these dams and these dams were constructed, what would be the objection to that? Would that interfere in any way?

Mr. SHAW. We think, Governor, that there are certain elements, certain pieces of this project which can be separated out and built without harm to anybody and with a great deal of benefit to the States of Arizona and New Mexico.

We do not like to be in the position of saying how our neighbors shall conduct their business. That is not the point at all. However, we do feel that it is unfortunate that certain of these projects which have been lumped together in this grandiose plan have not been separately taken care of and authorized without controversy. They would find no objection from us. We would be glad to support them.

Would you like to have those identified to you so that you can see where they are?

Mr. MILES. If this legislation were acted on by this Congress then would you be in a position for a suit?

Mr. SHAW. No, sir; not with respect to the portion of the project that we concede is entirely proper. Those portions can proceed without stepping on anyone's toes, without endangering anyone's water rights.

We do not see any reason why they should not be authorized. The thing which is objectionable to us is the proposed Central Arizona aqueduct, which would take water from the river and pump it up 1,000 feet and take it 300 miles or so in a canal to central Arizona, when that same quantity of water happens to be just the quantity of water that is, as we see it, dedicated to our aqueduct from Parker Dam to the coastal plain of southern California. If this proposed Arizona aqueduct takes 1,200,000 acre-feet of water there will not be any water to supply this aqueduct which has now been built and is in operation for southern California, and which cost our people $200,000,000, which they have bonded their homes and farms and factories to pay for, and they are going to have to pay for it, because those bonds are in the hands of the public.

Mr. MORRIS. May I make one last statement?

Mr. MURDOCK. Just a moment. I want to flag that point there. I absolutely disagree with the last statement made. We in Arizona are not endangering city water supply. Go right ahead, Mr. Morris.

Mr. MORRIS. You have just stated your lawsuit in this last statement.

Mr. SHAW. Yes, sir.

Mr. MORRIS. You have stated an injunctive lawsuit. That is exactly what California would come in and enjoin or seek to enjoin Arizona from doing. You have just stated your lawsuit.

Mr. SHAW. We cannot enjoin the United States, sir.

Mr. MORRIS. I do not think the United States would be an absolutely necessary party, although a very proper party.

Mr. SHAW. The Secretary says the United States is an indispensable party, sir, and the Supreme Court has said that the United States is an indispensable party.

Mr. MORRIS. Not in this suit, it has not. It has in other matters of litigation.

Mr. SHAW. Yes.

Mr. MORRIS. But not on the set of facts involved here.

Mr. SHAW. What I was meaning to call to your attention was that the circumstances that existed in the previous case are still the circumstances. That is, that the United States has the navigation and flood-control power; the United States has built these works and contracted for the sale of water; those contracts have to be interpreted; the United States has made a statutory compact with the State of California, evidenced by the Boulder Canyon Project Act and the California Self-Limitation Act, and that is a compact to which the United States is a party, and it has to be interpreted; the United States has public lands on the lower river, just as it had before, which are available for irrigation; the United States has Indian lands, which it is required to protect.

The only circumstance that is new in the situation over and above what the situation was 10 years ago is that the United States in 1945 made a treaty with Mexico which gives to Mexico a commitment or obligation of an international nature to deliver water to Mexico. That is simply a circumstance which, added to the others, reinforces the view the Supreme Court took 10 years ago.

Mr. MORRIS. I will not argue further on this point.

Mr. ENGLE. I want to make just one more attempt to clarify my colleague's thinking.

The injunction suit would only test the validity of the act under which the Federal agencies were acting. The injunction suit would not deal with the correctness of any disposition made of water rights on the river under the act. It would decide whether or not the Congress had a right to pass the act authorizing the construction and would leave aside the allocation of waters which are implicit in the act—not deciding that one way or the other.

If that question were decided in the affirmative, then the Court would not bother itself with whether or not those allocations were correct. The suit would be done. That is where the suit would end.

Mr. SHAW. May I add a word, Mr. Morris?

Mr. ENGLE. Yes.

Mr. SHAW. Assuming that Mr. Engle's statement would be followed out and the Court would decide that the act was correct, and the Sec-

retary built the works, that would not determine the question of anybody's rights, or whether anybody was entitled to have any water flowing through those works at all. The works might be there as a monument to mistaken judgment on the part of somebody or other, but the essential question would have to remain and would have to still be tested out in some suit, which would have to be decided some day, as the chairman granted. The question is, "Is there a water supply for this project?"

Mr. REGAN. Mr. Chairman?

Mr. MURDOCK. Just a moment. Off the record.

(Discussion off the record.)

Mr. MURDOCK. Mr. White had asked for recognition.

Mr. WHITE. I want to ask Mr. Shaw about the question he raised of the Government being sued.

As a matter of fact, the water of the Colorado River, Arizona's portion, is to be taken and put on Arizona's land. Would not the Bureau of Reclamation be an agent or a contractor doing the job of taking over the water for compensation, and when the construction charges are paid they would withdraw?

Mr. SHAW. I do not understand it that way, Mr. White. When the United States Government goes out to build a reclamation project, it is proceeding as a sovereign under its sovereign powers and on its own behalf. It is true that the benefits of the project will ultimately come to the people of the project, but the essential situation is that the United States itself is carrying out its sovereign powers.

Mr. WHITE. The United States does not make claim to any of this water, does it?

Mr. SHAW. I am not sure until the Attorney General of the United States files his pleading in this case, whether the United States will claim the title to this water or not. I suspect very strongly, from things which the United States has contended in the past, that the United States will claim to be the owner of all the water of the Colorado River.

Mr. WHITE. Well, then, California and Arizona are not owners, if the United States owns it all.

Mr. SHAW. I would say that I differ, the State of California differs, and I am sure the State of Arizona, and every other State differs with that view.

Mr. WHITE. Is it not pretty well established in the early reclamation projects? For instance, on the Salt River project the cost of the project was allocated to the land, the Government advanced the money and did the construction, but then when the construction charges were repaid the Government withdrew and let the reclamation district run the project and use the water. Did the water not actually belong to the reclamation district? Does not the water so belong to the district now?

Mr. SHAW. I feel very strongly that you have stated the correct view. That is what the Court will have to decide, when it faces the issue squarely.

However, I brought before this committee some weeks or months ago the fact that there is pending in the Supreme Court of the United States today, and there was argued in the Supreme Court on March 2 of this year, a case in which the Attorney General of the

United States is contending that the United States can take over, without liability and without compensation, any of the waters in the navigable streams of the United States, and the Colorado River is one of them.

Mr. WHITE. Then the States do not have any rights.

Mr. SHAW. I do not believe that the Attorney General is correct, I will agree with you, sir, absolutely, as to what the merits of the thing are. You were simply asking me a question as to what the United States might claim.

Mr. WHITE. Is it not a principle of law that the courts will not come in to decree the use of water until there has been an appropriation or attempted appropriation of the waters of a stream?

Mr. SHAW. I think that is correct, sir. However, let us be sure that we understand what the word "appropriated" means. That a claim has been established?

Mr. WHITE. We have a fundamental principle of water rights that you can file a water right or a claim——

Mr. MILES. Just a moment, please. I could not hear your question.

Mr. WHITE. Is it not a principle of law that the courts will not come in to decree the use of water until there has been an appropriation or attempted appropriation of the waters of a stream?

Mr. SHAW. Yes, sir. My answer is that that is correct, but when there has been an appropriation and establishment of a claim to the waters, then the right becomes a vested property right to which the courts will determine title in a quiet-title action or otherwise, and the ownership of the right relates back to the time when it was established. The water does not have to be completely put to use. That may take 20 or 50 years, to put all the water supply to actual use. As soon as the right comes into existence it is a vested property right which the Court will determine.

Mr. WHITE. Under the laws of your State of California there is a provision that water rights may be filed on a stream or a portion of a stream?

Mr. SHAW. Yes, sir.

Mr. WHITE. But there is a provision in that law that there must be an appropriation by a certain time, or else the water right lapses, and the water then is subject to appropriation by another. Is that not a principle of your California law?

Mr. SHAW. Yes; and that is generally the law throughout the Western States, but it is not necessarily by reference to specific time periods. The time periods may be required by the administrative law of the State to be established by the State engineer or someone else, but, in general, the rule is that when the water right has once been claimed by a filing then the appropriator must proceed with due diligence to construct his works and to put the water to use. However, that term "due diligence" is a relative term that depends upon the magnitude of the project. The circumstances under which it is undertaken, the possibility of carrying it out within a given time, and so on, are all taken into consideration, so that it is normally expected that when a large project, one of considerable magnitude, is established, it may take quite a period of years before the water is finally and completely put to use.

Mr. WHITE. But there is a limit. Nobody can hold water that they do not use for any great length of time.

Mr. SHAW. He must use due diligence and progressively put the water to use. It is not all at once, but over a time which is reasonable.

Mr. WHITE. That is so provided in the statute, is it not? Are not those provisions set up in the statute?

Mr. SHAW. Yes, sir; and also in our court decisions, in the Western States as a whole.

Mr. WHITE. Is not that principle in line with the decision of the Supreme Court in dismissing the case between California and Arizona?

Mr. SHAW. In the last case it was the claim of Arizona that the Court should, in some manner, apportion to the State a fund of water, without regard to appropriations, without regard to whether Arizona had claimed or established or filed on water or not, and that the court should limit the other six States which were bound by a compact among themselves, to the limitations of the compact. Of course, the Court considered that improper.

Mr. WHITE. As I understand it, if I understood the reading of the decision, the Court declined to enter a decree because Arizona had not appropriated the water.

Mr. SHAW. That is right. That circumstance, of course, has changed now.

Mr. WHITE. If this bill is passed and there is an attempt on the part of Arizona to appropriate this water, then it is open for the Court to decree?

Mr. SHAW. We think it has already arrived at that point, Mr. White, and let me explain why. We think that the combination of all the series of acts which I put before the committee yesterday morning, evidences a course of action on the part of Arizona which is not merely a thought expressed or unexpressed, but is a campaign of overt acts which, taken together, constitute a threat to the safety of California's water rights.

Mr. WHITE. Right there is where the Court can come in and settle the issue.

Mr. SHAW. Please let me finish.

Mr. WHITE. If they take more water than they are entitled to then the courts can step in and say what they are entitled to.

Mr. SHAW. We think that the Court is now in a position, without the passage of any project authorization act by this Congress, to decide that there is a threat to the safety of California's water rights and to determine what they are.

Mr. WHITE. Has that not already been presented to the Court, and has not the Court refused to take action?

Mr. SHAW. No, sir; it was under different circumstances that the Court refused to take action. When Arizona was not a party to the compact; when Arizona had no obligations under the compact, but was a free lance to appropriate without limit; then, in that case you refer to, the Court said there was 9,000,000 acre-feet of water in the river which Arizona, because it was not a party to the compact, was perfectly free to attack and take.

You see, Arizona at that time had no obligation to stay within any limit. It was not a party to the compact and it could have taken all of the upper basin unused water, so far as its position was concerned, without any legal opposition.

Mr. WHITE. The passage of this legislation will not infringe upon any rights of California, will it? Will California not have a remedy if this legislation is passed. before an appropriation is made?

Mr. SHAW. No, sir; California will not have that remedy.

Mr. WHITE. Well, they have a remedy in Court if this legislation is passed.

Mr. SHAW. No, sir; not unless the resolution pending before the Judiciary Committe is passed.

Mr. WHITE. Is it your contention that if this bill is passed by the Congress and an authorization made for the use of water California will have no remedy in the Court?

Mr. SHAW. It will also be necessary that we be authorized to sue the United States.

As I have indicated in answer to Mr. Morris' questions, both the Secretary of the Interior and ourselves agree that the United States is a necessary party.

Mr. WHITE. Has that ever been settled, whether the United States is a party, or an owner of this water?

Mr. SHAW. Yes, sir.

Mr. WHITE. Would the Bureau of Reclamation be simply acting as an agent or contractor to perform certain services to the State of Arizona?

Mr. SHAW. The United States Supreme Court in the third Arizona case held that the United States was an interested party, was an indispensable party in any such lawsuit, and that it had interests such as those of navigation and flood control, which required that it be a party to such a lawsuit, and those interests are still just the same.

Mr. WHITE. That was a question in my mind, as to whether the United States was actually a party to the ownership of this water.

Mr. SHAW. I would not say so.

Mr. WHITE. Or acting as an agent of the great State of Arizona.

Mr. SHAW. I would not say that I believe that the United States owns the water, because I do not, but the United States has interests in the water which make it an indispensable party, as the Court held. It has interest in flood control, navigation, international obligations to Mexico, contracts, protection of the Indians, and so forth. I detailed those. I do not want to repeat. It would not be acting as an agent of Arizona in building the project. It would be acting as a sovereign under its own constitutional powers.

Mr. MURDOCK. Have you concluded, Mr. White?

Mr. WHITE. Yes; and I apologize to the committee for taking so much time.

Mr. REGAN. Mr. Chairman, will Mr. Shaw be here on the witness stand after we reconvene this afternoon?

Mr. MURDOCK. I was hoping that we might turn to another witness at 2 o'clock.

Mr. REGAN. Then, if I might, I would like to ask a question or two of Mr. Shaw.

Mr. MURDOCK. Yes.

Mr. REGAN. Governor Miles raised a good point. We have had a great deal of discussion of law and on this "justiciable issue" controversy that has been over my head.

Mr. SHAW. We all suffer from that, sir.

Mr. REGAN. I do want a little light on this water business. I have not heard all of the testimony here. This is my first year to be on this committee. I would like to get something straightened out in my own mind.

As I understand it, the normal flow of the Colorado River is estimated to be about 15,000,000 acre-feet per annum?

Mr. SHAW. Call it 17,000,000 or thereabouts.

Mr. REGAN. From the information we have heard, mostly, it was divided half to the upper basin and half to the lower basin. On a 10-year average, 75,000,000 acre-feet is passed to the lower basin. Is that right?

Mr. SHAW. Not precisely. I do not know that it makes any difference, but the actual allotment is 7½ million to the upper basin, 7½ million to the lower basin, plus 1 million increase permitted by the lower basin.

Mr. REGAN. It is my understanding that 7,500,000 acre-feet of water per year is to be released by the upper basin to the lower basin, checked at Lee Ferry; is that right?

Mr. SHAW. That is a part of the water supply of the lower basin only, because the lower basin has also tributary waters which add to that.

Mr. REGAN. But from the Colorado River, in the upper basin, there was to be released 7,500,000 acre-feet of water per year?

Mr. SHAW. That is the average; yes, sir.

Mr. REGAN. Then the States of Nevada, California, and Arizona agreed in the compact to divide those waters?

Mr. SHAW. No, sir; that has not happened.

Mr. REGAN. What happened, then, to allocate 4,400,000 acre-feet to California, 300,000 acre-feet to Nevada, and 2,800,000 acre-feet to Arizona? What arrangement was made to arrive at this division? Is that a division, or is that just proposed?

Mr. SHAW. That is a proposal, sir. A proposal was contained in the Project Act of 1928 that the lower States enter into a compact such as you suggest, but that compact has never been made.

Mr. REGAN. It never has been made?

Mr. SHAW. None of the States have agreed to it.

Mr. REGAN. None of the three States, you mean?

Mr. SHAW. That is right; and the funny thing about the proposed compact was that it utterly omitted two of the States entitled to have part of that water. That is, Utah and New Mexico obviously had some part of their territory in the lower basin, and whoever drew that proposed compact forgot them entirely. We cannot do that today. We know that they have to have an equitable share of the waters of the lower basin, and that that compact which was mentioned in the Project Act, for that very reason, could not have been made by anybody. It is just a false quantity.

Mr. REGAN. The division of the water in the lower basin has never been made or agreed to?

Mr. SHAW. That is right.

Mr. REGAN. I did not have a clear understanding of that, Mr. Shaw.

Mr. SHAW. Yes, sir.

Mr. REGAN. I understood it had been.

Mr. SHAW. No, sir.

Mr. REGAN. And the base of 4,400,000 acre-feet, by that, has never been agreed to by the three States?

Mr. SHAW. That is correct.

Mr. REGAN. Thank you.

Mr. MURDOCK. Mr. Regan, I must flag that point. Mr. Marshall, do you have any questions?

Mr. MARSHALL. Yes; I have one or two questions that I might like to ask.

I am not an attorney; I am not a lawyer. A lot of these questions that have been asked here certainly are legal questions far and above what I may understand.

Mr. SHAW. May I say this——

Mr. MARSHALL. I am just sitting here trying to think out some of these things, as I might think them out.

I recall two things that happened in our family. One of the things that happened was that one of my ancestors had some land, and the land, so far as that was concerned, was not of any particular concern to him at the time, and so some people decided they would move in and squat on that land; which they did. After a while they began to determine that that was going too far, and decided that was time to pull them off. However, they had waited too long.

We also had another little illustration, if you will pardon me, where we had a very fine neighbor who had difficulty getting into his buildings, so we allowed him to put in a car way. In due course of time he decided he was going to grade that road; and there again we had waited too long.

I merely mention those things so that you might get a little background of what I might be thinking.

Mr. Shaw, in line with that, is there any particular reason at the present time that California would want to go to court on this particular matter?

Mr. SHAW. Yes.

Mr. MARSHALL. Not in terms of a lawyer, but in terms of an individual.

Mr. SHAW. All right, sir. I am glad to give you an idea on that subject.

By reason of just what you have been talking about it is a good thing for people to have a settlement of any possible friction that may come between them as soon as they can. It is not wise to let old sores fester forever, and never get a decision. That is what we have courts for, to settle issues between human beings or between States, or whatever, so that the lapse of time itself does not complicate the situation, and possibly bar one or the other from its meritorious remedy.

We think that it is a very unfortunate situation for all of the Southwestern States, the lower basin States, to be in a condition of uncertainty as to what their rights are. Then they cannot plan for the future sensibly, until they know where they stand.

Let me give you a specific example of what we are talking about. This metropolitan aqueduct, which starts at the Parker Dam and carries the water some 200-odd miles over to the coastal plain of California, extending from Burbank on the north to San Diego on the south, a distance of about 150 miles between those points, is a great undertaking. It is an undertaking to supply water for domestic and

municipal and industrial purposes for a great area. It cost $200,000,000 to build the main aqueduct.

From day to day, as we go along with our development and increase of the use of that water, as we come to depend on it more, and as our local supplies become more insufficient to take care of the increasing population we are blessed or cursed with, we have to expand and extend the laterals. We have to go on and build a new line to a new community which has come into need of that water; and those works which have to be built have to be financed by issuing bonds.

Now, it is a tremendous handicap to the responsible public officials who are in charge of that great undertaking to have to sell bonds in a market which is affected by the fact that somebody else is claiming every drop of water that is to be furnished through that aqueduct. There is a cloud on our title, in other words. We are as truly in a state of difficulty and in a state of practical trouble, because this controversy exists, as one man who owns a pice of land and wants to build a building on it, but who cannot mortgage it because his neighbor claims he owns 10 feet of the land. I think that is an experience almost anybody can have. If he gets a cloud on his title to a part of his property he cannot borrow money on it; he cannot go ahead and do the things he wants to do; and that is it at the present time.

I think that illustrates the reasons why we feel that we would like to know where we stand, and ought to know where we stand. We cannot cut our coat to fit the cloth until we know how big the cloth is.

Mr. MARSHALL. That does give me something to think about as we go along here.

In this metropolitan aqueduct approximately how much water in acre-feet do you take out of the Colorado River at that point, presently?

Mr. SHAW. At present the water is being pumped through the aqueduct at the rate of 200,000 acre-feet a year. That is about one-sixth of the total capacity of the aqueduct. About 100,000 acre-feet of that is going from the point called West Portal on the map, which is just west of the San Jacinto tunnel, a tunnel about 14 miles long, about 80 miles south to the city of San Diego.

That city, owing to the extended dry period of the last 8 or 10 years, was at a point a year ago last December where it was going to be out of water for a population of 400,000 people. If that aqueduct had not been completed as it was in December of 1947, within 6 months—or probably 4 months—that city of 400,000 people would have been without water. You cannot conceive of the disaster that would have resulted if the Navy, for the purpose of protecting its installation at San Diego Harbor, the Marine bases, and so on, had not insisted that that pipe line be built. They insisted that the Bureau of Reclamation be employed to build that pipe line so that San Diego would be secure for the immediate period.

Mr. MARSHALL. Out of that 200,000 acre-feet, approximately how much, if any, of that is used for irrigation purposes?

Mr. SHAW. None of it is for irrigation. It is going for domestic, industrial, and municipal uses.

Mr. MARSHALL. That water is being pumped out of the Colorado River?

Mr. SHAW. Yes, sir.

Mr. MARSHALL. How high a lift is that?

Mr. SHAW. 1,600 feet, net.

Mr. MARSHALL. 1,600 feet?

Mr. SHAW. Yes, sir. It is a tremendous thing. It could be justified only by the tremendous need for it, and the tremendous resources behind it.

Let me make this distinction: You can pay for irrigation water at a price which is limited by the crop values you can make with the irrigation water, but you can pay for industrial or domestic water what you have to. I can remember in my youth going to a dry town in central California where the local water was bad and where they imported it 30 miles by railroad tank car, and they sold it to the people of that town, 10 gallons a day to each householder, at 50 cents for the gallons. That is what you can pay for domestic water if you have to. It is something you cannot do without. You have to have water to drink.

But irrigation water is on the basis that its cost is necessarily limited to what can be made out of it, what crops will be produced, and what earnings will be made to pay for the water.

Mr. MARSHALL. One other question: In your opinion is there enough water in the Colorado River which could be used for providing power to take care of the Southwest, if proper dams were built and proper use made of it?

Mr. SHAW. The Colorado River has a large flow of water. It is a torrential stream which produces a flood flow during perhaps 2 or 3 month of the year of great magnitude. During the remaining 9 or 10 month the flow is a low flow.

The problem, in producing dependable power supply, is to obtain storage in great quantities of the water behind dams, in reservoirs which will then equate the flow of the river throughout the year so as to produce a continuous and firm supply of water. The water supply exists in the Colorado River. That is the direct answer to your question. It must be equated by means of great reservoirs, so it will produce a uniform flow throughout the year.

The Bridge Canyon Dam, which is here at the upper end of Lake Mead, immediately at the head of the lake, will also be a high dam like Hoover Dam, perhaps 500 or 600 or 700 feet high, but the water storage behind it, by reason of the fact that the river comes down the Grand Canyon at that point, and is very steep and full of rapids, will be very small. It will amount to about 3½ million acre-feet in comparison with the 32,000,000 acre-feet of storage that there is in Lake Mead, where the bed of the river is flatter. So Bridge Canyon is not a storage dam.

The point which I made earlier in this morning's session is that Glen Canyon Dam or some dam of large capacity—20,000,000, 30,000,000, 40,000,000 acre-feet—up the stream from Bridge Canyon is necessary to accumulate and store the flood flows so that Bridge Canyon could be operated continuously over the 78 years to produce the firm supply of power that would be necessary to pay for the project. Without Glen Canyon, as the engineers will tell you later, Bridge Canyon will fill up with silt in 40 or 50 years and will not produce power as a dependable unit to the full extent which it would produce if Glen Canyon were behind it.

Mr. MARSHALL. In following through some of the statements that have been made, in talking about the cost of this project, there are

certain items in this bill, as I gathered from your conversation earlier today, that would be acceptable both to the people of Arizona and to California and to the rest of the Southwest States?

Mr. SHAW. Yes.

Mr. MARSHALL. Would you be able to have some of your witnesses that come later, but not taking up the time now, who could separate those projects out for the approximate cost of those that might be used, for consideration in connection with this bill?

Mr. SHAW. I am quite sure that can be done. The next witness will identify those works, and I am sure that either this afternoon or the first thing tomorrow morning he could take out of the Bureau report the cost figures so that you would have those directly before you.

I understand that in total the works that are not in controversy, other than the Bridge Canyon Dam—I mean the local works in Arizona and New Mexico—would run to a cost of about $195,000,000, instead of $738,000,000.

Mr. MARSHALL. I think that it would be helpful, Mr. Chairman, if that were made a matter of record here, because I know that a number of people throughout the country are feeling that all of the costs that are involved in all of these things are involved in this matter of the division of the waters between Arizona and California.

I am afraid if something like that is not brought out and placed in our record, some of your people in the Western States in your irrigation and reclamation projects are going to be done a considerable amount of harm by that.

Just recently, in the last issue of the Saturday Evening Post, there was quite an article in connection with irrigation and reclamation and water works, that undoubtedly a number of people will read. I do know that in my particular part of the country we have a lot of notions.

I am frank to say I have enjoyed some of this discussion, because it has given me an opportunity to learn more about irrigation and reclamation.

I am afraid if that is not brought out, to give people a better understanding, it will reflect against the work that all of you are desirous of doing up there. In other words, either Arizona or California might win this particular battle and lose the war. That is what I am trying to convey.

Mrs. BOSONE. Will the gentleman yield?

Mr. MARSHALL. Yes.

Mr. MURDOCK. I was just going to call on the lady from Utah. We have a saying that the woman has the last word.

Mrs. BOSONE. I had that in Salt Lake City for 12 years. I would like to have it here.

Would perhaps some long-time planning on these western projects not answer your question?

Mr. MARSHALL. I think it would be desirable.

Mrs. BOSONE. For instance, I have been wondering, throughout this hearing, what is going to happen to the Utah central project when it comes up. Of course, I think maybe that is one solution to this problem—long-time planning for a while. We could postpone it, and when the report comes in for the Utah project, we could take that up and save all this trouble for a while. I do not know what the Utah project will cost, but I am just wondering what is going to be the

outcome with respect to some of the projects in all the rest of the Western States.

I do not know what the policy of the Congress is in its authorization of funds for the projects, or how far we can go in this thing with our 17 Western States. This involves States such as Utah, Arizona, Nevada, and California, and what their needs are relative to the amount of money, and the time element. I am just wondering if there should not be some general planning in this thing.

Mr. MURDOCK. There has been, Judge Bosone.

Mr. SHAW. Mr. Chairman, may I comment on the last question very briefly?

Mr. MURDOCK. Yes, Mr. Shaw. I think, also, Mrs. Bosone will have some questions to ask you.

Mr. SHAW. Very briefly. The central Utah project, when it is ripened into a report, is one of very different character from the one that we are considering here in these respects. It is not a project that involves any interstate controversy over water.

Mrs. BOSONE. I asked that relative to the amount of the appropriations.

Mr. SHAW. As to the cost of the thing, we do not know what it is yet.

Mrs. BOSONE. We know it will be a lot.

Mr. SHAW. We do know that it is large, and we do know that it is a project which will have power advantages on the Wasatch Range—the Salt Lake Basin side of the range—and that the payments which will come out of it will be payments from one community, the State of Utah. That, it seems to me, is very important.

Here we in California are asked to pay for an aqueduct in Arizona that will take away water from us. You can see just why it begins to pinch us.

That is the difference between the two projects.

Mr. MURDOCK. Judge Bosone, had you further questions?

Mrs. BOSONE. No. Thank you.

Mr. MURDOCK. Has any member of the committee any further questions to ask?

Mr. WHITE. Is that not reimbursable? You just said that California would pay for the Arizona project. Is that Arizona project not reimbursable, like all the rest of them?

Mr. SHAW. Surely. It is reimbursable out of the power bills that will be paid in California. That is where the reimbursement for the entire capital cost of the project comes from.

Mr. WHITE. That answer is directed to the expenditures made for the construction of Hoover Dam; is that not what you are driving at?

Mr. SHAW. I am talking about central Arizona.

Mr. WHITE. Revenues are going in to pay for the water diverted to the State of Arizona, is that not right? This is a reimbursable project, just the same as the California project?

Mr. SHAW. Yes; but it is reimbursable by California and not by Arizona. I am talking about the central Arizona project now.

Mr. WHITE. Will not the construction charges be assessed to the water users of Arizona?

Mr. SHAW. Not a cent of them. The entire capital cost will be paid out of power consumers' power bills. Not the entire cost in southern

California, but the great bulk of it, because that is where the power market is.

Mr. WHITE. As a matter of fact, the money that is paid into power revenues from California goes to the National Treasury, does it not? It will not be diverted to this particular project. The money will be appropriated out of the Treasury; is that the point?

Mr. MILES. Mr. Shaw, they would receive value for the money in the form of power? That would not be lost to southern California.

Mr. SHAW. That is true; but they will have to contract for that power and bind themselves to it at their own risk, that the power will be worth having over a long period of time. When you think of the possibilities of the Atomic Age, you begin to wonder how people can firmly bind themselves to buy electric power over a 50-year or 75-year period. Some of our people have been giving serious thought to that subject.

Mr. MURDOCK. We are very glad to have Senator McFarland with us this morning. The hour is possibly too late to call on him for questions; unless you have one, Senator.

Senator MCFARLAND. The only thing I wanted to say to the Congressman was that I understand that the chairman intends to place in the record the application of the Arizona Power Authority to buy all this power from Bridge Canyon, which will mean that Arizona will pay for the project. It will all be paid for by the Arizona people, unless California wants to come in. It will be built on a site entirely in Arizona, and therefore California cannot say that they are paying for it, unless they want some of this power, which will be cheap power.

I understand that the chairman is going to introduce that into the record.

Mr. MURDOCK. The chairman has already accepted that for the record. It was introduced a few days ago. Arizona needs all that power and California need not take any of it.

Mr. POULSON. Mr. Chairman, we are meeting again at 2 o'clock, is that right?

Mr. MURDOCK. That is right.

Mr. POULSON. We will not meet tomorrow?

Mr. MURDOCK. We do not meet tomorrow.

We thank you, Mr. Shaw; and we understand that Mr. Matthew will be the witness at 2 o'clock.

(Thereupon, at 12:20 p. m., Friday, May 12, 1949, a recess was taken until 2 p. m., of the same day.)

AFTERNOON SESSION

(The hearing reconvened at 2 p. m., pursuant to the luncheon recess.)

Mr. MURDOCK. The committee will come to order, please.

Before we call our next witness, Mr. Matthew, to proceed with his statement, I might make just a little bit of a comment here that our next witness is an engineer. Certainly, we need plenty of engineering information on this subject as well as legal information.

As one looks at the map displayed here, you see that there are some complicated features on the map. Some time ago I asked the Bureau of Reclamation to send me a waterlog of the Colorado River below Lake Mead and this is the document that was sent to me. I

just exhibit it so that you may see how many columns, how many items, and how many figures are shown. This happens to be the waterlog for the years 1946 and 1947. I have not obtained it yet but I am going to ask for the same waterlog for the earlier years and the year 1948.

I just make that by way of comment so that if you are not acquainted with the lower portion of the Colorado River, it may be seen that it is a complicated matter requiring knowledge of engineers as well as lawyers. Here is reliable mathematical information.

Mr. Matthew, you may proceed.

STATEMENT OF RAYMOND MATTHEW, CHIEF ENGINEER, COLORADO RIVER BOARD OF CALIFORNIA

Mr. MATTHEW. Mr. Chairman, I am at the pleasure of the committee. If you think it best from the standpoint of conserving time, perhaps I might be permitted to read my statement clear through without interruption, but, as I say, I am at the pleasure of the committee.

Mr. MURDOCK. I think that would be better to have you read it without interruption, if the committee is willing. What might be even better still, Mr. Matthew, if you saw fit, you could insert your statement into the record as is and brief it orally. Would you prefer that?

Mr. MATTHEW. I think I would prefer, if I may, Mr. Chairman, to present it in its entirety. It does not lend itself very well to briefing. I will summarize it at the end of my statement.

Mr. WELCH. May I suggest that inasmuch as we heard the proponents of the bill read their statements in full, that Mr. Matthew be permitted to proceed and read his statement without interruption.

Mr. MURDOCK. That it a good suggestion, Mr. Welch.

Mr. Matthew, you may go ahead on this basis.

Mr. MATTHEW. Thank you.

My name is Raymond Matthew. I am chief engineer of the Colorado River Board of California. I appear here on behalf of the Colorado River Board of California, which is a State agency created by act of the legislature in 1937. The board is charged with the responsibility for protecting the interests of California in the waters of the Colorado River. The board is composed of six members appointed by the governor, each representing one of the public agencies having established rights to the use of water or power from the Colorado River.

The California agencies represented on the Colorado River Board of California have rights to Colorado River water which are based in large part upon appropriations that are among the earliest on the river, supplemented by contracts executed with the Secretary of the Interior from 1930 to 1934 under the provisions of the Boulder Canyon Project Act. Based upon these established rights, California agencies have made investments and commitments in excess of $500,000,000 for works and facilities authorized by or intimately connected with the Boulder Canyon project. The main works for the diversion, conveyance and use of Colorado River water, in the aggregate amount of 5,362,000 acre-feet annually, have been constructed and are in operation.

The plans for the Boulder Canyon project and related developments were initiated over 30 years ago and have been consummated chiefly as the result of years of endeavor and the underwriting and financing of construction costs by California interests. It should be noted that Arizona opposed the Boulder Canyon project from the outset, but nevertheless has received large benefits therefrom and now seeks to receive additional benefits therefrom, without cost to Arizona.

In view of these developments, California agencies have expected and still expect to obtain the full amount of Colorado River water to which rights have been established by appropriation and by contract under the terms of the Boulder Canyon Project Act, and through the full use of the works and facilities which have been constructed and placed in operation for the purpose. Upon the integrity of these rights and full utilization of the works provided depend the irrigation of about a million acres of land in the Palo Verde, Imperial, and Coachella Valleys, over half of which are now irrigated, and the furnishing of domestic and industrial water supplies for the metropolitan areas of the coastal plain region of southern California from Los Angeles to San Diego and vicinity, with a present population of over 4,000,000.

I might pause here to just call the committee's attention to the large map which is before you, which shows the California developments which have been put in during the last 25 to 30 years, serving southern California domestic and industrial water on the one hand and for irrigation on the other. Other witnesses will describe some of the irrigation features and the metropolitan aqueduct feature in more detail.

In this connection, it is desired to point out that if California ever had had any idea that Arizona actually had a just right to the amount of Colorado River water it now claims, or that at least the amount of water as subsequently contracted for with Secretary of the Interior by California agencies under the Boulder Canyon Project Act was not within the legal rights of California, the provision in the Swing-Johnson bill limiting California's use of Colorado River water would not have been accepted by California's representatives in Congress. the California Limitation Act would not have been adopted by the State legislature, the water contracts with the Secretary of the Interior would not have been executed, the metropolitan water district aqueduct would not have been built, and the investment of $550,000,000 would not have been made. No responsible individual or agency in California has ever taken any action toward or had any thought or intention of taking and using any Colorado River water to which Arizona or any other State is justly or legally entitled.

The claims and plans of California for use of Colorado River water are actually less now than anticipated about 1920. No project or use is now contemplated that was not contemplated in the early twenties. In fact, plans for some projects, such as the 240,000-acre Chucawalla Desert project, have been written off because it appears evident that the water available to California is not sufficient to supply them.

Mr. POULSON. Where is that project? Can you show us where that project is on the map?

Mr. MATTHEW. Yes, sir. The Chucawalla Desert project lies just to the west of Blythe on the Colorado River, just to the west of the Palo Verde irrigation district project. A very fine body of desert land lies in this region, and plans were formulated 25 or 30 years ago for the irrigation of 200,000 to 250,000 acres in that area. It is a very fine body of land.

Mr. MURDOCK. Mr. Matthew, perhaps we ought to ask somebody else to point out the places on the map while you continue with your statement.

Mr. MATTHEW. That is all right. I can get along.

While I am up here, I can point out these other features of the California developments.

Starting upstream, the first big development is the metropolitan aqueduct system serving the Coastal Plain of southern California. It diverts water at Parker Dam, from Lake Havasu, carrying the water through a series of pumping lifts aggregating 1,600 feet, to the Coastal Plain where it is distributed for domestic and industrial use to 26 municipalities and public agencies extending from Los Angeles County on the north down to San Diego on the south, that Coastal Plain region having a present population of over 4,000,000 people.

That aqueduct was started in 1934, began to deliver water about 1940, and the water used and diverted through it has been increasing every year very rapidly because of the fact that all increased use of water in the Coastal Plain region must be furnished from Colorado River water.

This next development downstream is the Palo Verde irrigation district, about 100,000 acres. It has one of the earliest rights in the river, initiated in the 1870's. It is now irrigating about half of the district lands.

The next project downstream is not shown very well on the map but it is part of the Yuma project which was built by the Bureau of Reclamation in the early part of the century. About 25,000 acres of that project are in California.

Then the next big development is the All-American Canal which was authorized by the Boulder Canyon Project Act in 1928. Another witness will describe that in detail.

California interests recognize that they are limited to the water supply available under the California Limitation Act and they have no intention of exceeding those limits. The amount of water covered by the secretarial contracts, aggregating 5,362,000 acre-feet annually, is considered to be well within the California Limitation Act.

The Colorado River Board of California is vitally concerned in the project sought to be authorized by H. R. 934 or the proposed central Arizona project as reported upon by the Secretary of the Interior (Project Planning Report No. 3—8b.4–2, December 1947) because the diversion and use of water proposed thereby would, if consummated, threaten seriously to invade the established rights of California in and to the use of Colorado River water, and seriously to impair the economy of half the State of California, measured in terms of present as well as reasonably prospective population. The entire State of California shares in this concern.

Accordingly, the Colorado River Board, as the responsible State agency, appears in opposition to the passage of H. R. 934 and to the

authorization of the proposed central Arizona project as reported upon by the Secretary of the Interior. This opposition is concurred in by Gov. Earl Warren in the views and recommendations of the State of California on the projected project, which were submitted to the Secretary of the Interior on December 29, 1948, and which have been transmitted by the Secretary of the Interior to the Congress and therefore are within the official purview of this committee. A copy of these comments is hereby submitted to the committee for its information.

COMMENTS ON H. R. 934

The bill H. R. 934 before this committee seeks to authorize the construction of works and facilities upon which no engineering report has been made by the Secretary of the Interior. The proposed authorization, insofar as works and facilities are concerned, is in such general terms and of such indefinite scope as to preclude the possibility of preparing an estimate of what the cost and the economic and financial aspects thereof would be. The project described in the engineering report submitted by the Secretary September 16, 1948, differs materially from the project proposed in H. R. 934.

For example, section 1 of H. R. 934 contains the following generalities:

Beginning page 2, line 18:

* * * (3), such other canals, canal improvements, laterals, pumping plants, and drainage works as may be required to effectuate the purposes of this Act;

Page 3, line 3:

* * * (5) such appurtenant dams and incidental works, including interconnecting lines to effectuate coordination with other Federal projects, flood-protection works, desilting dams, or works above Bridge Canyon. * * *

Page 3, line 7:

* * * such dams on the Gila River and its tributaries in Arizona as may be necessary in the opinion of the Secretary for the successful operation of the undertaking herein authorized.* * *

As contrasted with the project reported upon by the Secretary of the Interior, which would comprise definitely described units for the most part, the description of the works sought to be authorized by H. R. 934 is so general and indefinite in scope in the particulars cited that its approval would constitute a "blank check" authorization involving an obligation on the Federal Treasury of indeterminate magnitude, covering as many dams, power plants, and transmission lines as the Secretary might be of a mind to build.

Furthermore, the bill seeks to authorize (p. 2, line 12) a "system of main conduits and canals, including a *tunnel* [emphasis supplied] and main canal from the reservoir above the dam at Bridge Canyon." In other words, this bill proposed to authorize the construction of a tunnel extending from Bridge Canyon Reservoir which, according to previous preliminary reports of the Bureau of Reclamation, would be some 80 miles continuous in length. It is true that the bill provides that the construction of this tunnel would be deferred until Congress determines that economic conditions would justify its construction; and in lieu thereof would authorize the immediate construction of a pumping system to divert Colorado River water at a point near

Parker Dam several miles below Bridge Canyon Dam. The report of the Secretary of the Interior (Project Planning Report No. 3–8b.4–2, December 1947) and the cost estimates and financial analyses of the proposed project as presented in that report include the pumping plan only and make no provision for the additional cost that would be entailed in the construction of the 80-mile tunnel which the bill would authorize. However, the bill, if approved as written, would place an obligation upon the United States Treasury for the additional cost of the tunnel.

The cost and financial aspects of the proposed project sought to be authorized in the bill, even excluding the generalities previously referred to herein, would be entirely different from those presented for the project as planned and presented in the Secretary's report. It is estimated that the subsequent additional construction of the 80-mile tunnel and connecting facilities would increase the total cost of the project from $738,408,000 as estimated in the Secretary's report to $1,287,142,000, both based upon July 1947 prices.

As far as known, no financial analyses have been made by the Bureau of Reclamation of the proposed project with the inclusion of the diversion tunnel and aqueduct from the Bridge Canyon Reservoir, as proposed to be authorized in the bill. Incidentally, the proposed future substitution of a gravity tunnel diversion for the pumping plan proposed to initially constructed, under the provisions of the bill, would involve the abandonment of pumping plants and facilities and a portion of the initially constructed canal with an aggregate cost estimated by the Bureau at nearly $43,000,000, with little, if any, possibility of salvage credit.

The bill H. R. 934, instead of providing for the authorization of a project on which an engineering report has been made by the Secretary of the Interior setting forth definite estimates of anticipated cost and plans for repayment, proposes to give "blank check" authorization to a project embracing works and facilities generally described but of indefinite scope and cost. The bill merely provides (sec. 3) that the estimated cost shall be determined by the Secretary together with allocations of the cost to the several purposes served including nonreimbursable and reimbursable costs; and, finally, that (p. 3, line 22):

> Before any construction work is done or contracted for, the Secretary shall first determine that costs allocated to power, municipal water supply, irrigation, or other miscellaneous purposes as herein provided shall probably be returned to the United States: *Provided*, That the repayment period for costs so allocated shall be such *reasonable period of years*, not to exceed the *useful life of the project*, as may be determined by the Secretary. [Emphasis supplied.]

The expressions emphasized in the foregoing language of the bill are entirely foreign to the principles and standards of repayment as provided by existing reclamation law. The question naturally arises as to what would be considered a "reasonable period of years" and the "useful life of the project." It is within the power of the Congress to determine and authorize the terms of repayment of any reclamation project, which may differ from the general provisions of existing law. However, it has been the policy of Congress to set a definite period of repayment in any case. This bill would turn this over to the discretion of the Secretary of the Interior.

Furthermore, it is desired to contrast the foregoing quoted language in section 3 of the bill and the comparable provisions of the Boulder Canyon Project Act (sec. 4, par. (b)) which reads as follows:

> Before any money is appropriated for the construction of said dam or power plant, or any construction work done or contracted for, the Secretary of the Interior shall make provision for revenues by contract, in accordance with the provisions of this Act, adequate in his judgment to insure payment of all expenses of operation and maintenance of said works incurred by the United States and the repayment, within fifty years from the date of the completion of said works, of all amounts advanced to the fund under subdivision (b) of section 2 for such works, together with interest thereon made reimbursable under this Act.
>
> Before any money is appropriated for the construction of said main canal and appurtenant structures to connect the Laguna Dam with the Imperial and Coachella Valleys in California, or any construction work is done upon said canal or contracted for, the Secretary of the Interior shall make provision for revenues, by contract or otherwise, adequate in his judgment to insure payment of all expenses of construction, operation, and maintenance of said main canal and appurtenant structures in the manner provided in the reclamation law.

The businesslike procedure provided under the Boulder Canyon Project Act has been successfully carried out. It is wholly abandoned with respect to the proposed central Arizona project, which would become a major beneficiary of the Boulder Canyon project.

Aside from the questionable merits of the proposed central Arizona project as reported to the Congress by the Secretary of the Interior, it is submitted that in view of the fact that the bill H. R. 934 seeks to authorize a system of works and facilities of indefinite scope and cost that does not conform to the project reported upon by the Secretary and because of the "blank check" character of the authorization sought, which if approved would place an unlimited financial obligation upon the United States Treasury, the bill in the form pending before the committee should be disapproved.

COMMENTS ON PROPOSED CENTRAL ARIZONA PROJECT

Regardless of the "blank check" authorization sought by H. R. 934, it is assumed that the basic proposal before this committee for consideration is the authorization of the so-called central Arizona project as defined and reported upon by the Bureau of Reclamation in Project Planning Report No. 3–8b.4–2 dated December 1947, which report, after being referred to the affected States and other interested Federal departments for comment, was transmitted to the Congress by letter dated September 16, 1948, from the Secretary of the Interior.

The Secretary's letter of September 16, 1948, contains the following statement and recommendation:

> Assurance of a water supply is an important element of the plan yet to be resolved. The showing in the report of the availability of a substantial quantity of Colorado River water for diversion to central Arizona for irrigation and other purposes is based upon the assumption that the claims of the State of Arizona to this water are valid. It should be noted, however, as the regional director and the Commissioner of Reclamation have pointed out, that the State of California has challenged the validity of Arizona's claim. If the contentions of the State of Arizona are correct, there is an ample water supply for this project. If the contentions of California are correct, there will be no dependable water supply available from the Colorado River for this diversion. While the necessary water supply is physically available at the present time in the Colorado River, the importance of the questions raised by the divergent views and claims of the States is apparent.

The Bureau of Reclamation and the Department of the Interior cannot authoritatively resolve this conflict. It can be resolved only by agreement among the States, by court action, or by an agency having jurisdiction. The report is therefore transmitted to the Congress for its information and such action as it deems appropriate under these circumstances. I feel confident that in considering the project, the Congress should and will give this conflict the full consideration it deserves. The submission of this report is not intended in any way to prejudice full consideration and determination of this controversial matter.

In view of the urgent need for power from Bridge Canyon dam and for irrigation and domestic and industrial water supplies in central Arizona, I recommend that if the claims of Arizona are correct to a degree which will provide the necessary water supply, the project be authorized for construction in accordance with the recommendations of the Commissioner of Reclamation.

In accordance with the usual procedure, the report of the Bureau of Reclamation on the central Arizona project was transmitted on May 27, 1948, to the Bureau of the Budget for review. The views of the Bureau of the Budget were transmitted to the Secretary of the Interior by letter dated February 4, 1949. The conclusions of the Bureau of the Budget are quoted from that letter as follows:

From an examination of the report, of the comments of the affected States, and of the remarks of other interested Federal agencies, it is apparent that there are a number of important questions and unresolved issues connected with the proposed central Arizona project. The provision of adequate water supply, if found to be available, is admittedly a high-cost venture which is justified in the report essentially on the basis of an urgent need to eliminate the threat of a serious disruption of the area's economy. Even so, the life of certain major parts of the project is appreciably less than the recommended 78-year pay-out period. The work could be authorized only with a modification of existing law or as an exception thereto. Furthermore, there is no assurance that there will exist the "extremely important element" of a substantial quantity of Colorado River water available for diversion to central Arizona for irrigation and other purposes.

The foregoing summary and the project report have been reviewed by the President. He has instructed me to advise you that authorization of the improvement is not in accord with his program at this time and that he again recommends that measures be taken to bring about prompt settlement of the water-rights controversy.

The foregoing quoted views of the Director of the Bureau of the Budget seem to be clear and unequivocal to the effect that the proposed project should not be authorized at this time and that measures should be taken to bring about a prompt settlement of the water-rights controversy. However, it appears that subsequently certain members of the Congress raised a question as to the interpretation to be placed upon the last clause of the last sentence with reference to settlement of the water-rights controversy. In response to this inquiry, the Director of the Bureau of the Budget wrote the Honorable Joseph C. O'Mahoney, on February 11, 1949, stating in part as follows:

In order that there may be no misunderstanding of the President's position, I shall be grateful if you will advise the members of your committee that the President has not at any time indicated that suit in the Supreme Court is the only method of resolving the water-rights controversy which is acceptable to him. On the contrary, the letters addressed to the Congress last year, as indicated above, stated specifically that enactment of the resolution authorizing suit would be acceptable to the President "* * * if the Congress feels that it is necessary to take such action in order to compose differences among the States with reference to the waters of the Colorado River. * * *"

The project report and materials relating to the positions of the several States affected are now before your committee for consideration. If the Congress, as a matter of national policy, makes a determination that there is a water supply available for the centrol Arizona project, the President will consider all factors

involved in any legislation to authorize the project and will inform the Congress of his views respecting the specific provisions of this legislation.

It is the position of the Colorado River Board that an interstate water dispute such as that between Arizona and California can be resolved by one of only three methods: (1) negotiation; (2) arbitration; (3) litigation.

The suggestion that has been made to the effect that the Congress or a committee thereof can resolve an interstate water controversy such as exists between Arizona and California is believed to be untenable. The issues between Arizona and California are substantial and complex, involving matters of legal interpretation which cannot be authoritatively decided by the Congress. Therefore, unless an agreement can be reached by negotiation between the States or possibly by arbitration, the only agency having proper jurisdiction and capable of making an authoritative determination of the legal issues involved is the United States Supreme Court. Although the Congress could, if it should so decide, authorize the proposed central Arizona project, such authorization could not and would not settle the water rights controversy.

The legal aspects of this matter will be presented by legal counsel.

ENGINEERING FEASIBILITY

The engineering feasibility of the proposed central Arizona project is questionable in several aspects. In the first place, it lacks the first prerequisite of engineering feasibility, namely, an assured and adequate water supply. Arizona's legal right to the water supply sought to be diverted and used from the Colorado River for the proposed project, in addition to the existing and authorized projects, is yet to be determined. Furthermore, if the water requirements of existing and authorized projects together with recognized commitments in the lower basin are fully met, there would be no water physically available for the proposed project. In the second place, the water requirements of the proposed project, upon which the plans, particularly for the aqueduct system are based, are grossly overestimated, considering the stated objective of the project as being a purely "rescue" undertaking. This is an item of equal importance to water supply as an essential element of engineering feasibility. In the third place, the entire conception of the general plan for the proposed project is of questionable soundness and justification in view of the stated primary objective of the project.

It appears that the proposed project would be feasible from an engineering standpoint as stated in the Bureau report in that it would offer no major physical obstacles in the construction of the works, provided sufficient funds were provided for the purpose. However, the plans and cost estimates are based on preliminary investigations for some of the major features, and were prepared without adequate surveys, explorations, and design plans. Hence the physical feasibility of construction has not been fully determined in all cases. Furthermore, there is no assurance at this time that all of the proposed plans of operation and indicated accomplishments could be effected.

The Bureau's studies of output capacity of the Bridge Canyon power plant (table E–7, appendix E) reveal that the project does not

include sufficient upstream reservoir storage capacity to provide a regulated flow adequate to obtain firm power output from the Bridge Canyon power plant. Provision of adequate storage regulation upstream from Bridge Canyon Dam would increase the cost of the project materially. This matter of Bridge Canyon power output is discussed further hereafter.

Sedimentation in Buttes and Charleston Reservoirs would fill the designed silt storage space in 50 years and thereafter would encroach on the active storage capacities. At the end of 50 years silt would occupy 50 percent of the gross capacity at Bluff Reservoir and 80 percent of the gross capacity at Coconino Reservoir. The entire gross capacity of the Coconino Reservoir would be filled with silt in 62 years. Bridge Canyon Reservoir would be filled with silt to spillway crest elevation in 40 years. The foregoing statements are based upon estimates of rate of silting contained in the Bureau report. Such reductions in active storage space would impair substantially the operational value of the reservoirs many years before the end of the contemplated repayment period.

One of the basic proposals of the project is an exchange of Colorado River water for Salt River water now used under long-established rights by the Salt River Valley Water Users' Association and others. There is no reasonable assurance at this time that such an exchange would be agreed to by the Salt River Valley interests; in fact, the largest single agency involved has refused to agree to such exchange. If this proposed exchange of water could not be effected it would be necessary to pump Colorado River water directly into the Salt-Gila aqueduct (about 500,000 acre-feet annually) through a static lift of about 200 feet above Granite Reef Dam. The cost of the additional pumping plants is estimated herein to involve an additional capital cost of $5,000,000 to $10,000,000. Also, annual costs of operation, maintenance, and replacements, and the annual amount of electrical energy required for project pumping would be increased.

Of the major structures of the proposed project, adequate plans are shown for only the Bridge Canyon, Buttes, and Charleston developments. For most of the others only general lay-outs are included and for some no plans are submitted. The estimate of the cost of Bluff Dam, about $30,000,000, is supported only by a rough topographic survey and by preliminary surface reconnaissance of the geological features of the site. The Bureau report states that extensive additional investigations are needed to fully establish the suitability of the site. The estimated cost of Coconino Dam is based upon brief engineering inspections of the site and upon a preliminary Geological Survey topographic sheet. No investigation of the structural suitability of the Hooker Dam site has been made.

CONCEPTION OF GENERAL PLAN

The stated primary objective of the proposed central Arizona project is to provide a supplemental water supply for 600,000 to 725,000 acres of irrigated lands situated in the Salt River and Gila River Valleys in central Arizona, to meet an existing water shortage and preserve and maintain the lands now irrigated. For this purpose, the

proposed plan for the main service area contemplates development of additional water supplies from local sources by the enlargement of the Horseshoe Dam on the Verde River and the Buttes Dam on the Gila River—and an aqueduct which would divert 1,200,000 acre-feet annually from the main Colorado River. Diversion from the Colorado River would furnish 90 percent of the total supplemental water supply of the project. However, the general plan in addition proposes certain developments above Hoover Dam on the Colorado River and tributaries—the Bridge Canyon, Bluff, and Coconino Dams—and other units on the upper Gila River and its tributaries—the Hooker Dam, Safford Valley improvements, and the Charleston Dam on the San Pedro River—none of which have any necessary interconnection or interrelation with the other units of the project.

The Bridge Canyon Dam and power plant and the Bluff and Coconino Reservoirs are not a necessary part of the proposed central Arizona project, from the standpoint of its primary objective. These units could not and would not conserve any additional water or provide any part of the supplemental water supply proposed to be used by the project. The only justification for including these units as a part of the project is to furnish power to pump the 1,200,000 acre-feet of water proposed to be diverted from the Colorado River through the aqueduct into central Arizona. However, the Bridge Canyon power development could provide a source of power for such purpose without its being included as an integral part of the proposed project. Power could be purchased therefrom or from other available sources for project pumping just as is done in the case of the Colorado River aqueduct of the Metropolitan Water District of Southern California from the Hoover Dam power development.

The chief reason for inclusion of Bridge Canyon Power development as a unit of the central Arizona project is to provide a source of revenue to finance most of the cost of the project. It is proposed to sell power produced at Bridge Canyon at a price which would repay the entire capital cost of the project and much of the annual operation and maintenance expenses, since the irrigation water users will be incapable of paying any of the capital costs of the project properly chargeaole to irrigation.

The inclusion of such a power development, merely for the purposes stated, would be a departure from past precedent and policy of reclamation development. Heretofore power development has been incidental to the conservation, regulation, and conveyance of water for reclamation projects. The power produced in some cases may be used in part for pumping of project water, or partly or wholly sold to produce revenues which will financially aid the project. However, it is obvious that the Bridge Canyon power development is not in this category. It could be authorized and constructed, entirely independent of the water-supply units of the central Arizona project. Since it is not a necessary part of the project from the standpoint of developing and supplying water for the project, there is no justification for including the Bridge Canyon power development as a unit of the proposed central Arizona project and dedicating all of the power revenues therefrom to financing the cost of an uneconomic irrigation undertaking.

In this connection, the comments of the Federal Power Commission on the proposed project, dated May 21, 1948, contain the following statement:

> The Commission staff has reviewed the Bureau's report and points out that the Bridge Canyon project and its two auxiliaries, Bluff and Coconino Reservoirs, have no essential physical relationship with the central Arizona diversion project. These reservoirs are not needed to regulate flow for the central Arizona diversion, nor would the Bridge Canyon power plant necessarily be the only source of power available for pumping from Lake Havasu into the Granite Reef aqueduct. The only relationship between the three reservoirs as a group and the diversion project appears to be the assumed financial relation in order to provide means for repayment of a large percentage of the reimbursable costs of the diversion project chargeable to irrigation.

The most essential structure for the furnishing of supplemental water supply for the proposed project is a project already built and in operation, namely, Hoover Dam. The physical availability of the 1,200,000 acre-feet of water proposed to be diverted by the project from the Colorado River is wholly dependent on the conservation and regulation of Colorado River water by Hoover Dam in Lake Mead. The report proposes to obtain a water supply conserved and regulated behind Hoover Dam, at no cost to the central Arizona project. It is also proposed to use Hoover power plant and Lake Mead to firm up the output of the Bridge Canyon power plant, at no cost to the proposed project.

Another existing development which would perform a valuable function for the proposed project, and at no cost thereto, is the Parker Dam, behind which the waters of Lake Havasu are stored and from which the pumping units of the proposed project would lift water into the Granite Reef aqueduct. Although this dam was built by the Department of the Interior, it was paid for entirely by the Metropolitan Water District of Southern California.

The upper Gila and San Pedro units proposed to be included in the central Arizona project have no necessary connection with the main service area of the central Arizona project. Their function and purpose would be to take care of separate local problems and needs. The Hooker Dam and Reservoir would provide for flood control and the regulation of stream flow on the upper Gila River, for the benefit of presently irrigated lands in the vicinity of Cliff, and Red Rock, and in the Duncan-Virden Valley. The principal function of the Safford Valley improvements would be to conserve and utilize the existing water supply to the best advantage. The primary functions of Charleston Dam would be to provide a municipal water supply for the city of Tucson together with flood control and additional regulation of irrigation supplies in the San Pedro River Basin.

The plans for these projects, exclusive of Hooker Dam, were formulated by the Corps of Engineers of the United States Army as a result of investigations authorized by the Congress. These units, which deal with separate local problems, could be authorized and constructed independent of the works proposed for the main service area of the proposed project.

With respect to these units, the Department of the Army, in its comments dated May 12, 1948, on the proposed project, makes the following statement:

* * * However, since the central Arizona project is composed of individual units and interrelated groups of units which are not mutually interdependent for adequate functioning, it is believed that action on certain of these units and groups need not be delayed pending settlement of legal and economic questions for the project as a whole but that they may properly be considered on their own merits as separate units or groups of related units.

The Corps of Engineers is now studying a group of related units included in the central Arizona project. These units consist of improvements in the Safford Valley, the Buttes Dam and power plant, the Charleston Dam, and the Tucson water supply aqueduct. This group is urgently needed and does not depend on importation of Colorado River water or on subsidization by Colorado River power. This group will be reported upon separately by this Department at a later date.

In addition to the fact that several of the units of the proposed project have no necessary interconnection with the stated primary objective of furnishing supplemental water to the main service area, it appears that the general plan has been conceived without mature consideration.

In particular, insufficient consideration has been given to the possibility of additional conservation and utilization of local water supplies to meet the needs of the main service area. It seems apparent that a less costly solution than that proposed could be found by a more careful consideration and application of local water supply conservation and use.

With further regard to the conception and feasibility of the proposed project plan, the Federal Power Commission in its comments makes the following statement:

The Commission staff believes that the Glen Canyon Reservoir project on the Colorado River upstream from the Bridge Canyon site should be initiated very soon after the Bridge Canyon Reservoir is constructed. This will be necessary to prolong the period of usefulness of the storage capacity at Bridge Canyon which would otherwise probably be entirely filled with silt in from 40 to 50 years, even with the Bluff and Coconino Reservoirs constructed with the capacities proposed in the report. Bluff and Coconino Reservoirs, being off the main stream, would be of no assistance in reregulating the depleted flows from the upper basin above the confluence of the San Juan River to meet the 10-year average requirements under the Colorado River compact. Without major upstream storage on the main Colorado River, such as at the Glen Canyon site, as the Bridge Canyon active storage capacity is gradually reduced by silt deposits, this project and the firm power available therefrom, would become more sensitive to upper basin depletions and withholdings of water in headwater storage, and would gradually assume the character of a run-of-river plant. The Glen Canyon Reservoir would obviate the necessity of the Bluff Reservoir, insofar as silt storage is concerned or at least would defer the necessity of Bluff.

The Department of Agriculture in its comments dated May 5, 1948, states as follows:

The contemplated reservoirs will be rendered useless by sediment within a comparatively few years if nothing is done to reduce erosion. It seems clear from the foregoing that the proposed central Arizona project must be supported by projects and activities not contemplated in the report; in particular, by upper basin reservoirs and a program of land treatment.

WATER REQUIREMENTS

The water requirements of the proposed central Arizona project, in terms of supplemental water supply needed to maintain lands now under irrigation, are grossly overestimated by the Bureau in the report under review. This is due in part to admitted inadequacies in the data required to determine the amount of existing water

shortage or deficiency but in larger part to fallacies and errors in the computations.

The requirements are estimated erroneously on the basis of gross surface-water-supply diversion, instead of on the proper basis of consumptive use requirements. This error in itself results in an overestimate of 78 percent as to the water requirements in the main service area of the project comprising the Maricopa and Pinal units. The overdraft on underground water is erroneously computed as the difference between gross pumpage and estimated safe ground-water yield, whereas the consumptive use draft on water pumped from underground should be used in such a computation, since it constitutes the net withdrawal from ground water. This error involves an overestimate of about 47 percent.

In estimating the supplemental water requirements for a project such as the central Arizona project, where both surface and underground water supplies are utilized, and the ground-water basin operates as a reservoir for the storage of water applied to the land in excess of actual consumptive use and also for the storage of stream flow and rainfall, all of which is available for utilization by pumping from wells, the supplemental requirements must be determined on a consumptive use basis. If a supplemental water supply were brought in and applied to the existing irrigated acreage in the amount as estimated by the Bureau on a gross surface diversion duty basis, it would be so excessive as to waterlog the lands and require costly works for artifical disposal thereof.

The estimates of safe ground water yield are preliminary approximations which may be in serious error. As pointed out in reports of the United States Geological Survey, the data and studies on which these preliminary estimates are based are inadequate. Before final estimates can be made, a large amount of additional data and extensive studies will be required for one of the most important units of the project, namely, the Maricopa unit, which embraces the older established irrigation projects of the Salt River Valley and vicinity.

A break-down of the Bureau's estimates of requirements for the Maricopa unit shows that the average available irrigation water supply is more than sufficient for the present irrigated acreage; that the excess surface water supply balances the indicated net overdraft on the ground water; and that, exclusive of such amount of water that may be found needed for maintenance of salt balance, there is no water deficiency in the Maricopa unit with the existing average water supply for the acreage now irrigated. Studies show that the bulk of the shortage in present water supply, both surface and underground, for the existing irrigated acreage of the project is in the Pinal unit and that most of that indicated deficiency is on recently developed lands, surrounding and adjacent to the San Carlos project, irrigated by pumping from wells.

The Bureau's estimate of supplemental requirements includes a full surface water supply for 73,500 acres of so-called idle lands which are stated to have an irrigation history, but not now irrigated for lack of water. Actually the Bureau's estimated requirement for this purpose is an arithmetical quantity, computed as the difference between the sum of the estimated requirements for ground water over-

draft and supplemental surface water supply and a total irrigation demand of 1,070,000 acre-feet annually, which appears to be a preconceived requirement.

The location of such so-called idle land is not revealed in the report except in general terms. It seems probable that such area constitutes mostly, if not wholly, the usual percentage of idle or fallow lands that are customarily found in all irrigation projects, and which usually amounts to 10 to 15 percent of the gross project area. Therefore, the need for any additional new water for such so-called idle lands is highly questionable in view of the representation that the proposed undertaking is a "rescue project." The Bureau's estimate of the water requirement for such lands constitutes nearly half of the total new water supply proposed to be brought in from the Colorado River.

Independent estimates of the supplemental water requirements for presently irrigated lands in the Maricopa and Pinal units of the project, which constitute the main service area of the project where all of the irrigation water shortage exists, indicate that the total supplemental requirement amounts to 312,000 acre-feet annually, including an allowance of 142,000 acre-feet outflow for maintenance of salt balance. Of this total requirement, 120,000 acre-feet annually, according to Bureau estimates, could be furnished from the development of additional local water supplies on the Verde and Gila Rivers, leaving a balance to be supplied from other sources of 192,000 acre-feet annually delivered to the project. If this requirement were supplied from the Colorado River, the gross diversion requirement would be 300,000 acre-feet annually, or only one-fourth of the 1,200,000 acre-feet annually proposed to be diverted according to the Bureau's plans for the proposed project.

The main service area, as defined by the Bureau, comprising the Maricopa and Pinal units, does not include about 50,000 acres of land irrigated by pumping from wells in the Eloy area south of and adjacent to the Pinal unit. These adjoining lands could not be prevented from obtaining project water, inasmuch as the ground-water basin is continuous and pumps in the Eloy area would undoubtedly draw upon project water. It is estimated that this adjoining Eloy area has a deficiency in present water supply, which is entirely from underground sources, of 135,000 acre-feet annually; and that, if this deficiency were met by water diverted from the Colorado River, a total supplemental water supply of 169,000 acre-feet annually would be required, including 34,000 acre-feet for salt balance.

Based on these independent studies, the total supplemental water requirements for all of the present irrigated acreage in the central Arizona area, which, according to proponents of the project, aggregates 725,000 acres, is estimated at 327,000 acre-feet annually. If this supplemental supply were obtained from the Colorado River, the requirement for delivery to the project would be 409,000 acre-feet, including additional allowance for salt balance of the imported supply, and the corresponding required gross diversion would be 500,000 acre-feet annually.

Of the total 327,000 acre-feet of supplemental water needed, excluding salt balance requirement for an imported supply, 247,000 acre-

feet, or three-fourths of the total requirement, would be needed to meet the present deficiency in water supply on the lands irrigated by pumped water, situated in the areas adjoining the San Carlos project in the Pinal unit and the adjacent Eloy area. Most of this irrigated acreage comprises newly developed lands which, according to available information, have been placed under irrigation mostly within the last 9 years. This new irrigation development has resulted partly from a speculative opportunity for large profits from high crop prices and partly from a desire to establish rights to use of water prior to the passage of a State ground water code. It has occurred with full knowledge of the inadequate and limited water supply available.

Much of these newly developed lands has been purchased by the operators from the State of Arizona. A substantial part is in large holdings ranging from 1,000 to over 6,000 acres in single family ownerships. Most of these lands are in family holdings of over 160 acres. Few farm homes are seen on these new lends. From the best information available, there are not less than 150,000 to 200,000 acres of these recently developed lands under pump irrigation in central Arizona.

The studies show that most of the over-all indicated water shortage in the main service area of the proposed project is within these newly developed lands, and not within the older established irrigation projects of the Salt and Gila River Valleys. Therefore, the main effect and purpose of the proposed project would apparently be to rescue or bail out these newly developed lands which were put under irrigation in the face of a known shortage of water supply.

Although any estimate of supplemental water requirements must be considered as approximations, in the absence of adequate basic data and more mature study than the Reclamation Bureau has given, it appears that the supplemental requirement for existing irrigated acreage in central Arizona are overestimated by the Bureau in its report in an amount about three to four times greater than what would be actually needed. Furthermore, in considering the furnishing of the supplemental water required, careful consideration should be given to additional conservation and use of the available local water supplies, including the conservation of flood flows in periods of above normal run-off and the salvaging of water now consumed by natural vegetation. Preliminary studies indicate that full development and utilization of local sources of supply would take care of most, if not all, of the indicated water shortage in the project area as defined by the Bureau, and that this could be done at a small fraction of the cost of the proposed project.

POWER OUTPUT

The economic feasibility of the proposed central Arizona project, according to the plans and program presented in the Bureau's report, would depend largely on the amount of annual revenues that could be obtained from the sale of commercial power produced by the proposed project. Based upon the estimate in the Commissioner's letter to the Secretary of the Interior, dated January 26, 1948, revenues from the sale of commercial power would constitute about 78 percent of the total project revenues, and would repay about 92 percent of the total reimbursable construction cost. In addition, power revenues would

defray the annual expense of operation, maintenance, and replacement assigned for payment from power revenues, interest on the commercial power investment, and a sizable portion of the annual costs of operation, maintenance, and replacement of the irrigation features of the project.

The total average annual energy production by the potential plants during the first 50 years of operation is estimated by the Bureau at 4,491,000,000 kilowatt-hours. About one-third of this output would be used for pumping Colorado River water through a static lift of 985 feet. The amount of firm commercial energy is estimated by the Bureau at 3,070 million kilowatt-hours at generation and 2,855 million kilowatt-hours annually delivered at load centers, average over the first 50 years.

According to the plans and estimates, the Bridge Canyon power plant would provide 97 percent of the total installed hydroelectric capacity and would produce about 98 percent of the total energy assumed to be available from the proposed project. The capacity and energy provided by the other three power plants are thus of minor importance.

The average annual energy output of the Bridge Canyon plant is estimated by the Bureau at 4,675 million kilowatt-hours under initial conditions and 4,114 million kilowatt-hours under ultimate conditions, or after 50 years. The Bureau considers the entire output as firm power. This is predicated on an assumed coordination of the operation of the proposed Bridge Canyon plant with the operation of the existing plants at Hoover and Parker Dams and the plant now under construction at Davis Dam.

Although the Bureau's estimate of power output for initial conditions under the proposed coordinated plan of operation credits the Bridge Canyon plan with a firm annual energy output of 4,675 million kilowatt-hours, the study presented in table E–7 of the Bureau report reveals that the actual output would range from a minimum of 3,238 million kilowatt-hours annually (October 1–September 30) to a maximum of 5,758 million kilowatt-hours. For the calendar year 1934, the study shows an estimated output from the Bridge Canyon plant of 2,631 million kilowatt-hours. That is to be contrasted with the estimated 4,675 million kilowatt-hours, only a little over half, in the year 1934.

The deficiency in the Bridge Canyon output in 1934, in meeting the firm output of 4,675 million kilowatt-hours credited to it under the assumed coordinated operation, would amount to 2,044 million kilowatt-hours. Furthermore, the Bureau's study shows that in the most critical month of July, 1934, the estimated output of the Bridge Canyon plant would be only 114 million kilowatt-hours, or about 350 million kilowatt-hours less than the plant should produce to meet its credited firm output in the assumed coordinated operation. This energy deficiency would be equivalent under probable load factors to 600,000 to 700,000 kilowatts of capacity. It is proposed by the Bureau that this deficiency be furnished from Hoover Dam power plant.

The estimated energy output for the Bridge Canyon plant for the months of June to December, 1934, and the comparative amount of

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monthly energy required for project pumping are shown as follows:

Bridge Canyon power output:	*Million kilowatt-hours*
June	126
July	114
August	137
September	137
October	142
November	166
December	187
50-year average monthly energy required for project pumping	126

The Bureau's report contemplates that the Bridge Canyon plant would be used first to supply the energy requirements for project pumping. The average energy requirements for project pumping during the first 50 years are estimated by the Bureau at 1,393 million kilowatt-hours annually. It is stated in the report that project pumping would be carried on continuously for eleven months of the year. Accordingly, the average monthly requirements for project pumping would amount to 126 million kilowatt-hours. Comparing this figure with the estimated outputs for the 7 months in 1934, it is evident that the Bridge Canyon output for a year such as 1934 would be less than project pumping requirements in July, equal thereto in June, and not materially in excess thereof for the remaining 5 months of the year. Consequently it would appear from the Bureau's studies that the Bridge Canyon plant, for at least 7 months during a 10-year period such as 1931–40, would be able to contribute little if any power for commercial disposal under the plan of coordinated operation.

Under the Bureau's program of coordinated operation it is proposed to firm up the Bridge Canyon output with power produced by the other three plants but chiefly by Hoover power plant. It is proposed in the report to utilize 100 percent of the ultimate generating capacity of Hoover power plant—that is about 1,350,000,000 kilowatts—with the large storage at Lake Mead, in this coordinate operation, despite the fact that the Hoover Dam power output is now completely disposed of under existing contracts. The contemplated integration could not be achieved under the present contracts for Hoover Dam power, as integration with future developments on the Colorado River is limited by the provisions of those contracts.

The Bureau report does not reveal that any consideration has been given to the limitations incorporated in these Hoover Dam power contracts. The program of coordinated operation proposed by the Bureau would require substantial and fundamental changes in the existing power contracts that would be unacceptable to the present allottees of Hoover Dam power.

Furthermore, the scheme would involve the utilization of Lake Mead and other reservoirs, and the capacity and energy of Hoover, Davis, and Parker power plants in order to firm up the Bridge Canyon output, with none of the cost of such facilities charged to the proposed central Arizona project. Thereby, the project would be credited with revenues resulting from operations or other hydroelectric plants and reservoirs, with no cost to this project.

The Bridge Canyon plant would add little or nothing to the output capability of Hoover Dam power plant and would offer no ad-

vantage to the users of Hoover Dam power, to compensate for its proposed use to firm Bridge Canyon power. On the contrary, the proposed plan of coordination would deprive the Hoover Dam power contractors of rights and benefits which they now have and are paying for under existing contracts.

The Bureau's study of coordinated output under initial conditions presents a perfection of integrated operation requiring foreknowledge of the entire 10-year—1931-40—period water supply. Such results could not be achieved in practical operation. Although future 10-year periods will undoubtedly be as deficient in total run-off as the one considered, the monthly and seasonal distribution of run-off would be different, and neither the distribution nor the approach of such an extended critical period of run-off could be known in advance. A sequence of dry years could occur even with the same 10-year average run-off, which would result in depletion of Lake Mead to the point where the available storage would be insufficient to meet generating requirements.

The minimum output of the Bridge Canyon plant would govern its firm or dependable capacity. The Bureau's study of output in table E–7 of the report shows an annual energy output in 1934 under initial conditions of 2,631 million kilowatt-hours and a minimum monthly energy output of 114 million kilowatt-hours. These annual and monthly minimum amounts are, therefore, a measure of the firm or dependable output capacity of that plant, based upon the Bureau's estimates. The estimated average energy output of the Bridge Canyon plant should not be considered as firm power as assumed in the Bureau report.

Furthermore, within the 50-year period, considering only the facilities provided by the project upstream from Bridge Canyon, changes would occur due to encroachment of silt which would materially affect not only the output of the Bridge Canyon plant but also the assumed operation of Lake Mead and the output of Hoover power plant. The sedimentation of these reservoirs would materially affect the output of the Bridge Canyon plant. It would, also, necessitate a reestablishment of the present flood-control reservation in Lake Mead, since these upstream storage reservoirs could no longer be expected to control floods to the extent of reducing the flood-control reservation at Lake Mead by 3,000,000 acre-feet as assumed in the Bureau's study.

It appears that the combined effect of all factors—increased use of water in the upper basin, and sedimentation of Bluff, Coconino, and Bridge Canyon Reservoirs—would be to materially reduce the energy output at Bridge Canyon plant below the amounts estimated by the Bureau over a 50-year period. The ability of Bluff Reservoir to provide regulated water supplies for the Bridge Canyon power plant would be substantially impaired. Without new additional storage regulation upstream from Bridge Canyon, it appears that the Bridge Canyon output would approach that of a run-of-the-river plant, with a lesser minimum output than estimated by the Bureau. It is evident, therefore, that the amount of firm energy that could be made available from the Bridge Canyon power plant and which could be properly credited to the project as proposed in the report would be materially less than estimated by the Bureau as an average for the 50-year period.

Independent estimates indicate that, with the upstream storage at

Bluff, and Coconino as proposed in the Bureau's report, the firm energy output of the Bridge Canyon power prant would be about 2,400 million kilowatt-hours annually under initial conditions and less than this amount on the average over the 50-year period due to increased use of water upstream and sedimentation of Bluff, Coconino, and Bridge Canyon Reservoirs. Since, according to estimates of the Bureau of Reclamation, about 1,400 million kilowatt-hours annually on the average over the 50-year period would be required for project pumping, it appears that the amount of firm energy that could be produced for commercial disposal with the project facilities as proposed, would be less than one-third of the amount (3,070 million kilowatt-hours annually on the average over 50 years) estimated by the Bureau. Accordingly, project power revenues on which the financial feasibility would depend, would be proportionately less than those estimated by the Bureau of Reclamation.

FINANCIAL ASPECTS

The capital cost of the proposed central Arizona project is estimated by the Bureau in the report presented to the Congress at $738,408,000, based on July 1947 prices. It may be noted that the estimated cost based on October 1948 prices would be $848,300,000. The Bureau estimate is based largely upon preliminary investigations without adequate surveys, explorations, and plans, with the result that the cost of the project is probably underestimated and that final cost estimates, after detailed surveys, explorations and construction plans are made, would substantially exceed the estimates presented in the report.

For example, about $84,000,000 of the total cost estimate represents the cost of a power-transmission system to load centers in southern California, a principal power-market area, lines to deliver the power required for project pumping and a network to numerous other points of delivery in the assumed market area through Arizona, southern Nevada, and Utah. This $84,000,000 estimate is not supported by field surveys, investigations, plans, or designs. The location of load centers to which the power would be delivered is not given in the report. Preliminary independent estimates of the cost of transmission facilities that would be required beyond the proposed power plants of the project to adequately dispose of the entire power output, with delivery at load centers in accordance with the probable market, indicate that the cost at current—April 1948—prices would amount to $140 per kilowatt of installed capacity as compared to $109 per kilowatt of capacity on which the Bureau's estimate is based; and that the total cost would be about $108,000,000 as compared to about $84,000,000 as estimated in the report under review. This represents an indicated increase in project cost of about $24,000,000 for this particular item.

Attention has already been called to the additional cost that may be required if the proposed exchange of Salt River water for Colorado River water could not be effected; and to the possible additional cost of some of the proposed dams not as yet adequately explored and planned.

Because of the lack of time and the absence of the essential data in the report, no attempt has been made to check the estimated construction quantities involved or the unit construction costs assumed in

preparation of the cost estimates. The Bureau's estimates of construction costs are used in the financial analyses presented herein.

Of the total estimated cost, $729,193,000 would be reimbursable and $9,215,000 nonreimbursable under existing law, according to the Bureau report. Under recent proposals, the Bureau estimates possible nonreimbursable costs of over $80,000,000, including flood control, fish and wildlife, silt control, recreation, and salinity control. Of such nonreimbursable costs, the largest single item would be $37,500,000 for recreation, most of which would be for the Bridge Canyon Dam and Reservoir. The method used in determining such large amounts of additional nonreimbursable costs appears questionable.

With respect to this matter, the comments of the Federal Power Commission of May 21, 1948, state as follows:

> The staff is not prepared at this time to comment on the justification for the proposed allocation of $60,715,000 of the cost of the Bridge Canyon, Bluff, and Coconino Reservoirs to silt control, recreation, and fish and wildlife conservation; it is pointed out, however, that this cost, which would be nonreimbursable and which includes about $36,000,000 allocated to recreation, amounts to more than 25 percent of the estimated cost of these reservoirs.

CAPITAL COST OF IRRIGATION

The estimated capital cost allocated to irrigation amounts to $420,019,000 under existing reclamation law, and about $23,000,000 less with the additional nonreimbursable costs recently proposed. This capital cost of the works chargeable to irrigation under existing reclamation law would amount to $657 per acre on the gross area stated to be benefited by the proposed project; $2,754 per acre on the area of land to be "rescued" as stated in the report; and $1,858 per acre on the area that would be served with the water supply provided on a full surface irrigation supply basis. These figures would be slightly less under the assumption of the additional nonreimbursable costs as recently proposed.

The capital cost of irrigation per acre may be measured also in the following manner. It is proposed to deliver 636,000 acre-feet at farm headgate on the average during the first 50 years at a rate of 4 acre-feet per acre for a full irrigation supply. Therefore, the capital cost per acre for a full water supply, corresponding to a total capital cost of $420,019,000 chargeable to irrigation under existing law, would be $2,640.

As compared to these capital costs per acre of irrigation, the present value of general farming land in crop within the project area is $300 an acre as a maximum and more nearly $200 an acre in long-time average value. Thus, the capital cost of the proposed project as an irrigation enterprise far exceeds the value of the land to be served or benefited; in fact, between 9 and 10 times the value of the land it is stated would be rescued.

REPAYMENT ABILITY

Project revenues as estimated by the Bureau would be obtained from sale of irrigation water at a price of $4.50 an acre-foot delivered at farm headgate, sale of water for municipal use at 15 cents a thousand gallons or $48.88 per acre-foot, and sale of commercial power. The

analyses indicate that the revenues from sale of municipal water supply would be sufficient to cover all fixed and operating costs chargeable to that function. However, the estimated revenues from sale of water for irrigation would be insufficient on an average through the 50-year repayment period even to pay the operation and maintenance expenses chargeable to irrigation and consequently could not repay any of the capital costs chargeable to irrigation.

Analyses under existing reclamation law show that the irrigation supply proposed to be delivered at farm headgate would involve a cost for repayment of $13.20 per acre-foot, and for operation, maintenance, and replacements of $4.65 per acre-foot, a total of $17.85 an acre-foot. Thus the total cost would be about four times the proposed charge for irrigation water.

The proposed project would be unique among irrigation enterprises in not being able to pay from irrigation revenues even the operation and maintenance expenses chargeable to irrigation. In fact, analyses show that irrigation revenues would be sufficient to pay only about one-half of the total operation and maintenance cost properly chargeable to irrigation, including the cost of electric power for project pumping.

Analyses of annual costs and revenues show that the probable revenues from sale of water and power would be far from sufficient to repay reimbursable costs and meet other carrying charges under the provisions of existing reclamation law. Even under an assumed modification of additional nonreimbursable costs recently proposed, estimated by the Bureau in excess of $80,000,000, and with the interest rate on commercial power investment reduced from 3 to 2 percent, repayment in 50 years of reimbursable costs together with other annual carrying charges would require water or power rates exceeding the market value or ability of the water and power users to pay, or a capital subsidy from the United States Treasury of nearly $400,000,000 in addition to the $80,000,000 of nonreimbursable costs and the cost of interest to the Federal Government on municipal and irrigation costs.

With irrigation revenues based on $4.50 per acre-foot and a power rate sufficient to meet the fixed and operating charges assignable to commercial power, the period for repayment of irrigation costs would have to be extended to 114 years. The foregoing figures reveal the true measure of the financial feasibility of the project, viewed in the most favorable light possible.

The cost of commercial power, based on Bureau estimates of output delivered at load centers, and covering all fixed and operating charges assignable thereto, would range from 5.17 mills per kilowatt-hour with 3 percent interest, under existing reclamation law, to 3.93 mills per kilowatt-hour under assumed modifications comprising additional nonreimbursable costs and an interest rate on commercial power investment of 2 percent.

As compared to these costs, it is proposed by the Bureau to sell commercial power produced chiefly by the Bridge Canyon power plant at a price sufficient to repay not only all of the capital costs and annual carrying charges assignable thereto but also the entire capital cost and a substantial part of the operation and maintenance costs chargeable to irrigation that cannot be met from irrigation revenues. For this purpose the price of power is proposed at 4.82 mills per kilo-

watt-hour delivered at load center, predicated upon a repayment period of 78 years.

May I interpose here, Mr. Chairman, to state that all these analyses are based upon the Secretary of Interior's report as he has presented it to Congress. Since that time, I understand that the project engineer, Mr. Larson, has presented to this committee a revised financial analysis based upon the assumed provisions of H. R. 934. Of course, every time there is a change, that changes the figures, but it does not change the indicated results. At any rate, all of these figures that are discussed herein are the figures in the official report on the project.

With respect to this proposal, the comments of the Federal Power Commission, dated May 21, 1948, contain the following:

> It is observed that the burden of irrigation costs on power would be considerable and that costs of commercial power would be approaching a level that cannot be classed as low-cost power in the region. This raises the question of whether subsidies for irrigation should not be looked for from sources other than power if the irrigation features of the project are adopted.

The financial analysis of the Bureau of Reclamation assumes that all net power revenues would be used to pay off the allocated capital cost of commercial power in a period of 30 to 35 years and, thereafter, applied to the repayment of the costs allocated to irrigation. This would mean that repayment of the irrigation investment would be postponed for 30 to 35 years. There is no provision in existing reclamation law that would permit of such a postponement of the repayment obligation of the water users.

Furthermore, the average annual firm commercial energy that could be made available by the project for delivery at load centers would be substantially less than estimated by the Bureau. Accordingly, power revenues as estimated by the Bureau could not be realized with the rate of 4.82 mills per kilowatt-hour and the rate required to obtain the same estimated power revenues would necessarily exceed that figure.

However, under the assumption that commercial power could and would be sold at 4.82 mills per kilowatt-hour and that the power revenues together with water revenues as estimated by the Bureau could be realized, analyses show that such revenues would be insufficient to repay the reimbursable costs in 50 years; and that the period for repayment of the cost allocated to irrigation would have to be extended to 93 years; that otherwise, repayment in 50 years could be effected only by a corresponding capital subsidy from the Federal Treasury of nearly $360,000,000, in addition to nonreimbursable costs of over $80,000,000 and the costs of interest to the Federal Government on municipal and irrigation costs, or by a charge for irrigation water about 3½ times the rate of $4.50 per acre-foot proposed by the Bureau.

BENEFIT-COST RELATIONS

The report of the Bureau of Reclamation contains certain analyses comparing estimated annual benefits and annual costs of the proposed project, which indicate a ratio of benefits to cost of 1.63 to 1. This analysis is believed to be misleading, particularly as to methods used and amounts estimated for certain annual benefits.

Existing reclamation law does not provide for the authorization of a project on the basis of comparison of estimated benefits and costs.

Federal Reclamation law requires for any proposed project that a showing be made of engineering feasibility and of economic feasibility, based upon the sufficiency of revenues from all sources to meet reimbursable costs and other necessary charges and expenses.

Projects previously authorized and constructed by the United States on the Colorado River system, including large developments, such as the Boulder Canyon project, have been on the basis of a showing of engineering feasibility and of economic feasibility, based upon the sufficiency of revenues from all sources to meet reimbursable costs and other necessary charges and expenses.

The true criterion for a showing of economic feasibility of the proposed central Arizona project is its repayment ability to meet all reimbursable costs together with other necessary charges and expenses under the provisions of existing reclamation law, from revenues that could be reasonably expected from the sale of water and power at rates within the ability of the water and power users to pay.

In regard to the economic aspects of the proposed project, the comments of Department of the Army, dated May 12, 1948, contain the following:

> The legal and economic premises upon which the project as a whole is based appear to be open to serious question, particularly with respect to water rights and to the analysis of the economics of the works.

The Department of Agriculture in its comments dated May 5, 1948, makes the following statements:

> The first and most important question that must be asked about any proposed public work is: "Will the total benefits produced equal to or exceed the total costs?" Our first concern, then, was to find out if the central Arizona project would satisfy this requirement. Frankly, we were unable to determine from your report whether or not the benefits actually would exceed the costs. In the estimation of benefits, gross, rather than net, crop values have been used in the calculation of irrigation benefits. You will recall that in commenting upon previous reports prepared by the Bureau of Reclamation, we have pointed out that this procedure disregards the cost of producing the crops. In the present report it is indicated that this cost of production is assumed to equal the indirect benefits accruing to the project. But, in our opinion, this is not a valid way of estimating indirect benefits. In this connection, we want to make it clear that we are not questioning the propriety of utilizing indirect benefits in justifying the project, but merely pointing out that an incorrect procedure has been used in estimating these benefits.
>
> The actual relation of benefits to cost is still further obscured by what appears to be a failure to use the market value of power in estimating, for evaluation purposes, the cost of pumping the water supply. Market value must be used in economic evaluation because the power has alternative uses. (This does not mean, of course, that market value must be used in fixing rates to be charged for water, an operation separate and apart from economic evaluation.) Here again it is to be understood that we are pointing out a procedural error; not questioning the estimates of construction cost.
>
> In at least the respects mentioned above, the benefits and costs used in testing the economic soundness of the project are in eror. We would recommend, therefore, that further and more careful consideration be given to the economic evaluation of the proposed irrigation project. It is not possible to predict the effect that the suggested procedural changes might have on the benefit-cost ratios set out in the report. * * * Sound economics and common sense require: First, the consideration of possible alternatives; and, second, the choice of that alternative yielding the largest return on the investment. We presume that the Bureau of Reclamation has given consideration to various alternative solutions for the water problems of the central Arizona area. This leads us to suggest that these be briefly reviewed in the report so that the Congress and the public will be assured that optimum returns will result from the investment of the public funds required.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, it is desired by way of summary to emphasize the following points:

(1) The State of California is vitally concerned in the proposed central Arizona project because the diversion and use of Colorado River water proposed thereby would, if consummated, threaten seriously to invade the established rights of California to the use of Colorado River water, upon which depend the irrigation of about a million acres of land in the Palo Verde, Imperial, and Coachella Valleys and the furnishing of domestic and industrial water supplies for the metropolitan areas of southern California from Los Angeles to San Diego with a present population of over 4,000,000 inhabitants, and in connection with which an investment of over $500,000,000 has already been expended or committed for works and facilities which have already been built and are in operation.

(2) The general plan for the proposed central Arizona project has been conceived without mature consideration, is based upon preliminnary investigations with inadequate surveys and explorations for several of the major features, and lacks justification from both an engineering and economic standpoint. The proposed project lacks the first prerequisite of engineering feasibility, namely, assurance of the water supply proposed to be used. Arizona's legal right to the use of Colorado River water for the proposed project is yet to be determined. For this reason alone, the proposed project should not be authorized. But aside from the question of water supply, the project as proposed should not be authorized because it is financially unsound and without proper economic justification.

(3) The water requirements of the proposed project have been grossly overestimated by the Bureau of Reclamation in the light of what is represented to be the primary objective of furnishing supplemental water supplies that may be needed for existing irrigated lands in the Salt and Gila River Valleys in central Arizona. Studies of the available local water supplies, as compared to the requirements of presently irrigated lands in the main service area of the proposed project, indicate that the additional water supply required is only about one-third to one-fourth the amount estimated to be required by the Bureau of Reclamation; and that a large part, if not all, of the additional water supply required could be obtained by further conservation, distribution, and use of local water supplies, and the maximum efficient utilization of existing ground-water storage capacity, to which insufficient consideration has been given.

(4) Most of the over-all indicated water shortage in the main service area of the proposed project is within newly developed lands irrigated by pumping from ground water and not within the older established irrigation projects of the Salt and Gila River Valleys; and therefore the main effect and purpose of the proposed project would apparently be to rescue these newly developed lands which were put under irrigation within recent years in the face of a known shortage of water supply.

(5) The proposed project is economically unsound and without justification as an irrigation undertaking. Under existing reclamation law, the capital cost chargeable to irrigation would be $2,754

per acre on the area of the land that would be "rescued" as stated in the Bureau's report and $1,858 per acre on the total area that it is stated would be served on a full supply basis. As compared to these capital costs, the present value of general farming land in crops is $300 an acre as a maximum.

(6) The estimated revenues from the sale of water for irrigation would be insufficient on the average during a 50-year repayment period even to pay the operation and maintenance expenses properly chargeable to irrigation, and consequently could not repay any of the capital costs.

(7) Under the plans as proposed by the Bureau, the firm power output of the Bridge Canyon power plant would be substantially less than estimated by the Bureau. Hence, the estimated revenue from sale of commercial power, which according to the Bureau report would constitute over 75 percent of total project revenues and would have to repay over 90 percent of the reimbursable cost of the entire project, could not be realized; it would be materially less than estimated by the Bureau.

(8) Even assuming full realization of power and water revenues as estimated by the Bureau of Reclamation, the period of repayment of the reimbursable costs would have to be extended to 93 years. Repayment in 50 years as required by existing law could be effected only by a capital subsidy from the Federal Treasury of nearly $360,000,000 in addition to nonreimbursable costs of over $80,000,000, or by increasing the charge for irrigation water and commercial power in excess of the ability of the water and power users to pay.

The proposed project is not economically feasible under the provisions of existing reclamation law or any reasonable modifications thereof. It seems apparent that a less costly plan than the $738,000,000 project proposed by the Bureau could and should be found for meeting the problems of water shortage on the existing irrigated lands in central Arizona.

(9) The basic problems presented by the proposed central Arizona project involve engineering questions as to water supply and requirements and the planning of feasible and economic developments; and legal questions as to the availability of water from the Colorado River for the proposed project. The proper solution of the engineering questions requires additional studies and investigations. In particular, the United States Geological Survey should be authorized and directed to make a comprehensive and thorough investigation and study of surface and underground water supplies and utilization in central Arizona to determine the possibility of augmenting the useful water supply by additional conservation and salvage of local sources of supply. The additonal engineering investigations and their proper solution might be materially assisted by the appointment of a board of engineers of national reputation to review the proposed project and all basic engineering questions involved therein. In the meantime, substantial relief in meeting present water shortages could evidently be obtained by proceeding with the authorization and construction of the proposed units for additional conservation of local water supplies in the central Arizona area.

Mr. MURDOCK. Mr. Matthew, I must say that that document is a masterly piece of writing. I want to compliment you on this compo-

sition. I disagree with you in most of it, but I appreciate and thank you for parts of it. I will come to that in just a moment.

There has been running through my mind what has been said concerning two great Americans of about 150 years ago, Randolph, of Virginia, and John Marshall, of Virginia. They differed in their views politically, and Randolph at one time said concerning John Marshall, "He is wrong, dead wrong, but I defy any man on earth to show wherein he is wrong."

That just came to my mind as you presented this statement.

It seems your view in general that the Bureau of Reclamation engineers are wrong on all points. That is the way I got it. So you really have taken issue here with the Bureau of Reclamation estimates and computations. But the thing I want to thank you for particularly, beside my general education, is this: It is comforting for me to know that there is no real water shortage in central Arizona. That will be news to a number of people out home. Here is a reporter, and I hope the press makes a note of that.

The question, to get seriously to it, was this: You do recommend certain work on the Gila and the San Pedro. Would you recommend that those be done by the Army engineers, as they have already made an investigation? I believe you indicate a sympathy toward conservation. I wonder if you could help me to get a little congressional support for legislation that would put those through. How do you feel about that, Mr. Matthew?

Mr. MATTHEW. I think, Mr. Chairman, that we would be very glad to give you such aid as you might need in support of such units. There are certain units there that have been pretty well investigated, according to my best understanding.

Mr. MURDOCK. Buttes Dam, for instance, on the Gila?

Mr. MATTHEW. Buttes Dam has been under investigation, and I understand the plans are pretty well worked out. As I quoted from the Army Department comments, they feel that they are about ready to recommend going ahead with those three units: Buttes Dam, Charleston Dam, and the Safford Valley improvements. They would be very beneficial, indeed. That is realized by everybody in Pinal County, and, of course, the Tucson water supply is very important, as I understand it.

Mr. MURDOCK. The Charleston Dam would be a distinct help on the San Pedro River as far as Tucson is concerned.

Mr. MATTHEW. That is my understanding.

Mr. MURDOCK. Of course, the further development you mentioned on the Verde River would help there.

Mr. MATTHEW. Yes, sir; as to the Horseshoe Dam.

Mr. MURDOCK. I just want to drop this in as we go along.

Los Angeles is increasing in population, doubling every 10 years for the last 50, but there are other cities that are also doubling in population, that is, Tucson is, and Phoenix is. I shall want to submit figures on their increase later.

We have now reached the hour of 4 o'clock. The committee stands adjourned under the call of the Chair.

(Whereupon, at 4:10 p. m., the committee was recessed, subject to the call of the Chair.)

THE CENTRAL ARIZONA PROJECT

MONDAY, MAY 30, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 9:30 a. m. in the committee room of the House Committee on Public Lands, Hon. John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The subcommittee will come to order, please.

We will proceed not quite on schedule, but we will at least proceed with the further hearings on H. R. 934.

Speaking of bad physical combinations, somebody asked Mark Twain whether he could think of a worse combination than a corn on a bunion. Mark thought for a moment and he said, "Well, possibly, yes; the St. Vitus' dance and the rheumatism." If anything is worse for committee members than an early session, it would be an early session on a holiday.

While we are talking about conserving time I might say that I think I should first apologize to some of our witnesses this morning for not only calling you at 9:30 but for calling you on Memorial Day.

The Committee on Public Lands of the House, since the Reorganization Act, is badly crowded for time and space. We subcommittee chairmen vie with each other for the use of the committee room. What makes it a little worse is that we have five subcommittees, and it is necessary for the staff to divide our time equally and equitably.

When the California witnesses were being heard last, I explained to them that the only 3 days I had in consecutive order were May 30, May 31, and June 1, and we adjourned until this hour. It did not occur to me at the time that it was Memorial Day, but even so, I should have called the meeting, I think, on Memorial Day.

I recall that we had a hearing on a bill with some of these same witnesses in 1946, and while we had meetings in the morning, afternoon, and evenings, we had a meeting of that committee for a hearing on July 4, 1946, so this is not an apology but merely an explanation, gentlemen, of why we are meeting on Memorial Day, and further to plan our work a little bit.

Today we are to hear witnesses from New Mexico, at the request of Governor Miles, and some gentlemen representing Indians, if time permits.

I thought last week after I found out that I could have the rest of this week to June 2 and 3 for this subcommittee that it would be better to hear the California witnesses in consecutive order, beginning tomorrow.

As you know, we do not often hold meetings on Saturday, but in order to have a full hearing, I hope we will have a little extra time this week in addition to the regular time on Tuesday, Wednesday, Thursday, and Friday; possibly Saturday.

I trust that word was given out to the California witnesses so that they might have saved a day by waiting until tomorrow.

Governor Miles, do you have a witness you would like to present?

Mr. MILES. Yes, sir; we have two witnesses here from New Mexico with regard to the waters of the Gila River, and I also have a letter from the State engineer, Mr. Bliss, which I would like to file.

The witnesses are Mr. Stirling and Mr. McMillen, who are here from Silver City to testify with respect to the waters of the Gila.

Mr. ENGLE. May we have the communication read, Mr. Chairman?

Mr. MURDOCK. It is not too long. The letter is from the State engineer, John H. Bliss. The clerk will read the letter before we call the first witness, please.

The CLERK (reading):

Hon. JOHN E. MILES,
United States Congressman,
Washington, D. C.

DEAR CONGRESSMAN MILES: I am submitting the following statement regarding the position of the State of New Mexico in relation to the central Arizona project and suggest that you present it at the hearings on that project which are being held before the Public Lands Committee of the House of Representatives.

The headwaters of the Gila River are in the southwestern corner of the State of New Mexico. Run-off from that area contributes to the present water supply of lands in the proposed central Arizona project. The Gila River area above Coolidge Reservoir in the State of Arizona is also dependent in part on that water supply. The State of New Mexico, therefore, is concerned with any project which will improve the water supply in the central Arizona area, and which will in turn relieve demand on the water supply available to the upper Gila both in Arizona and New Mexico.

The upper Gila River area is in need of flood and sediment control, and stream-flow regulation. In addition, the New Mexico portion will realize a larger and more beneficial use of the upper river water when downstream demands are supplied through the exchange of Colorado River water. Such improved uses in New Mexico would have to be preceded by an agreement or compact between the two States which would in effect modify the existing Gila River decree which adjudicated the waters of the Gila in the States of New Mexico and Arizona.

Another requisite for better use of water in the upper area is the construction of storage capacity. The New Mexico portion of the basin has been thoroughly covered by Bureau of Reclamation surveys for the purpose of locating the best storage site available. The site selected as the best from the standpoint of both construction and position on the river is the Hooker Dam site. The Hooker Reservoir would provide needed flood and sediment control for the downstream area in New Mexico and Arizona, also a certain measure of stream-flow regulation. Maximum run-off from the area generally occurs in the late winter at a time when irrigation demands are limited, although some water is diverted for the purpose of building up soil moisture. Regulation at the Hooker Dam site will permit a better use of the water which is now diverted in that area. The State of New Mexico believes that the plan should include, if possible, recreational features by retaining a small permanent pool in the reservoir.

The right of New Mexico to participate in the use of the waters of the Gila River is not necessarily limited by the uses which have been outlined in the Bureau of Reclamation report. The New Mexico allocation will have to be determined when an allocation of lower Colorado River Basin water is finally made among the States of the lower basin. Our State is ready and willing at any time to enter into discussions with the other lower-basin States concerning the division of the allocation made to the lower basin by the Colorado River compact.

New Mexico believes that there is adequate water for the central Arizona project in accordance with the terms of the Colorado River compact. It is the view of this State that, for the good of the Nation, the benefits resulting from the use of Colorado River water should be spread over as large an area as is possible and practicable. This State favors the construction of the central Arizona project.

Very truly yours,

JOHN H. BLISS, *State Engineer.*

Mr. MURDOCK. Mr. Stirling, are you prepared to make a statement now? We would be very happy to hear from you.

Please give your name and your official position to the reporter.

STATEMENT OF STUART STIRLING, AGRICULTURAL AGENT, GRANT COUNTY, N. MEX.

Mr. STIRLING. My name is Stuart Stirling. I am county agricultural agent in Grant County, N. Mex.

Mr. MURDOCK. Go right ahead, Mr. Stirling, in your own way and present your statement, please.

Mr. STIRLING. Well, I have lived in Grant County for about 30 years. I have been county agent of Grant County for about 35 years, at Silver City.

We have been concerned for quite a number of years at the way the Gila River channel is choking up. We have been concerned that it is either a feast or a famine and has been for a long time. We either have floods or droughts.

In 1941 we had a flood which, if it had happened a few hours later at night, possibly could have drowned 40 or 50 people. There were families there who hung in cottonwood trees throughout the night. There were homes that were just abandoned in time to get the families out.

That flood affected everyone from the upper Gila on—those people around Cliff and at Red Rock in the lower valley, and Virden and Duncan, Ariz.

As a matter of fact the water in Duncan, Ariz., was 4 and 5 feet deep. It got up to the public schools.

As I said, there was quite a lot of danger of loss of life. If it had been a few hours later, with no telephones in that country, it is very possible we would have had a high death loss. It caused a tremendous amount of damage.

I believe that Mr. McMillan probably recalls the figure we got at Duncan the other day, but there was several hundred thousand dollars' worth of damage in that immediate vicinity to the town and to the rural people, and we have farms today that still have never been restored.

I happened to be standing on the bank of a farm, and a bunch of cottonwood trees came tumbling down. This man had about 17 acres of wheat that had just been planted for the winter grazing, and a cottonwood tree came tumbling down and pretty soon about 15 or 16 more cottonwood trees came tumbling down, and the man had neither wheat nor farm.

This year the flood started after about 5 years of subnormal drought. That started December 28. A hazard showed itself there that we had not thought of, and that was thousands of pine trees that had died on the water slopes on the mountains of the Gila drainage, which, by the way, is 1,350 square miles. Those pine trees flooded down and

clogged the stream at the very first farm. That eliminated 15 acres of just as fertile land as we had. It just simply swept it out, and we have nothing now but a new channel of the river and just rock and gravel. There is no hope of ever putting that farm into use.

We made a survey with the Army engineers. That is, two Army engineers came in last week and they spent a couple of days. It was what they call a casual survey, but it was very thorough. Those men really worked. We checked on the loss of property there. Farms from that time on will never function again as farms. We saw one veteran's farm that his father had worked on from the time they grubbed out the trees and started it. This boy came back from the Army and he had a farm with a mile of gravel, a gravel ridge 4 or 4½ feet high right down through the middle of it. The gravel ridge extended for from 100 to 250 yards right straight through that mile of fine alfalfa and permanent pasture. It is going to take the boy years to bring it back.

At Virden we found another peculiar thing in that during the drought all the trees died along the river. Those cottonwoods are pretty sappy, a watery growth type of tree, and they just merely dropped over into the swift current, and I think they eliminated the head of the model ditch. It did not even remotely indicate that it had ever been a ditch.

We found one farm that must have had 4 feet of sand on top of about 90 acres of good alfalfa land.

That was the same story all the way through. One fellow had spent $3,200 in protecting with a dike 17 acres of land and leveling. There is no appearance of a farm having been left. It was just one story after another.

We have, I think, not less than one-third to one-half of that entire valley that has grown up in uneconomical growth. The farmers are afraid to take it away until their channel is stabilized. Those cottonwoods are taking, according to the Bureau of Reclamation, 2½ times as much water in the uneconomical growth. The uneconomical growth will take 2½ times as much water as the economic crops, so we have thought for a long time about the dam at the Hooker Dam site.

That would be at an elevation of 5,000 feet. The dam, when it was filled, would extend back into the wilderness area where it would be completely protected from all winds and things like that. The bottom is rock and there would not be much seepage loss. The walls of the canyon itself would protect it from excessively high winds and check evaporation.

We are, at least, slightly irritated to see water that flows out of New Mexico go into Coolidge where they have a loss of 7 feet during the growing season from a free water surface. There is 7 feet that does not do Arizona any good, does not do the Indians any good, does not do the New Mexicans any good whatever. There is this tremendous loss by uneconomical growth. There is the silt load that the Gila carries off, because it has been called the unpredictable. It has had a history of being an inch wide and an inch deep up to 66,000 second-feet of water pouring out of it at one time.

We used to think that floods, when they came, would scour the channel, but that time has passed. We are up against a situation where this land is to be protected or we will not have any land there.

And there are quite a few hundred people who depend on their living there. That is not only true in New Mexico. It also extends through the Duncan Valley, where there are 17,000 acres of farms at the headwaters. Nothing below there is going to help those people. It must be done above there.

Now, the complete picture of that would have to include a report by the Soil Conservation Service and their contemplated work on a number of the tributaries. That would give everyone protection, and the water would eventually get down into the channel of the river without so much gravel and silt.

We feel, as I said, that we can give Arizona and we can give those people much more water by stabilizing the channel, being able to protect ourselves, and feeding that water back into the channel at a nonerosive flow. We feel that we would give them a much greater supply of water by avoiding the tremendous loss by this growth that is choking up the channel, and is transpiring such an amount of water.

A big cottonwood standing almost in water will transpire almost from 800 to 1,000 gallons of water a day. I am not an authority on that, but I have read that many times, that that is the amount, and I am quoting the Reclamation Service when they say that there is about 2½ times as much water from that economical growth as we could get from cultivated land.

The Southwest is itself short of water to such an extent that they cannot go on like that for the next hundreds of years, or as long as we are here. We feel that a lot of this cost of reclamation structures and flood control should not be only borne by the farmers. We feel that there are too many urban settlements growing up, whether it is on the Rio Grande, or whether it is at Phoenix, or anything like that.

The load normally on a reclamation project is put against agriculture when the city of Phoenix could not live without some of the water being put in the ground at the different structures above Phoenix. It would have to tap that. They would have been short of water without that, and the town of Phoenix would never grow another bit, even if it held its own, so we do not think we are doing any injustice to anyone.

We think we could help Arizona. Our losses from evaporation would be smaller, and we could eliminate the thing that is going to eliminate us unless we correct it.

Mr. Chairman, I believe that is all, unless there are some questions.

Mr. MURDOCK. We may want to ask you some questions, Mr. Stirling. It has been a splendid statement, and we are mighty glad to have it for our record.

Mr. STIRLING. Thank you, sir.

Mr. MURDOCK. It has been said that the plan envisioned by this measure is a comprehensive plan. It is not just for a small project in central Arizona, but it reaches even beyond the State lines.

I am glad that Governor Miles is here, who knows that situation well, and has had you come to confirm that statement.

I agree with you when you say that there will be more water available with the developments in New Mexico.

Mr. STIRLING. Yes, sir; thank you, sir.

Mr. MURDOCK. Have you any questions you would like to ask, gentlemen?

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Mr. WHITE. Mr. Chairman?

Mr. MURDOCK. Mr. White, this gentleman is Mr. Stirling, the county agent of Grant County, N. Mex.

Mr. WHITE. You made a number of allusions to things which are not exactly clear to me in your discussion. What is it that you propose should be done?

Mr. STIRLING. We propose that a dam be put at what is called the Hooker Dam site.

Mr. WHITE. What river system are you talking about?

Mr. STIRLING. The Gila River.

Mr. WHITE. The Gila River?

Mr. STIRLING. Yes, sir.

Mr. WHITE. One statement was that in some places the river was an inch deep and a mile wide, and in other places you were talking about the uneconomical growth absorbing the water. Just briefly, is it proposed to channelize the river down through the land, or is it proposed to remove this growth? Just what is suggested?

Mr. STIRLING. The first plan would be to put this dam in so that we could stabilize the banks of the Gila River permanently. At the present time we are reluctant to do that, to take the timber growth out of there, because it is the growth that most of the time does give the farms protection, lined up along the bank.

Mr. WHITE. In other words, there is a fringe of timber along the banks of the river, and the network of roots prevents caving. When there is a tendency for the river to work against one bank, it prevents caving. That is your only safeguard now to keep the bank from caving and to keep the river from continuing to widen.

Mr. STIRLING. Yes, sir.

Mr. WHITE. You think some banks or revetments ought to be constructed and the timber removed, because it soaks up the water?

Mr. STIRLING. Yes, sir. All these floods in the past few months came down from the drainage of the Gila itself. No tributaries were involved.

Mr. WHITE. You are advocating before this committee a system of flood control for dams that will regulate or stabilize the flow of the river at all seasons. What would you do if you had a cloudburst up there and a great rush of water came down? What would happen then?

Mr. STIRLING. We would have enough impounding area in this dam to feed back the water into the stream at a nonerosive flow.

Mr. WHITE. In other words, if a cloudburst happened and there was a great rush of water down this Gila River in what you would call a flash flood, you would have a series of dams with reservoir capacity to collect all that water and hold it back.

Mr. STIRLING. Yes, sir.

Mr. WHITE. Then you would have to have some system of regulating the flow and letting the water out of the dam in an orderly way?

Mr. STIRLING. Yes, sir.

Mr. WHITE. You think you would stop the caving on each side of the river, and the widening of the river in that way? The channeling is bad, as I understand it. One year it will be on one side of this mile-wide place and the other year it will be on the other side; is that right?

Mr. STIRLING. Yes, sir.

Mr. WHITE. Would not a series of revetments be required to narrow the river up so that it would scour out and make a regular channel?

Mr. STIRLING. Yes, sir.

Mr. WHITE. You advocate that, also?

Mr. STIRLING. Yes, sir.

Mr. WHITE. As I understand it, are you talking about any underwater growth in the way of weeds, or just these cottonwood trees?

Mr. STIRLING. Cottonwood and willow.

Mr. WHITE. Cottonwood and willow along the bank?

Mr. STIRLING. Yes, sir.

Mr. WHITE. That acts as a kind of natural revetment to stabilize the banks and keep them from caving?

Mr. STIRLING. Yes, sir.

Mr. WHITE. You do not think it would be necessary at these wide places to narrow up the channel by building dikes and walls on each side, and making the river flow through and scour it out? You are simply in favor of a series of dams; is that right?

Mr. STIRLING. That is very true. I think probably there would have to be some work done in channeling to begin with.

Mr. WHITE. Would you not use rocks?

Mr. STIRLING. It would be merely bulldozers, and getting some of those rocky formations.

Mr. WHITE. Do you not realize that in a flash flood any kind of earth wall or dike would just dissolve and be washed away?

Mr. STIRLING. It would melt like sugar; yes, sir.

Mr. WHITE. Just like sugar?

Mr. STIRLING. Yes, sir.

Mr. WHITE. Bulldozing back there would not do any good?

Mr. STIRLING. No. What I mean is channeling. It looks like this [indicating], and we would channel it straight.

Mr. WHITE. You would channelize the river and narrow it up and make it scour out?

Mr. STIRLING. Yes, sir.

Mr. WHITE. But you think the dams storing the water up there would just about do it?

Mr. STIRLING. Yes, sir.

Mr. WHITE. I do not want to prolong the deliberations of this committee, Mr. Chairman, but I thought it was very important that we get into the real mechanics of the thing.

Mr. MURDOCK. Yes.

Mr. WHITE. I might state to the committee that I have lived on the side of a creek which is tearing my farm to pieces at the moment, where the railroad company has spent over $1,000,000 to protect against the waters, and I know something about channelizing.

Mr. STIRLING. Yes, sir.

Mr. MURDOCK. You have learned the hard way, then.

Are there any other questions?

Mr. ENGLE. Mr. Stirling, is some exchange of water necessary with Arizona before New Mexico can utilize the waters to which you refer?

Mr. STIRLING. I think it should be definitely understood in an agreement between Arizona and New Mexico just what proportion of water is held back for New Mexico, and what goes to Arizona. There is no doubt that there ought to be a contract of some kind.

Mr. ENGLE. Are you familiar with the existing Gila River decree which adjudicates the water of the Gila to the States of New Mexico and Arizona?

Mr. STIRLING. There is a partial adjudication of the waters in the Virden area that we up in the upper Gila have never agreed to, have never agreed to that adjudication.

Mr. ENGLE. Were you a party to it?

Mr. STIRLING. No, sir. We rejected that when the State of Arizona wanted us to go in on that. The only thing we did with regard to our water rights was that one fellow would have a water right from 1870 and another from 1912 or something like that. They were friends and neighbors, and we made an agreement that they would receive the same date. The agreement was that they would give them the same priority on their water rights. From 1870 they all took 1917.

Mr. ENGLE. Do you know who were the parties to that decree which adjudicated the rights on the Gila? Who were the parties? Were they individuals, or the two States?

Mr. STIRLING. I think there was a valley there. I think the Virden Valley agreed 100 percent to go in with the State of Arizona in order to get the San Carlos Dam, the Coolidge Dam.

Mr. ENGLE. In any event, before these improvements which you have described can be undertaken, there has to be some modification of that decree by agreement—does there not?—or by some other means, respecting the division of waters.

Mr. STIRLING. The way I have understood it, from being at Phoenix during the reclamation meeting, is that if the central Arizona project went through they were willing to let the upper part of the Gila, from the Coolidge Dam up to the Hooker Dam—as they said, "We will let you have all the water that New Mexico wants," and Arizona above the Coolidge, "Because we can supply Coolidge with water from the central Arizona project."

Mr. ENGLE. What it has to be then is an exchange of water, more or less. If Arizona gets the central Arizona project and the water necessary for that project, then an exchange can be worked out; is that what you mean?

Mr. STIRLING. You mean an exchange with the San Juan, the Colorado people?

Mr. ENGLE. No. It was my impression that the water of the upper Gila would be diverted to some extent for New Mexico; is that right?

Mr. STIRLING. We would have no increase in reclamation land, in land put under the thing. We might salvage some that has been wrecked by the flood, but the valley is narrow there. There would not be any additional point for reclamation. Most of it is to save what we have and to retain what has been lost since 1941 and get it back into productivity.

Mr. WHITE. Will the gentleman yield to me?

Mr. ENGLE. Yes.

Mr. WHITE. You have there in the State of New Mexico no storage; do you?

Mr. STIRLING. No, sir.

Mr. WHITE. There is just diversion. You have water rights filed to divert the water at the different places?

Mr. STIRLING. Yes, sir.

Mr. WHITE. Diversion rights?

Mr. STIRLING. Yes, sir.

Mr. ENGLE. What I am trying to find out is whether or not some determination of the lower-basin uses of water is a necessary prerequisite to these facilities you speak of being built.

Mr. STIRLING. I could not say there would have to be an agreement.

Mr. MILES. That case is still in court; is it not, Mr. Stirling?

Mr. STIRLING. Yes, sir; I believe that is true.

Mr. MURDOCK. Mr. Stirling, are you suggesting to us that by storage such as you would have in the Hooker Dam there would be more water for your people in New Mexico to use than without that storage?

Mr. STIRLING. Yes, sir; there would be more water when we needed it because we have had water on turns now for quite a few years. It used to be that anybody, when he wanted water, opened the head gates, but now we have to put the water on turns even early in March for the rest of the growing season. Last year and the year before those farmers lost wheat, oats, barley, alfalfa, and permanent pasture and everything, because even up against the headwaters in the Gila we did not have enough water during the drought. If we had stored water, that would give us water when we wanted it, which is quite a thing.

Mr. MURDOCK. There would be the two benefits, and they are large benefits, as I see them.

Mr. STIRLING. Yes, sir.

Mr. MURDOCK. One is the storage so that you may have the flood waters to use when you need them?

Mr. STIRLING. That is true.

Mr. MURDOCK. The other is to regulate the stream flow below so that it will not be so destructive as it has been in the past?

Mr. STIRLING. Yes, sir.

Mr. MURDOCK. It will save a good deal of this transpiration that you speak of—this loss through the cottonwood trees and that sort of thing.

Mr. STIRLING. The Reclamation Bureau has said that was more than 9,000 acres. If you fly over it, it would appear as though that figure was an understatement and that it was much more than that. Maybe that is just the way it looks, but if there is 9,000 acres a structure that would help us eliminate that uneconomic growth would have water for approximately 27,000 acres of economic crops, plus having the water for all of us when we needed it.

Mr. ENGLE. Mr. Chairman, there was just one other point I wanted to make.

In fact, I am not quite sure I did not get the information I wanted. Reading from the State engineer's letter of May 27, 1949, which was just submitted to this committee, he says:

> Such improved uses in New Mexico would have to be preceded by an agreement or compact between the two States which would in effect modify the existing Gila River decree which adjudicated the waters of the Gila in the States of New Mexico and Arizona.

Then he goes on to discuss the Hooker Reservoir as the site which they think is best calculated to give the kind of services they want and which you have referred to in your testimony and which I think is agreed to be very beneficial.

In the next to the last paragraph he says:

> The right of New Mexico to participate in the use of the waters of the Gila River is not necessarily limited by the uses which have been outlined in the

Bureau of Reclamation report. The New Mexico allocation will have to be determined when an allocation of lower Colorado River Basin water is finally made among the States of the lower basin.

In view of those two statements, I asked you whether or not there was not some necessary preceding determination of water allocation which has to be made before you can talk about these projects specifically.

Mr. STIRLING. Governor Miles, is that the battle they are having in court now?

Mr. MILES. Yes, it is still in court. I expect Mr. Carson is familiar with that case. That is the one where I knocked the lock off the dam to let the water out to those farmers down there in New Mexico who were starving to death, and we were in court for quite a while.

Mr. MURDOCK. Before calling on any other witness, I would like to make this one statement, which might clear up the situation some.

Mr. Engle asked whether there must not be some arrangement made. Since part of New Mexico is in the lower basin, it stands to reason that New Mexico is entitled to some of the lower basin water apportionment.

While that has not been definitely decided in all of the computations the Bureau of Reclamation has set aside and agreed that New Mexico is entitled to a certain amount of water which was based, I think, on New Mexico's use or possible use.

That, I think, Mr. Engle, is the thing the State engineer referred to in the paragraph which you read, and the point that the witness is making is that if we build the Hooker Dam it will make possible the use of that water, because certainly if New Mexico is entitled to 60,000 acre-feet of water out of the Colorado River system you certainly are not going to get it by a bucket brigade from the Colorado River over there. You have to develop it on the headwaters of the upper Gila. That is what the Hooker Dam will do.

Mr. STIRLING. Yes, sir.

Mr. ENGLE. Mr. Chairman, I agree with all of that, but I again refer to what the State engineer of New Mexico said—that such increased uses in New Mexico would have to be preceded by an agreement or compact between the two States which would in effect modify the existing Gila River decree. I assume it is not something that is still subject to being decreed but which has already been decreed and which he says adjudicated the waters of the Gila in the States of New Mexico and Arizona.

Mr. STIRLING. Well, we were a trifle vague about that letter ourselves. We did not know what Mr. Bliss had in mind. All I am prepared to discuss is the need that we feel, the structures that must be completed in order to continue agriculture in that country and to keep those men and women and their kids from flowing down during floods and losing everything on earth that they worked for.

Mr. MURDOCK. Mr. Stirling, you are not an attorney, of course?

Mr. STIRLING. No, sir.

Mr. MURDOCK. Would you like to have Mr. Carson answer the question put to you?

Mr. STIRLING. I would be very happy to.

Mr. MURDOCK. Then we would call upon Mr. Carson.

(The following statement was submitted for inclusion in the record:)

FURTHER STATEMENT OF STUART STIRLING, AGRICULTURAL AGENT, GRANT COUNTY, N. MEX.

I would like to thank you very much for your many kindnesses shown Mr. McMillen and me during our stay in Washington. We would also like to express our appreciation for your great interest shown in helping the farmers of Grant County solve their flood and irrigation problems.

A person could not exaggerate the damage done to many of our farms on the Gila River. The serious situation is that the floods left the farms much more susceptible to the next heavy rainfalls. However, there was one thing that we did not emphasize and that is the recreational value of a dam built at the Hooker Dam site. This dam would be at an elevation of approximately 5,000 feet. The bottom would almost be as tight as a jug. The impounded waters would lie between sheer rocky cliffs. The water would back into what is known as the wilderness area of the Gila National Forest. Water could be impounded there without any material loss by deep seepage or evaporation. It could be released at such times as the water is needed for the irrigation of crops.

As far as recreation is concerned, it would afford a wonderful area for more than a million people in the southwestern part of the United States. There is no possible location in this part of the United States that can afford as many natural advantages as this lake would give. It would allow people to go almost to the cliff dwellings by boat. It would give them easy access to one of the most rugged and beautiful sections of New Mexico. The lake itself would lie completely within the forest boundaries. At one time the Forest Service, its recreational division, said that they would put camping grounds in the most beautiful sections along its shore. A million people may sound as though we were exaggerating, but, to amplify, people from Tucson, Phoenix, and Safford; people from the mining camps here—Silver City, Las Cruces, El Paso; and many of the other towns of the Southwest would indicate that such a figure is very conservative. It would also be one of the great tourist attractions on Highway 260 that has for its motto, "From the cavern to the Grand Canyon."

I think normally those engaged in agriculture would be antagonistic toward having water impounded for recreational purposes, but because of the fact that little would be lost by evaporation or seepage, I feel that they would have little reason to complain.

If the banks of the Gila were stabilized, there is no doubt that through the removal of uneconomic growth, Arizona would get considerably more irrigation water than they are now getting.

STATEMENT OF CHARLES A. CARSON, ATTORNEY, ARIZONA INTERSTATE STREAM COMMISSION

Mr. MURDOCK. Mr. Carson, would you try to answer the question which has just been asked?

Mr. CARSON. Yes, Mr. Chairman; I am familiar with the Gila River decree. It was a decree entered in the Federal court, in Arizona, at Tucson, in a suit brought by the United States Government against the various users of water on the Gila River from its confluence with the Salt River, even up to the head of the Virden Valley in New Mexico. The people in New Mexico came into court and worked out an agreement through a decree that established the relative priorities of users from the head of the Virden Valley in New Mexico down to and including the Indian reservations which are irrigated now through the San Carlos irrigation district. And they completely adjudicated the water rights from the head of the Virden Valley down through the Safford Valley and Duncan Valley, and down through the San Carlos irrigation district.

I would hesitate to say with any exactness the number of parties there were to that decree, but it is my impression that there were in the neighborhood of 5,000 individual farmers parties to that suit, who agreed under that decree.

So that the water rights from the head of the Virden Valley down there are subject to the Gila decree as it now stands. In order to help the people in New Mexico as well as in the Duncan and Safford Valleys of Arizona, we must build the Hooker Dam in New Mexico. It is a part of this central Arizona project under the bill which is now before you.

When that is done, and the Colorado River water which is part of Arizona's share under the compact, and the California Limitation Act, is brought into central Arizona, it is our purpose and our plan—and the San Carlos irrigation district has assured us of their readiness and willingness to make an exchange of water so that she can supply Colorado River water to the lands in Pinal County and release some of their decreed rights under this decree for use upstream in Safford and Duncan Valleys in Arizona and in Virden Valley and Red Bluff back up to the Hooker Dam site in New Mexico.

We have a kind of a gentleman's understanding, and that is all that we can have until this project is authorized and we know how much water we are going to get into central Arizona and how much would be necessary to firm up our existing agriculture on the Gila below the Hooker Dam site in New Mexico, as well as in Arizona. And that we propose to do. But that cannot be worked out and New Mexico understands that it cannot be worked out until we know that the Colorado River water is coming and we determine how much water of the Gila it is necessary to release from usage now decreed in Pinal County, Ariz., for use upstream, above Coolidge Dam; that is, Safford and Duncan and Virden, clear up to the Hooker Dam site in New Mexico. And when that is done, then we propose to work out this exchange of water for all the people up above Coolidge Dam.

Mr. MURDOCK. Suppose we do not get any water into central Arizona from the Colorado River, as some of our neighbors are hoping; what are the chances of working out such a system as you have just described?

Mr. CARSON. None at all, because the water rights of the Gila, in a suit in which neither the State of New Mexico nor the State of Arizona is a party, have decreed those rights to the users along that stream by individuals or through representation of their district.

Mr. MURDOCK. And because of that decree, unless there is some exchange of water, then there is no relief for the people up from the Coolidge Dam clear to the headwaters, to the site of the Hooker Dam?

Mr. CARSON. I would not say there would be no hope of any relief, Mr. Chairman. But it could not be that any of the rights of Pinal County could be released unless that comes. Of course, if Hooker Dam were built separately it would accomplish the purpose of flood control on the Gila and it might, considered alone perhaps, be of some benefit without interfering with right below. But the Hooker Dam is an integral part of this central Arizona project and taken as an integral part, with the project considered as a whole, then it is feasible from a financial point of view, and that means that the people in Arizona, and the power at Bridge Canyon and the power that will be developed by the central Arizona project would help to carry the expense of the Hooker Dam which otherwise, standing along, probably would not be feasible.

So it is an integral part and it is essential that the central Arizona project be authorized to give these New Mexico people, and Safford and Duncan Valleys in Arizona relief from the present danger from floods, and with an assured supply of water through the agricultural season when they need it. It so happens that in years that I know of, the flow of the Gila in the summertime when the crops are growing is not there and they do lose crops up in that area because of the drought. That will be averted by the building of the Hooker Dam. It has been so bad there under their practice, that they divert water in the spring and try to make storage in the ground to carry them through the drought, but it does not work. And that is what Mr. Stirling is talking about. It is just not there when they have got to have it.

Mr. MURDOCK. Perhaps I was too strong in my statement, but Mr. Stirling's testimony then does apply to the building of the dam, the Hooker Dam; the benefits would apply?

Mr. CARSON. Yes. We have another kind of a gentleman's understanding with all the people above Coolidge Dam, that we will try to work out this exchange that Mr. Stirling referred to, and there would be enough water released for use in the upper Gila to take care of all lands now irrigated or which have heretofore been irrigated. But there would be no new lands put in above Coolidge Dam.

Mr. MURDOCK. Could that be worked out at the same time, or must there be some long judicial settlement in advance?

Mr. CARSON. No. My conception of how we can work it out is that when this project is authorized and we know that Hooker Dam will be built and water will come into Pinal County while it is being built, we can work out this question of how much water has to be released. But we cannot possibly do it unless and until this project is authorized and we know we are going to get the water.

Mr. MURDOCK. One more question; there is a well-known expression, "divide and conquer."

Mr. CARSON. Yes.

Mr. MURDOCK. Could that be paraphrased to "divide and defeat"? Here are a lot of projects. For instance, we are going to discuss the dam at the Buttes site on the Gila as well as the Hooker Dam. Suppose those are built individually, what would be the total effect?

Mr. CARSON. It would be very minor and it would give no relief to any appreciable degree to the agricultural areas in central Arizona or in these separate areas.

Mr. MURDOCK. By doing it piecemeal, it would have the effect of dividing up the entire central Arizona plan and would have the effect of defeating the main purpose of the comprehensive plan; is that right?

Mr. CARSON. I imagine that would be the purpose behind any effort to divide it up.

Mr. WHITE. You spoke of a Court decree in the State of New Mexico. What is the division of those water rights in New Mexico under that decree, in the matter of the water that is to come on into the State of Arizona?

Mr. CARSON. I am not familiar with those exact proportions, Mr. White. As I understand, the Hooker Dam site, where it is being built, would have a total——

Mr. WHITE. I am just talking about what there is under the decree, not what there is going to be, but what there is now.

Mr. CARSON. I say, I am not familiar enough with those figures.

Mr. WHITE. In other words, under the decree, New Mexico can divert and take all the water that comes up to the line?

Mr. CARSON. No; that is not the effect of it.

Mr. WHITE. Under the decree, what share does Arizona have?

Mr. CARSON. There is no division in the decree as between States. The decree relates to individuals either participating as direct parties or——

Mr. WHITE. Let us limit it just to the State of New Mexico. Does the decree deal with water users over the line?

Mr. CARSON. I thought I explained that. It deals with water users by individuals and by representation of their irrigation districts from the head of the Virden Valley to the Indian lands in Arizona. Neither State is a party to the decree.

Mr. WHITE. I understand that, but there are people on both sides of the line using water?

Mr. CARSON. Yes.

Mr. WHITE. And the Court had to go in and divide the water by priority water rights and rights between those people?

Mr. CARSON. Individually.

Mr. WHITE. Does this decree affect the people in the State of Arizona at all?

Mr. CARSON. Yes. It affects them and the people in New Mexico, but I am not familiar with the flow figures or the decreed rights sufficiently to answer a question as to what is required by the decree to cross the State line. It is not based on the State line at all. It is based on individual diversions.

Mr. WHITE. Do I understand that there is no compact affecting the waters of the Gila River between the States of Arizona and New Mexico?

Mr. CARSON. There is no compact between Arizona and New Mexico.

Mr. WHITE. But there is an existing decree that allocates the waters on both sides of the line to prior water users?

Mr. CARSON. Yes; individual users.

Mr. WHITE. And you do not know at the moment what portion of the water, under that decree, would flow across the line?

Mr. CARSON. No; I do not.

Mr. WHITE. We are talking about a series of dams. What was the dam in New Mexico mentioned a minute ago?

Mr. MURDOCK. Hooker Dam.

Mr. WHITE. Yes; Hooker Dam. These plans are all on a reimbursable basis. If that dam were built, who would pay for it? Against whom would the construction and maintenance charges be assessed?

Mr. CARSON. It will be a part of the financing as the balance of the central Arizona project is financed. The farmers would pay for their water.

Mr. WHITE. Would the water users of Arizona pay the entire cost or would New Mexico participate?

Mr. CARSON. We do not know yet.

Mr. WHITE. Are these people who are using this water organized in irrigation districts or is it just a matter of individual diversions?

Mr. CARSON. Both. A lot of them are in irrigation districts. Some of them are individuals.

Mr. WHITE. And are they privately or publicly financed?

Mr. CARSON. Privately financed, I would say, although these irrigation districts are an agency of the State and there may be some State involvement.

Mr. WHITE. They were financed privately by bond issues, things of that kind?

Mr. CARSON. Yes.

Mr. WHITE. And are under Government management?

Mr. CARSON. Not under the Federal Government, except the San Carlos irrigation district.

Mr. WHITE. You were talking about building these dams and I would like to know who is going to pay for them and what water users are involved. Let us talk about who is going to pay for them.

Mr. CARSON. The people that use the water are going to pay for it; and the power.

Mr. WELCH. Mr. Carson, what is to be the capacity of Hooker Dam? How many acre-feet of water will be impounded behind the dam?

Mr. CARSON. I will have to ask the engineers who are present to watch my answer and tell me if I am wrong. I think it is 98,000 acre-feet capacity in the Hooker Dam. The flow of the river at that point is approximately 108,000 or 110,000 acre-feet, so that the Hooker Dam would have enough capacity to store all the water.

Mr. WELCH. Is it intended to generate hydroelectric power at Hooker Dam?

Mr. CARSON. I am not sure of that; no. It is to be used, as I understand it, as a desilting dam and as a storage dam to prevent floods and to release water as it is needed for use below, without power development.

Mr. WELCH. What do the plans call for as to the height of the dam?

Mr. CARSON. I am told 222 feet.

Mr. WELCH. May I ask if it would be possible to develop hydroelectric power at the Hooker Dam?

Mr. CARSON. No; I do not think there would be enough water.

Mr. WELCH. There is not sufficient firm flow of water to warrant construction of a power plant?

Mr. CARSON. That is correct.

Mr. MURDOCK. We have been speaking here about a decree. You say that the State of Arizona and the State of New Mexico are not parties to this decree.

Mr. CARSON. No; neither one.

Mr. MURDOCK. Was that decree not brought about after and because of the building of the Coolidge Dam?

Mr. CARSON. It was my understanding that it was, by the United States Government, to settle the water rights on the Gila in order to determine how much water would be available for the Indian reservations there.

Mr. MURDOCK. It was a suit, then, brought for the benefit of the Indians, by the United States Government?

Mr. CARSON. Yes.

Mr. MURDOCK. And if there was any relief possible for the other citizens of the State, may we not look to the United States Government for such relief as is possible?

Mr. CARSON. Yes, in individual participation on this project.

Mr. WHITE. Mr. Chairman, I would like to ask this question. There were no safeguards taken by the Government before constructing Coolidge Dam to insure that water would not be diverted upstream and there would not be anything to put in Coolidge Dam?

Mr. CARSON. No. I think this suit was started before Coolidge Dam was completed and it went on through the courts. I think the decree was entered in 1935.

Mr. WHITE. That proceeding was initiated to protect Coolidge Dam and establish the rights of the people who already had water rights and insure that some water would come into Coolidge Dam?

Mr. CARSON. Yes, for use of the Indian reservations below.

Mr. WHITE. This drainage area of the Gila River, is it a country that is subject to cloudbursts and flash floods?

Mr. CARSON. Yes.

Mr. WHITE. Could you give the committee some estimate of the water that escapes and is wasted during these extraordinarily high floods or flash floods?

Mr. CARSON. No, I am not familiar enough with those flows to undertake that. I do not know whether these engineers can or not. I remember Mr. Stirling's testimony this morning that the Gila had been known to have peak flows through the New Mexico area of 66,000 cubic feet per second. And that is a lot of water.

Mr. WHITE. The purpose of building these dams is to impound that water and not let it escape.

Mr. CARSON. That is right.

Mr. WHITE. You cannot tell the committee what percentage of the flow of the Gila gets away in these unusual floods?

Mr. CARSON. No, I cannot, because I am not familiar enough with the flow figures. Also, the Gila River Channel is small, a wasteful channel, as Mr. Stirling said. It would take a lot of engineering calculations to determine how much goes to waste by virtue of a lack of regulation of the water.

Mr. WHITE. The extraordinary or flash floods that are caught in the Coolidge Dam, is the dam sufficient to store that water?

Mr. CARSON. Yes.

Mr. WHITE. So that it is all utilized lower down.

Mr. CARSON. Yes.

Mr. WHITE. Thank you, Mr. Chairman.

Mr. MURDOCK. We have taken a good deal of time from the New Mexico witnesses. Shall we call Mr. McMillen at this time?

Mr. ENGLE. May I be recognized for just two questions?

Mr. Carson, it is true, then, is it not, that the flood control benefits of Hooker Dam and the benefits of the proposed Hooker Dam in getting a more efficient utilization of water on the upper Gila are benefits wholly unrelated to any exchange of water?

Mr. CARSON. They may have some, but they cannot relieve the situation without an exchange.

Mr. ENGLE. What do you mean by saying they cannot relieve the situation?

Mr. CARSON. You cannot release water from Pinal County under the decree to the individual users unless you know where you are going to get water to take the place of that which is released.

Mr. ENGLE. I understand that. But if you can get a more efficient use of the water through a flood-control project you would perhaps have more water to use, is that right?

Mr. CARSON. I think you would and to the degree that that would be true, it would be of benefit. But it would not completely supply New Mexico lands that are now or which heretofore have been irrigated because of the decreed rights below. They would have to let it come down.

Mr. ENGLE. This is the second point. What makes you think that the irrigators either in New Mexico or in Arizona are going to release decreed rights?

Mr. CARSON. Because we have that assurance from them, not formally, because it cannot be done formally, as I said, until we know how much water it would take to do that.

Mr. ENGLE. And that, of course, is predicated upon arrangements establishing claims to the water that the people would be entitled to under the central Arizona project, is that correct?

Mr. CARSON. Yes, surely.

Mr. ENGLE. That is all; thank you very much.

Mr. MURDOCK. Thank you, Mr. Carson. We will now hear Mr. McMillen.

STATEMENT OF JOHN T. McMILLEN, PRESIDENT OF THE NEW MEXICO RECLAMATION ASSOCIATION

Mr. MURDOCK. Will you please state your name and your position, Mr McMillen.

Mr. MCMILLEN. My name is John T. McMillen. I am a former farmer on the Gila River and a rancher. I am also president of the New Mexico Reclamation Association. I am here as a representative of the farmers of the upper valley of the Gila River.

Mr. MURDOCK. You may proceed in your own way, Mr. McMillen.

Mr. MCMILLEN. To begin with, gentlemen, I do not know anything about engineering. I am not an attorney. I am just a cowpuncher.

I was not born on the Gila River, but I have been in the neighborhood of that all my life. My story deals with the past history of destruction due to the floodwaters that originate above the site of the Hooker Dam mostly. That is the point at which you catch your heavy snowfalls and even in drought years, when you have an elevation of 12,000 feet, you have considerable snow that comes in that country. It is only then an act of God that prevents that snow from coming off, in the spring, somewhere around April or May.

If you happen to catch a warm rain up there and they have that snow, it comes dashing down through there and you have water over the whole valley.

Mr. Stirling has described the valley. It is a narrow valley. The channel itself, as he has stated, is badly choked with cottonwood trees. The reason those trees were allowed to grow there is that the farmers felt that it would be a protection to them, or to their farms. It has now boomeranged; in other words, what I am trying to say is this: The protective cover that they put in there has caused the silting and the boulders and the rocks that come down from the area above to

spread water backward and forward across the river until the channel is choked up and it does not have the room that it formerly had.

This last year it started flooding in December. There was already plenty of snow on the ground in the mountains. We had a freak storm up there; we had a warm storm. Fortunately that was only on the south side, on the south side of the drainage. In other words, it was in the Pinas Altas area and along the Continental Divide where it only runs up around 8,000 or 9,000 feet. Had that warm rain reached clear across the whole watershed, there would not be anything left there, gentlemen, to talk about, because the water that came down that valley spread over the entire farming area, the channel, and the whole thing. And the destruction there was very, very bad, gentlemen. And it continued on down. We do not know what destruction took place in Arizona. We did not go down there. But we have just come back from a trip with the Army engineers who were up there, making another survey, clean through to the Arizona line. And there are plenty of farms today that are covered up with silt or wholly destroyed.

Those farmers on the Gila River are not very big farmers. They are people who have acreages of 50 to 100 acres or 160 acres of ground. And they are a group of people that depend upon that for their living. They do not all have ranch rights. Some do have in addition.

My feeling is that if the Hooker site were put in there, we could stop the impact of the flood. The water could be released in an orderly stream so as to get it down to a point where it would serve for flood protection and the balance of that water, if it were not needed for irrigation purposes, if it came at that season of the year when it was not needed for irrigation purposes, could be held back and turned loose as it was needed.

We feel that in that way our neighbors in Arizona would have more water. And not alone that, but we feel that we could store it up there where we do not have the evaporation that you do down at Coolidge and we could even assure the Indians more water, even if your central Arizona project did not go through.

We are very much in favor of the whole Arizona project. We feel that those Arizona people down there should have that. We do not know all the answers, as the engineers and other people probably do. But we feel that they should have it. We also have this gentleman's agreement which was entered into at Phoenix, Ariz., by a group of individuals, including myself, that if the central Arizona project is agreed to and is approved, that the people of New Mexico and Arizona could get together and decide who should have what, and so forth.

I do not know that I have anything further to say by way of a general statement, but I will try as best I can to answer any questions.

Please do not misunderstand me. I do not know anything about your engineering figures. We do want Arizona to have the Colorado River water. We do want protection ourselves. I do not know anything about the number of acre-feet of water that is necessary. I do not know whether it will be enough for our valleys. But we would like to have our fair share of it, whatever that might be.

Mr. MURDOCK. We appreciate that statement, Mr. McMillen. I am intrigued with one of your statements particularly. You think storage behind the Hooker Dam would mean more water to the San Carlos Indians than storage behind the Coolidge Dam?

Mr. McMILLEN. I certainly do, sir. And I will try to make that plain, if I can. If we can stop that flood menance to the Gila River Valley, the farmers themselves will get that timber out of the road. And, therefore, when that water is turned loose in an orderly stream, it will not be spread out all over that wash that is there today. The channel can be worked out. The water is confined to a narrow channel. It will not be wasted as it is now because of the cottonwood trees. The water will continue down in an orderly way and I am sure that we will reach Arizona with more water than goes down there today. Today the channel is clogged up with trees and in places there are probably three channels, small channels of water, and every bit of that is wasted. If it were all confined to one channel at that spot, that problem would be cleared up.

Mr. MURDOCK. I appreciate that statement in two respects. I believe it would help the State of New Mexico, the farmers up there, as you have said; and I believe it would help the white farmers in the State of Arizona, as you have indicated. It would especially help the Indians who have a fine piece of land, but it is badly covered up with silt. Of course, that comes from the San Pedro. But these things ought to be worked out in a systematic way. And if the engineers can show how it can be done in a feasible way, that is fine.

Governor Miles, have you any questions?

Mr. MILES. I have just one question. There is never a time when you have enough water there to irrigate what lands you have under cultivation, is there?

Mr. McMILLEN. In the spring of the year we have sufficient water.

Mr. MILES. I mean through an entire season.

Mr. McMILLEN. In the spring of the year we have plenty of water. But before the season is out, the water has run down out of the mountains, the snow has melted, and there is a run-off until practically everywhere there is a shortage of water; yes, sir.

Mr. WHITE. What is the dry season of the year?

Mr. McMILLEN. The rainy season usually starts about the Fourth of July.

Mr. WHITE. And is it dry from then on?

Mr. McMILLEN. It is dry before that. To tell you the truth of the matter, we have not had a seasonable rainy season out there in quite a number of years.

Mr. WHITE. Do you think that the storage dams would do the trick of preserving that water?

Mr. McMILLEN. As a farmer and a rancher, I believe so.

Mr. WHITE. Is the bottom of the river sandy? Does the water seep through the ground?

Mr. McMILLEN. It would, if it were allowed to run through there right now.

Mr. WHITE. You said there were some side channels there, is that right?

Mr. McMILLEN. That is right. If the water were confined to a single channel, as it should be, there would not be all that wastage.

Mr. WHITE. Is there rock available to build revetment dikes along both sides of the river?

Mr. McMILLEN. Well, there are plenty of boulders lying there at the bottom of the river bed itself.

Mr. WHITE. What about broken rock on the hills or nearby that could be trucked in there?

Mr. MCMILLEN. Yes, sir; there is lots of rock there.

Mr. WHITE. If there is plenty of rock, it would not cost much to build a revetment. Suppose the river were confined to just 100 feet in width by rock walls on both sides, what would happen?

Mr. MCMILLEN. It would confine it, sir.

Mr. WHITE. It would scour out the bottom and build a regular channel, would it not?

Mr. MCMILLEN. It would scour it out and carry off a lot more floodwater than you have now.

Mr. WHITE. Our experience in Idaho with large boulders, such as you refer to, is that they are not very suitable. It is quarried rock or shale rocks rather than the big round ones that are useful for that purpose. That is all, Mr. Chairman.

Mr. MURDOCK. Have you any questions, Mr. Baring?

Mr. BARING. You said that you would be willing for the people of Arizona to have this project, but you want the people of New Mexico to have water, too.

Mr. MCMILLEN. Yes, sir.

Mr. BARING. As you know, since 1935, the southern end of Nevada has built up tremendously in population and we now could use another 130,000 acres under cultivation. We would like about 900,000 acre-feet for the southern end of Nevada. Are the people of New Mexico willing to go through with a process such as the people of Nevada and the people of California went through and adjudicate the necessary water to the various States? Is New Mexico willing to go through with that so that we would all have what we need?

Mr. MCMILLEN. I do not particularly want to say that I would like to see this go into the Supreme Court and have a great big argument about it, but I do think everyone concerned should have their rights.

Mr. BARING. That is the point. This whole thing is built on a question of water supply. We do not know whether there is enough there or not, do we?

Mr. MCMILLEN. I do not know anything about that, sir. I cannot make a statement on that.

Mr. BARING. It is an uncertain supply.

Mr. WHITE. You are talking about the Colorado River?

Mr. MCMILLEN. Yes, sir; you are, are you not?

Mr. BARING. Yes.

Mr. MCMILLEN. I am just a cowpuncher and all I know about is the Gila River.

Mr. BARING. That is all.

Mr. ENGLE. Mr. McMillen, you understand, of course, the Gila River is a part of the Colorado River system?

Mr. MCMILLEN. Yes.

Mr. ENGLE. Subject to the Colorado River pact?

Mr. MCMILLEN. Yes, sir.

Mr. ENGLE. I notice you said very emphatically that you favored the central Arizona project. I notice, however, that the State engineer from New Mexico says:

> The right of New Mexico to participate in the uses of the water of the Gila River is not necessarily limited by the uses which have been outlined in the Bureau of Reclamation report.

I get the impression from reading that sentence that although New Mexico is willing to go along with central Arizona, it is not willing to be bound by the allocations of water on which the central Arizona project is predicated. Is that a fair conclusion from that sentence?

Mr. McMILLEN. I do not know where they got the idea of 29,000 acre-feet, sir.

Mr. ENGLE. You mean the Bureau?

Mr. McMILLEN. Yes, sir.

Mr. ENGLE. What I cannot understand is how you can go whole hog for the central Arizona project and at the same time disclaim any binding effect of the report of the Bureau on which it is based and which contains an allocation of water.

Mr. McMILLEN. I am afraid you are trying to twist me up, sir, on your statement there.

Mr. ENGLE. No, I am not. I am just trying to find out how you can say that you are for a project and not be for the allocation of the water on which the project is based. You meet yourself coming back when you do that.

Mr. McMILLEN. I grant you that. I do not know how they arrived at that 29,000 acre-feet which I think Mr. Bliss refers to.

Mr. ENGLE. Mr. Bliss also says that he is in favor of the central Arizona project, but he very explicitly says that New Mexico is not necessarily limited by the uses which have been outlined in the Bureau of Reclamation report.

I do not see how he can logically say that he favors the project but refuses to be bound by the report on which it is based.

Mr. McMILLEN. Well, to refer back to what Mr. Carson has stated, we had a gentleman's agreement with the people of Arizona that if this thing went through we would get together and could decide on the uses and on how much water we should both have.

Mr. MURDOCK. As I understand, if this project represented by H. R. 934 does not go through, your chances are pretty slim of getting any relief?

Mr. McMILLEN. Yes, sir.

Mr. MURDOCK. Are there any other questions, gentlemen?

We thank you, Mr. McMillen, for a very splendid statement.

Mr. McMILLEN. Thank you.

Mr. MURDOCK. You say you do not know anything about the Gila, but I think you know a lot about the Gila River.

Mr. ENGLE. There is one other question I would like to ask, Mr. Chairman. Mr. McMillen, have the Army engineers indicated whether or not a project to control these floods which have been mentioned here and which are very destructive, is being considered? Has there been any discussion as to whether or not such a project as that would be feasible as an Army engineer project?

Mr. McMILLEN. No, sir.

Mr. ENGLE. A flood-control construction project is not reimbursable if the costs equal the benefits; has there been any discussion with the Army engineers on that?

Mr. McMILLEN. I have not heard any of late; no, sir. They had the engineers up there with the idea of trying to see if they could not get a different report. I do not think they have enough information at

the present time really. They themselves think they should get more information about it and revise their figures as to the cost.

Mr. ENGLE. They have been up there, I understand, within the last week or two?

Mr. MCMILLEN. They were there this last week; yes, sir.

Mr. ENGLE. And presumably with the purpose of looking it over to determine whether or not it would be feasible as a flood-control project?

Mr. MCMILLEN. Yes, sir. They also left with the impression that they would be back there later for further information. They want to revise their figures.

Mr. MILES. Mr. McMillen, you stated that you believe that if a dam were built, New Mexico would benefit from two points; in flood control, and more water.

Mr. MCMILLEN. Yes, sir.

Mr. MILES. There would be more water for the use of New Mexico, is that right?

Mr. MCMILLEN. Yes, sir.

Mr. MILES. And you also believe at this moment that there would be more water going down into the dam below, the Coolidge Dam?

Mr. MCMILLEN. Yes, sir.

Mr. MILES. And you believe that building the Hooker Dam, which is part of the central Arizona project, would be of benefit to New Mexico?

Mr. MCMILLEN. Yes, sir.

Mr. MILES. Thank you.

Mr. MURDOCK. Thank you very kindly. We have present witnesses representing the Indians. I am very glad to see my friend Barnett Marks, of Phoenix, in the committee room this morning. He and his son represent some Indians living in Arizona who are interested in the project. I would be happy to have a statement from Mr. Marks, unless he prefers to turn the matter over to Mr. Cohen.

Mr. MARKS. Mr. Chairman, may I ask that Mr. Cohen, our associate counsel from Washington, present a statement first and that I may be permitted to add a word here after he has completed his statement.

Mr. MURDOCK. We should be very glad to do that. We shall now hear Mr. Cohen.

STATEMENT OF FELIX S. COHEN, ASSOCIATE COUNSEL, TRIBE OF HUALAPAI

Mr. COHEN. I am Felix S. Cohen, attorney. I am associate counsel for the Hualapai Tribe.

Mr. Chairman, I appreciate very much the courtesy that is extended to the 500 citizens of Arizona who are organized in a municipal corporation known as the Hualapai Tribe in permitting them to present their views before this committee. I realize how busy this committee is, and I will try to make my statement on behalf of these Indian citizens of Arizona as brief as possible.

The interest that these Indians have in the central Arizona project arises very simply from the fact that the land which is to be flooded, the land which is to be used as a construction camp, belongs to the Hualapai Tribe. It does not belong to the Bureau of Reclamation,

despite the impression that some of the statements of that Bureau may have given. It does not belong to the Indian Service. It belongs to human beings who are American citizens, 500 of them. It is their land.

Not only is it their land, but it is an important part of an industry by which these people have pulled themselves up from the very bottom of the economic ladder in the last few years to build up a thriving stock industry and to make of themselves a self-supporting self-reliant community.

They have had in that process the excellent help of a man by the name of Tom Dodge who is the superintendent of the reservation, an Indian himself, and somebody who has helped them to build up, as I say, from the bottom of the economic ladder to a place where they are now self-supporting and not a drain upon the United States.

They do not want to be made landless by anything that happens in the central Arizona project, and I am sure that the sponsors of the project do not want to throw them off the land or to do anything that would injure their present economic position.

Yet we feel there are provisions of the bill in its present form which would have a seriously adverse effect upon them, or at least that the bill, if amended as the Department of the Interior has proposed, would have a very serious and adverse economic effect upon these Indians.

The land that would be involved, both in the flooding and in the building of a construction camp, is the center of the livestock industry of these Indians. It has not only that immediate economic value, but it has a very important human value to these people.

These people have been living here for centuries. The particular land which is to be flooded by this particular project is, according to their tribal traditions, the original Garden of Eden where the first man was created. They have not been pushed here from some other part of the world. They have been here as far back as tradition and memory goes.

They recognize themselves in the course of economic progress and development that they must make sacrifices and they are prepared to make those sacrifices, but they want fair treatment. They want to be treated like human beings, like American citizens. They want to have an opportunity to negotiate with the officers of the Government who are in charge of this project to see that they receive fair compensation for the losses that they must sluffer, and to see that no more land is taken from them in this project than is absolutely essential to serve the larger interests of the United States.

Now, when 500 Indians seek to negotiate with the United States Government, they realize that they inevitably occupy an inferior position. They realize that if the land is taken first and flooded they may have to wait for decades or generations, as has happened before, before they receive compensation for the land. It has happened in the past that land has been taken from Indians and that Indians have had to wait just as much as centuries to be compensated for the land, so these Indians would like to have an opportunity before any of their land is taken or flooded to sit across the table with those who represent the United States, the Bureau of Reclamation and the Interior Department, and negotiate a fair settlement.

They would like to do that before their land is taken and not after.

When I speak of this as being their land, I do not use the term in any

loose or metaphorical sense. I would like to refer specifically to the language which the Supreme Court used a few years ago on December 8, 1941, in the case of the United States of America as guardian of the Indians of the tribe of Hualapai in the State of Arizona against the Santa Fe Pacific Railroad Co. In that case it developed that the Department of the Interior had tried to give away some of the land which is involved in this Bridge Canyon project. It had attempted to give that land away to a railroad, all in good faith, I am sure, and with the same intentions that now impel the Interior Department to turn this land over to a reclamation project.

Obviously, the railroad was an important national necessity and the Department of the Interior had tried to give the land to the railroad. The Supreme Court said:

> Such statements by the Secretary of Interior as that title to the odd-numbered sections was in the respondent—

that is the railroad—

> could not deprive the Indians of their rights any more than could the unauthorized leases in *Cramer* v. *United States*, supra.

The Supreme Court made the point in that case that this land had been promised under an agreement made between the United States and the Indians in or about 1881 as a permanent reservation, not as a temporary stopping place, but as a permanent reservation that belonged in equity to the Indians and that could not be taken from the Indians by the Secretary of the Interior and given to a railroad.

We feel that that decision, which has been faithfully followed by the Department of the Interior, gives the Indians a right in this land which is to be flooded, and that not even the general terms of H. R. 934, as presently stated, would disturb that right.

There are several statutes under which particular types of Indian land can be condemned for public purposes. There is a statute under which allotted land may be condemned for public purposes. There is another statute under which tribal land owned by any New Mexico pueblo can be condemned for public purposes. But there is no statute which authorizes condemnation for public purposes of land that belongs to a tribe other than the New Mexico pueblos.

Mr. ENGLE. Mr. Cohen, that is a very interesting statement. Do you mean to say that in your opinion the powers of condemnation and the powers of this Congress to authorize condemnation do not extend to lands which belong to the Indians by virtue of what amounts to a treaty with the United States Government?

Mr. COHEN. Not quite, Congressman. What I mean to say is that Congress, at the present time, has authorized condemnation of certain lands but has not authorized condemnation of tribal lands. I do not doubt that Congress can do that. I do not doubt that Congress could write into H. R. 934 a provision authorizing condemnation of the Indian tribal lands.

Mr. ENGLE. Let me ask you this: Is the land which these Indians hold land to which they have title as a result of a treaty with the United States Government?

Mr. COHEN. In effect.

Mr. ENGLE. If it is I have grave doubts as to whether Congress can abrogate that treaty by any kind of legislation.

Mr. COHEN. If I may correct my statement, it is not in form a treaty. It is in form an agreement and was referred to as an agreement by the Supreme Court.

I do believe that there are cases holding that Congress can violate a treaty with the United States and that the courts will carry out in subsequent statutes the violation of that treaty.

Mr. MURDOCK. You are speaking now of a formal treaty, are you not?

Mr. COHEN. No; I think in that connection I would speak either of an agreement or a treaty.

There have been cases in the past where Congress has made agreements with Indians and has violated those agreements and has authorized action contrary to those agreements. In at least two of those cases the Supreme Court has said that what Congress did last superseded what the United States did first. That, of course, would not stand up in any international tribunal. From an international standpoint no nation has a right to repudiate its treaties, but there is a doctrine in American law that the courts will recognize as valid an act of Congress which violates a treaty, whether a treaty with Indians or a treaty with a foreign country.

That first came up in connection with a treaty with China, which was violated by the Chinese Exclusion Act, and the Supreme Court held that the act was binding, even though passed in violation of the treaty.

I believe that would be true here, recognizing that that statement is adverse to the interests of my clients, but it is the law, as I understand it, that Congress does have the power to act in contradiction and contravention of treaties or agreements whether made with Indians or any foreign nation.

Mr. BARING. Will you state just once more where this Indian land is? Maybe I did not hear right as to where it is located.

Mr. COHEN. The reservation, unfortunately, does not appear on most of the maps which the Bureau of Reclamation has presented before this committee. I think that is unfortunate.

The reservation is on the south side of the Colorado River, and it includes the area which is to be flooded. It includes Bridge Canyon and the surrounding area.

On this area of the reservation is also the projected site of the construction camp which the Bureau of Reclamation contemplates taking from the Indians and turning over into a construction project.

Mr. WELCH. How many acres are in the reservation?

Mr. COHEN. I believe that at the present time there are about 1,000,000 acres in the reservation.

Mr. WELCH. How many?

Mr. COHEN. About 1,000,000 acres.

Mr. MURDOCK. That is in the entire reservation?

Mr. COHEN. In the entire reservation.

Mr. MURDOCK. Was that your question? Did you want to know how many acres would be involved in the construction, the location of the camp site, and the dam?

Mr. WELCH. How many acres will it take from the reservation now under the control of the Indians to whom you refer?

Mr. COHEN. That we do not know. We have not had an estimate from the Bureau of Reclamation as to just how much of this 1,000,000 acres will actually be flooded or used for a construction camp.

I should like, in that connection, to refer to the final decree of the Federal District Court for Arizona in the case to which reference has been made before, the Santa Fe Railroad case, and particularly to section 8 of the decree, which defines the land and defines the area south of the Colorado River which belongs to these Indians.

(The information is as follows:)

EXCERPTS FROM JUDGMENT OF FEDERAL DISTRICT COURT

(No. E-190—Prescott Division)

United States of America as guardian of the Indians of the tribe of Hualapai, in the State of Arizona, plaintiff v. *Santa Fe Pacific Railroad Co., a corporation, and the Atchison Topeka Railway Co., defendants*

8. That the lands presently comprised within the Hualapai Reservation and referred to in paragraph 9 of the amended complaint other than the railroad right-of-way, Peach Springs station grounds and the other lands herein as to which title is quieted in the Atchison Co. are, and have been since prior to 1866, subject to the use and occupancy of the Hualpai Tribe. * * *

(NOTE.—The description referred to begins "at a point on the left bank of the Colorado River located in sec. 21, T. 31 N., R. 15 W., G. & S. R. M." and after describing the western, southern, and eastern boundaries of the reservation concludes, by way of description of the northern boundary, "thence down that stream to the place of beginning.")

Mr. WHITE. Your discussion goes to the vested rights of the Indians; is that right?

Mr. COHEN. Precisely, Congressman. So far, I have not said anything about the merits of the project as such. I have talked only about the interests of these Indians in the land that is to be flooded.

I may say in further answer to Congressman Engle's question that some years ago, when I served as acting solicitor for a time of the Department of the Interior, I was asked a similar question on the Senate side in connection with the Fort Berthold land which is flooded by Garrison Dam. I then made the same statement which I have made today. I made the statement there in substance that I did not believe that a general authorization to build a project included any authority to violate a treaty, and that unless Congress specifically said that the Indian lands should be taken—and I admitted the power of Congress to say that—I did not think the Garrison Dam could be built; and apparently the Senate committee accepted my judgment on that and made provision that a contract should be made with the Indians before the actual land that belonged to the Indians was flooded.

Now, the Department of the Interior has proposed to this committee, as I understand it, a set of amendments to H. R. 934 which would authorize the taking of this land, and we object very vigorously to those amendments.

Mr. MURDOCK. I doubt, Mr. Cohen, whether this committee has had any such amendments. At least I have not seen them, and I think they would come to me.

Mr. WHITE. Were they embodied in the report on this bill received from the Department of the Interior?

Mr. COHEN. I beg your pardon, Mr. Chairman. If I am wrong, I should like to submit for the record the amendments which the Department of the Interior has recommended to S. 75, which is the companion bill.

Mr. MURDOCK. That is the Senate bill, the companion bill.

Mr. COHEN. I had understood that they were making the same recommendation to this committee.

Mr. WHITE. Mr. Chairman, has this bill been submitted to the Department of the Interior for a report and have we received such a report?

Mr. MURDOCK. That is right; we have a report, but I think those amendments are not a part of it. They were submitted, according to Mr. Cohen, to the Senate.

Mr. WHITE. I imagine the two reports to the House and Senate would be identical.

Mr. COHEN. Would it be agreeable to the committee, Mr. Chairman, if I would submit and make a part of the record the proposed amendments which were presented to the Senate?

Mr. MURDOCK. Yes; they may be admitted as a part of the record, and probably they are included in the report, but I doubt it.

Mr. WHITE. I wonder if that report has been read to the committee.

Mr. MURDOCK. It has not been read to the committee.

Mr. WHITE. That is the routine proceeding, as a rule, to read the report before starting hearing on a bill.

The CLERK. Our report is of a different date. Our report is the 11th, and the Senate report is the 18th.

Mr. MURDOCK. These amendments are not included in our report; but, since they were offered to the Senate committee, they may be received in the record at this point.

(The documents are as follows:)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., March 18, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate.

MY DEAR SENATOR O'MAHONEY: This department has been requested by the Senate Committee on Interior and Insular Affairs to report on S. 75, a bill authorizing the construction, operation, and maintenance of a dam and incidental works in the main stream of the Colorado River at Bridge Canyon, together with certain appurtenant dams and canals, and for other purposes.

Some time ago this Department submitted to the President and the Congress its report on the centarl Arizona project. That report was, subject to certain conditions precedent therein enumerated, favorable. By letter dated February 4, the Director of the Bureau of the Budget advised me that he had been instructed by the President "to advise you * * * that he again recommends that measures be taken to bring about prompt settlement of the water-rights controversy." In a subsequent letter to you, dated February 11, Mr. Pace explained that this advice was not to be taken as meaning that "the President * * * at any time indicated that suit in the Supreme Court is the only method of resolving the water-rights controversy which is acceptable to him" and that "If the Congress, as a matter of national policy, makes a determination that there is a water supply available for the central Arizona project, the President will consider all factors involved in any legislation to authorize the project and will inform the Congress of his views respecting the specific provisions of this legislation," Mr. Pace's letter of February 4 was published in the Congressional Record for February 7 at page A595. A copy of his letter of February 11 is attached.

Should the Congress, in the light of the very real need that exists in certain areas of Arizona for supplemental water for irrigation and of the urgent need for more power in the Southwest, determine upon the enactment of legislation along the lines of S. 75, then your committee may wish to consider the recommendations contained in paragraph 49 (8) of the report dated December 19, 1947, by the Bureau of Reclamation's Regional Director, Region III. I urge your committee to consider also including, at an appropriate point in the bill, a provision affecting the Indians and reading along the following lines:

"(a) In aid of the construction, operation, and maintenance of the works authorized by this act, there is hereby granted to the United States, subject to the provisions of this section, (i) all the right, title, and interest of the Indians in and to such tribal and allotted lands, including sites of agency and school buildings and related structures, as may be designated from time to time by the Secretary in order to provide for the construction, operation, or maintenance of said works and any facilities incidental thereto, or for the relocation or reconstruction of highways, railroads, and other properties affected by said works; and (ii) such easements, rights-of-way, or other interests in and to tribal and allotted Indian lands as may be designated from time to time by the Secretary in order to provide for the construction, operation, maintenance, relocation, or reconstruction of said works, facilities, and properties.

"(b) As lands or interests in lands are designated from time to time under this section, the Secretary shall determine the just and equitable compensation to be made therefor. Such compensation may be in money property, or other assets, including rights to electric energy developed at any of the generating plants herein authorized. In fixing such rights to electric energy, including the rates and other incidents thereof, the Secretary shall not be bound by Section 4 of this act. The amounts of money determined as compensation hereunder for tribal lands shall be transferred in the Treasury of the United States from funds made available for the purposes of this act to the credit of the appropriate tribe pursuant to the provisions of the Act of May 17, 1926 (44 Stat. 560). The amounts due individual allottees or their heirs or devisees shall be paid from funds made available for the purposes of this act to the superintendent of the appropriate Indian agency, or such other officer as shall be designated by the Secretary, for credit on the books of such agency to the accounts of the individuals concerned.

"(c) Funds deposited to the credit of allottees, their heirs or devisees, may be used, in the discretion of the Secretary, for the acquisition of other lands and improvements, or the relocation of existing improvements or the construction of new improvements on the lands so acquired for the individuals whose lands and improvements are acquired under the provisions of this section. Lands so acquired shall be held in the same status as those from which the funds were derived, and shall be nontaxable until otherwise provided by Congress.

"(d) Whenever any Indian cemetery lands are required for the purposes of this act, the Secretary is authorized, in his discretion, in lieu of requiring payment therefor, to establish cemeteries on other lands that he may select and acquire for the purpose, and to remove bodies, markers and appurtenances to the new sites. All costs incurred in connection with any such relocation shall be paid from moneys appropriated for the purposes of this act. All right, title and interest of the Indians in the lands within any cemetery so relocated shall terminate and the grant of title under this section take effect as of the date the Secretary authorizes the relocation. Sites of the relocated cemeteries shall be held in trust by the United States for the appropriate tribe, or family, as the case may be, and shall be nontaxable.

"(e) The Secretary is hereby authorized to perform any and all acts and to prescribe such regulations as he may deem appropriate to carry out the provisions of this section.

"(f) Nothing in this act shall be construed as, or have the effect of, subjecting Indian water rights to the laws of any State."

The Bureau of the Budget has advised that there is no objection to the presentation of this report to your committee. A copy of Director Pace's letter of March 17 transmitting this advice is enclosed for your information.

Sincerely yours,

OSCAR L. CHAPMAN,
Acting Secretary of the Interior.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
February 11, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington 25, D. C.

MY DEAR SENATOR O'MAHONEY: Members of the Congress have raised a question as to the interpretation to be placed upon the last clause of the last sentence of my letter of February 4, 1949, addressed to the Secretary of the Interior advising him of the relationship to the program of the President of the central Arizona project. The clause referred to reads as follows: "* * * and that he (the President) again recommends that measures be taken to bring about prompt settlement of the water-rights controversy."

During the last Congress in connection with consideration of Senate Joint Resolution 145 and House Joint Resolution 227, this office advised the Attorney General that it would be in accord with the program of the President to resolve the water-rights controversy by waiving immunity of the United States to suit and by granting permission to the States to bring such actions as they might desire, if the Congress felt it to be necessary to take such action. This advice was transmitted to the Congress by the Attorney General. Similar advice was also transmitted by the Secretary of the Interior, together with specific suggestions as to a form of a resolution which the Congress might consider.

In order that there may be no misunderstanding of the President's position, I shall be grateful if you will advise the members of your committee that the President has not at any time indicated that suit in the Supreme Court is the only method of resolving the water-rights controversy which is acceptable to him. On the contrary, the letters addressed to the Congress last year, as indicated above, stated specifically that enactment of the resolution authorizing suit would be acceptable to the President "* * * if the Congress feels that it is necessary to take such action in order to compose differences among the States with reference to the waters of the Colorado River * * *."

The project report and materials relating to the positions of the several States affected are now before your committee for consideration. If the Congress, as a matter of national policy, makes a determination that there is a water supply available for the central Arizona project, the President will consider all factors involved in any legislation to authorize the project and will inform the Congress of his views respecting the specific provisions of this legislation.

Sincerely yours,

FRANK PACE, JR., *Director.*

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., March 17, 1949.

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: On February 19, 1949, you transmitted to me the report which the Department of the Interior proposes to make to the chairman of the Senate Committee on Interior and Insular Affairs on S. 75, a bill authorizing the construction, operation, and maintenance of a dam and incidental works in the main stream of the Colorado River at Bridge Canyon, together with certain appurtenant dams and canals, and for other purposes.

The President has authorized me to inform you that there is no objection to the presentation of this report to Senator O'Mahoney. It will be appreciated if you will attach a copy of this letter when you forward your report to the committee.

Sincerely yours,

FRANK PACE, JR., *Director.*

Mr. COHEN. May I say, Mr. Chairman, that it is my understanding the amendments were offered to the Senate committee subsequent to the regular report of the Department on the bill, and it was my understanding that the Department planned to supplement its regular report to this committee with these proposals.

We have three objections to these proposals. In the first place, they provide that the Secretary of the Interior shall make the sole and final determination of what land is to be taken and what is to be paid for it. We believe that it is contrary to American principles of justice that a man who takes land should be judge in his own cause and should decide what is to be paid for it.

In the second place, the proposed amendment of the Department of the Interior provides that the land is to be taken now—by "now" I mean at the time of the passage of the bill—and that the Indians may not be paid for it until some remote time in the future. We think that every American citizen has the right to be paid for land that is taken at the time it is taken. Everyone other than an Indian has that right, and I do not think that it is the intention of this committee to place Indians in an inferior position or on an inferior level to other citizens.

In the third place, we object to the proposals of the Department of the Interior because they do not really provide for compensation to the Indians. They provide for compensation to the Indian Bureau. The language of the Department of the Interior's proposal contemplates that actual money will be turned over to allottees. Well, there are no allottees on the reservation. The reservation has never been allotted. Apparently the experts in the Bureau of Reclamation who prepared these amendments did not realize that there are no allottees.

The amendments provide that, insofar as any compensation may be owing to the tribe, or the corporation, as I prefer to call it—it is a municipal corporation, and has been such since June 5, 1943—the Department of the Interior amendments contemplate that instead of turning over the compensation to this corporation which has its own bonded treasurer and its own account and is thoroughly capable of handling its own funds, the money should be turned over to a special Indian Bureau account over which the Indians will have no particular control.

In other words, what this amounts to, in the eyes of the Indians, is that the man who takes the land will first set himself up as a judge to decide what should be paid for it and then will pay the amount of his judgment in his own discretion as to time, perhaps this year or perhaps next year or perhaps next century, and then will pay it not to the Indians but will pay it, in effect, to the United States, which took the land, and put it in a special account in the United States Treasury.

We do not think that is fair. We do not think that is in accord with elementary principles of justice. We believe that the Indians ought to receive compensation for the land that must be taken from them. We believe that the first step of it would be to sit around the table and negotiate the details of that agreement, as the United States has tried belatedly to do in the Garrison Dam case.

We think that ought to be done before the Indians are deprived of their land.

We think until the Department of the Interior makes a real effort to do that there ought to be no condemnation of the land and no provision in the bill authorizing any condemnation of the land.

Mr. WHITE. Mr. Chairman, I think there is one question which I could ask at this point which would clarify our understanding, as the discussion of the gentleman goes along.

Mr. MURDOCK. Yes, Mr. White.

Mr. WHITE. These Indians own the land, and the money should be paid to them. Have they a tribal council? Have they a local government?

Mr. COHEN. Yes, Mr. Congressman; they have been organized as a municipal corporation since June 5, 1943. They have a local government. They have a tribal council.

Mr. WHITE. Does that take on the aspect of a commercial organization, this corporation? You said they incorporated under law, I believe.

Mr. COHEN. I think it is rather a municipal corporation, rather than a commercial corporation. They have no stocks or bonds. They do not pay dividends, but they do control.

Mr. WHITE. Have they a tribal council in the eyes of the Government and the Bureau of Indian Affairs, or is this tribal corporation a commercial thing? You say it is a corporation incorporated under the laws. Are those the laws of some State? How is it incorporated?

Mr. COHEN. The incorporation is under Federal law, and the tribal council is recognized by the Department of Interior.

Mr. WHITE. Why is not this money in these transactions handled in the usual course and routine followed by the Bureau of Indian Affairs in dealing with the Indians?

From the presentation being made to the committee it appears that the thing would be irregular and out of line with the procedure of the Government in dealing with Indians and in dealing with tribal funds and things of that kind. Can you explain that to the committee?

Mr. COHEN. Yes.

Mr. WHITE. I just want to be clear on the subject. I do not want to be in the dark or to be befogged as to what you are presenting. That is why I asked that question.

Mr. COHEN. I am very glad, sir, that you asked that question, because it is true that in the past the Indian Bureau in many other cases has taken money which should have gone to the Indians, and has put it in special accounts and used it either for Indian Bureau salaries or for improvements of the agency buildings and various other things, without the Indians ever having anything to say about the money.

Mr. WHITE. That is the customary practice in nearly all of the reservations; is it not?

Mr. COHEN. It has been, sir, until recent years, a customary practice, and reference was made a little earlier to the San Carlos Reservation.

It is my understanding—and I may say parenthetically that I also represent the San Carlos Apache Indians—that when land was taken from them for a similar project they never received or saw any of the money that was paid. The money that was paid went to improvements of the buildings in which the agency employees worked.

As you say, Congressman White, that is a long-standing practice dating from old times when the Indians were considered incapable of handling their own funds.

Mr. WHITE. It is the exercise of the discretion of the Bureau of Indian Affairs?

Mr. COHEN. It has been the old and long-standing practice. It is my understanding, sir, that in recent years Congress has indicated that the Indian Bureau ought not to continue as a master and dictator of Indian funds, and Congress has passed a series of bills, one of which is now before this committee, a general bill, but in the past Congress has passed a series of specific bills relating to that subject and providing that Indian tribes and tribal councils, when they have established certain procedures, established a bonded treasurer and accounts and so on, should have, hereafter, the right to handle and spend their own money.

In line with that policy established by Congress, the Department of Interior and the Bureau of Indian Affairs, particularly, have stated over and over again that they are in favor of the Indians handling their own money instead of having the money spent for them by local Indian superintendents.

We think that in line with that policy of Congress, that policy which this committee has frequently expressed adherence to and which the Indian Bureau has expressed adherence to, any arrangement in making any compensation for the land that is to be taken for this project ought to include payment to the bonded treasurer of the Indian corporation.

Mr. WHITE. Mr. Chairman, may I be permitted to make an observation at this point?

Mr. MURDOCK. Yes.

Mr. WHITE. In the light of the testimony of the witness, presenting the circumstances that appear, and in the light of the bill which we have passed through this committee in the case of the Wisconsin funds, regarding the taking over of that timber and getting the money for it, I think an explanation of what is being presented by the witness should be given and that we should call upon the Commissioner of Indian Affairs, and have him explain it. It seems to me to be a discrimination in the way the funds are being handled.

We just had the Garrison Dam Indians before this committee, and the arrangement of the provision of the bill was for the Indians to get the money direct. Now we are told that the Indians will not get a dime.

I would like to know, as a member of the Subcommittee on Indian Affairs, what plan is being followed by the Bureau of Indian Affairs in handling these Indian funds.

I make that as an observation, Mr. Chairman.

Mr. MURDOCK. Thank you, Mr. White. Go right ahead, Mr. Cohen.

Mr. COHEN. I think, sir, that completes the statement I wish to make.

I should like to make it clear that the Hualapai Indians are in favor of the substance and principle of this central Arizona project. They are not in favor of the present bill insofar as the present bill fails to provide for negotiation with the Indian land owners before the land is flooded, and they specifically oppose the Department of the Interior amendments which would write into the bill a unilateral one-sided procedure under which the Indians would not have the protection of any kind, would not have the protection of the ordinary common-sense way of dealing with land purchase, which is to sit around the table and try to work things out.

Now, I should like to submit a specific substitute amendment, the substance of which is that the Department of the Interior ought to sit down and negotiate with the Indians for the terms under which the land that the Department of the Interior may need under the project is to be surrendered. That is important, sir, because at the present time, even if the Indians wanted to turn over this land, they would have no authority to do so. Their title is a restricted title. They have no right to convey. They are willing to convey in the public interest, but they need statutory authority to make the conveyance, and we, therefore, purpose an amendment which I would like to submit for the record with a brief supplementary explanatory statement.

Mr. WHITE. Is that amendment very long?

Mr. COHEN. I would be glad to read it.

Mr. WHITE. Mr. Chairman, I would suggest that the amendment be read to the committee.

Mr. MURDOCK. Very well. We would be glad to have the amendment submitted for the record, or read.

Mr. WHITE. Not very many of us have time or find an opportunity to read the record. I would like to have it read.

Mr. COHEN. It will take me just a minute to read it.

This would be added to section 2 of the bill as a proviso at the end of the section:

And provided, further, That the Secretary is hereby authorized to purchase or lease from the Hualapai Tribe of Arizona lands, rights of way, and others property belonging to the said tribe which are to be flooded by the Bridge Canyon Dam, or which may be needed for other purposes authorized by this act, and the Hualapai Tribe of Arizona is hereby authorized, notwithstanding any provisions of existing law to the contrary and notwithstanding any limitations of existng law contained in the constitution and corporate charter of the said tribe, to sell or lease, for any period of time, any such lands, rights of way, and other property to the United States. The Secretary is directed to make every reasonable effort to negotiate such a contract of sale or lease upon reasonable terms, and if he is unable to do so, he shall report the facts to the Congress. Pending such report and action thereon, this Act shall not be deemed to authorize the institution of any condemnation proceedings against the lands or other property of the Hualapai Tribe.

Mr. WHITE. Do you understand that the adoption of that amendment might indefinitely hold up the construction of the project?

Mr. COHEN. In my belief there would be no such indefinite delay caused by this amendment. The Indians are ready to sit down today or tomorrow and work out the terms under which the land would be turned over. I believe that the Department of the Interior, if it approaches this matter in good faith, will be able to work out an agreement in a space of a few weeks. If it is unable to do so, there will be time before the last stone is laid on the dam to come back to Congress and ask Congress to authorize a taking from the Indians.

This particular arrangement under which a report should be made to Congress if the Indians are unreasonable, is based on what Congress did in the Garrison Dam case. They there required that a report be made if it were impossible to work out a reasonable arrangement for the surrender of the Fort Berthold land.

Mr. WHITE. There has been a long line of precedents set up in making settlements between the Indians and water users. There ought to be some provision in the bill, as I see it, for a compromise or something

of that sort, where a commission could be appointed with powers to make a settlement.

Mr. COHEN. We would have no objection, Congressman, to a modification of this arrangement which is provided that in the event of inability to agree some impartial third arbitrator might be appointed to settle the difference.

In that connection I should like to turn the chair over to Mr. Burnett Marks, the principal counsel for the Hualapai Tribe, particularly in view of the fact that Mr. Marks has worked with that tribe in one way or another for more than 20 years and knows that these are the kind of reasonable people who could sit around the table and work this thing out expeditiously, without any prolonged delay. I think his words of experience on this would count for a great deal more than my own.

Mr. MURDOCK. Did you gentlemen have any questions to ask Mr. Cohen?

Mr. WHITE. I have several questions, but I do not want to delay the proceedings here.

You say there are 500 inhabitants of this Indian reservation?

Mr. COHEN. Approximately 500.

Mr. WHITE. Is this land owned in allotments, or is it all owned in common?

Mr. COHEN. The land has never been allotted.

Mr. WHITE. It is all in common?

Mr. COHEN. It is held in corporate ownership, by the incorporated tribe, and it is used for private livestock business.

Mr. WHITE. How did the corporation acquire title?

Mr. COHEN. The tribe incorporated under Federal law. The incorporated tribe is the owner of the land.

Mr. WHITE. Is that not unusual? Are there any other Indians so organized?

Mr. COHEN. Yes, there are a number of other Indian tribes in different parts of the country which have incorporated under the act of June 18, 1924 (48 Stat. 984).

Mr. WHITE. In their by-laws they have a tribal council and all those things set up under the authority of the corporation?

Mr. COHEN. That is right.

Mr. WHITE. They employ counsel and things like that?

Mr. COHEN. That is right.

Mr. WHITE. You are one of the counsel?

Mr. COHEN. That is right.

Mr. WHITE. You speak of an area that is to be taken over for this dam site. How much land is involved in that?

Mr. COHEN. I said earlier, I believe, in response to another question of the committee that I did not know just how much of the total area of the reservation would be affected.

Mr. WHITE. You speak of a construction camp. A construction camp would be a temporary thing, would it not?

Mr. COHEN. We hope that if a temporary construction camp is built the title of the land will be permitted to remain in the Indians.

Mr. WHITE. You have 1,000,000 acres with 500 tribesmen. That is quite a lot of land for each Indian. Is that land semiarid land? Is it very productive?

Mr. COHEN. That land is not only extremely arid, it is badly broken up and the slopes of some of it are so steep that only wild horses can live on it.

Mr. MURDOCK. Would my friend yield for just a moment?

Mr. WHITE. Certainly. I yield to my chairman at any time.

Mr. MURDOCK. With regard to the site, I asked the clerk to bring in a picture which I happen to have of the proposed dam site of the Bridge Canyon Dam.

The canyon view is a photograph, so it is pretty accurate. The artist has blocked in the dam as if it were built, and has indicated by a dotted line around the canyon wall the level of water to which the lake would be raised.

If the clerk would exhibit that picture a little bit, we can see it. The dam will be built in a deep canyon thus requiring very little useful land.

Mr. WHITE. What is the main subsistence of these Indians? What do they produce?

Mr. COHEN. At the present time their main source of livelihood is the livestock business. They raise some of the best cattle in northern Arizona.

Mr. WHITE. If this land which is to be taken over for this project were put out for lease, what would a man pay for grazing rights to that land by the year? It is a narrow canyon, as we see it. It does not appear to be capable of being made into a very large reservoir.

Can you give the committee an approximate idea of how much land is involved?

Mr. COHEN. I was hoping that the Bureau of Reclamation would give that information to the committee and also to us. So far we have not been able to get that information from the Bureau of Reclamation.

Mr. WHITE. As an attorney for the Indians, you know somewhat the value of the land and the value of the grazing rights. If the Government establishes that as a grazing district, what would you say that this land would produce a year in the way of cattle forage or grazing.

Mr. COHEN. I think probably Mr. Marks would give you a more accurate answer than I could.

Mr. WHITE. I will defer that, if you prefer.

I want to get at this point of the Court decision which you referred to. You said the case was in the Supreme Court, if I remember right. That was a case in a conflict as to the establishment of the reservation title of the Indians and a land grant to the railroads which embraced the odd sections, is that right?

Mr. COHEN. That is right, sir.

Mr. WHITE. It is customary over the United States, where the land grants of the odd sections are covered in the Indian reservations that the railroad takes lieu land in some other place and does not disturb the Indian land, is that not right?

Mr. COHEN. That has been done in many cases, but in this particular case the railroad insisted on having the land within the reservation boundary under its 1866 grant, and the matter came before the Supreme Court.

Mr. WHITE. The statute provided that where the Indian reservations were occupied prior to the granting of the land grant, that the railroad was entitled to take lieu lands in some other place.

Mr. COHEN. That provision, Congressman, varied in each particular railroad land-grant statute. There was a provision of the character that you refer to in the land-grant statute which the Santa Fe Railroad relied on here, but they had insisted, and the Department of the Interior agreed that these lands did not belong to the Indians, and the Supreme Court held otherwise. The Supreme Court held that the Department of the Interior had no authority to make a ruling that this land belonged to the railroad and not to the Indians.

Mr. WHITE. The Department of the Interior, in holding that the land belonged to the railroad and not to the Indians, was at variance with the general precedents throughout the country where the Indian land grants in general embraced reservation lands?

Mr. COHEN. That is correct, sir, and that is what the Supreme Court ultimately held, that the action of the Department of the Interior in assuring the railroad that the land was theirs was in conflict with precedents.

Mr. WHITE. Is it not the policy of the Government, in line with the general practice, or having the railroads take lieu lands in place of lands in odd sections inside the reservation?

Mr. COHEN. That is right. The effect of the Supreme Court decision in the Santa Fe Railroad case was to bring the Federal policy in Arizona into line with the Federal policy everywhere else. There had been some argument that because Arizona was once part of Mexico that the Indians did not have any rights in Arizona and that, therefore, the decisions of the cases referred to did not apply, and the Supreme Court held otherwise. It held that the Indians of Arizona had the same kind of land rights as the Indians of Idaho, California, or Montana.

Mr. MURDOCK. Unless there are some other questions, I am rather anxious to hear Mr. Marks.

Mr. WHITE. I would like to hear from Mr. Marks, also.

Mr. MURDOCK. I would like to say this, though, before Mr. Marks is called, and before Mr. Cohen leaves.

Mr. Cohen, you speak of 500 Indian citizens of Arizona. That number may be a trifle large. You say there are 500 Hualapai Indians. I am very much interested in all Hualapai Indians.

Mr. Cohen has indicated that he would like to see a different policy, a fairer policy followed by the Government in dealing with these Indians than has been the past practice. I think we can all agree that we could improve on that policy and the amount of justice done.

Mr. WHITE. Mr. Chairman, have you made a mathematical calculation as to how much land each Indian would be entitled to, with 500 Indians and 1,000,000 acres of land?

Mr. MURDOCK. No, Mr. White, I have not. I know that country pretty well, though, and let it be understood that the same argument made here against the robbing of the Indians of their land for a dam site and the building of a construction site could be made against any private concern such as the Santa Fe Railroad, the Phelps Dodge Mining Corp., the city of Los Angeles, or any other concern that might want to build a dam here because they all would need a site.

They all would need a work camp. I am inclined to believe that Mr. Cohen has enlarged upon the amount of land to be taken. For that reason, I ask the clerk to bring us the picture.

Will you please hold that picture up, Mr. Ragan, and let me explain that.

The picture itself is a photograph of the canyon. You cannot see the upper rim. The canyon is about 1 mile deep here. It is really a part of the Grand Canyon of the Colorado, outside the Grand Canyon National Park. I think the canyon walls there are just about a mile deep.

The artist, to show the site better, has pictured in the dam or has blocked in the dam.

I take it that whoever builds the dam there is going to have to have a certain number of square yards of surface on the bottom and on the canyon walls for the dam itself, and, of course, a temporary site for construction, but that is a pretty rugged country, as the witness has said.

That is the Shangri-la of America. I have hardly had the courage to ride a mule to that site.

This we must take into consideration and explore further.

I just wanted to say that, Mr. Cohen, but I wanted to assure you as the same time that no one on this committee wants to do injustice to these Indians. I was hoping that the chairman of the Subcommittee on Indian Affairs would remain for all the testimony, but he will read the record, I am sure. We are interested in the Hualapai Indians and any other tribes in the West.

Mr. COHEN. I appreciate that statement very much, Mr. Chairman.

Mr. WHITE. I would like to ask the chairman a question.

Mr. MURDOCK. Yes.

Mr. WHITE. Are we to understand that this proposed dam is in a canyon 5,000 feet deep?

Mr. MURDOCK. Yes; the canyon is approximately 5,000 feet deep.

Mr. WHITE. Five thousand two hundred and eighty feet would be a mile deep. I believe the chairman said the canyon was a mile deep. Are the wall precipitous?

Mr. MURDOCK. Yes. The gentleman can see from that picture. They are about the same as the Grand Canyon, except that the Bright Angel Trail, of course, leads down. It is 1 mile down, but 7 miles by trail.

Mr. WHITE. Is that the tributary to the Colorado River which flows through the Grand Canyon, or is it a spur of the Grand Canyon?

Mr. MURDOCK. No, this is the main Colorado River. This Bridge Canyon Dam is one of the sites on the Colorado itself.

Mr. WHITE. This has nothing to do with the preceding testimony concerning the Gila River? This is going back to the Colorado River?

Mr. MURDOCK. That is right. I should have explained that earlier.

Mr. WHITE. What State is this dam in?

Mr. MURDOCK. It is in the State of Arizona. The proposed Bridge Canyon Dam is to be built at the head of Lake Mead, which would be 100 some miles up the river from Hoover Dam, but the dam itself would be about the same size as the Hoover Dam. That is the plan.

Mr. WHITE. It is on the main stem of the Colorado River?

Mr. MURDOCK. Yes. The main stem of the Colorado River.

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Mr. WELCH. Mr. Chairman, what is the depth of the canyon at the proposed Bridge Canyon site?

Mr. MURDOCK. As measured from the rim down it would be approximately 5,000 feet, but if you will look at that picture and the way it is taken, it is only a small part of the canyon. The proposed dam is to be a little over 700 feet high.

Mr. WHITE. I will ask for one further question.

Is it possible for the Indians to get access to and graze any quantity of this area with cattle?

Mr. COHEN. I will make this statement: That the amount of land which the Indians are now using which would be flooded is very small. It is my understanding that there are several ranches which would be flooded out. These ranches are on spurs of the canyon. The canyon itself breaks up into Bridge Canyon and Spencer Canyon and two or three others.

Mr. WHITE. There are no Pueblos in the canyon?

Mr. COHEN. There are no large settlements, but there have been in the past several small groups of ranches which are, as I understand it, in the area that will be actually flooded.

As I say, the area which has been used by the Indians for agricultural purposes will be very, very small.

Mr. WHITE. Along the river down in the canyon is there any cultivation of alfalfa or anything?

Mr. COHEN. I do not believe there is any cultivation on the actual banks of the Colorado River, but there is and has been cultivation on some of the breaks in the canyon which level off for short areas before they reach the top of the rim.

Mr. WHITE. There are some tributary streams with little valleys and narrow places will be flooded?

Mr. COHEN. That is my understanding.

Mr. WHITE. Are those accessible?

Mr. COHEN. Yes, those are accessible. They are not accessible by cars, but the Indians get down there. I nearly lost my life trying to get down there myself, so I speak with some feeling on that.

Mr. MURDOCK. Thank you, Mr. Cohen.

Mr. COHEN. Thank you, Mr. Chairman.

Mr. MURDOCK. We will now hear Mr. Marks. I have known Mr. Barnett Marks for a good many years. He is one of the prominent citizens of Phoenix and a good personal friend.

STATEMENT OF BARNETT E. MARKS, ATTORNEY, PHOENIX, ARIZ.

Mr. MARKS. Mr. Chairman and gentlemen of the committee, I did not come to Washington primarily for this hearing. I learned that it was going to be held, on the point of my leaving my home city. But I am very glad to be here and I thank the committee for the opportunity to say a word or two.

I can heartily endorse what Mr. Cohen, our associate counsel in Washington, has said and has proposed with regard to this bill on which these hearings are being held. I want to make this admission, that my son has been more intimately connected with the work of the Hualapai Tribal Council for which organization we are the attorneys, than I have, although I have known the Hualapai Indians and their problems for some 20 years or more.

I want to say in their behalf that they are a very friendly group of Indians. They are very thrifty, very industrious, they are making the best use of the land that is usable in their area, that could be expected of them.

Their economy is based on cattle and the grazing facilities, and it is the thought of many of them that with the building of this project, some of their lands would be taken and, of course, made unusable for that economy; that there would be roads cutting in here and there and possibly even railroads going in there, all of which would have the effect of depriving them of their present method of livelihood.

It is for that reason that they are anxious that their rights should be protected in the writing of this bill, in its final form, and the amendment which Mr. Cohen has worked out is proposed in good faith and in the belief that it would be fair and just both for them and for the Government through the departments that are involved.

I believe, Mr. Chairman, that is all I ought to say. Mr. Cohen has presented the matter very well. I should be very happy to answer such questions as may occur to any of the gentlemen of the committee, on anything that is within my knowledge.

Mr. WHITE. You are connected with these Indians, representing them as their attorney. You know something about their business. This is a corporation, as I understand it, and you are employed as their attorney?

Mr. MARKS. The word "corporation" is used because it is convenient. It is a municipal corporation. It is simply an entity through which they act. After all, it is the individual Indians who are involved. They have a large council made up of the Indians, that determines upon the course of their conduct. They decide matters by resolution which they submit to the Indian Bureau, and so forth.

Mr. WHITE. Does this corporation have a board of directors and officers, and a secretary?

Mr. MARKS. So-called; yes. I think they do have a man they call president.

Mr. WHITE. Does that corporation have a set of bylaws?

Mr. MARKS. Yes; bylaws within the range of Indian Bureau regulations. They are rather uniform.

Mr. WHITE. Is the corporation so constituted that there is a board of directors and officers and is their procedure that of a corporation so that they have meetings, such as annual meetings?

Mr. MARKS. They have monthly meetings. The tribal council which is elected serve as the directors of the corporation.

Mr. WHITE. The members of the tribe are members of the corporation?

Mr. MARKS. Indeed, yes. They express themselves at these meetings.

Mr. WHITE. Do they have a vote?

Mr. MARKS. Yes.

Mr. WHITE. Do they have an annual meeting at which they exercise control by having a vote and selecting a board of directors?

Mr. MARKS. They have a meeting every month.

Mr. WHITE. They have periodic meetings?

Mr. MARKS. Yes, sir.

Mr. WHITE. And that period is a month?

Mr. MARKS. They meet nearly every month for discussion of tribal affairs.

Mr. WHITE. Are they all present or do they vote by proxy such as under a regular corporation procedure?

Mr. MARKS. No; those who wish to come are urged to come; those who can come.

Mr. WHITE. Do they have any regularly established meetings at which the tribesmen have a voice and have a vote and elect officers? Do they hold such a meeting at some regular time?

Mr. MARKS. Yes; I think it is at the annual meeting.

Mr. WHITE. Could you tell us something about the structure of this corporation?

Mr. MARKS. They meet annually for the purpose of electing members of the tribal council.

Mr. WHITE. Let us get down to the structure of the corporation itself. It represents the Indians who are the members of the corporation.

Mr. MARKS. Yes, sir.

Mr. WHITE. The stockholders, if you please.

Mr. MARKS. Yes, sir.

Mr. WHITE. I should be very happy, if you like, to permit Mr. Cohen to give you some assistance on these questions, if you desire.

Mr. MARKS. He is very much more familiar with those details than I am.

Mr. COHEN. The corporate charter provides in section 3 as follows:

The Hualapai Tribe of the Hualapai Reservation shall be a membership corporation. Its members shall consist of all persons now or hereafter members of the Tribe as provided by its duly ratified and approved constitution and bylaws.

Mr. WHITE. How long do those people hold office?

Mr. COHEN. One year.

Mr. WHITE. How are they chosen?

Mr. COHEN. They are chosen by regular ballot, I believe, in the month of June or July.

Mr. WHITE. And each Indian has the right to a vote?

Mr. COHEN. That is right.

Mr. WHITE. And that is equivalent to a board of directors?

Mr. COHEN. The tribal council operates as a board of directors, yes.

Mr. WHITE. And they, in turn, select the officers of the corporation; the secretary, and so forth; is that right?

Mr. COHEN. I believe two of the officers are elected and the others are appointed.

Mr. WHITE. When the corporation makes a business deal, who handles that? Who employs the attorney, if you please?

Mr. MARKS. The council employs them with the consent of the Commissioner.

Mr. WHITE. Have they got a chairman?

Mr. MARKS. That is correct, a chairman and a secretary.

Mr. WHITE. The council takes the place of the board of directors of a corporation, is that right?

Mr. MARKS. Yes, sir; that is correct.

Mr. WHITE. And the council, in turn, sets up a chairman, or somebody to preside?

Mr. MARKS. Yes, sir; that is right.

Mr. WHITE. And that council transacts the business of the corporation, does the things that a corporation usually does?

Mr. MARKS. That is correct.

Mr. WHITE. And that council is selected at a meeting once a year?

Mr. MARKS. The annual meeting when all of them are called in.

Mr. WHITE. This council you say meets once a month?

Mr. MARKS. That is true.

Mr. WHITE. And they hold office for a year?

Mr. MARKS. That is true.

Mr. WHITE. And that is the structure of this corporation?

Mr. MARKS. Yes, sir.

Mr. WHITE. You have not any board of directors, you simply have a council?

Mr. MARKS. That is what we call them.

Mr. WHITE. What is that council composed of?

Mr. MARKS. Nine members.

Mr. WHITE. Do you have any idea how much land is involved in this reservoir or this site that the Government wants to acquire from the Indians?

Mr. MARKS. The actual area involved in the site would be relatively small, but the resulting difference to the grazing lands would be large.

Mr. WHITE. As I understand, this canyon where this dam would be located is rather rugged, is a precipitous site and there will not be very much reservoir behind that dam.

Mr. MARKS. That, sir, I am unable to answer, because I am not familiar with it.

Mr. WHITE. Are you familiar with the terrain out there?

Mr. COHEN. I am familiar with the terrain. As I said, the amount of acreage that is now in agriculture that would be flooded is very small; I would say not over 200 acres. The amount of grazing land that would be flooded is also small. The chief damage that will be done will be through the development of construction camps or other construction on the rim which will interfere with the use of the land which will perhaps interfere with some use of the water.

Mr. WHITE. I would like to ask the chief attorney for this tribe if he has any figures on what is produced on this Indian reservation by way of livestock. What do they ship out annually? What is their production?

Mr. MARKS. I am sorry, I cannot give you those figures. That is handled largely by the superintendent. I do not come in close contact with those details of the actual business transactions of the council.

Mr. WHITE. We are trying to establish the value of their holdings and how much that value is going to be reduced by this project. I am trying to find out what is being produced on the land and what their annual income is. They do not ship out any alfalfa or any farm products of that kind?

Mr. MARKS. Oh, no.

Mr. WHITE. It is livestock with which they are concerned?

Mr. MARKS. Yes.

Mr. WHITE. There are just about one or two points where they load and ship out to market?

Mr. MARKS. That is true.

Mr. WHITE. Can you tell us anything about the number that they ship out?

Mr. MARKS. No; I cannot tell you that. We would be happy to supply that information.

Mr. COHEN. I happened to be out on the reservation last June when they were selling livestock and they sold $150,000 worth of it in 2 days. That was only part of the annual output of livestock. I cannot say just how large a part it was.

Mr. WHITE. Could you for the record give the committee the annual income for the last 5 years from the production of livestock?

Mr. COHEN. We would be very happy to supply that material.

Mr. WHITE. Does the Indian use some of that livestock for home consumption?

Mr. MARKS. Yes, of course, but it would not be a very large amount.

Mr. WHITE. We would have to take that into consideration. Do they raise most of their own food in the way of meats?

Mr. MARKS. Yes; they no doubt consume some of the animals, but it would be a relatively small part.

Mr. WHITE. You do not know the size of the area to be taken over by the Government?

Mr. MARKS. I could not tell you.

Mr. WHITE. You could not give us any idea what the grazing fees would be?

Mr. MARKS. We could secure all that data from Mr. Dodge, the superintendent, who is, of course, familiar with all of those facts.

Mr. WHITE. I think that is all, Mr. Chairman.

Mr. MILES. In this council that you speak of—first, when was that organized, Mr. Cohen?

Mr. COHEN. The council has been organized for a great many years. It was incorporated in 1943.

Mr. MILES. When did you become attorney for that council?

Mr. COHEN. I was asked to serve as attorney by Mr. Marks last September. Prior to that time Mr. Marks was the sole attorney. Since then I have been associated with Mr. Marks.

Mr. MILES. Did I understand you to say that at one time you were attorney for the Department of the Interior?

Mr. COHEN. Yes, sir; at one time I was Associate Solicitor of the Department of the Interior.

Mr. MILES. And when was that?

Mr. COHEN. January 2, 1948.

Mr. MILES. Thank you.

Mr. MURDOCK. Thank you very much, Mr. Marks and Mr. Cohen. We will adjourn at this time until 10:00 a. m. tomorrow.

(Whereupon the subcommittee adjourned to meet on Tuesday, May 31, 1949, at 10:00 a. m.)

THE CENTRAL ARIZONA PROJECT

TUESDAY, MAY 31, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met at 10:15 a. m., Hon. John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The Subcommittee on Irrigation and Reclamation convenes now for the continuation of the hearings on H. R. 934.

At our last session of the subcommittee, prior to the session of yesterday, Mr. Matthew, chief engineer of the Colorado River Board of California, had completed his statement and was on the stand for questioning.

We have your prepared statement, Mr. Matthew, which has been supplied to each member of the committee.

STATEMENT OF RAYMOND MATTHEW—Continued

Mr. MATTHEW. Thank you.

Mr. MURDOCK. Are there any questions by members of the committee of Mr. Matthew? Mr. Crawford?

Mr. CRAWFORD. No questions.

Mr. MURDOCK. Mr. Barrett?

Mr. BARRETT. No questions at the moment.

Mr. MURDOCK. Governor Miles?

Mr. MILES. I did not hear his statement.

Mr. MURDOCK. Mr. Poulson?

Mr. POULSON. Mr. Matthew, on page 6 of your statement you state that the Department of Interior originally put in the cost of this project, when it made its report prior to this last report, at $1,287,142,000. And leaving out these additional features is merely to try to reduce it down to $738,000,000; is that right?

Mr. MATTHEW. Yes.

Mr. POULSON. In other words, the project that we are asked to authorize, the project completed would involve $1,287,142,000; is that right?

Mr. MATTHEW. Yes; that is correct.

Mr. POULSON. They have given the figures for a part of the costs, but they have asked for the full authorization.

When you were speaking on this project, concerning the dams, you stated that the figures started out on the basis of a repayment schedule of approximately 80 years. Is that right?

Mr. MATTHEW. Yes. The latest repayment schedule indicated by the Bureau's witness, Mr. Larson, was 70 years.

Mr. POULSON. Seventy years?

Mr. MATTHEW. Yes.

Mr. POULSON. You stated from an engineer's standpoint that the dams will be filled up—and this is on page 14—

Sedimentation in Buttes and Charleston Reservoirs would fill the designed silt storage space in 50 years and thereafter would encroach on the active storage capacities. At the end of 50 years silt would occupy 50 percent of the gross capacity at Bluff Reservoir. Bridge Canyon Reservoir would be filled with silt to spillway crest elevation in 40 years.

You state:

The foregoing statements are based upon estimates of rate of silting contained in the Bureau's report.

Will you give us a little background for that statement? In other words, they are asking for the power out of these dams to pay for the project over a period of 70 years and here you say they will fill up in 40 to 50 years, according to their own report. Will you give us a little picture on that?

Mr. MATTHEW. That is correct. Where most of the reservoirs in the projects are involved, the usefulness of these dams will be gradually depreciated by siltation, in accordance with the estimates made by the Bureau. In other words, they show in their own report, their estimate of the annual rate of siltation, silt deposit, behind each of these dams, and they figure the situation which I have summarized on page 14 of my statement, that practically all of the reservoirs would be impaired in about 50 years; some of them in a shorter time.

Mr. POULSON. Then on that basis, the power from these dams is to be used for subsidizing the whole project and must last 70 years.

Mr. MATTHEW. The effect on the power end of the project is very serious indeed, because the Bureau's estimates of power output from the Bridge Canyon development, with Bluff Dam on the San Juan and Coconino Dam on the Little Colorado River, are predicated upon using the storage capacity of those dams to relieve Lake Mead of some 3,000,000 acre-feet of flood-control reservation.

Now, actually within a 50-year period the ability of those upstream reservoirs to carry the burden of controlling floods and relieving Lake Mead to that extent would be greatly impaired because of this rapid siltation, the whole point being that what is really needed above Bridge Canyon is a large reservoir on the main stream. Without such a larger reservoir above Bridge Canyon, the amount of silt that would come into Bluff, Coconino, and Bridge Canyon Reservoirs would greatly reduce the power output capacity from that development.

Mr. POULSON. But you think having a reservoir farther up the river would relieve a lot of that trouble?

Mr. MATTHEW. A large reservoir upstream would perform two functions which are absolutely essential: First, it would give the necessary control of the silt, so that the Bridge Canyon Reservoir could be preserved from filling up with silt within the Bureau's estimated repayment period of 70 years. The amount of silt would be sufficient in 40 years to fill the dam close to the spillway level. A large reservoir upstream, say in the vicinity of Glen Canyon, would prevent the silting up of Bridge Canyon. Second, it would be just as important to provide adequate storage for regulation of the flow of the Colorado River

above that point, which is absolutely essential, in order to get firm power output from the Bridge Canyon development.

Mr. POULSON. In this bill, H. R. 934, has any provision been made for this Glen Canyon Dam?

Mr. MATTHEW. Not specifically; there is no provision specifically made for it. I do not know, under the wording of the bill, whether the Secretary could put in that dam or not. There is some general language in the bill, which I called attention to in my statement, that might make it possible to built the Glen Canyon Dam, or any number of dams upstream. I called attention to the language on page 3, line 3 of the bill:

Such appurtenant dams and incidental works, above Bridge Canyon.

The dams are not named.

Mr. POULSON. But they have not included that cost, the cost of the upper dam, in this bill.

Mr. MATTHEW. No.

Mr. POULSON. According to your opinion, in order to make this feasible from an engineering standpoint, in other words, to make it practicable, they should definitely have these dams up the river and the reservoir at Glen Canyon in order to protect the lower dam, so far as silting up is concerned?

Mr. MATTHEW. That is right and for stream regulation also. Over 90 percent of the project's reimbursable capital costs are supposed to be paid out of power revenue which will chiefly come from the Bridge Canyon development, and with the facilities as proposed by the Bureau in their official report made to the Congress on this project, the power output of the Bridge Canyon plant would not be firm output and the only way of making a sound power development out of the Bridge Canyon project is to provide adequate storage capacity for the regulation of water supply, and also for silt retention up above Bridge Canyon.

Mr. CRAWFORD. Will you yield for a question, Mr. Poulson?

Mr. POULSON. Yes.

Mr. CRAWFORD. The reason for the reservoir upstream is to keep the silt from flowing into the lower basin, prevent it from coming down into the lower reservoir?

Mr. MATTHEW. That is correct, in addition to river regulations.

Mr. CRAWFORD. What is the answer; is there any definite period in which these big reservoirs will be silted up? What is the ultimate answer say in 50 years, or even assuming it takes 70 or 75 years from now if these reservoirs have filled up with silt? Is there any answer to that?

Mr. MATTHEW. There is no answer as yet, Mr. Crawford. The estimates, for instance, in regard to silting of Lake Mead, which is a very large reservoir, some 32,000,000 acre-feet, without any further storage upstream, have been made by various engineers ranging from 150 years all the way up to perhaps 200 years.

Now in the meantime, of course, there are going to be large storage developments upstream that are planned for construction which will prolong the life of Lake Mead. However, when we look at it over a very long range, we know these reservoirs are going to be gradually silted up unless some preventive solution can be found. Whether

it will be 300 years, 500 years or 600 years, that has not been studied out, and plans have not been worked out finally.

Now also, of course, the Department of Agriculture has under active consideration ways and means of reducing erosion, and it may be that techniques will be developed for reducing the amount of erosion on the watershed. Geologic erosion may be impossible ever to stop. But the erosion due to man's use of the land, by means of reforestation and various methods that the Department of Agriculture has had under consideration for many years and is still working on, may alleviate the problem of some of the erosion.

Mr. CRAWFORD. Here we are in 1949 with a population increase running at around 2,000,000 a year, and it may go to 3,000,000 with reasonably full employment, if we do not have periods of deflation and periods of unemployment, because the population curve goes up fairly rapidly in periods of full employment, and assuming it is at the rate of 2,000,000, in 20 years there will be 40,000,000 additional people. Now what percentage of the present population, plus the future population for the next 20 years, say, will be going into California, Colorado, Wyoming, Montana, Arizona, and New Mexico, and where will they get the water say in 20 to 40 years from now to meet the demands of the increased population, even assuming that the siltation, the accumulation of silt is at the minimum?

We might just as well begin to think about the question, because somebody has got to put up several billions of dollars. And, I can see anywhere from 10 to 25 billion dollars of Government construction out in that area needed within the next 4, 5, or 6 years even when we have the present water supply problem involved. That is a big problem, as big a problem as this country faces, outside of national defense. If you are going to supply water for the people in that area, with the increase in population——

Mr. MATTHEW (interposing). It is certainly true, Mr. Crawford, that we have got to plan very carefully for the future.

Mr. CRAWFORD. And even if you build 20 or 25 of these so-called upper dams, and these reservoirs are going to fill up, even with the one big reservoir, the supply is not sufficient.

Mr. BARRETT. Is it not true, Mr. Matthew, that providing several dams up the river is also for the purpose of regulating the flow, since you have the greatest amount of siltation when you have the floodwaters?

Mr. MATTHEW. Yes, that is true. Of course, it is not as imminent as you have indicated, Mr. Crawford. As I have stated, with full development of the river, those reservoirs are going to be good for many, many years to come, but ultimately, of course, there is that silt problem. The problem always faces us. It is one of those unfortunate things in the West where streams carry large amounts of silt.

Mr. CRAWFORD. I have been in 37 other countries, and I have seen these hills where they had washed down and the valleys filled up, and the people either had to starve to death or move away. The estimates of the depth of that earth are anywhere from 500 to 3,000 feet. I think the same thing could happen in the Southwest.

Mr. MATTHEW. Well, I think that the problem will be worked out and ways and means will be found to cope with it when it has to be done.

Mr. BARRETT. Mr. Matthew, assuming that there would be substantial development in the upper Colorado River Basin and that various storage dams would be constructed up there, would not that contribute, to a large degree, to meeting the silt problem in the lower basin States, at Bridge Canyon and also at Glen Canyon?

Mr. MATTHEW. Mr. Barrett, all the new reservoir developments will contribute to helping out the problem, of course. But a large amount of the silt arises in the lower part of the basin, and the exact effect of additional reservoirs at the different locations has to be determined from a consideration of just how much silt comes from where.

Mr. BARRETT. Yes, I agree with you 100 percent, Mr. Matthew.

I read a rather extensive report on sedimentation in the upper Colorado River Basin area, as it affects this portion of the lower Colorado River Basin, and the conclusion in that summary by several agencies, including the Soil Conservation Service, was to the effect that the contribution of silt from the high mountain areas was negligible, and that the main cause of sedimentation was from the floods as they would go down toward or near the lower Colorado River Basin in sweeping the stream from the banks of the Colorado River and bringing that silt on down and that the silt problem was mainly a problem in the lower basin itself, and not in the upper basin.

Mr. MATTHEW. That is correct.

Mr. BARRETT. I know that in my State of Wyoming that there is very little of a silt problem at all, but it does seem to me that the storage of water up in Wyoming, in Colorado, and in Utah will slow up the run-off in flood times down on the Colorado River in Arizona and, consequently, will be a major contribution to the silt control in this Bridge Canyon Dam and in the Glen Canyon Dam, and also at Lake Mead. Am I correct in that?

Mr. MATTHEW. Well, just the slowing down of the flood down the river channel will not make very much difference, Mr. Barrett, I do not believe, because that is not where the most silt comes from. It comes from the watersheds on the tributaries that feed in right from the very headwaters, from the little rivulets flowing over the land and coming on down into the main stream.

Mr. BARRETT. Even then if there were dams on those headwaters it would help.

Mr. MATTHEW. Oh, yes; below where the silt originates; that would all help.

Mr. BARRETT. I would like to have my colleagues get the import of the witness' testimony to the effect that the amount of siltation and erosion in the high mountain areas of the Colorado River is negligible, and it is not man-made. The big problem of silt in the Colorado River Basin arises from the destruction after it leaves the high mountain area and comes down approaching the Colorado River itself.

I agree that Mr. Matthew is correct on the matter; yet I believe also, as he has indicated, that when this river is fully developed and we have a number of storage dams in the upper basin and we have each of these tributaries properly dammed and used for irrigation purposes that the net result of the entire network of dams will be the correction of the situation that he complains about; and while the dams will not last forever, I am sure that if that did take place he would revise his estimate of complete loss of this Bridge Canyon Dam by

siltation in a period of 40 or 50 years upward to a century or more, anyway.

Mr. POULSON. Would it not be better, then, to develop the projects up the river and take care of that problem first, because according to the way Mr. Matthew testified, if we build the Bridge Canyon Dam, and in order to save it from silting up we are going to have to go ahead and build the Glen Canyon Dam, and also in order to utilize it the full period of time that, in itself, will run into millions of dollars, and by the time the upper basin gets around to that you and I will have passed on to the great beyond.

Mr. MATTHEW. Mr. Barrett, the whole point of this is simply as follows: Here is a project on which the Bureau of Reclamation and the Secretary of the Interior have made a report. The engineering and economic aspects of this project are set out in that report. It should stand on its own feet. Now, the point is that when the works and facilities in this project are analyzed out, and the cost is estimated and the financial and economic aspects of the project are analyzed, it will not stand on its own feet. The project is unsound as it is set up because it will not produce the power revenues which are estimated in the report and, therefore, the reimbursable costs cannot be met in accordance with the repayments schedule as set forth in the report. That is the whole point of the matter.

Mr. BARRETT. I think, perhaps, that might be true, although I can see the development of the Colorado River Basin as one unit, and I assume that it was intended from the very beginning when the pact was arrived at that there would be simultaneous development in both the upper basin and the lower basin.

Along with that I quite agree with what the gentleman had to say that, perhaps, the Department of Agriculture ought to institute its program of development of the land resources of the entire area, so that water would be held where it fell and the land would be held in place. In other words, you would have complete control there as soon as you could be able to control the forces of nature, and so it seems to me that, while you are eminently correct, as far as this particular bill is concerned, that we have to consider it on its merits, nevertheless, when you are talking about the over-all problem, as my colleague from Michigan was, we must consider this basin as one unit, and certainly we ought to control the development of the entire Colorado River Basin, including all of the tributaries in Wyoming, Colorado, Utah, and Arizona at the same time.

If we do that in an orderly manner, it does seem to me that many of the problems that you are concerned with here now will be resolved.

Mr. MATTHEW. Well, they cannot be resolved except by the expenditure of large additional amounts of money. Now the point is that the power revenues which are estimated in the Bureau's report as those which will be obtained from this particular project that is estimated to cost about $738,000,000, cannot be realized. If the necessary upstream storage were provided in order to make the power output firm so that you could obtain the revenues which are estimated, it would cost another quarter of a billon dollars or another $400,000,000. Now, that would make an entirely different kind of financial set-up to analyze, you see, and it makes a different picture.

Mr. MURDOCK. In my opinion this paints an unduly dark picture. Do you have any further questions, Mr. Poulson?

Mr. POULSON. To sum it up, the fact is that to really complete this you would have to go in and build another reservoir, which will cost another quarter of a billion dollars or $400,000,000. From the experience of the Bureau in all of the other projects, the estimated costs were practically double the amount that they were when they started out. We will take the Central Valley project or we will take the Colorado-Big Thompson project, have not the estimated costs of those projects practically doubled the original estimates?

Mr. MATTHEW. Unfortunately, I think that is the case, Mr. Poulson. Some of them have more than doubled over the original estimated cost.

Mr. POULSON. For instance, what did the estimate on the Central Valley project run?

Mr. MATTHEW. The present estimated cost of the Central Valley project compared to the estimate originally proposed, as I understand it, is about two and one-half times the originally estimated cost.

Mr. POULSON. And the Colorado-Big Thompson project is about the same way?

Mr. MATTHEW. The Big Thompson, yes, perhaps a little more than that.

Mr. POULSON. In other words, the other day one of our colleagues was in here with a bill to authorize us to set up a recreational division. Of course, part of the thought or motive back of that was so that they could charge off a part of the cost of the project, and they have to find some nonreimbursable to work it out; is not that true?

Mr. MATTHEW. That is right.

Mr. POULSON. So that when you look at this bill right here, right on the face of the bill where originally they said $1,000,000,000, and then tapered part of it off so that it contains now $738,000,000, they then have also asked for the authorization on page 3, where it said such appurtenant dams and incidental works, which, of course, could include a dam above, this could run into $2,000,000,000 easily enough on the basis of their experience and past activities in connection with other projects; is not that true?

Mr. MATTHEW. It is certainly indefinite as to the scope and cost of the project sought to be authorized.

Mr. POULSON. In other words, $738,000,000 is very low, so low that it is the minimum; is that right?

Mr. MATTHEW. I believe so.

Mr. POULSON. As an example here, they are asking to charge off as a part of the dam $37,500,000 of this dam which would be for recreational benefits. That is a new procedure, of course, is it not, of finding something that is not reimbursable?

Mr. MATTHEW. Yes; that is a new nonreimbursable item under consideration.

Mr. POULSON. Did the Federal Power Commission look on that as a little questionable?

Mr. MATTHEW. Yes; they raised a question as to the propriety of such large amounts allocated to recreation.

Mr. POULSON. Have we ever spent that much on any of our big national parks? I doubt whether we have made capital expenditures of $37,000,000 on any of our parks. I do not think the great park in

Utah has had that much money spent on it for development for recreational purposes.

Mr. MATTHEW. It amounts to about 25 percent of the cost of those facilities on the main stream.

Mr. MURDOCK. Dr. Miller, do you have any questions?

Mr. MILLER. No, I think not, Mr. Chairman.

Mr. MURDOCK. Judge Bosone, do you have any questions?

Mrs. BOSONE. I am sorry, Mr. Chairman, I came in late.

Mr. MURDOCK. Mr. Barrett, do you have any further questions?

Mr. BARRETT. No, Mr. Chairman.

Mr. MURDOCK. Mr. Matthew, I cannot agree with much you have just said. I would be glad for a little further information in regard to the land. How much land do you have in southern California that is being served by the Colorado River, or as a water right?

Mr. MATTHEW. About 1,000,000 acres.

Mr. MURDOCK. Would you point that out on the map, or have someone assist you in pointing it out there conveniently, and break it down for us a little bit?

Mr. MATTHEW. Well, the largest body of land to be irrigated in California is in the Imperial and Coachella Valleys. In those two valleys alone it is about 1,000,000 acres. There are about 900,000 acres in the Imperial irrigation district, of which half are now already irrigated.

Mr. MURDOCK. That would be 450,000 acres?

Mr. MATTHEW. Yes, sir, 450,000 to 500,000 acres now under irrigation. That is the green area on this map [indicating on map].

Mr. MURDOCK. Yes.

Mr. MATTHEW. And the Coachella Valley, which is not shown on this map, which lies to the north of the Salton Sea, has about 130,000 acres of irrigable land.

Mr. MURDOCK. How much land has been irrigated in the Coachella Valley?

Mr. MATTHEW. The Coachella Valley has now irrigated about 25,000 acres.

Mr. MURDOCK. 25,000 acres?

Mr. MATTHEW. Yes, sir; and the canal leading into the Coachella Valley has just been completed this last year, and it is delivering Colorado River water to that area. The Imperial Valley has been served through the All-American Canal since about 1940.

Of course, the use of water goes back to the 1890's when the right was initiated. It was one of the earliest rights on the river.

Mr. MURDOCK. Yes, I understand that, but I just wanted to get the area of the land irrigated. Now, you say it is 900,000 acres in the Imperial Valley, half of which is now being irrigated, and 130,000 in the Coachella Valley of which 25,000 acres are now being irrigated. Does that make up the million acres to which you refer?

Mr. MATTHEW. No, not altogether.

The Palo Verde irrigation district, which lies here [indicating] near Blythe, Calif., has about 125,000 acres to be irrigated, and about 50,000 or 60,000 acres of that are now under irrigation. That is probably the earliest right, one of the earliest rights, on the lower river, initiated back in the 1870's. All of these irrigation rights in California were initiated under the appropriation doctrine years ago.

Mr. MURDOCK. Yes, I understand that. If time permitted I could point out something about a mixed water law, but I appreciate the fact that the Palo Verde right is a very good one and an old one from that standpoint. I do not want to jeopardize it.

Do you contemplate irrigating land on the east and west mesas?

Mr. MATTHEW. Yes.

Mr. MURDOCK. How much on each mesa, please?

Mr. MATTHEW. Those exact amounts, Mr. Chairman, will be testified to by Mr. Dowd, who will follow me.

I would suggest that since he is going to cover that very thoroughly that you ask him about that.

Mr. MURDOCK. Yes, we will defer until Mr. Dowd is on the stand.

Unless there are further questions, thank you, Mr. Matthew, for your testimony.

Mr. MATTHEW. Thank you, Mr. Chairman, and gentlemen of the committee.

Mr. BARING. Mr. Chairman, I would like to ask permission to enter into the record a short statement in regard to Nevada, which is addressed to yourself.

Mr. MURDOCK. At this point in the record?

Mr. BARING. Yes.

Mr. MURDOCK. Without objection it may be admitted in the record at this point.

Mr. ENGLE. May we have it read, Mr. Chairman?

Mr. MURDOCK. How long is the statement?

Mr. BARING. It is two pages and a quarter in length.

Mr. MURDOCK. Will you read it or shall we have the clerk read it?

Mr. BARING. I can read it.

Mr. MURDOCK. Go right ahead if you have it handy.

Mr. BARING (reading):

STATEMENT OF VAIL PITTMAN, GOVERNOR OF NEVADA; ALAN BIBLE, ATTORNEY GENERAL OF NEVADA; ALFRED MERRITT SMITH, STATE ENGINEER OF THE STATE OF NEVADA

The House Committee on Public Lands now has under consideration a bill identical to S. 75, to authorize the construction of a project to deliver 1,200,000 acre-feet of water per year into the Salt River Valley of central Arizona from the Colorado River for supplemental irrigation use. Two alternate plans have been surveyed and studied by the Bureau of Reclamation. Both plans require a dam at Bridge Canyon. The first plan calls for a gravity diversion above the dam through some 77 miles of tunnel conduit into natural water courses. The second plan would divert water at Parker Dam by pumping through an elevation of about 1,000 feet to a canal which would convey the water to the Phoenix area. The second plan is preferred as of somewhat lower cost. Power for pumping at Parker would be 1,393,000,000 kilowatt-hours per year. The Bureau estimates a cost of $730,000,000 to the Government. The project appears incapable of repayment of capital costs.

The capital cost of supplying irrigation water to this project will be about $1,500 per acre, to which will be added operation and maintenance. No new lands are to be reclaimed. The water is to be used for supplemental irrigation of existing cultivated lands and does not provide for new population or new farms which is the principal object of the reclamation law.

The project calls for the construction of the Bridge Canyon Dam to supply power for pumping. Bridge alone seems unwise as it can store only 3,720,000 acre-feet, and if unprotected will fill up with silt in 40 years. Glen Canyon Dam above Bridge should be built at the same time for both storage and silt control as it will have 8,600,000 acre-feet capacity, but has low power head. Glen is necessary to protect the firm power output of Bridge. The Arizona

project will require one-third of the power from Bridge and probably should be charged with one-third the cost of Glen, for safe continuous operation, which would place it still further in the realm of fantastic planning.

Nevada was allocated 300,000 acre-feet of water per year from the Colorado, but the diversion of downstream water has not been fixed by interstate compact. For 15 years Nevada has spent time and money in trying to effect an agreement on the terms of the tri-State compact without avail. The downstream water situation is in chaos, yet the requirements of California and Arizona are urgent and imperative and should be served without delay. A prompt determination of respective rights is necessary; and the ambiguous wording of the Boulder Canyon Project Act should be cleared up. All negotiations have been futile, and it is our opinion that a solution can be effected by lawsuit and with the aid of the Supreme Court. It is our opinion that prior to a determination of available water, the high cost of the detailed studies of this project should not have been incurred and no project should be authorized by Congress below Lee Ferry on the Colorado. We are of the belief based upon observation and study, that there is not enough water in the Colorado to satisfy this colossal project and at the same time serve the established existing irrigated lands and authorized projects in Arizona and California.

Furthermore, it seems to us that the computations for the project should have been based upon the present reclamation law. As set up it contemplates changes in the law which are purely speculative.

The Boulder Canyon Project Act authorized Arizona, California, and Nevada to compact upon an estimated 7,500,000 acre-feet apportioned on the basis of 300,000 acre-feet to Nevada, 2,800,000 acre-feet to Arizona, 4,400,000 to California. Arizona and California and Nevada were also given the right to increase their use 1,000,000 per annum under article III, section (b) of the compact. This has been referred to as "b" water.

During the preliminary negotiations in 1935, Nevada requested 900,000 acre-feet as her share, but upon representations made by the Bureau of Reclamation that less than 300,000 acre-feet could be beneficially used Nevada did not press her claim. Rapid increases in population and development in southern Nevada since 1935 show that Nevada can beneficially use 900,000 acre-feet, and can reclaim and irrigate at least 130,000 acres of new land and in addition will require at least 105,000 acre-feet for industrial, suburban, and domestic uses by the year 1960. Reclamation of this new land can be made at one-sixth of the cost per acre calculated for supplemental irrigation only on the Arizona project.

The adamant stand of Arizona to accept no interpretation of existing documents excepting her own, and her emphatic refusal to arbitrate, negotiate, or submit to a Supreme Court analysis and adjudication and the determined fight by that State in Congress to prevent such a procedure would close the door to a satisfactory solution by preferred methods. California and Nevada, equally firm in support of their rights, have nevertheless been and are now willing to submit the matter to the courts.

With these facts in mind we urge that the bill to authorize the Arizona project be unfavorably considered by your committee and that support be given to the legislation to submit the Colorado River controversy to the Supreme Court.

I might say that I am in complete accord with the remarks of the governor and these various gentlemen.

Mr. MURDOCK. The statement may be admitted as read. Since the statement is long and involved I shall reserve my own comment until I have had time to consider it.

STATEMENT OF M. J. DOWD, REPRESENTING THE IMPERIAL IRRIGATION DISTRICT OF CALIFORNIA

Mr. MURDOCK. Mr. Dowd is our next witness, I believe.

Mr. Dowd.

Mr. DOWD. My name is M. J. Dowd. I am appearing on behalf of the Imperial irrigation district of California. I have been connected with the district for the past 27 years. For 17 years of that time I held the position of chief engineer and general superintendent, and

for the past 7 years I have served as consulting engineer to the district.

Imperial irrigation district and Imperial Valley are synonymous in that they cover the same area. The district comprises some 900,000 acres which includes practically all of Imperial Valley. All of the cities and towns in the Valley are included within the district, as well as all of the area under the All-American Canal. The district is a public agency of the State of California, not a private corporation. It is managed by a board of directors elected by the people living within the district so it may be said that I am appearing as a representative of the people of Imperial Valley.

I would like to discuss certain features of the proposed central Arizona project, and also reply to the attacks which have been made upon my district and the people of Imperial Valley by Arizona interests before this committee, in the press, and in numerous pamphlets and other propaganda which those interests have broadcast over the country.

I speak for these people of Imperial Valley who went into one of the most arid and barren desert sections of our country and converted it into the great agricultural producer it is today. It took a lot of "blood, sweat, and tears"—to borrow a phrase from Winston Churchill—to bring this about. They had to battle floods, silt, heat, dust, drought, and the complications of having a foreign government control their water supply. Theirs has been a truly great accomplishment.

DISTRICT AREA

Of the 900,000 acres included within the district the central portion of some 600,000 acres was a part of the delta of the Colorado River and is the part which is now developed. Most of it lies below sea level. At the international boundary, along the southerly side of the area, the elevation is approximately sea level, the valley sloping to the north to Salton Sea, the present elevation of which is 240 feet below sea level. On either side of this central portion and at a somewhat high elevation are mesas known as the east and west mesas, respectively. Of the 900,000 acres, 770,000 acres are irrigable, of which about 270,000 acres are not yet developed.

I believe you can see the map there and can follow the discussion from the map.

EARLY DEVELOPMENT OF VALLEY

As early as the middle of the last century the possibilities of diverting water from the Colorado River to develop Imperial Valley were realized, but plans proposed at that time could not be carried through. In the early nineties a private irrigation company was organized and, after many years of effort, secured finances to start development. In June 1901 the first water reached the valley from the Colorado River 60 miles away.

May I add at this point that in Imperial Valley all the domestic water is supplied by the district canals, including that for the cities and towns. There are no wells, as such, in the developed portion of Imperial Valley.

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The progress of development during the first few years was seriously handicapped due to a very unfavorable soil report issued by the Federal Government, and by a break of the Colorado River into the valley. The break occurred in 1905 and for nearly 2 years the entire flow of the river poured into the valley. It appeared for a time that the entire area might be submerged.

You can appreciate that from the fact that practically all of the central portion of the valley lies below sea level.

It happened that at the time the adverse soil report was issued, 1902, several thousand acres were already growing crops successfully and other thousands of acres had been leveled and prepared for crop. The people had faith in the valley and did not accept the soil report; otherwise the 450,000 acres would not now be irrigated and producing annually agricultural products having a value of over $100,000,000.

As a matter of fact, the actual figure for 1948 approximates $115.-000,000 from this valley, which the Government said in 1902 would hardly sprout barley.

CANAL LOCATION

The first surveys made by the irrigation company, which was organized in 1892, were for the bringing of Colorado River water into Imperial Valley by a canal diverting from the river at Potholes—the present location of Laguna Dam—and following much the same route as the present All-American Canal. However, finance was the stumbling block, such a canal being too costly for private financing at the time to handle. So the engineers dropped down the river to a point just above the Mexican boundary and from there constructed the canal on a much less costly route through Mexico for some 60 miles, then back into Imperial Valley. It was not until the All-American Canal was built in 1941 or 50 years later, that the original plans of the engineers finally became a reality.

ORGANIZATION OF DISTRICT

The construction of the original canal through Mexico required the securing of a concession or permit from the Mexico Government to transport the water through that country. This was granted in 1904 in the name of a Mexican company organized for that purpose as a subsidiary of the American irrigation company. The cost of closing the break in the river, which I have referred to, together with other unforeseen expenses, caused both the parent company and its subsidiary company to go into bankruptcy and they were taken over by receivers, one for each company. This proved to be a most unsatisfactory arrangement and irrigation operations became intolerable. So it was that in 1911 the people of Imperial Valley organized the Imperial irrigation district under the State law and the district purchased the properties of both receivers.

ALL-AMERICAN CANAL

With the passing years, the necessity for an All-American Canal became more and more apparent, and beginning about 1915 planning for such a canal became very active. It may be interesting to note that

the All-American Canal was the forerunner of the Boulder Canyon project. One of the first bills, in this regard, was introduced in Congress in 1919. It provided for construction of only the All-American Canal with no provisions for storage. This bill was based on recommendations made in the 1918 report of the All-American Canal Board, of which Dr. Elwood Mead, later Commissioner of the Bureau of Reclamation, was chairman. Incidentally, the Board recommended a capacity of 9,000 second-feet for the All-American Canal, to serve 900,000 acres of irrigable land. The canal was built with a capacity of approximately 10,000 second-feet, or approximately the same as recommended back in 1918.

Although extensive hearings were held, no action was taken on the bill, it being the opinion of Government officials that storage works should be included as a part of the project.

I might explain that by saying that the low flow of the river had already been utilized, but Imperial's rights, as I have mentioned, were among the earliest on the river, and if the All-American Canal had been built it would have brought into focus the fact that some of the other rights, as, for instance, the Yuma project in Arizona, were junior to those rights, whereas prior to that time Yuma diverted all the water she wanted because her diversion was above our diversion, and had we built the All-American Canal the conflict would have become apparent at that time.

As a result, the Secretary of the Interior was authorized by the Kincaid Act, passed in that year, 1919, to investigate and report on all phases of the Imperial Valley situation.

This resulted in the Fall-Davis report of 1921 on the Problems of the Imperial Valley and Vicinity—Senate Document 142, Sixty-seventh Congress, second session—which recommended, as had the All-American Canal Board, the construction of the All-American Canal and, in addition, a high dam on the Colorado River at or near Boulder Canyon.

Legislation was introduced in Congress in 1922 to carry out this recommendation and, during subsequent years, a series of bills were introduced all for the same purpose. During this period many additional reports were considered and many congressional hearings were held by both House and Senate committees resulting finally in the adoption by Congress of the Boulder Canyon Project Act in December 1928. It is doubtful if there has ever been another reclamation project before the Congress which has been given the years of study and consideration such as this one received. It is interesting to note that the act as passed authorized the construction of the All-American Canal and the high dam—Hoover Dam—substantially as recommended by the 1922 report. Both of these features have now been constructed and have been in operation for a number of years.

WATER RIGHTS

Imperial irrigation district's water rights are among the oldest on the Colorado River. These rights were initiated in 1892 through the activities of the irrigation company organized in that year. From 1895 to 1899 a series of water appropriation filings were made all of which specified an appropriation of 10,000 cubic feet per second and covered all of the area now included within the district.

Considering the size of the project and the record of its development, it has never been even suggested that Imperial has not used "due diligence," as referred to in water law, in putting that water to use. This being the case, under the rule of relation back Imperial's rights are not measured by what it may have been using, for instance, in 1920 or 1930, but by its rights under its original appropriations, and I think that is an important point to remember.

The same principle holds true for the Palo Verde irrigation district and the portion of the Yuma project in California. These are the other agricultural projects which are using Colorado River water in California. There are only those three.

This principle is the basis of the schedule of priorities established for use of Colorado River water in California. In that schedule, the first 3,850,000 acre-feet per year is apportioned to Palo Verde, Yuma (Calif.), and All-American Canal projects in recognition of their old established rights.

I know that this committee appreciates the great importance and value to an irrigation project of its water rights. In most cases, and particularly in Imperial Valley where rainfall averages only about 3 inches per year, water rights are the foundation upon which rests the whole structure of an irrigation development. It is because of this that I feel sure this committee can appreciate and understand why the people of Imperial Valley after having preserved these rights down through the years will now resist, to the utmost of their ability. any attempt to invade those rights.

LITIGATION VERSUS STORAGE

At the approach of the twenties it became apparent that Imperial's senior water rights were being interfered with by junior appropriators in other parts of the Colorado River Basin. To correct this situation, Imperial had the possibility of adopting one of two courses. Imperial could bring an action in the Supreme Court for an adjudication of all water rights throughout the Colorado River Basin and thus establish its senior position. On the other hand, if storage could be obtained on the river to conserve floodwaters, such could be used to supply Imperial's rights in the natural flow thereby releasing the latter for use by junior appropriators. It was also recognized that the construction of such storage could, in addition, control floods and silt on the lower river and benefit all projects in several other ways. However, it was only after it seemed assured by the recommendations of the Fall-Davis report that such storage would be provided, that Imperial decided not to follow the first course of action. It was this threat of possible court action and the probable consequences to junior appropriators, particularly in the upper basin, that accounts for the inclusion of article VIII in the Colorado River compact.

NO CHANGE IN ORIGINAL PROJECT

I have gone into this history at some length to make it clear that from the inception of development of Imperial Valley, the east and west mesas were part of the project and that their water rights are a part of the old-established rights of Imperial irrigation district. Also, I want to make it clear that there is nothing new about the All-Ameri-

can Canal project. It is the same today as was considered and reported on by the All-American Canal Board in 1918. It is the same as was considered at the time of the Santa Fe compact in 1922. It is the same as considered by Congress in the many reports of hearings on the Boulder Canyon project. It is the same project today that Congress authorized in 1928.

I would like to add that the same may be said for the other California projects, the Palo Verde Valley project, the Yuma (Calif.) project, and the aqueduct of the Metropolitan water district of southern California.

They were known to, and discussed at length with, the Congress before the enactment of the Boulder Canyon Project Act. There has been no change in their plans or water requirements.

California was not trying to fool the Congress or anyone else about her projects, and I do not think the Congress was trying to fool California in the matter of the Limitation Act.

In other words, Congress was not trying to fool us by saying you accept this act, but you cannot irrigate your projects.

In contrast, during all this period, no serious consideration was ever given to the diversion of Colorado River water into central Arizona and no plans were advanced for such a project because of its total infeasibility. It is just as infeasible today as it was then.

AVAILABLE WATER REQUIRED FOR EXISTING PROJECTS

Now, however, Arizona charges that Imperial irrigation district is attempting to take water away from Arizona. Such a statement is ridiculous and without any justifiable basis to support it.

It is Arizona which seeks, in effect, to confiscate Imperial's established water rights. It is generally agreed, and this Arizona does not deny, that the existing projects in the lower basin will require all of the water available, under the Colorado River compact, for use in that Basin. In view of this situation, if Arizona is to secure a water supply for the central Arizona project and if the compact is not to be violated, such water supply can be made available only by taking water away from one or more of the existing projects in the lower basin. It is for this reason that Arizona would now stop all development in Imperial Valley and by this means endeavor to show that there will be a water supply for its fantastic central Arizona aqueduct.

Mr. MURDOCK. I do not like to interrupt you, but I do wish to say at this point that I thoroughly disagree with you on that, and we will discuss it later, but go right ahead.

Mr. DOWD. I am now coming to a discussion of the east and west mesas, and I have here some photographs that I would like to have the committee look at while I am discussing them.

Most of the pictures were taken in April of this year, following the coldest winter in the Imperial Valley, but I just wanted to show you some of the things that are going on in this east mesa that we have heard quite a bit about from the Arizona witnesses.

EAST AND WEST MESAS

What about the east and west mesas of Imperial Valley which Arizona says should not be developed? As already pointed out, the

All-American Canal has been constructed, as authorized by the Congress, with capacity required to serve the entire area of Imperial irrigation district of which the east and west mesas are an integral part, and many of the diversion structures required to serve the mesa lands were built into the canal. The cost of these works represents an investment of millions of dollars which the people of Imperial Valley have mortgaged their farms and homes to repay to the Federal Government under the terms of a contract the district was required to sign prior to the construction of the All-American Canal.

The gross area of the east mesa is 220,000 acres of which 150,000 acres net are irrigable. The gross area of the west mesa is 140,000 acres of which 100,000 acres net are irrigable.

We say that the lands of both mesas are good. We recognize that some question has been raised as to the east mesa, but there appears to be little question as to the feasibility of developing the west mesa. The west mesa is somewhat warmer in winter than the east mesa, as determined from tests carried on for several years.

May I add that this is important because of the many crops grown during the winter months.

Mr. MILLER. Can you point those mesas out to us on the map, Mr. Dowd?

Mr. DOWD. The East Mesa lies on the easterly side of the presently developed area of the district.

The West Mesa lies on the westerly side next to the Coast Range of mountains.

Mr. POULSON. Would you tell him that this is just a little higher level in here than the valley?

Mr. DOWD. Yes. The central portion, as mentioned in my statement, is part of the old delta of the Colorado River, and the silt in that area is 1,000 feet deep or more, and it was put there by the river. The mesas on either side are at a somewhat higher elevation, but it is all part of the one valley draining into the Salton Sea.

Also, some years ago a number of settlers developed several thousand acres of land on the West Mesa using water pumped from wells. The supply of ground water, however, proved inadequate and in a short time the farms had to be abandoned, but not before the productivity of the land was proved. These owners have been waiting ever since to resume operations as soon as water from the All-American Canal can be made available to them.

Mr. MILLER. Do I understand that the people in the East and West Mesas now have their land bonded for irrigation purposes?

Mr. DOWD. The East and West Mesas are not developed, but the area is all part of Imperial irrigation district, and the people of the presently developed area signed a contract by which they mortgaged their land to pay the entire cost of the project back.

Mr. MILLER. But the people in the East and West Mesa districts have not bonded their lands?

Mr. DOWD. There is no one living on the lands in either mesa at this time.

Mr. MILLER. Who owns that land?

Mr. DOWD. The East Mesa is practically all public land of the United States, which was withdrawn from entry many years ago.

Mr. MILLER. What about the West Mesa?

Mr. DOWD. Something over half of that land is public land and the balance of it is private land.

While the new soil studies now under way on the West Mesa have not yet been completed, there is little doubt but that they will bear out previous favorable soil reports on that area and thereby remove any question as to proceeding with development.

EAST MESA

This leaves for consideration the East Mesa which has received so much attention from Arizona witnesses. Prior to the construction of the All-American Canal, a soil survey was made of this area by the Bureau of Soils and the University of California. The report of the survey referred to the East Mesa as—

> an area of great possibilities, where the investment of funds to supply water for irrigation will make possible a material extension of our agricultural lands, the development of new rural communities, and the establishrment of a large number of settlers on farm units of high potential value.

Not only was capacity constructed in the All-American Canal for this area as well as many of the diversion structures, as previously mentioned, but the Bureau of Reclamation had proceeded with the design of a lateral system to serve the first unit of some 40,000 acres, when the Bureau decided that another soil investigation should be made. This occurred in the early forties, about the time investigation of the central Arizona project became active. The new land classification report on the East Mesa is dated April 30, 1947, and was followed by a report on the repayment ability of East Mesa lands dated March 1948.

In the meantime, because of the urgent appeal of the Government for the production of more food to meet World War II requirements, the district in 1943 suggested that the United States lease it 10,000 acres of East Mesa public lands for a 10-year period. The district agreed to arrange for developing and farming the area for that period and then release it back to the Government to be opened for settlement. The suggestion was accepted by the Interior Department and the district proceeded with arrangements with a group of Imperial Valley farmers to develop and farm the land at their own expense. However, while a draft of the lease was under consideration, the proposal was turned down by the Commissioner of the Bureau of Reclamation who gave as his reason that, in view of the current emphasis being placed on postwar settlement, particularly soldier settlement, it would be inadvisable to tie the Bureau to a 10-year commitment since, if the war would end in the meantime, the closing of public lands to postwar settlement might have an unfavorable reaction on the Bureau.

DEMONSTRATION FARMS

A year or two later the Bureau of Reclamation itself started the development of a 500-acre demonstration farm on the East Mesa and proceeded to put it into cultivation. Most of the tract was leveled and some 80 acres planted to alfalfa, but the work had to be abandoned within about 18 months due to a lack of funds.

In view of the conflict between the earlier soil report and the new

report, the district realized that the only answer would be a practical demonstration of the East Mesa potentialities. At this point let me make it clear, that insofar as these two recent reports are concerned, not only the district but the Imperial County Farm Bureau and other interested groups in the valley are in disagreement with them. The repayment report in particular is based very largely on the results of only 18 months of growing alfalfa on the bureau's demonstration farm. The report itself recognizes the meagerness of the data upon which it is based. It states in several places that it may be subject to considerable modification upon results obtained from further demonstrations of farming operations on the East Mesa. In fact, no good reason has been given why the report was issued at that time, in view of this situation and the program which had been already agreed to and which I will now refer to.

Upon discussing the situation with Bureau of Reclamation officials, it appeared that they, too, were in favor of a practical demonstration of the agricultural possibilities of the East Mesa as the best means of determining the question. To this end, in May 1947 the district entered into a 10-year lease with the Bureau for a tract of about 500 acres of public land on the East Mesa to be used for demonstration purposes. The tract was selected jointly by district and Bureau officials in order to have a representative area for the demonstration.

All work in connection with this demonstration is being done by and at the expense of the district. To date we have expended about $250,000 in building the necessary supply canal from the All-American Canal, together with appurtenant structures, leveling and grading the land, installing a farm irrigation system, and fertilizing and planting of crops. We are well satisfied with the results to date. Some of the views on the photos you saw are of this particular farm.

Mr. MURDOCK. Can you give us the amount of water used in the irrigation of that farm? I am told it is very high.

Mr. DOWD. We have not gone far enough yet to tell, but I will come to that in just a minute, as far as the water use is concerned, Mr. Chairman.

Also, as a part of this program, in July 1947, another 10-year lease was made with the Bureau under which the district took over the 500-acre demonstration farm which the Bureau had started to develop, but which it had to abandon due to lack of funds. In turn, the district leased this farm to local valley farmers to be operated on a commercial farming basis. These operators had to invest considerable funds of their own in releveling part of the tract, in completing the development work, and in getting operations under way. As a result of their operation to date, the operators seem confident of success.

I should add here that this 10-year program has the endorsement of and is being carried on in cooperation with the Imperial County Farm Bureau, the local American Legion, and other interested valley groups.

I forgot to mention that under the Boulder Canyon Project Act veterans have the first preference on any public land opened under the All-American Canal project, and they are very greatly interested in it. Of course, no one, particularly in the Imperial Valley, would want to put them out on a piece of land if they could not make a go of it, and that is one reason why we are carrying on these demonstra-

tions and experiments to show what can be done with the land. This land of the East Mesa, in answer to the chairman's question, is a sandy type of land, and the question of water use seems to be a big one. We have the feeling that as we grow crops on the land it will not require as much water as it does to start with. On the demonstration farm, the second one I mentioned that is being farmed by these local valley operators, the use runs from 12 to 15 or more acre-feet. That is, to start off with, but let me point out to you that it does not mean that every acre growing crop will require that much consumptive use of water because the East Mesa is sandy to great depths.

The water will be delivered by gravity, and even though it does take a delivery of 15 acre-feet, let us say, it flows by gravity onto the land, the additional amount will percolate to the underground and there be available for pumping and reuse just like they are reusing it in the Phoenix area, and in the Central Valley area, so that the actual consumptive use of water per acre on the East Mesa will be no greater than in any other part of the district.

In other words, an acre-foot of water will grow as much in crops on the East Mesa as it will anywhere else, so the fact that it does take an excessive use of water to start off with, we do not feel is any particular detriment to it. As a matter of fact, on Mr. Murdock's Yuma Mesa, which diverts water from the Colorado River, they elevate 11 acre-feet of water 52 feet, and on the Wellton-Mohawk unit of the Gila project they elevate the water about 170 feet, and plan on using 9.2 acre-feet per acre. However, we think they have the answer in the sprinkler system, which the Bureau of Reclamation is spending several hundred thousand dollars in experimenting with on the Yuma Mesa. With the use of sprinklers, the actual amount of water applied is very greatly reduced. We are starting a similar experiment on the East Mesa. We think it will not only be the answer on the East Mesa, Yuma Mesa, and on the high pump-lift Welton-Mohawk project, but also that it will be the answer in many other parts of the West.

Mr. MURDOCK. Agreeing with you there, I may say that I think that is a very logical and proper comment for both areas.

I would like also to add that the Arizona Yuma Mesa project was reduced from 139,000 acres on that sandy soil by the latest bill passed. We did it partly because 11 acre-feet per annum is too much water to put on the land. We found, too, that there was apt to be a seepage problem in the valley when land was irrigated on the mesa in Yuma County. Will not there be a conflict between applying large quantities of water there on the sandy East Mesa and the floor of the valley proper?

Mr. DOWD. There is now a water table under the East Mesa which is higher than the land in the central portion of the valley, but the silt that has been poured into the central portion by the Colorado River over the centuries is quite tight, relatively speaking, and the water table under the East Mesa dips away down to depths of 400 feet to 1,000 feet under this silt, so we do not believe that the irrigation of the East Mesa will in anywise affect the presently developed lands.

On the Yuma Mesa, which lies directly above Yuma Valley, and some 30 or 40 feet higher, the Bureau conducted very extensive tests there to prove that there was no effect on the Yuma Valley by the irrigation of lands on the Yuma Mesa. That is a much more serious

and dangerous situation than we have here with our great depth of silt in the Imperial Valley.

Mr. MURDOCK. I hope the Bureau's findings in Yuma County are correct, but the farmers of the Yuma Valley are nervous about the seepage problem.

Mr. DOWD. I would be, too, in that situation.

Mr. MURDOCK. Are any of the farmers in the Imperial Valley now using the system of irrigation at all nervous or apprehensive about waterlogging their land?

Mr. DOWD. I have not noticed them being nervous. I do not think so, just looking at the proposition. They might be if we did not explain to them what we have found out and the tests that we are conducting. There does not seem to be any apprehension about it.

You mentioned cutting down the Yuma Mesa acreage in favor of the area of the Welton-Mohawk project. It is true that for the Yuma area you plan to lift 11 acre-feet per acre 52 feet, and on the Welton-Mohawk you plan to lift 9 acre-feet per acre, 170 feet. From that angle I would say it would be more economical to lift 11 acre-feet 52 feet than to lift 9 acre-feet 170 feet as far as water cost is concerned. This Gila project is very costly, about $500 an acre, which the farmers are expected to repay, but which, of course, they will not be able to.

On the All-American project we are signed up to return every dollar of cost, and we are going to do it.

SECRETARY KRUG'S LETTER OF MARCH 25, 1949

This brings me down to the latest event relating to the East Mesa. I refer to a letter dated March 25, 1949, from Secretary of the Interior Krug to the District stating that he did not intend that any public lands on the East Mesa would be opened for entry and settlement. The first the District learned of the matter was from a press release issued by the Bureau of Reclamation on March 28, several days before the District received the letter or had any opportunity to reply to it.

Since neither the district nor any other group in Imperial Valley was requesting that any of such lands be opened for entry, we were at a loss to understand the reason for the decision at this particular time. Moreover, the district had already expended $250,000 on the 10-year demonstration program, concurred in by the Bureau of Reclamation, which is just now getting under way, and there had been an understanding that any further question relative to opening public lands on the East Mesa would await the results of the demonstrations.

These facts prompt the question, "What was the necessity for the Commissioner of Reclamation recommending to the Secretary that he make a decision at this particular time?" This is the question asked by the District and to which the Commissioner has been unable so far to give any satisfactory answer.

Of course, other than perhaps affording some comfort to Arizona by its release at this particular time, this decision in no wise has any effect on the East Mesa matter. The decision is not final and, of course, is not binding on any future Secretary of the Interior. Imperial is satisfied that the results which will be shown by the demonstrations now under way will fully justify proceeding with the

development of East Mesa lands as intended by the Congress when it authorized the All-American Canal.

SALTON SEA

Another subject which has been given considerable attention by Arizona is that of return flow from Imperial Valley to Salton Sea. As I have mentioned before, the elevation of Salton Sea is about 240 feet below sea level. It is the only drainage outlet for a large area in southeastern California including Imperial and Coachella Valleys and also for a considerable area in Lower California, Mexico.

Much smoke is raised over the fact that records indicate, at this time, an inflow to Salton Sea of about 1,000,000 acre-feet per year. This is nothing that just recently occurred. There has been more or less about the same inflow to Salton Sea for the past 20 years. Of course, all of this 1,000,000 acre-feet does not result from operations of Imperial irrigation district. Some of it—not a very large amount—comes from Mexico and some is natural inflow from storms over the watershed. However, for purpose of this discussion, we will assume that the entire quantity is chargeable against the District.

For a number of years I was in direct charge of water distribution for the district. Based on that experience, I know that the operations of the District under existing conditions are fully justified and that there is no wasting of water, as such, to the Salton Sea. The inflow into Salton Sea, in other words, is not a waste, but an ordinary operational loss. It is, in my judgment, based on over 25 years of experience and observation, a normal loss under the conditions and is well within reasonable and ordinary standards of good irrigation practice. In any event, there can be no question but that the past and present amounts of water diverted from the Colorado River by the district are well within and a part of Imperial's established rights.

May I add, as mentioned before, that our rights are based upon our 1890 appropriations and not upon the present use.

In considering this matter of return flow, let me point out that at the present time there is a return flow into the Colorado River of over 200,000 acre-feet per year from the 50,000-acre Yuma project in Arizona. This is a much greater return flow per acre irrigated than that for Imperial; the comparison is 4.0 and 2.25 acre-feet per acre, respectively. Moreover, testimony by Mr. Tipton on behalf of Arizona in the hearings on S. 1175 shows that even under ultimate conditions the return flow from the Yuma project—assumed to be the entire project in both Arizona and California of about 70,000 acres—will be not less than 190,000 acre-feet annually (p. 538, Senate hearings on S. 1175). This would be a return flow of 2.7 acre-feet per acre which is higher than that even at the present time for Imperial of 2.25 acre-feet per acre.

But even assuming the 1,000,000 acre-feet of inflow to the Salton Sea is as Arizona claims entirely unnecessary and improper. What of it? And what if it may be, as Arizona likes to point out, enough for the central Arizona project? At the present time, there is some 6 to 8 million acre-feet of unused Colorado River water reaching the Gulf of California every year. That is several times the requirements of the central Arizona project. I mention this to show that it is im-

material at the present time what the inflow to Salton Sea may be. There is no question of there being ample water available in the river at the present stage of development of the basin; everyone knows there is.

CONDITIONS WITH BASIN DEVELOPMENT COMPLETED

Present conditions are not what count. It is conditions under full development that must be considered. For example, the larger part of the water now reaching the gulf is water that belongs to the upper basin States and, under the compact, those States have the right to withdraw their water as they desire; such water will not be flowing to the gulf in the future.

As to the All-American Canal project, about 800,000 acres will be irrigated. The amount of water available for the project under the California Limitation Act and the schedule of priorities will be a maximum of 3,800,000 acre-feet per year. This amount will permit a diversion duty for the project of 4.75 acre-feet per acre. In comparison, the Bureau of Reclamation has estimated that for the central Arizona project, a diversion duty of 5.7 acre-feet per acre is required.

Mr. WHITE. I do not quite understand the use of that word "duty" as used there, "a diversion duty of 5.7 acre-feet per acre is required," on page 17.

Mr. DOWD. That is the amount of water diverted per acre of land irrigated.

Mr. WHITE. What do you mean by the word "duty" as used there?

Mr. DOWD. That is just an engineering term used. You have diversion duty, and it means the amount of water diverted per acre.

Mr. WHITE. I cannot find any such definition in the dictionary.

Mr. DOWD. I have never looked up the definition of the word as to whether it applies, but its use is certainly a common practice among irrigation engineers.

Mr. WHITE. Would not the word "utilize" be a better word to use there, to utilize the water? I do not want to argue with you, but I want to know what I am listening to in order to understand it.

Mr. DOWD. I would not think utilize would necessarily cover it, because it might be diverted and not utilized.

Mr. MURDOCK. I might say, Mr. White, that the word "duty" as used here is common usage throughout that entire area in the Southwest.

Mr. DOWD. It is used all over the West by the Bureau of Reclamation, which covers 17 western States. It is a common term used in that type of expression.

Mr. WHITE. "Duty" is something, as I understand it, that you are required to do.

Mr. DOWD. Yes, sir; duty is something you are required to do. We are required to divert that much water per acre. We have the duty to do it if we want to irrigate the land.

For the All-American Canal project, the future estimated farm consumptive use, including rainfall, is assumed to be 3.53 acre-feet per acre and exclusive of rainfall, 3.33 acre-feet per acre. For the central Arizona project, the Bureau of Reclamation has estimated a requirement for farm consumptive use, including rainfall, of 3.75 acre-feet per acre and exclusive of rainfall, 3.20 acre-feet per acre. In other

words, the required farm consumptive use for Imperial will be 0.22 acre-feet per acre less than that for central Arizona when as a matter of fact, the mean annual temperature in Imperial Valley is slightly higher than that in central Arizona, and Imperial should, therefore, require a larger consumptive use per acre.

Let us look at the picture from another angle. (1) It is just as necessary to maintain a proper salt balance for the All-American Canal project as for the central Arizona project. For the latter project, the Bureau of Reclamation assumes that the outflow waters will contain an average salt concentration of 5.5 tons per acre-foot. The same should apply to the All-American Canal project.

(2) At the present time, Colorado River water diverted to Imperial Valley has a salt content of about 1 ton per acre-foot. We estimate that in the future the concentration will increase to 1.25 tons per acre-foot, when upstream developments are completed. For 3,800,000 acre-feet to be diverted to the All-American Canal annually, this means that 4,750,000 tons of salt per year will have to be disposed of in outflow water.

That means, of course, the Salton Sea, because that is the only point of outflow for the All-American Canal project. At a concentration of 5.5 tons per acre-foot, there will be required 864,000 acre-feet per year. (3) The Bureau has assumed that the loss of water from "nonirrigated" areas in central Arizona through evaporation and transpiration will equal 10 percent of the requirements of the acreage irrigated.

I might add here that a more recent letter submitted to the Senate by the Bureau of Reclamation has raised that percentage to 15 percent, but I have stayed with the lower figure of 10 percent.

Allowing for these factors, the requirements of the All-American Canal project will be as follows:

	Acre-feet
Diversion from Colorado River (net) per year	3,800,000
Farm consumptive use—800,000 acres irrigated at 3.33 acre-feet per acre	2,664,000
For salt balance—4,750,000 tons at 5.5 tons per acre-foot	864,000
Loss from "nonirrigated areas," equivalent to 10 percent of 2,664,000 acre-feet	266,400
Total requirements	3,794,400
Difference	6,600

In the foregoing, no allowance is included to cover the water required for regulating operations of the extensive canal system which will total at least 2,500 miles in length. At the present time our district is operating a canal system of some 1,700 miles in length. As a minimum, at least 200,000 acre-feet per year will be required for this purpose.

It is quite apparent that, in view of these requirements, compared to available supply, water and not land will be the limiting factor for the All-American Canal project and that maximum conservation practices will be required. The amount of water reaching Salton Sea in the future, therefore, will be only such as is necessary to drain the project lands and maintain a proper salt balance.

The Bureau of Reclamation has classified water having a salt content of 5.5 tons per acre-foot as being unusable for irrigation purposes. Since the outflow to Salton Sea will have at least that much concentration of salts, could it be used elsewhere?

As a matter of fact, it is quite fortunate for other projects along the lower river that nature located Imperial Valley where she did. Just suppose that that valley were located a short distance below Hoover Dam and the outflow from the project returned to the river not far downstream. What would happen to all other projects below that point with this nearly 5,000,000 tons of salt per year added to their water supply?

In view of all of these facts, I say there is no substance to the Arizona myth regarding the so-called waste of "pure" water to Salton Sea.

UNDEVELOPED LAND IN ARIZONA'S PROJECTS

Let me suggest to Arizona that if her need of Colorado River water for lands in central Arizona is so critical, why not stop development of some of her own projects; for example, the Gila project, where only a small portion of the works are constructed and where there are many thousands of acres of undeveloped land which it is proposed to irrigate some time in the future. Another example is the Parker project. Although this project was started in the seventies only about 10,000 acres out of a possible 100,000 acres are now developed. If this were done, a substantial amount of water would be made available for the so-called rescue of at least the 150,000 acres in central Arizona. Of course, I realize that perhaps these projects may have water rights that cannot be so confiscated. The same applies with at least equal force to Imperial's water rights.

Now I would like to discuss a few of the items included in the proposed central Arizona project.

May I interpolate here that my comments are directed almost wholly to the features proposed to take Colorado River water to central Arizona. I do not discuss the Bridge Canyon power development nor do I discuss the so-called local features in central Arizona. What I am interested in and what I confine my comments almost entirely to is this fantastic scheme to take water from the Colorado River to central Arizona.

AQUEDUCT CONNECTING WITH BRIDGE CANYON DAM

Although one of the main items which this bill seeks to authorize is a tunnel and canal from the Parker-Granite Reef aqueduct to Bridge Canyon Dam, I note there has been little, if any, testimony submitted by the proponents of this bill relative to either the increased costs or financial effects on the project which would be involved. As as matter of fact, although the Department of the Interior has submitted a report to this committee on H. R. 934, I do not believe such report even mentions this item.

What are the facilities required to provide for the gravity diversion from Bridge Canyon Dam and a connection with the Parker-Granite Reef aqueduct? In the first place, there would have to be a continuous tunnel about 80 miles in length from Bridge Canyon Reservoir to the Big Sandy River, this being known as the Big Sandy tunnel. There would also have to be a second tunnel about 8.5 miles in length, called the Buckskin tunnel, and several additional miscellaneous tunnels totaling 2.2 miles in length, together with some 70 miles of aqueduct to the point of connection with the Parker-Granite Reef aqueduct. From data contained in preliminary reports of the Bureau of Reclama-

tion and with prices adjusted to July 1947 costs, which is the basis used in the Bureau's report now before this committee, it is found that these facilities would add an additional $550,000,000 to the cost of the project.

Big Sandy Tunnel (80 miles)	$489,500,000
Additional tunnels and canals (80.7 miles)	60,500,000
Total cost of additional works	550,000,000

In other words, for 150,000 acres, proposed for "rescue," this additional cost alone would amount to over $3,600 per acre. Moreover, the Havasu pumping plants costing $25,973,000 and 49.1 miles of the Parker-Granite Reef aqueduct costing $26,750,000 or a total of $52,723,000 would have to be written off as these works would no longer be necessary. Under what conceivable conditions could such an expenditure, even if costs came down 50 percent, be justified?

This is only a part of what the people of Arizona are asking as a gift from the taxpayers of the United States. There is little wonder that the central Arizona project has been referred to as the most fantastic irrigation proposal ever submitted to the Congress.

May I add here I think it quite fortunate that when the former Governor of Wyoming, Mr. Miller, wrote his article for the Saturday Evening Post "The Battle that Squanders Billions," it is a good thing he did not have this central Arizona report to comment on, or the article would have caused twice as much comment as it has.

KIND OF CROPS TO BE IRRIGATED

Yes, Arizona would ask that the people of Imperial Valley relinquish old established water rights, abandon years of planning and effort, throw away millions of dollars invested in facilities to carry out those plans that require but a relatively small additional investment to complete, so that Arizona could take the water, pump it up a height of a thousand feet, or nearly twice the height of the Washington Monument, then carry it through a 315-mile aqueduct to irrigate crops in central Arizona.

Now, what kind of crops are to be irrigated? For the major part, just the ordinary general farming crops such as cotton, hay, grains, and the like. It may be surprising to many to learn that according to the report of the Bureau of Reclamation, for the period of 1940–44, 86 percent of the area irrigated in the central Arizona project was growing just such kind of field crops.

Here are the figures: For the period of 1940–44, out of a total of 566,000 acres average irrigated per year: 214,000 acres, or 38 percent, were growing cotton; 166,000 acres, or 29 percent, were growing alfalfa and grain hay; 109,000 acres, or 19 percent, were growing sorghums and other cereals. This makes a total of 489,000 acres out of 566,000 acres, or about 86 percent, raising these ordinary field crops.

Moreover the farmers who would receive this irrigation water would not pay anything towards the cost of project facilities required to deliver this water to them, somebody else would have to stand the entire cost. In addition, this water would have to be taken away from existing projects that can repay every dollar of their costs.

I wonder what the farmers in general over the Nation, and particularly those in the South and Midwest, would say about such a

scheme for which they would be taxed? Is this an example of what we mean when we talk to them about western reclamation? Has the economy of our country reached such a critical point that we have to go to these extremes in order to grow ordinary field crops that can be produced in so many other parts of the Nation?

EFFECT ON NATIONAL ECONOMY

If there actually was a surplus of water in the Colorado River which, unless used for such a project as proposed in this bill, would otherwise flow unused to the sea, and if there was a surplus of hydropower in the Pacific Southwest for which there was no ready market, then perhaps the project might have a theoretical basis, at least, for consideration. But these conditions do not exist.

As already pointed out, there appears to be no disagreement as to the fact that existing projects in the lower basin will require all of the water available for use in that basin, that if 1,200,000 acre-feet is taken from the Colorado River to supply central Arizona, it can only be at a sacrifice to existing projects with a consequent reduction in their production. This reduction would offset any increase in production which might result from the use of the water in central Arizona and therefore it cannot be said that the Nation or the Southwest would gain anything in the way of increased production if this project were constructed.

We hear so much about our dwindling oil supply and, in order to conserve it, the need for developing and using every kilowatt-hour of hydroelectric power which can be produced for the commercial market. The Bureau of Reclamation's own report shows this to be true. Why then rob that market of 1,390,000,000 kilowatt-hours a year to pump irrigation water through a 1000 foot lift to central Arizona? If used for that purpose, it would mean an equivalent amount of electrical energy would have to be generated for the commercial market by steam. This would require an additional drain on our limited petroleum supplies of over 2,250,000 barrels of fuel oil a year.

I would like to point out here that this 1,390,000,000 kilowatt-hours required to pump this water is more than the electric energy used in the entire State of Arizona for the year 1943. For that year, according to the Bureau's report, the total use in Arizona was a little over 1,200,000,000 kilowatt-hours.

Also, there would be a further national loss resulting from the use of this power for pumping. As proposed in the Bureau of Reclamation's report, this 1,390,000 kilowatt-hours would be delivered at the Havasu pumping plants at an average price, as I will later show, of 1.74 mills per kilowatt-hour. If Bridge Canyon power has a market value of 4.82 mills per kilowatt-hour as indicated by the Bureau's report, then the difference of 3.08 mills or a total of $4,280,000 per year is a definite national loss. Why was it not so considered in the Bureau's comparison of benefits and costs?

Mr. MURDOCK. If we may interrupt you at this point, Mr. Dowd, there are some important bills coming up in the House this afternoon. I did not think it wise to ask for permission to sit during general debate, and I think we had better recess now until tomorrow morning.

(After informal discussion, the subcommittee adjourned until Wednesday, June 1, 1949, at 10 a. m.)

THE CENTRAL ARIZONA PROJECT

WEDNESDAY, JUNE 1, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 10 a. m., in the committee room of the House Committee on Public Lands, Hon. John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The subcommittee will come to order, please.

We will proceed for a shorter space of time this morning with further hearings on H. R. 934.

Mr. Dowd was on the witness stand at the time of adjournment. Mr. Dowd will resume the stand, please.

Mr. Dowd was giving his prepared statement and had reached page 24, I believe.

Before you proceed, Mr. Dowd, I might say that there is an early session of the House today at 11 o'clock, so it seems that we are going to have too little time again this session.

Will you proceed, Mr. Dowd?

STATEMENT OF M. J. DOWD, CONSULTING ENGINEER, IMPERIAL IRRIGATION DISTRICT, EL CENTRO, CALIF.

Mr. DOWD. As you will recall, Mr. Chairman, I was discussing certain features of the central Arizona aqueduct, and as I pointed out when I started to discuss those features, I said that my comments would be directed almost wholly to the features proposed to take Colorado River water to central Arizona.

Although there are many things I would like to comment on in connection with the Bridge Canyon development and the so-called local features to further utilize the waters of the Gila River system, I am not doing that, as others will cover those subjects.

I am limiting my comments almost wholly to those features which would be required to take Colorado River water to central Arizona.

I come now to the matter of the ability of the irrigators in central Arizona to pay pumping power costs.

ABILITY OF IRRIGATORS TO PAY PUMPING POWER COSTS

According to the Bureau's report, the investment in power facilities necessary to produce and deliver this power from Bridge Canyon to the Havasu pumping plants would amount to $97,274,000, and the annual operating expenses would total $1,168,300.

For the one item of $97,000,000 alone, applied against the gross area to be rescued, including the 73,000 acres of land now irrigated, or a

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total of 226,000 acres, would amount to $430 per acre, just for the facilities to deliver the power to the pumping plants.

As I said, the annual operating expenses would total $1,168,300. This is just for the delivered power and does not include any part of the cost of the pumping plants or their operating expenses.

Assuming repayment of this power investment in 78 years and without interest, as proposed by the Bureau, the total cost of the power delivered at the pumping plants would be $2,415,300 per year, made up as follows:

Amortization of $97,274,000 in 78 years (without interest)	$1,247,000
Operation, maintenance, and replacements	1,168,300
Total annual cost of power	2,415,300

Sales of this pumped water—sales of water pumped from the Colorado River into this so-called aqueduct, which is nothing more than an irrigation canal—delivered at farm head gates in central Arizona would average 552,000 acre-feet per year. At the proposed sale price of $4.50 per acre-foot, the total revenue per year would amount to $2,480,000. Compare this figure, $2,480,000, with the cost of the power shown above of $2,415,300 per year, and it will be observed that practically the entire water revenue will be required to meet just the cost of the power required to pump the water. In other words, the irrigators, with the total amount they would pay, would do practically nothing more than to pay for the actual cost of the power delivered at these pumping plants to lift the water the 1,000 feet.

May I remark at this point also that the fact that the Bureau uses $4.50 per acre-foot as the sale price of the pumped water does not mean that the irrigators will be charged $4.50 per acre-foot. I say that because under the Bureau's interpretation of section 9 (e) of the Reclamation Project Act the Secretary may charge practically any amount he wants to.

This means that the irrigators would pay nothing on either the cost of irrigation facilities or their operating expenses; somebody else would have to foot the bill for them.

I ask again, is this an example of what we mean when we talk about western reclamation? Is this an example of what we mean when we talk about western reclamation and ask the taxpayers of this country to furnish the money without interest.

DISCRIMINATION IN POWER RATES

In connection with the subject of power for pumping, I would like to point out what I consider would be an unfair discrimination in power rates. Referring to the total annual cost of pumping power which I have shown of $2,415,300, and applying this to the average annual energy required of 1,390,000,000 kilowatt-hours, there results a cost per kilowatt-hour of 1.74 mills. This compares to the commercial rate proposed for Bridge Canyon power of 4.82 mills per kilowatt-hour. In other words, it is proposed that the irrigators in central Arizona would be charged only about 35 percent as much for power used for pumping irrigation water as an irrigator, elsewhere in the lower basin, using Bridge Canyon power for the same purpose.

Why this discrimination? Why are not all users of Bridge Canyon power for pumping irrigation water entitled to equal treatment? The

central Arizona irrigation project is not necessary, nor does it in any way contribute to the feasibility or justification of the Bridge Canyon power project, which is an entirely separate and distinct project. Why should all of the financial benefits of the Bridge Canyon power project be allocated to one irrigation project?

There is no discrimination permitted in the price for Hoover Dam power; it is all sold by the Government at the same base rate, regardless of the purpose for which it is to be used. If that is a fair and equitable provision for Hoover Dam power—and in my opinion it is—then certainly it should also apply to Bridge Canyon power.

PROPOSED IRRIGATION DISTRIBUTION AND DRAINAGE SYSTEMS

During the hearings on H. R. 934 there are two features of the proposed irrigation project which have received little, if any, attention; these are (1) the irrigation distribution system, and (2) the drainage system proposed for construction.

(1) The Bureau of Reclamation's report shows that an irrigation distribution system would be required costing $54,086,000, for which the annual operating expenses would amount to $302,000. This is for transporting irrigation water from diversion points on the 315-mile aqueduct to the farms. Apparently the cost estimates are very rough and preliminary in character, judging from the little information regarding them shown in the report. In any event, whatever these costs may be, no part of them would be repaid by the irrigators. I have already pointed out that the revenue from the sale of irrigation water would barely cover the cost only of the power required to pump the aqueduct water; all other costs, both construction as well as operating, would be presented as a gift to these irrigators from the general taxpayers of the Nation.

This is an unusual situation in regard to reclamation projects. Without exception, so far as I know, the irrigator is required to pay, at least, for the cost of construction and operation of his distribution system. This is provided for explicitly in section 9 (d) of the Reclamation Project Act of 1939, which requires that a contract from the water users to repay the cost of the distribution system be executed before any water is delivered to the land.

May I add that it is true under section 9 (e), insofar as water-supply facilities are concerned—in this case the aqueduct, for instance—the Secretary can write one of his so-called utility-type 9 (e) contracts to sell water at so much an acre-foot, regardless of how long it takes to pay off the cost of the water-supply facilities, but the act seems to be explicit that, insofar as the distributation system is concerned, he must have a contract from the irrigators to repay that cost before any water is delivered.

That is what the Bureau is doing, so far as I know, where they are applying the 9 (e) contract in the Central Valley of California and in the Missouri Valley Basin.

The irrigation distribution system is handled as an entirely separate contract. It may be included along with the contract for sale of water through the main water-supply facilities; but, nevertheless, it is a separate and distinct part of the contract and in the cases of both the Central Valley and the Missouri Basin project the irrigators pay

in full for the cost of the distribution system, plus a price for the water delivered from the main water-supply works.

(2) The Bureau's report also includes an item for a proposed drainage system to cost $10,000,000, for which the annual operating expenses would amount to $178,900. The title is somewhat dressed up by the use of the term "salinity control." Nevertheless, it is nothing more nor less than common drainage works which every irrigation project in the West must provide. There is this difference, however. In every other project that I know of, such cost is paid for locally, both for construction as well as operation, while for central Arizona no part of such cost would be repaid by the irrigator. Moreover, it is proposed to write off as nonreimbursable $5,000,000 on construction costs and $89,400 on the annual operating expenses. Of course, that would be in perpetuity. Again may I ask, why this discrimination in favor of central Arizona irrigators, as against other projects in the West; particularly, what justification is there for asking that half of the construction and operating costs be paid directly by the Nation's taxpayers.

COST OF DELIVERING COLORADO RIVER WATER TO CENTRAL ARIZONA LAND

What is the over-all cost of delivering Colorado River water to irrigators in central Arizona, as proposed in the Bureau's report? I have prepared the following tabulation, using data from that report to show the construction cost and annual operating expenses of the various items required for such an irrigation project.

Cost of delivering Colorado River water to irrigators in Central Arizona

	Construction cost	Annual operating expenses
Havasu pumping plants (985-foot lift)	$25,973,000	$2,978,000
Aqueduct (Lake Havasu to Gila River; 315 miles)	166,301,000	481,800
McDowell pumping plant and canal	3,346,000	47,600
McDowell Dam and power plant	12,335,000	378,500
Irrigation distribution system	54,086,000	302,200
Total costs	262,041,000	4,188,100

May I say that the Bureau, of course, does not compute annual operating expenses for pumping in this manner, but they are what I consider to be the annual operating expenses. In other words, the Bureau does not include in the cost of pumping power as shown as a part of operating expenses, the cost of amortizing power facilities. They show the cost of operating the power facilities but nothing on the return of the investment. I leave it to you gentlemen that any man who pumps water for irrigation has to pay the power bill, and that power bill covers both amortization as well as operation of power facilities, and it should be so shown as an operating expense in the Bureau's report.

Mr. WHITE. Have you broken that down anywhere as to the cost per acre?

Mr. DOWD. That can be done very easily, sir. You have the $262,000,000, and then the 226,000 acres to be "rescued", or something on that order.

Mr. WHITE. Do you mean million?

Mr. DOWD. I am thinking about the acreage now. That would be a cost of about $1,150 per acre.

Mr. WHITE. $1,150 per acre?

Mr. DOWD. $1,150 per acre.

May I say at this point that the domestic water users on the coast of California thought they were assuming a tremendous burden, and they were when they assumed a cost of something over $200,000,000 to build their aqueduct to carry drinking water and industrial water to southern California, but here these irrigators in central Arizona think nothing of coming before Congress and before the people of this Nation and saying, "Give us, without cost to us, a $262,000,000 aqueduct to supply water to grow cotton and corn and alfalfa in central Arizona, and take the water away from established projects, such as the All-American Canal project."

From this tabulation, it will be observed that the construction cost of the works required amounts to $262,041,000 and the annual operating expenses total $4,188,100. Now compare these amounts with the estimated total annual revenue from the sales of this Colorado River water amounting to $2,480,000. Bear in mind that this tremendous cost would be required to supply water primarily for the farming of ordinary field crops such as cotton, hay, and grain. It will be noted that the irrigators who would get the water could not pay a dollar toward the construction cost and only about 60 percent of the annual operating expenses. Looking at it another way, just the annual operating expenses would amount to over $7.50 per acre-foot, toward which the irrigators would pay but $4.50 per acre-foot.

What further demonstration is required to show the fantastic cost and economic impossibility of the proposed irrigation project?

Mr. WHITE. Mr. Chairman, there are a few statements made here I would like to ask questions on as we go along.

Mr. DOWD. May I finish before questions are asked, sir, like the other witnesses?

Mr. MURDOCK. I think the witness would like to complete his statement before questions, Mr. White. Perhaps that would be well today, because we have such a short period of time.

Mr. WHITE. Very well. I will wait until the gentleman completes his statement.

Mr. MURDOCK. Yes, sir.

PRESENT ARIZONA ECONOMY MAINTAINED WITHOUT AQUEDUCT

Mr. DOWD. We have heard so much about the terrible results to Arizona's economy if this project is not built that a brief comment on this phase of the subject is justified. Some of the Arizona witnesses go so far as to say that if Arizona does not get this water from the Colorado River they might as well "give the State back to the Indians"; that central Arizona will "dry up and blow away."

As has been pointed out, no objections have been made to the Bridge Canyon Dam portion of the proposed project. It may also be assumed that the feasibility of a project to include the proposed local features for further conservation and utilization of the waters of the Gila River system, with the possible exception of the Hooker Dam and Res-

ervoir, can be established. So, let us view the situation with these points in mind and see the results that follow:

(1) According to the Bureau's report, if the so-called central Arizona project is not constructed, the present irrigated acreage will have to be reduced by about 150,000 acres for lack of an adequate water supply. However, if the local features I have referred to are built, they will conserve water for about 30,000 acres. In that event, the reduction would amount to only 120,000 acres instead of 150,000 acres. This reduction would, of course, be in field crops—not permanent crops such as trees or vines, or specialty crops such as vegetables, because those crops naturally could better pay the increased cost of the reduced water supply.

(2) Also, according to the Bureau's report, it is anticipated in estimating future crop returns that the present acreage in vegetables will be increased by about 40,000 acres. If so, this would occur whether or not the central Arizona project was constructed; it would result from market conditions and not from water supply. May I repeat that, if there is to be an additional 40,000 acres going into vegetables in central Arizona that will occur regardless of this project, because the matter of the acreage in vegetables depends upon market conditions, price, and demand.

So, let us assume that such will be the case and that 40,000 acres now growing ordinary field crops shift to the growing of vegetables.

Here are the results, using the same crop values as shown in the Bureau's report:

Gross acreage reduction if project not constructed		150,000
Acreage supplied by local features, if built		30,000
Net acreage reduction if no Colorado River supplied		120,000
Based on an average gross-crop value of common crops, shown by the Bureau's report, of $66 per acre: Loss per year from nonproduction of 120,000 acres		$7,920,000
Shift of 40,000 acres from common crops to vegetables:		
Gross-crop value per acre of vegetables	$260	
Gross-crop value per acre of common crops	66	
Increased value per acre for vegetables	$194	
Total increase in crop returns resulting from shifting 40,000 acres to vegetables at $194		$7,860,000

In other words, if they do not bring the Colorado River water to central Arizona, the Bureau says that there would be a reduction in irrigated acreage of about 150,000 acres.

But, if the local features are built in central Arizona, they would supply water for about 30,000 acres.

So, there would be a net reduction, if no Colorado River water is supplied, of 120,000 acres.

Based on the average gross-crop value of common crops, shown by the Bureau's report of $66 per acre, the loss from the nonproduction of these 120,000 acres would be $7,920,000 per year.

Now, let us look at the other side of it. If, as the Bureau predicts, 40,000 acres now producing common crops are shifted to vegetables, what will we have? According to the Bureau's report, the gross-crop value of vegetables is about $260 per acre. The gross-crop value of common crops is $66 per acre.

In other words, by the shifting from common crops to vegetable crops, the value per acre would be increased $194.

This value, applied against the 40,000 acres that has shifted, we have assumed, from ordinary crops to vegetables, gives an increased value of $7,860,000, practically equal to the total reduction in crop value if no Colorado River water is taken to central Arizona.

Thus it is seen that the loss in field-crop values would be offset by the increase in vegetable-crop values.

In other words, based on assumptions used in the Bureau of Reclamation's report on the proposed project and assuming that the local features only are built, we find that even though no Colorado River water is diverted to central Arizona, the present economy will be maintained. This point is well worth serious consideration.

Where then is the threatened economic ruination of the State of Arizona?

SUMMATION OF COMMENTS

May I sum up these comments on the proposed irrigation project to take Colorado River water to central Arizona by pointing out the following:

(1) There is no Colorado River water available for the project unless it be taken away from existing projects for which the works are largely constructed and rights established.

(2) Any increase in production in the central Arizona area due to the project would be offset by a reduction in production on such existing projects. Therefore, this project would not add anything to national production or national economy.

(3) The proposal to pump irrigation water a height of 1,000 feet, or as I mentioned, about twice the height of the Washington Monument which you can see right out of this window here, and carry it 315 miles to be used in large part for the growing of ordinary crops such as cotton, hay, and grain is without economic justification.

(4) The proposed use of 1,390,000,000 kilowatt-hours a year to pump the aqueduct water would in effect increase the drain on the Nation's petroleum supply by over 2,250,000 barrels of fuel oil each year. This would be an unjustified waste of our natural resources.

(5) The price of 1.74 mills per kilowatt-hour proposed for power delivered to the aqueduct pumping plants as compared to the price in the commercial market of such power of 4.82 mills would result in a loss to the Nation of $4,280,000 per year.

(6) There should be no discrimination in the sales price of Bridge Canyon power, the base rate should be the same to all purchasers as in the case of Hoover Dam power.

(7) Total revenue from the sale to irrigators of the water pumped in the aqueduct—that is Colorado River water I am talking about now—would barely cover the cost of the power required for pumping, even at the proposed discriminatory price of 1.74 mills per kilowatt-hour. The water users would pay no part of the irrigation construction costs or other operating costs of the project.

(8) The irrigators would pay no part of either the construction cost of $64,000,000, or the annual operating expenses of $481,000, of the irrigation distribution and drainage systems. In other reclamation projects, the water users are required to pay such costs, at least. More-

over, there is no justification for writing off as nonreimbursable one-half the construction cost and annual operating expenses of the drainage system.

(9) The construction cost of works required to supply Colorado River water to irrigators in central Arizona would amount to $262,000,000 and the annual operating expenses would total $4,188,000 whereas, the estimated total annual revenue from sales of such water is but $2,480,000. Therefore, the irrigators would pay no part of the construction cost of the project and only about 60 percent of the annual operating expenses.

(10) Failure to secure Colorado River water for central Arizona would not result in the collapse of the economy of the State. Such water is not necessary to maintain the present economy of the State. The increase in crop production values resulting from a shifting of 40,000 acres to vegetables, which the Bureau of Reclamation predicts will occur, will offset the loss in crop value due to a claimed reduction of irrigated acreage if the aqueduct is not built but only local features of the project are constructed.

(11) In view of these facts, I submit that, even though a water supply was available for the proposed central Arizona project—which it is not—and even though the 1,390,000,000 kilowatt-hours of electric power required for pumping the water could be made available from otherwise surplus energy—which is not the case—the proposed project would still be totally infeasible and economically unjustified.

I would conclude my comments by suggesting that we of the West ask ourselves whether this project is an example of the reclamation program we are asking the country to support. If so, then the people of the Nation well might ask the question "what price reclamation?" The authorization of such a project could easily result in a reaction from the taxpayers of the Nation such as to largely undo the progress which has been made during recent years in gaining support from the country as a whole for western reclamation.

That completes my main statement, Mr. Chairman. If I may, I have just a short statement here to answer questions proposed by Congressman Welch and by yourself.

With your permission, I would like to run through that before general questions are asked, because it may answer questions that you have in mind.

Mr. MURDOCK. I think that would be well, because we have only 22 minutes left.

Mr. POULSON. Do we take up at 11 o'clock today?

Mr. MURDOCK. Yes; that is my understanding. Go right ahead, Mr. Dowd.

Mr. DOWD. Now, if I may, Mr. Chairman, I would like to comment briefly on certain statements made recently by two members of this committee reflecting adversely on Imperial irrigation district.

REPLY TO STATEMENT OF CONGRESSMAN WELCH

I have read in the transcript of these hearings, at volume 12, page 738, the statement of the ranking Republican member of the committee, as follows, and I quote:

Mr. WELCH. Mr. Chairman, I have heard it said that the Imperial irrigation district, a private corporation, has large interests in the Alamo Canal in Mexico,

together with vast acreages of fertile land that could be irrigated from the Alamo Canal. Would that possibly be a motive for releasing water from the projected Pilot Knob power plant into Mexico and into the Alamo Canal, which in turn could be used for the irrigation of this vast acreage which I am told is owned by the corporation?

Imperial irrigation district, through its subsidiary Mexican corporation, owns the Alamo Canal in Mexico, as I explained in my main statement, and why it owned it.

Imperial irrigation district does not, either directly or indirectly or through its board of directors, or by any device or in any form, nor does its Mexican subsidiary nor do any of its officers, own, hold, or control any irrigable or agricultural land in Mexico whatever. The information which Mr. Welch stated he has received is positively and unequivocally and totally untrue.

I respectfully ask that Mr. Welch name his informant and that the committee take such action as it deems to be in order.

I trust and hope that Mr. Welch will now feel free to give his full support to the interests of the State of California in the matter pending before the committee.

Mr. WELCH. May I interrupt to say that Congressman Welch, as a member of the California delegation, joined with the other 22 representatives from the State of California in filing a bill in keeping with the question which you have now raised.

Mr. DOWD. I put that statement in there, sir, because of a statement that you made.

Mr. WELCH. I did not make a positive statement. I said I had heard it said.

Mr. DOWD. Let me read to you what you said with regard to the district. I would like your support of the Imperial irrigation district and its plans.

Mr. WELCH. You have it wholeheartedly.

Mr. DOWD. Please let me read this statement, sir. This is from page 743 of the transcript:

Mr. WELCH. Of course, I want this for the record. I shall go as far as any member of the California delegation or any resident of my State of California in protecting the rights of the State of California; but I want it definitely understood that I have no interest, on the other hand, in a private corporation known as the Imperial irrigation district——

Mr. WELCH. What is wrong with that statement?

Mr. DOWD. This Imperial irrigation district is not a private corporation.

Mr. WELCH. I will accept your statement. Otherwise what is wrong with my statement?

Mr. DOWD. May I finish my statement?

which may have an interest in dumping the water after it is used at the Pilot Knob power plant into Mexico and into the Alamo Canal, for irrigation of their private holdings in the Republic of Mexico. I make that distinction. I want it definitely understood.

Mr. WELCH. What is wrong with that? Do I not have a right to make an inquiry?

Mr. DOWD. Yes, sir; and that is why I now say I hope it answers you satisfactorily and will remove any question from your mind about the district.

Mr. WELCH. That is the answer.

Mr. MURDOCK. If I may interrupt a moment, I will say it does not answer the inquiry in my mind. Go ahead.

Mr. DOWD. I am coming to you, sir.

Mr. MURDOCK. I hope you are able to convince me, which I doubt.

Mr. DOWD. Well, being an engineer, we often try impossibilities, sir.

Incidentally, to keep the record straight, Imperial irrigation district is not a private corporation. It has no private holdings, and it is not conducted for private profit. It is a public agency of the State of California, organized under an act of the legislature of the State, for the purpose of exercising a portion of the governmental powers of the State for the public benefit.

The irrigation-district form of organization in California has been in existence since the turn of the century. In fact, it was in 1897 that the State legislature passed the Wright act, later known as the California Irrigation District Act, providing for the organization of this form of a public agency to govern irrigation projects in California. As a result, today there are some 97 irrigation districts so organized and located throughout the State which include over 4,000,000 acres of irrigated land producing annually agricultural products having a value of hundreds of millions of dollars.

Of course, since Imperial irrigation district neither owns nor controls any land in Mexico, it would have no such motive in respect to the proposed Pilot Knob power plant as inferred by Mr. Welch. However, since both he and the chairman of this committee have raised questions relative to that power plant and its operation, I would like to answer them both at this time.

EXPLANATION REQUESTED BY CONGRESSMAN MURDOCK

On May 6 Mr. Murdock asked certain questions of Mr. Debler who was then testifying for Arizona, and based on the answers given it was developed that the discharge of the All-American Canal running full the year around would equal 11,000,000 acre-feet, and that on the same basis the capacity of the Metropolitan water district's aqueduct was 1,212,000 acre-feet or a total for the two of 12,212,000 acre-feet per year.

Mr. Murdock then made a statement which in substance was about as follows:

> I think California should explain why she has built works to take 12,000,000 acre-feet where she is entitled to only 4,400,000. Letters from Mr. Hewes to the State Department indicate the Pilot Knob power plant would use 5,000,000 acre-feet per year.

The letters Mr. Murdock refers to are shown as appendix 1410 and appendix 1411 in the Hoover Dam documents—second edition. Mr. Hewes, whom he refers to, is president of the board of directors of Imperial irrigation district.

The Metropolitan water district of southern California has a contract with the Secretary of the Interior for the amount of water shown above as the capacity of its aqueduct. It is apparent, therefore, why that aqueduct was constructed with such capacity.

ALL-AMERICAN CANAL CAPACITIES AND USES

In order to better discuss these questions, I would ask that you refer to the diagrammatic perspective drawing, or map, which has been handed you, showing the lower Colorado River from Lee Ferry to Mexico. The map shows present and proposed power developments along the lower river, and in particular the All-American Canal and Yuma projects with the locations indicated of diversion points for other irrigation projects.

If you would turn to the map, we might briefly scan it.

The right-hand side starts at Lee Ferry, which is the dividing point between the upper and lower basins of the Colorado River.

Following downstream, we come first to the Marble Canyon Dam and power site, the diversion for the Kanab Creek power plant.

Then, of course, we come to the Kanab Creek power site.

On down a little further you will note the location of Bridge Canyon Dam and power site, which is proposed for construction.

The next one downstream is the Hoover Dam and power plant.

Below that is the Davis Dam and power plant, which will be completed in 1950.

The next one below that is the Parker Dam and power plant, which is the dam built entirely at the expense of the Metropolitan water district of southern California, with half of the power rights given to Arizona without charge for any part of the construction of the dam; it is also the location of the diversion point for the aqueduct going to southern California.

Below that is the Headgate Rock Dam, at which power is proposed to be developed sometime in the future, which is the diversion point for the Parker Indian Reservation project.

Coming further downstream you will note the diversion point for the Palo Verde Valley main canal and the Palo Verde weir; this is a temporary rock weir put in the river to hold a constant elevation for diversion.

The next one downstream is the Imperial Dam.

Mr. WELCH. Mr. Chairman, may I interrupt to state that I have recived a note from my office reminding me of a very important conference which I must attend at 11 o'clock.

I remarked to the witness that I would accept his statement. I will do it with this qualification: Unless I receive proof to the contrary. I am no different from any other member of the committee, although I am the ranking minority member. I accept the same status and the same standing as any other member of the committee.

Members of the committee should be reminded that we sit as a jury, and we have the right to ask questions. Otherwise we have no business here. I did not make a positive assertion. I asked a question. I was so informed. If you have proof to the contrary, I will accept it.

Mr. DOWD. Thank you.

Mr. MURDOCK. We are sorry you have to go, Mr. Welch, but we will have to adjourn in 12 minutes anyway, and will have this witness further tomorrow.

Mr. DOWD. The next one downstream is the Imperial Dam, and I will come back to that later.

The next one below that is the Laguna Dam, which was the original diversion point for the Yuma project.

Then coming on downstream we have the Rockwood Heading, which you will notice is just above the Mexican boundary in California. That is the old diversion point for the Imperial Valley and served as the diversion point for both Mexico and Imperial Valley until the All-American Canal was built in 1940–41.

Below Rockwood Heading on the Alamo Canal—you will note that there is a short section of the Alamo Canal in the United States—a short distance below the Rockwood Heading you will notice it says, "Hanlon Heading, control gate for Mexico." That was the original Imperial heading, there being an open channel from that point to the river. We had great difficulty with that channel silting up, and because of that we built the Rockwood Heading right next to the main channel of the river, to get away from that difficulty.

Let me make this very clear: The Hanlon Heading is the control gate for any water delivered to Mexico through the Alamo Canal, and I will come back to that later.

With that map in front of you, please, will you observe and follow the statement.

Near the bottom of the map you will note the Imperial Dam. It is in reality a diversion weir and not a dam—it stores no water. As originally planned, this was to be the diversion point for the All-American Canal only. Later it was decided to locate the diversion for the Gila project at that point, as is shown at the east end of the dam. The Gila project is now under construction and will irrigate lands on the Yuma Mesa and along the lower portion of the Gila River Valley, in Arizona.

The capacity of the All-American Canal from Imperial Dam to Siphon Drop is 15,155 cubic feet per second. At Siphon Drop 2,000 second-feet is diverted to the Yuma project canal; I will come back to this again later. From Siphon Drop to Pilot Knob the capacity is 13,155 second-feet, of which 3,000 second-feet was originally included for power development at Pilot Knob, but now under the Mexican treaty, 2,000 of the 3,000 second-feet has been assigned to Mexico. At Pilot Knob the canal turns westerly away from the river to Imperial and Coachella Valleys with a capacity of 10,155 second-feet, of which 10,000 second-feet is for irrigation in the two valleys and 155 second-feet is capacity for the city of San Diego for municipal purposes. Since contracting for this capacity, San Diego has become a member of the Metropolitan Water District of Southern California and is now utilizing the latter's aqueduct in place of the All-American Canal. You will note that the 10,000 second-feet corresponds to the amount of Imperial's original appropriations, which I have already discussed.

Now coming back to the diversion at Imperial Dam. It is true that 15,000 second-feet—neglecting the 155, which does not make much difference one way or another—flowing continuously throughout the year will amount to, as Mr. Murdock pointed out, about 11,000,000 acre-feet, but what of it? In the first place, the use of Colorado River water to be charged to California is defined in the Limitation Act as "diversions less returns to the river" so it is only the amount of that diverted which flows westerly from Pilot Knob and does not return to the river that is chargeable to California's consumptive use—except, of course, for the small evaporation loss from the canal

down to Pilot Knob and the relatively small amount used for irrigation by the portion of the Yuma project in California.

In the second place, of the 15,000 second-feet, 2,000 second-feet is delivered continuously to the Yuma project at Siphon Drop. This amount is dropped from the All-American Canal to the old Yuma Canal, then passes through the power plant built some years ago by the Bureau of Reclamation for the benefit of the Yuma project, and, as shown on the map, is then carried in the Yuma main canal to the Colorado River. From this point the amount required for irrigation in Arizona is taken under the Colorado River to the Yuma Valley in Arizona. The remainder is spilled back to the Colorado River through the wasteway on the California side, as indicated on the map. Of the 2,000 second-feet continuous flow which passes through the Siphon Drop power plant, the amount taken to the Yuma Valley in Arizona varies from zero to a maximum of 800 second-feet, the capacity of the structure under the river, the average being around 500 or 600 second-feet. This means that of the 2,000 second-feet continuous flow, which, by the way, equals about 1,500,000 acre-feet per year, the amount wasted back to the river averages around 1,400 to 1,500 second-feet. The Siphon Drop power development is exclusively for the benefit of Mr. Murdock's Yuma project.

Prior to the building of the All-American Canal, water for the Yuma project was diverted from Laguna Dam and carried to Siphon Drop by the canal indicated on the map as "old canal abandoned." This water is now being carried through the All-American Canal in accordance with provisions of Imperial's contract, under which the Bureau of Reclamation required the district to provide this 2,000 second-feet of capacity from and including Imperial Dam to Siphon Drop free of cost to the Yuma project. This was based on the theory that the building of Imperial Dam might interfere with diversion of water for the Yuma project at Laguna Dam.

PROPOSED PILOT KNOB POWER DEVELOPMENT

What I want to point out very clearly is that Mr. Murdock's Yuma project is now and for many years has been, doing at Siphon Drop what Imperial proposes to do at Pilot Knob. Yuma is utilizing surplus water in the river to develop power, such surplus being then wasted back to the river. This is perfectly proper and fully justified. Imperial proposes to do the same thing at Pilot Knob by carrying surplus water to that point, making power with it, and then turning it back into the river. I am sure Mr. Murdock approves of what is being done by the Government for the benefit of his Arizona project, and, therefore, I can see no reason why he would object to the same being done by Imperial irrigation district for the benefit of its people.

Mr. MURDOCK. May I say that I approve of both, with qualifications and limits to be explained later. We must not forget the limits.

Mr. DOWD. We are making progress.

Under the terms of the Boulder Canyon Project Act, which authorized the All-American Canal, the Congress granted Imperial the right to develop the power possibilities on the All-American Canal. Pilot Knob is one of these. Also under the terms of the

act, before any money was appropriated or construction work started, Imperial was required to sign a contract guaranteeing repayment of the cost of the canal to the United States. The canal capacities, the location of works such as the check and spillway at Pilot Knob, and the capacity of the power plant proposed at that point, were all worked out in cooperation with the Bureau of Reclamation. In fact, the Bureau made the preliminary designs of the Pilot Knob power development in order to be sure that the location of the other structures built at that point would fit in with the power plant when built.

There never was any question as to the right of the district to develop the Pilot Knob site. Everyone recognized then, as now, that for many years there would be a large surplus of water in the river. In fact, the power plants at Hoover Dam, Davis Dam, and Parker Dam were designed to make use of such surplus water as is also proposed for the Bridge Canyon power development. Why not use this surplus water to make power at Pilot Knob as is being done at Siphon Drop and these other dams rather than let it run unused into Mexico or the Gulf?

DELIVERIES TO MEXICO CONTROLLED BY FEDERAL GOVERNMENT

Another point I wish to make very clear is that the generation of power at Pilot Knob would not have had in the past, and will not have in the future, any effect one way or another upon the water received by Mexico. None of this power water from the Pilot Knob plant would be discharged into the river in Mexico; such discharge is all in the United States. Of course, to date Imperial has been prevented from building the power plant and the delay has cost the people of Imperial Valley many hundreds of thousands of dollars which they can never recover and it has also denied them rights granted by the Congress. Nevertheless, even though the plant had been built a number of years ago as the district sought to do, the Federal Government would have had complete control of any delivery of water to Mexico by such use of the All-American Canal. Let me explain why this is so.

You will note, as shown on the map, that the Pilot Knob wasteway and the tailrace of the proposed power plant, discharge into the Alamo canal. This is as planned by the Bureau of Reclamation. It was realized by Dr. Mead, the then Commissioner of the Bureau of Reclamation, as well as other officials of the Interior Department, that some day Mexico would be accorded rights by treaty to some Colorado River water. May I say, though, at this point, none of us had any idea she would be given twice the amount she had used out of the natural flow.

Also, as I have said, everyone knew that for a great many years there would be a surplus of water in the river. So why not utilize such water to develop power at Pilot Knob?

However, Dr. Mead recognized and the district agreed with him, that the Federal Government should control any use of All-American Canal water which might be delivered to Mexico through the Alamo Canal. Hence, the provision was written into the Imperial All-American Canal contract that—

water shall not be diverted, transported or carried by or through the works to be constructed hereunder—

meaning, of course, the All-American Canal, because that is what the contract was about—

for any agency other than the district—

the Imperial district—

except by written consent of the Secretary—

meaning, of course, the Secretary of the Interior.

Hence, it is quite evident that not a drop of water from either the Pilot Knob wasteway or the Pilot Knob power plant, had it been built, could have been delivered to Mexico through the Alamo Canal without the approval of the Federal Government.

You will note that Hanlon Heading on the Alamo Canal is the control for any water delivered to Mexico through the Alamo Canal. The regulation of that gate determines how much water, if any, discharged through either the Pilot Knob spillway or the proposed power plant, goes to Mexico. The balance of the water so discharged goes into the river through the Rockwood gate. Furthermore, the reason for the Pilot Knob spilway is to control the flow in the All-American Canal and for use in case of emergencies which might occur on that canal. For instance, if we had a break in the canal we would have to empty the water real quick. This spillway has a capacity of 13,000 second-feet, which is the capacity of the canal at that point.

Regardless of whether the Pilot Knob power plant is ever built, this spillway will be used for these purposes and such will require the operation of Hanlon Heading to control deliveries in Mexico. Building the Pilot Knob power plant in no way affects this situation.

I want to assure you that statements made which in any way imply that Imperial irrigation district wanted to run water through the Pilot Knob power plant and deliver it to Mexico in order that the latter could increase her uses, or acquire greater rights and thereby benefit the district or the Pilot Knob power development, are absolutely untrue and contrary to the actual facts.

Also let me point out that under the provisions of the 1944 water treaty, Mexico is granted the use of 2,000 second-feet of All-American Canal capacity. The water is to be delivered from the All-American Canal to the Alamo Canal at Pilot Knob and thence through Hanlon Heading to Mexico. Under the treaty, the Federal Government is to own and operate Rockwood, Hanlon, and the Alamo Canal in the United States. Negotiations are under way for the sale by Imperial irrigation district of these properties to the Government. Imperial has always agreed to the control by the Federal Government of the actual delivery of water to Mexico as provided by the treaty. In view of all of these facts, I repeat that the Federal Government has had and will continue to have, complete control of any possible use of the All-American Canal to deliver water to Mexico.

USE OF WATER SUBJECT TO COMPACT

One other point: Any water discharged back to the river through Rockwood Heading would have reached that point in the river in any event. It would be either surplus water not required for irrigation use in the United States, or it would be water required to satisfy the terms of the treaty. Not one drop of water which would be used for power at Pilot Knob would or could interfere in the slightest

degree with requirements for irrigation in the United States, any more than use of the same water for power generation at Hoover, Davis, or Parker Dams will interfere with any irrigation use. The Federal Government and the District are firmly bound both by the Boulder Canyon Project Act and the Imperial contract, to the terms of the Colorado River compact which give the use of water for irrigation priority over use for power. Subject to these conditions, it is a waste of our natural resources to not make the fullest possible use of all available water for power development.

PROPOSAL TO STATE DEPARTMENT

It was in connection with this Mexican Water Treaty granting the use of 2,000 second-feet of All-American Canal capacity to Mexico which, by the way, is capacity owned by the Imperial irrigation district, that Imperial made the proposal in December 1947, to the State Department to which Mr. Murdock has referred. The purpose of the proposal was to bring the Imperial contract in line with the treaty. After clearing our proposal with both the Interior and Justice Departments, the State Department notified us in July 1948, that our proposal was accepted in principle (appendix 1412, the Hoover Dam Documents, 2d ed). The State Department then proceeded to draft a form of contract to put our proposal into effect and this draft was submitted to the Interior Department for comment in November 1948, 6 months ago. To date there has been no reply from Interior.

I feel that some day the grave injustice which has been done the people of Imperial Valley in connection with the Pilot Knob power development will be recognized. However, regardless of any feeling which Imperial may have had as to certain inequities and injustices to our people as a result of the treaty, we recognize it to be the law of the land. The district's position in this whole matter is best shown by a statement made in our proposal to the State Department of December 2, 1947, which reads as follows:

> At the outset we want to make it clear that Imperial Irrigation District recognizes the treaty as the law of the land, which should be and will be observed and carried out in good faith by both countries, and that this district neither desires nor intends by anything said herein to suggest or seek a modification of the treaty nor to interfere with its proper administration. It is the purpose and intent of this district to cooperate in every way with the United States Government to facilitate operations under and in conformance with the treaty. In turn, we ask and believe we are entitled to have the cooperation of our Government in the recognition, observance, and protection of the interests and properties of the people of Imperial Valley, whom this district represents.

MAXIMUM DEMANDS CONTROL CAPACITY

There remains one other part of Mr. Murdock's question to answer. That is relative to the capacity of the works constructed which he considers to be greatly in excess of California's rights. I have discussed capacities of the All-American Canal down to Pilot Knob. Now let us consider the canal below that point where it turns away from the river to Imperial and Coachella Valleys. The capacity is 10,000 second-feet for irrigation uses, as I have explained. This amount flowing continuously the year around equals about 7,300,000 acre-feet. In my previous statement, I have shown that the maximum amount the All-American Canal project will receive under the

California Limitation Act is 3,800,000 acre-feet per year. To anyone who is not familiar with irrigation in the West, the question might arise as to why, then, build a canal capable of carrying twice the annual amount of water to be received? However, to anyone else it would seem that the answer should be apparent.

The demand for irrigation water on any reclamation project varies throughout the year. In the northern projects the canals are dry in the winter when no crops are growing. During the spring, delivery of water commences and demand increases, reaching a maximum in June or July, then tapering off until the water is shut off in the fall. For projects like Imperial, with a year-around growing season, the winter demand is about 50 percent of the summer demand. In either case the canal system is designed to meet the maximum demand or maximum flow to be anticipated; what the canal might carry if operated at full capacity the year around is in no way indicative of actual operating conditions, or what the total use for the year will be.

I hope that by the foregoing I have satisfactorily answered the questions raised by Mr. Welch and Mr. Murdock. In this brief presentation it has been possible, of course, to cover only the high lights of the subjects under discussion. This was done in order to conserve the time of the committee and not because of any desire on my part to withhold such information as to details as the committee may want to have.

Let me close by saying that in the statement I am about to make, I speak not only for the people of Imperial Valley but I am sure I also speak for all other agencies in California using Colorado River water as well as the State itself. That is this:

We of California always have and intend to continue to play the game fairly and squarely with all of our cards on the table face up. All we ask is that the others sitting in on the game do likewise.

That completes my statement, Mr. Chairman.

Mr. MURDOCK. We shall probably receive a quorum call in just a few minutes, so that we cannot count on extensive questioning today.

I think in view of the fact that the last half hour of the witness' statement has been in answer to points that I raised I ought to have the first chance at questioning the witness.

I ask unanimous consent of the committee, then, that the Chair may do so, even though it may seem unbecoming, at the beginning of our next regular meeting, which will be tomorrow at 10 o'clock.

Mr. WHITE. Mr. Chairman, on a parliamentary procedure I think that is one of the rights of the chairman.

Mr. MURDOCK. Yes, but if I may have the unanimous consent, that would be better.

Mr. WHITE. Unanimous consent is granted, so far as I am concerned.

Mr. MURDOCK. We will have no time now, because the bell will ring in just a few minutes. Really, we have no right to carry on business, since the House has been in session 10 minutes, but I would like to make this statement while the present audience is here in the committee room and the present members of the press are here:

One of the last statements read was "I hope that by the foregoing I have satisfactorily answered the questions raised by * * * Mr. Murdock."

91190—49—ser. 11, pt. 2——14

No, Mr. Dowd, you have not, as I shall present to you tomorrow. You have made a splendid presentation. I certainly respect your knowledge of this complicated matter, and I want to thank you for one of the finest maps of this region that I have ever seen. It helps to bring the matter before us quite well indeed.

However, there are many points about your answers to the points I raised that have not been satisfied. I will not go into those now.

I want to say to you, though, for the press and for the record as well, that I have a great regard for the dirt farmers on all irrigation projects. I went to Phoenix in 1914 and I saw those dirt farmers there struggling in that great project and I have seen some others struggling to make a go of it. I take off my hat to them. I meant no reflection at any time upon the people who are irrigating land in the Imperial Valley.

I want to say, also, that I am perfectly aware that the Imperial Irrigation District is not a private organization like the Southern Pacific Railroad. It is semiprivate, semipublic. I want to say something about that later.

It is said to be a nonprofit organization, but it is possible for the affairs of the Imperial Irrigation District to be so managed that great profit will come to the unit as a whole, and I would expect managers to do that within reason. There are some things I would not expect managers of the Imperial Irrigation District or the Salt River Irrigation District or any other to do to the advantage of the district, where it works to the disadvantage of the public interest. That is the matter I want to stress when time permits—and it applies here.

Mr. WHITE. Mr. Chairman!

Mr. MURDOCK. Just one moment, please. Let me finish.

No; Mr. Dowd has not convinced me that there are not possibilities of the Imperial Irrigation District profiting by the use of water which belongs to other people and which might be used in the United States which, if used as he indicates, would be forever lost to the United States. I will dwell on that at a later time.

Mr. Dowd points out that one of my own projects, the Yuma project, is benefiting from the power developed at Siphon Drop. I interrupted him to say I would like to see power developed at Siphon Drop, and I would like to see power developed at Pilot Knob but in both cases with qualifications. It is going to take me too long now to adequately indicate what those qualifications are, but naturally I mean that power at those points must be produced by water which could not possibly be used elsewhere in the United States for irrigation, would not be used and could not be used and would otherwise be wasted. That is what I meant by part of the qualifications.

Now, if I ever find anybody coming to Washington from Yuma County, Ariz., or anybody coming from Arizona fighting against any bill to put water on land in Wyoming, in Colorado, in New Mexico or in Utah because they want that water to go on down the river and drop at Siphon Drop to produce power for that area, I will certainly let my objections be known to that. Production of power is entirely secondary to the use of water for life-giving purposes.

I recognize the great importance of hydroelectric power, but I want to make that distinction and make it so clear that nobody can possibly misunderstand.

Mr. WHITE. A good deal has been said, Mr. Chairman, about the administrative structure of the Imperial Irrigation District. I wonder if we might have made a part of the record the bylaws of that Imperial Irrigation District?

Mr. DOWD. The bylaws are the Water Code of the State of California, sir, and constitute a book about a half-inch thick.

Mr. WHITE. The Water Code of California would not provide for the election of officers.

Mr. DOWD. Yes, sir; it does.

Mr. WHITE. The voting of the members.

Mr. DOWD. Yes, sir.

Mr. WHITE. Do you mean to tell this committee that there are no rules or regulations governing the administration of the Imperial Irrigation District in California?

Mr. ENGLE. He said the Water Code, Mr. Chairman.

Mr. WHITE. I am talking to the witness now. He has taken a lot of time here.

Mr. DOWD. I say that the Irrigation District Act of California sets up the board of directors, how they shall be elected, who shall vote, when they shall vote, what the length of term will be, the election of the treasurer of the district, the election of the assessor of the district, the election of the collector of the district, exactly the same as set up for a county.

Mr. WHITE. Has that been officially adopted by the water users of the Imperial Valley?

Mr. DOWD. It was adopted in 1911 when they organized the district in accordance with the act.

Mr. WHITE. You mean to tell the committee that there are no supplemental rules and regulations for the administration of the Imperial irrigation district? Is that what you want the committee to understand?

Mr. DOWD. That is what I am telling you, sir.

Mr. WHITE. You are telling me?

Mr. DOWD. Yes, sir.

Mr. WHITE. Then for the information of this committee, Mr. Chairman, I suggest that that be made a part of the record. If such rules and regulations of the Code of California govern entirely and absolutely the actions of the water users and the election of their officers and the administration of their business, then I say we should make it a part of this record.

Mr. MURDOCK. You do not mean you want it printed? He said it was a pretty voluminous record.

Mr. DOWD. The Water Code of California is a long, very thick document.

Mr. POULSON. You can get it, though, can you not?

Mr. DOWD. Yes.

Mr. POULSON. That is all, then.

Mr. MURDOCK. It can be made as an exhibit for the committee.

Mr. DOWD. We would be glad to get a copy for you.

Mr. MURDOCK. The committee stands adjourned until 10 o'clock tomorrow morning.

(Thereupon, at 11:18 a. m., Wednesday, June 1, 1949, the subcommittee adjourned to meet at 10 a. m. Thursday, June 2, 1949.)

THE CENTRAL ARIZONA PROJECT

THURSDAY, JUNE 2, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met at 10 a. m., Hon. John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The committee will come to order.

We will proceed with our hearings on H. R. 934. The witness yesterday was Mr. Dowd, who was being questioned on his testimony previously completed.

Will you take the stand, please, Mr. Dowd?

STATEMENT OF M. J. DOWD, CONSULTING ENGINEER, IMPERIAL IRRIGATION DISTRICT, EL CENTRO, CALIF.—Resumed

Mr. MURDOCK. I do not know that I had varied any from my usual practice, except a little bit, perhaps, by asking that I might lead off this morning with questions because of the fact that the latter part of Mr. Dowd's statement pertained to myself particularly and the fact that Mr. Dowd, representing the Imperial Irrigation District so well, is in a position to answer some of the questions I would like to have raised at this point.

To begin with, Mr. Dowd, could you give us—perhaps not now but for the record; maybe you can give some of these now—the number of acres actually irrigated and cultivated in the Imperial Irrigation District for each year for the past 10 years of record?

Mr. DOWD. I can give you an estimate of that. We do not have the actual acreage irrigated. We say that for the last several years it has been approximately 450,000 acres.

The reason why I say we do not have the actual record of the acreage irrigated each year is this: we take two and sometimes three crop reports during the year. We will take one as of March 1; we will take another during the summer to catch the summer crops; and we will take a third in the fall, about the 1st of October. Each of those is an independent survey. When you grow crops the year around, you have crops growing in one part of the year which are not growing in another part of the year. It is not like your northern projects where there is just one crop grown during the summertime and where, by one crop report, you can tell the acreage irrigated. And it is a very expensive and complicated matter to take these three crop reports and put them together to determine the actual acreage being irrigated each year, neither one of the three reports reflecting the actual acreage being irrigated for that year. As I say, it is costly

to determine that, and we have not done it, but we will come close enough to say it is about 450,000 acres.

Mr. MURDOCK. Perhaps you could supply the record for the past 10 years, giving the estimated average for each year, could you not?

Mr. DOWD. All right, sir. I can give you a copy, at least, of the two major crop reports for each year for the past 10 years.

Mr. MURDOCK. It was just the number of acres actually in cultivation that I was anxious about, for, say, the last 10 years.

Mr. DOWD. All right.

Mr. MURDOCK. The other question is, Has the Imperial irrigation district ever taken any steps legally to include within its boundaries the East Mesa and West Mesa of Imperial Valley or either one?

Mr. DOWD. Yes, sir. In the All-American Canal contract, the Secretary of the Interior determined the boundaries of Imperial irrigation district as they were to be, and we agreed in that contract that within a reasonable time we would include these additional lands within our boundaries that had been contemplated for irrigation ever since the water filings were made in the nineties. In 1942, we did include the bulk of those lands. We included all of the public lands on the mesas, so that we now have a present acreage of something around 900,000 acres.

Mr. MURDOCK. Was that step the legal step under the terms of the contract itself—the All-American contract?

Mr. DOWD. That is correct.

Mr. MURDOCK. And it is a matter of record that that was done in 1942?

Mr. DOWD. Yes, sir; it is a matter of record. And the proceedings were transmitted to the Secretary of the Interior.

Mr. MURDOCK. How much land is there on the East Mesa and how much on the West Mesa which has a water right, then?

Mr. DOWD. The entire areas have a water right on both mesas. May I explain that by saying this? Under the California Water Code, every acre within an irrigation district has an equal right to water; so that every acre within the Imperial irrigation district has an equal right with every other acre within the Imperial irrigation district. On the two mesas, I can give you that in just a second. On the East Mesa, the gross area is about 220,000 acres, of which 160,000 are considered as gross irrigable. Cutting that down for allowance for roads, canals, and so forth, we arrive at 150,000 acres which we call net irrigable, and there would be about 135,000 or 140,000 acres we consider will be irrigated in any 1 year.

On the West Mesa, the gross area is 140,000 acres, and of the 140,000 acres, we consider 105,000 as gross irrigable and 100,000 as net irrigable. In other words, on the two mesas, there are 250,000 acres of net irrigable land.

Mr. MURDOCK. Has any of the land now included as you say on the East Mesa been in cultivation other than as experimental plots?

Mr. DOWD. There is just one other tract that is now being irrigated. That is a section of private land near the northerly end of the East Mesa which was leveled and a sprinkler system provided during this past winter and is now being planted to crop. Outside of that one private piece and two demonstration farms, that is all the land at present being irrigated on the East Mesa.

Mr. MURDOCK. The rest of it is public land, then?

Mr. DOWD. Practically all; yes. There is a little private land on the East Mesa, but it won't run over 4 or 5 percent of the total area on the East Mesa. The balance of it is public land, withdrawn many years ago. Under our contract with the Secretary of the Interior, it provides that within a reasonable time after water is available for and can be delivered to these mesa lands, the Secretary of the Interior will open them for entry in units of not to exceed 160 acres each, with veterans of the world wars having a 90-day preference right of entry.

Mr. MURDOCK. I am glad to hear what you say about that sprinkler system. I think there are two areas on the Pacific Southwest that would do well to try that out to a great extent.

Mr. DOWD. Apparently it has great possibilities. It serves in two ways: First in the better control of the application of water, and secondly, it does not require the very minute leveling of the land such as is required with flood irrigation or even with furrow irrigation. So it is much less expensive to develop raw land and also is much less expensive insofar as the application of water is concerned.

Mr. POULSON. Do you think it saves water?

Mr. DOWD. No; in a condition like on the East Mesa, it won't save water. It will save some handling of the water. In other words, assume we deliver to a piece of land 10 acre-feet per acre, just to use a figure. The land will actually burn up—consumptively use, as we call it—around 3 to 3½ acre-feet of that water, and the balance percolates into the underground water where it is then available to be pumped out and reapplied and so on until the salt content increases beyond the tolerance of the crops. With the sprinkler system, you can apply just amount you need for the plants plus such additional amount as might be needed to carry the salt down below the root zone. So it saves handling of the water; it does not actually save any water in a condition like on the East Mesa.

Mr. MURDOCK. Then, if it be true that the California Self-Limitation Act limits California uses wherever they occur to 4,400,000 acre-feet of apportioned water, do you agree that applies to the total of all uses within that portion of California?

Mr. DOWD. It applies to all beneficial uses within California; yes, sir—within California, not outside of California.

Mr. MURDOCK. You have been here before, and you and I are pretty well acquainted, and you argued for the same thing in the hearings in 1946 and at other times——

Mr. DOWD. May I say that that limitation applies to 4,400,000 acre-feet of the water apportioned by article 3–A of the compact plus not to exceed one-half of any excess or surplus.

Mr. MURDOCK. I am well acquainted with the "plus" part.

Mr. DOWD. We have been forgetting to add that one-half of the excess or surplus, and that is really the bone of contention between us.

Mr. MURDOCK. I am talking about the 4,400,000 acre-feet of apportioned water. That is the reason I emphasized the word "apportioned."

The point I was driving at is this: you have said a number of times, I think—at least, I have heard it said, possibly by yourself—you recognize the California limitation of 1929 and you intend it shall be

observed; but you in southern California also have an intrastate priority system that seems at variance with the self-limitation act and I just wanted to get your statement on that.

Mr. DOWD. May I reply in this way, that California always has and always intends to comply with that limitation, but I think it should be made clear that when the Congress put that limitation into the Boulder Canyon Project Act and required California to accept it, I do not think the Congress of the United States was trying to fool California. I do not think Congress was saying "If you will adopt this limitation, we will make the Boulder Canyon Project Act effective, under which we will build Hoover Dam and the All-American Canal, but, of course, we do not intend that California will have enough water for its projects." Congress thoroughly understood every project we had in mind. They have not been changed in the last 20 years. It was well understood those projects would be built; it was well understood what was the amount of water required to serve them. And when the United States authorized the All-American Canal project, it authorized the same project—the same project—that had been approved by Dr. Mead back in 1918. And Congress did not authorize the All-American Canal project and build that project and require us to guarantee repayment of the cost on the one hand and, on the other hand, say "Oh, no; we do not have enough water for you. We are going to let you build this project, but, of course, you won't have enough water for it."

Mr. MURDOCK. Yes. This is what I wanted to ask you: In effect you say "We are going to observe a solemn, binding agreement that mentions 4,400,000 acre-feet of apportioned water," but you also, I believe, are a party to an intrastate agreement that involves more water. Which of those agreements, if they are in conflict, do you think is the more binding upon you?

Mr. DOWD. I think the Limitation Act is more binding.

Mr. MURDOCK. That is what I wanted and expected you to say. To demand full compliance with California's self-limitation is to uphold the honor of that great State.

Mr. DOWD. In that connection, may I call your attention to the fact that Arizona also recognizes California's full right under our Limitation Act.

Mr. MURDOCK. That is right. Arizona does recognize it.

Mr. DOWD. In the Arizona water contract, which was ratified by the Legislature of Arizona and approved by the Governor—so it is part of the laws of Arizona—article 7–H reads as follows:

> Arizona recognizes the right of the United States and agencies of the State of California to contract for the storage and delivery of water from Lake Mead for beneficial consumptive use in California, provided that the aggregate of all such deliveries and uses in California from the Colorado River shall not exceed the limitation of such uses in that State required by provisions of the Boulder Canyon Project Act and agreed to by the State of California by an act of its legislature, upon which limitation the State of Arizona implicitly relies.

Now, I say in all fairness we are entitled to our day in court to find out what that is. Arizona says "No; you are not entitled to your day in court——"

Mr. MURDOCK. Wait a minute.

Mr. DOWD (continuing):

Arizona is going to interpret what that means, and that is all you are going to get.

Mr. MURDOCK. Wait a minute. You are assuming too much. I do not think you will find anybody in Arizona saying you are not entitled to your day in court. Do not misunderstand about that.

Mr. DOWD. Then give us our day in court and remove your opposition to this litigation resolution giving the consent of Congress to bring a suit in the Supreme Court.

Mr. MURDOCK. You will always have your day in court, but you are trying to keep Arizona from her day in court. Nobody is more anxious than I to have the Supreme Court speak when the proper time comes for it to speak and when it may take jurisdiction. But that is an entirely different matter you propose. I am glad to have you say Arizona recognizes it, though, because I was about to say to the committee that the State of Arizona recognizes—and I wish every member of the committee could hear this—that the State Legislature of Arizona recognizes California's right to the 4,400,000 acre-feet of apportioned water——

Mr. DOWD. Plus.

Mr. MURDOCK. Yes, plus; but I am talking now about the apportioned water, the firm water. That is recognized as California's legal right, and there is no question about that and no controversy about that.

Mr. DOWD. But the controversy arises, perhaps, over what is apportioned water and what is not apportioned water. Is not that true?

Mr. MURDOCK. Yes. Now, we are taking too much time here. I would like to read a little statement. I would like to take just a few minutes now under the unanimous consent agreement of yesterday to make this little statement.

As I told you yesterday, Mr. Dowd, your statement was a splendid piece of presentation. Your power of presentation is almost equal to your intimate knowledge of the complex matters of the lower Colorado River, but it has failed utterly to convince me of the thing you wanted to convince the committee of.

As I said yesterday, I have a kindly feeling toward and admiration for irrigation farmers who have made the present Imperial irrigation district what it is. I have never said a derogatory word concerning them nor had a critical thought concerning those dirt farmers. It is the management of that Imperial irrigaiton district of which I am suspicious. I am saying that frankly to Mr. Dowd, who is their chief representative before us now. Neither have I said—and I wish the committee to understand this—that you, Mr. Dowd, or any of the managers of the All-American Canal or the Imperial irrigation district privately own land in old Mexico from which you might make personal or private gains, and I do not know the facts, other than your statement at this time and in 1946, concerning the ownership of land in old Mexico that might profit by Colorado River water.

But that is not what I am driving at; this is what I am driving at, that those who manage the affairs of the Imperial irrigation district are in a position and have some of the facilities, but not quite all—and have been trying to get in a better position—to use profitably water which does not belong to anybody in California but which does belong to some of the Colorado River Basin States, and you could use that

water to the profit of your organization, contrary, in my opinion, to the national interest. This is the nub of the controversy.

I can cite more than one instance where the management of the Imperial irrigation district has sought to make arrangements through certain agencies of our Federal Government which, if materialized, would take water tragically needed in the United States right out of our country into Mexico, to the financial advantage of somebody in southern California, and that water would be over and above anything rightfully belonging to California and over and above anything rightfully belonging to Mexico, even according to the existing treaty.

We have documentary evidence of this fact to which I referred the other day as shown by our record. You yourself mentioned the letter found in the latest edition of the Hoover Dam contracts next to the last item in that compilation, but you cannot explain that away nor cover up its real implications. I am referring now to the proposed power plant at Pilot Knob, which could and would profit this organization to the hurt of other Colorado Basin States.

Mr. Dowd, you corrected me in part because I spoke of the Imperial irrigation district being a private organization, which you say it is not. I used the term "private" to distinguish it from a Federal agency, but that does not change my criticism and that does not explain away the situation at all. Neither does the fact of your proposal to the State Department, whereby you might deliver water to Mexico for a consideration, although this has not yet been granted, change the threat of the situation that the management which you represent has been trying to complete arrangements to convey more water to Mexico than law or justice calls for, which water does not belong to you and, when conveyed to Mexico, will be taken out of our country. That is the threat of the situation. As of today it seems that neither Interior nor State Department agree with you, but suppose they change.

I complimented Mr. Dowd yesterday on the splendid map he showed us. It indicates a complicated matter. You ought to look again at that map, my colleagues. There is a threat to all users of water in the Colorado Basin, to all seven States, California as well as the rest of the six, in the possibility of that situation. The mere possibility that at some time Mr. Dowd might get such facilities as he has not yet obtained, which would enable him to do this thing, is sufficient cause to explain his opposition to any and all acts of Congress, including H. R. 934, which would reduce that possibility to convey water to Mexico. He has rightfully praised a great irrigation project, but all the explanations he has made thus far in his testimony, which I have heard, do not take away the sinister thought that he and his organization are willing to dump water at Pilot Knob and outside of the United States of America, and he may be equally inclined to convey that water to lands in Mexico. That is the thing to which I am referring, and I refer to it in regard to other bills.

I want the committee to know about that oversized canal—that first section of 15,000 second-feet capacity from the Imperial diversion dam down to Pilot Knob on the border—and the explanation given to build an oversized canal because there is a seasonal inequality of

water to be delivered. True you need more water on the 4th of July than you do at Christmas—everybody knows that—but I have been studying this water log, and here it is. If you will look at the July reading in this water log for these 3 years, it is greater than the December reading by a good deal, but even in July there is yet a lot of unused capacity; more than half of the capacity yet remains. So that you do have ample facility to take this water right to the line, drop it 60 feet, produce power, and then that water is outside the United States.

Now, the treaty does provide that 500,000 acre-feet of water shall be delivered for a period of years and then a lesser amount to Mexico through that canal, but you are asking for a power plant. The proposition is right there in that Hewes letter. You are asking for a power plant that could use 10 times that amount of treaty water. God knows I want you to produce power, but I do not want you forever to use 10 times as much water as the treaty has given to Mexico. And, mind you, the Mexican water treaty does not provide for furnishing 1,500,000 acre-feet to Mexico by way of Pilot Knob, but only a third of that for a limited period only.

Mr. ENGLE. If the gentleman will yield, as I understand, Arizona is dropping 2,000 second-feet from Siphon Drop for power, only 500 of which is used in irrigation, but 1,500 is used just for straight power production. Is not that right?

Mr. MURDOCK. Mr. Dowd called attention to that yesterday, and I made a little explanation. That has been done for several decades.

Mr. ENGLE. Well, what is the difference? You would not say the fact that that water which is not now used for irrigation goes through to create power would give a superior, binding, and permanent right to power-use which would overwhelm the superior right of irrigators at a latter date when they wanted more water, would you?

Mr. MURDOCK. Perhaps you were not here yesterday when I answered that question. I said in my opinion it is all right to use this water for power if it cannot be used for irrigation any place else, but the use of irrigation water for life-giving purposes is superior even to hydroelectric power production.

Mr. ENGLE. I will agree to that, but why waste water?

Mr. MURDOCK. You missed the point of my observation.

Mr. ENGLE. Here are 1,000,000 acre-feet going now into Mexico. That is wasted. All we want to do is to run it through a wheel and get power out of it and, when the irrigators are ready to use it, they can use it and have a superior right to it.

Mr. MURDOCK. If in the interim it is used for profit in this secondary way how many times will we find people who are deriving profit from that power coming in here later and defeating or trying to defeat every effort to apply that water for use up in Wyoming or to apply it in New Mexico or any other State having a superior right to it for a higher purpose? Thus it becomes a cause of opposition.

Mr. WHITE. If the getleman will yield, I would like to ask Mr. Dowd, who referred to that situation of the use of water in Arizona for power in a certain amount, where does that appear—on what page of your statement?

Mr. DOWD. That appears in the supplemental statement on page 5.

Mr. WHITE. I would like to make this observation: We have a won-

derful housekeeping in this committee—I think it is the finest I have ever seen—but I am missing my copy of the statement of the witness by this good housekeeping this morning on which I had inscribed little notes. I tried to follow the witness closely and make notations without interrupting for questions, and my copy of the prepared statement on which those notes appear, is gone.

Mr. DOWD. May I answer in part? I think—and the chairman knows the high esteem in which I hold him and I have always felt very friendly toward him—if other people in Arizona had the same attitude toward us in California and particularly the farmers of Imperial Valley, Calif., I think we would get along better. But when a Senator of the United States gets up before a committee and states that actions by those of us who represent the farmers of Imperial Valley in trying to defend our rights and says of those actions—and these are his words:

> Sometimes I think the way some people in California, and particularly the groups over in the Imperial Valley, try to twist the meaning of words and distort the record of history, and to welch on solemn agreements that the State of California made, the best group I can compare them with is the Politburo in Moscow.

And when your State association gets out a pamphlet in which they say:

> California is to share with Arizona one-half of the surplus, but the Imperial Valley irrigation district is still trying to get part of Arizona's water declared surplus so that it might be diverted to use in Imperial Valley. It is time we realize that the Imperial irrigation district, and not California as a whole, is our enemy—

that kind of stuff does not lead to any good feeling; it does not lead to peaceful solutions.

Now, if I may answer your statement, sir, I want to trace this matter of the power rights at Pilot Knob. I would call your attention to the fact that the Boulder Canyon Project Act was passed by the Congress of the United States; it was not just a ruling by some Secretary of the Interior; and the Boulder Canyon Project Act, passed by the Congress after considerable thought over a period of some 6 to 8 years, provided in section 7:

> * * * That said districts—

meaning Imperial—

> or other agencies shall have the privilege at any time of utilizing, by contract or otherwise, such power possibilities as may exist upon said canal * * *.

That was in the act passed by Congress. We negotiated our contract with the Commissioner of Reclamation. I do not think Dr. Mead—and I think you knew him—would sell the United States short; I do not think he would connive with Mexico. In fact, some years ago he represented our country and carried on hearings with Mexico looking toward a treaty, and the agreement that he offered was only half the amount of water that the final treaty called for. So I do not think he would sell the United States short.

We negotiated our contract with Dr. Mead. Before that contract was approved by the Secretary he had hearings right here in Washington, where everyone who had anything to say about it could come here and have his say. No one objected at that time to the proposed development of power at Pilot Knob, and before that contract was signed by the Secretary of the Interior it was recommended to him

by Elwood Mead, Commissioner of Reclamation, by the Assistant Commissioner of Reclamation, by the Solicitor of the Interior Department, and by both executive assistants to the Secretary of the Interior. And here is what he said about this contract—I read from a memorandum of the Secretary of the Interior dated November 4, 1931:

In general, this draft provides for the construction on American soil of a diversion dam (Imperial Dam) across the Colorado River above the present Laguna Dam and a main canal of 15,000 second-feet capacity from Imperial Dam to Siphon Drop, at which point up to 2,000 second-feet are to be diverted into the Yuma main canal and conveyed by siphon under the river for Yuma project in Arizona; construction of a section 13,000 second-feet capacity down to Pilot Knob, Calif., where the canal turns westward with a capacity of 10,000 second-feet into Imperial and Coachella Valleys (after dropping the surplus back into the river at Pilot Knob, where the district plans to build a power plant).

That was the contract, and there was no objection raised to it. The only thing said about the Pilot Knob plant was that your Yuma project felt they ought to have some rights in the Pilot Knob plant. The Secretary points out that the Yuma project does not share in any part of the cost of the All-American Canal. The Imperial had to provide 2,000 second-feet of capacity without cost to them, and they have no right to share in any power at Pilot Knob.

Then, along comes the Bureau of Reclamation in a later administration, and let me show you what happened. I am reading from a booklet called the Story of Boulder Dam, which was published in 1941 by Secretary Ickes and by John C. Page, Commissioner. It is a booklet given out to visitors at Hoover Dam, and up to 2 years ago were still giving it out. I have read you the act of Congress, and I have read you what the Secretary of the Interior said about our contract approved by Dr. Mead, the Assistant Commissioner, the Solicitor of the Department, and these other men. In this booklet The Story of Boulder Dam, under the question "Is there opportunity for power development?" speaking of the All-American Canal, it says:

Yes. An estimated total capacity of 87,400 kilowatts may be developed in five drops. The largest will be at Pilot Knob, 7 miles to the west of Yuma, Ariz., where surplus water is returned to the Colorado River.

And listen to this:

The Bureau of Reclamation will develop Pilot Knob, and the Imperial irrigation district will develop the other four drops.

And that is said in the face of the law of the United States and our contract made in good faith with the Federal Government.

Let me point out one thing more. We made this contract, and we agreed to repay the United States every dollar of cost of the All-American Canal. We did not ask power users in Arizona to pay for it.

Mr. MURDOCK. May I ask how many payments have been made on your contract as of now?

Mr. DOWD. We have paid so far a little over $300,000 back on the cost of the building of the All-American Canal.

Mr. MURDOCK. Do you know what the total contract is?

Mr. DOWD. The total contract for our share is about $26,000,000. But the United States, through the Bureau of Reclamation, has failed to carry out that contract. If it were a contract with a private agency, we would have had that private agency in the courts several years ago for nonperformance. They have not carried out the terms of the con-

tract. Under the terms of the contract, we do not start payments until the canal is declared completed and turned over to us for operation. The Secretary has neither declared the canal completed nor has he turned it over to us for operation in acccordance with the contract. Nevertheless, we have paid; even though the payments are not yet due, we have paid something over $300,000 on the cost of the canal.

Mr. MURDOCK. Do you interpret the contract to mean turning over the canal and also the Imperial Diversion Dam to the Imperial irrigation district?

Mr. DOWD. No, sir. Under our contract, the Secretary of the Interior has a right to retain control of the Imperial Dam. In other words, under our contract, he can take over the Imperial Dam at any time he wants to. But it does not apply to the rest of the canal. We made the contract in good faith under the laws passed by this Congress, and that contract was confirmed in the courts of the State of California, and it is not being carried out.

Dr. Mead realized the very thing you are talking about, the possibility of water being carried through the canal, put through Pilot Knob plant, and delivered to Mexico, and, as I pointed out yesterday, that is why there was inserted in our contract a provision that we could not divert, transport, nor carry water for any other agency without the written consent of the Secretary of the Interior. And I ask you how could one drop of water go through Pilot Knob power plant and be delivered through Alamo Canal under that provision without the consent of the Secretary of the Interior.

And when you say we made proposals to Mexico by which we sought to do that thing, I say the way you said it is wrong. It is a misinterpretation. We knew and Mexico knew that we could not deliver one drop of water to her through the All-American Canal without the consent of the United States. The only discussions we had were based upon that premise; if the United States consented, and in those discussions we laid down certain conditions that, had they been followed, Mexico would not have gotten 1,500,000 acre-feet under the treaty, because Mexico would have had to agree that any water she received through the use of the All-American facilities beyond the amount she got from the natural flow of the river would not constitute a precedent upon which she could base any claim to water from the Colorado River.

Mr. MURDOCK. I have read the proposals made to Mexico and I believe it is best that the treaty counteracted them. This is a question that has arisen in my mind. You and I are both friendly to Mexico, but would you like to see a power plant built at Pilot Knob that would utilize not to exceed 500,000 acre-feet of water?

Mr. DOWD. No, sir. It is not Mexico's water which would have the most value of that which would go through Pilot Knob plant. Mexico's water use is concentrated almost entirely to the summertime. That is when our other hydro plants lying west of Sandhills, toward Imperial Valley, are also being operated at a maximum. That is when they have their maximum output. In the wintertime, when irrigation use is very low in our valley, the output of those hydro plants is also low, because the output depends on the demand for irrigation water. So it is in the wintertime when all irrigation demands are low that there is going to be the most surplus water in the Colorado River. So the Pilot Knob plant operating at a maximum in the

winter will firm up our other plants, because at Pilot Knob we can put the water back into the river, surplus water coming down the river through all of the other power plants at all of the other dams. It will reach that point in the river anyhow, and why not put it through the Pilot Knob plant and save about 250,000 barrels of fuel oil a year?

Mr. MURDOCK. I agree with you in what you say about saving oil and producing power, but whose water is that; to whom does that water belong?

Mr. DOWD. The surplus water does not belong to anybody.

Mr. MURDOCK. To what States does it belong or which have a superior right to use it?

Mr. DOWD. When it is put to use, most of it will be put to use in the upper basin, it will belong to those who put it to use. There is not the slightest possibility and you cannot point out how we could get any right to bring water down to Pilot Knob for power if it is required any other place in the United States for irrigation. The Secretary of the Interior, under our contract, would have a perfect right to shut down our head gates if we should divert 1 acre-foot of water for power at Pilot Knob that was required for irrigation at any other place in the United States.

Mr. MURDOCK. How long do you think it will be before that water is needed for irrigation in Wyoming, Utah, New Mexico, Colorado, and the other States?

Mr. DOWD. I think it will be a good many years. Why I say that is because the United States has invested millions of dollars in power plants at Hoover Dam, at Davis Dam, at Parker Dam, and is going to invest millions of dollars more in a power plant at Bridge Canyon Dam to utilize that very surplus water we also want to utilize. If it is not going to be there for a long time, why would they make that investment?

Mr. MURDOCK. What size power plant would you suggest at Pilot Knob?

Mr. DOWD. The same as the Bureau of Reclamation suggested, the same as they made preliminary designs for—33,000 kilowatts.

Mr. MURDOCK. Would you put that in terms of acre-feet of continuous flow?

Mr. DOWD. If we had continuous flow, which we won't have, as I will be glad to explain, that would take a little over 5,000,000 acre-feet a year; but we won't have that, because in the summertime——

Mr. MURDOCK. Hold on just a minute. In the summertime—oh, yes, you need more on the Fourth of July than on Christmas Day—I understand about that, and do not confuse us, please, but according to this USGS log you don't use all on the Fourth of July. You said nine-tenths of this water you propose to put through Pilot Knob would be dumped right back in the river.

Mr. DOWD. That is right.

Mr. MURDOCK. Which does not make any distinction between Christmas and the Fourth of July. Most of that seasonal variation comes westwardly from Pilot Knob.

Mr. DOWD. May I explain that down to Pilot Knob the canal has a surplus capacity of 3,000 second-feet. In the summertime, we will be utilizing the canal capacity of 10,000 second-feet for irrigation use in the Coachella and Imperial Valleys, thus leaving only the 3,000

second-feet for power at Pilot Knob. In the wintertime, when our irrigation demand is about half what it is in the summertime, we would only be using 5,000 second-feet of the capacity of the canal for irrigation use in the two valleys. That will leave the other 5,000 second-feet plus the 3,000, or a total of 8,000 second-feet capacity for power at Pilot Knob. That is why I say we could not put 5,000,000 acre-feet through Pilot Knob for power, because there would not be the canal capacity available throughout the year to do it.

Mr. MURDOCK. If you think it would take 50 years to put to use their water in Wyoming, Colorado, New Mexico, and Utah, would you be praying during those 50 years and hoping and acting on that hope there would be less and less water to go through Pilot Knob?

Mr. DOWD. We would pray, the same as you would for the benefits from Parker, Davis, Boulder, and Bridge Canyon. But even that latter project depends for its feasibility upon a lot of surplus water being available during the next 50 years, or you won't get power revenues from Bridge Canyon Dam to pay for this fantastic project you are talking about.

Mr. MURDOCK. I cannot agree to that.

Mr. DOWD. Ask the Bureau of Reclamation. The output at Bridge Canyon Dam is based in part upon this surplus water I am talking about, and it will gradually be reduced over a period of 50 years. That is what they considered in setting up the power output to allow for the development of the upper basin. But, if the upper basin should fully utilize this water in 20 years, your project would not be feasible, because you would not have the production of power at Bridge Canyon Dam that is contemplated.

Mr. MURDOCK. As an ancient authority said, "Almost thou persuadeth me to be a Christian." Your persuasive powers are great, Mr. Dowd, but I am unconvinced. We are looking not primarily for power production except on the basis so often mentioned here by Congressman Welch, which is if you can drop water and produce power and still use the water for life-giving purposes, that is the ideal system, and I am for that 110 percent. But here is an opportunity to get two important uses reversed.

Mr. DOWD. Will you show me how the Imperial Valley irrigation district, if it builds the power plant next year, could deliver one drop of water to Mexico through that power plant? I mentioned in my statement certain controls on the Alamo canal—Rockwood heading and Hanlon heading. Hanlon heading, of course, is the one that controls the water that Mexico gets, all of which must pass through Hanlon heading. That is now being purchased by the United States; that is, negotiations are under way. So the United States will control every acre-foot of water that goes down the Alamo canal to Mexico. And how in the world could the Imperial irrigation district deliver any water through the Pilot Knob plant to Mexico?

Mr. MURDOCK. After it leaves the United States, we do not control it, and I want our Government to continue to control it.

Mr. DOWD. Then, why object to the Pilot Knob plant? If the United States controls the delivery to Mexico, why object to the plant? Any amount the United States wants to go to Mexico through the Alamo canal the United States will let go to Mexico; any amount they

do not want to go to Mexico will come right back into the Colorado River, where it would be anyhow.

Mr. WHITE. I am wondering whether the chairman would subscribe to the old adage that "To convince a man against his will, he is of the same opinion still"?

Mr. MURDOCK. It makes me feel better that the present State Department and Interior Department are controlling the situation but that could change. The witness wants to change.

I say this: that all through the West the use of water for life-giving purposes is primary. I did not quite complete what I was saying privately to Mr. Welch a moment ago: that, if we can use water to produce power and then produce life-giving purposes, that is the ideal thing. But your problem and my problem—yours at Pilot Knob and mine at Siphon Drop—are peculiar in that they are almost within sight of the Mexican border. Yours is within a few feet of the Mexican border, and mine is almost within rifleshot of the border.

Mr. DOWD. But the Hanlon heading controls the water Mexico gets.

Mr. MURDOCK. This is the point I want to make. When that water gets down to Siphon Drop or when it gets to Pilot Knob, it will produce power, but just the moment it produces power then it is outside of the United States and is lost forever for any or more important use in the United States.

Mr. DOWD. The farmers of Imperial Valley have signed a contract with the United States Government under which we agreed to repay the entire cost of the canal, and we did it on the basis that the laws of the United States would be carried out and, when the Congress said the Imperial Irrigation District had a right to develop the power possibilities of the canal, that we could rely on the word of the United States. We went through and accepted the contract, signed it. We have that obligation. We do not think it is right on the part of the United States Government now to deny us the rights that the Congress gave to us and upon which basis we signed the contract to repay the entire cost to the Government.

Mr. MURDOCK. The Government has not pressed you and there are better ways to be fair with you on this. I would not want to be a party to any wrong being done the Imperial irrigation district.

Mr. DOWD. Well, you are, my dear sir, and you set yourself up against the Congress of the United States, against Dr. Mead, Commissioner of the Bureau of Reclamation, and against the State Department. The State Department accepted our proposal, under which they said "Yes; you may develop power at Pilot Knob"——

Mr. MURDOCK. How many of the other drops along the All-American Canal have you utilized for power plants?

Mr. DOWD. Two.

Mr. MURDOCK. Two out of five, or six?

Mr. DOWD. Two out of five. And why? Because at those other power plants the only water that goes through them is water required for irrigation in Imperial Valley, and in the wintertime the irrigation demand is about half of what it is in the summertime. So, in order to firm up those plants' output, we have to build steam plants. Because we were denied the right to build Pilot Knob plant, we have

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already put in a 20,000-kilowatt steam unit. If our right to build Pilot Knob continues to be denied us, we are going to have to put in another 20,000 kilowatts of steam power very soon and use some more oil.

Mr. ENGLE. The chairman has stated a very significant thing, I think. He says Pilot Knob is only a few feet away from the Mexican line. It is a fact then is it not that any water that gets to Pilot Knob can never be used in the United States?

Mr. DOWD. That is right.

Mr. MURDOCK. No; it is not. It could not get there if it was diverted some place up above for irrigation as I want done in several States as well as Arizona.

Mr. ENGLE. Well, they have the first right to use that. The point I am making is that this water is going to waste down there, and you might as well run it over a wheel, turn the wheel, and create power. I do not see why you want to waste a natural resource.

Mr. DOWD. That is exactly it.

Mr. MURDOCK. The whole point I am making is this: If that thing is done to an unlimited extent as sought, how much inducement will there be for those benefitting thereby to come in here and oppose legislation to the contrary? That is the point I am trying to get across. All of my bills to direct water into Arizona have been opposed by these same witnesses. This may be a cause of such opposition.

Mr. ENGLE. Well, if you will let us go to the Supreme Court and settle who has the right to this water, you can depend on it that the people who want to use water that belongs to them can, as far as we are concerned, go ahead and use it in any way they want to. The opposition to this bill, Mr. Chairman, is not based upon any desire to use this water for power, but because we claim Arizona does not have title to the water it seeks to use to implement this project.

Mr. MURDOCK. I am more anxious than you are, Mr. Engle, to get as much of this matter settled by the Supreme Court as the Court can and will settle, but the passage of the suit resolution you have been talking about so much about will not get the matter before the Supreme Court and will not bring about a final and complete judicial decision of the matter. If no such authorization as H. R. 934 is enacted, and if the pending suit resolution is enacted, it would not effect a judicial settlement but would have the effect of keeping Arizona from having her day in court, and somebody else would get the water.

Mr. BENTSEN. How many years would you have to have an assurance of this surplus water for your Pilot Knob Dam project to pay it out in hydroelectric power?

Mr. DOWD. I can put it this way to you: All of our power development is financed through the sale of revenue bonds, not through any interest-free money from the United States.

We sell our own bonds and build our own plants and our own lines. Those bonds are all 30-year bonds, so that if we have the water for 30 years it is considered feasible.

Mr. BENTSEN. You will pay out the dam in 30 years?

Mr. DOWD. No; the power plant, sir. We have to repay the All-American Canal in 40 years as compared to the 70 or 78 that is being asked now for the central Arizona project.

We pay out for the canal in 40 years. Our land is security for the repayment of the canal, but the United States Congress said: "We will

allow you to develop the power possibilities on the All-American Canal so you can utilize that power and help repay the cost of the canal."

Mr. BENTSEN. Is this Pilot Knob power plant operated at a dam site or on the canal?

Mr. DOWD. No, sir; it is operated on the canal.

Mr. BENTSEN. You figure within 30 years you will pay for it?

Mr. DOWD. We have to.

Mr. BENTSEN. But you have no assurance of having that surplus water for 30 years; have you?

Mr. DOWD. As much as they have at Hoover Dam.

Mr. BENTSEN. Which does not mean anything to me, because I have seen the Reclamation Bureau make busts before.

Mr. DOWD. As far as the engineers are concerned, I do not know any of them that have not agreed that the water will be there for 30 years. We do not have to have the whole amount there for 30 years. If we can satisfy our investors and they are willing to accept these bonds by which we will build this plant and the necessary transmission lines, I think that should be the answer.

Mr. MURDOCK. Mr. Welch, do you have some questions?

Mr. WELCH. The witness, Mr. Dowd, quoted a statement by me during the hearings on the bill under consideration.

Perhaps I was mistaken—I am sure I am from the information I received—as to the status of the Imperial irrigation district. I was informed it was a private corporation. I learned only this morning that it is a quasi-public corporation. I would like to have the record correct the mistake on my part.

Mr. Chairman, in sending a letter of congratulations to the mayor of Los Angeles, the Honorable Fletcher Bowron, this morning, I was reminded of a telegram which I received from him and my reply, which I would like to read and have made part of the record:

MY DEAR MAYOR BOWRON: Answering your appreciated telegram of March 1 with reference to my introduction and support of the House joint resolution to secure judicial determination of the rights to use the waters of the Colorado River.

Your telegram, with many others from southern California, I feel, were unnecessary. I have been familiar with the water and power problems of your section of the State for many years. Over 20 years ago, at the request of the late Senator Hiram W. Johnson and Congressman Phil Swing, coauthors of the Swing-Johnson bill, I visited the Colorado River site in connection with the so-called Boulder Dam, which was a misnomer, Boulder, as you know, being 20 miles upstream. I went through Black Canyon in a motorboat before construction work was started on the dam. I also crossed the international line into Mexico, where the Colorado River fingers out into the Gulf of Lower California. Upon my return to Washington, I went to the White House and told my experience to President Cooledge and the imperative need for the Colorado River project. It goes without saying that I did everything I could in Congress to help secure passage of the bill.

Years ago, when a member of the California State Senate and chairman of the committee on commerce and navigation, I assisted very materially in reporting and securing passage of a bill seeking to secure from the State of California what is now the beautiful harbor of Los Angeles at San Pedro. Judge Leslie Hewitt and a splendid committee from your city came to Sacramento at the time. I mention this to point out that my interest in southern California is not of recent date.

California has problems different from any other State in the Union and which vitally concern the entire State. There is a critical shortage of both water and power from one end of California to the other, due largely to the tremendous increase in population. According to figures secured from the

Bureau of the Census, the population of California has increased 45 percent from 1940 to 1948.

Shasta Dam reservoir is the principal water storage for the Great Central Valley. It has a capacity of 3,714,000 acre-feet. On February 22, 1949, there were only 2,257,000 acre-feet of water in the reservoir, compared to 2,802,000 acre-feet a year ago, or 545,000 acre-feet less than at this time last year.

The entire State must of necessity pool its problems and go forward together with a united front here in Washington, which I regret has not been the case in the past.

Private enterprise should be encouraged, but to meet the water and power problems of California we have to go beyond the ability of private enterprise and as in the past secure the credit of the United State Government in the development of water and power. Private enterprise would not undertake the Colorado River project, known as Hoover Dam and Lake Mead. Private enterprise would not undertake the great Central Valley project, now under construction by the United States Government through the Department of the Interior. Strange as it may seem there are Representatives in Congress from California who directly or indirectly assist those who would interfere with the completion of the Central Valley project and integrated projects. If ever there was a time in the history of California when unity from every section of the State is imperative, it is now.

You may be sure that I will continue to do everything I can to assist the entire State in meeting our difficult problems.

Very sincerely,

RICHARD J. WELCH.

Mr. DOWD. Thank you, sir. I appreciate that statement very much. I have watched you here in this committee. I have noted your great interest in particularly hydroelectric development and it seemed to me that you perhaps more than any other member of this committee should be championing Imperial's cause to build the Pilot Knob power plant. We have been up against pretty heavy odds. Before we had a treaty the upper basin States and Arizona objected to our building Pilot Knob because we did not have a treaty and they said if Mexico saw that water going through Pilot Knob they might be misled as to what they would get under a treaty.

Now, we have a treaty and they are still objecting. Now they bring up other red herrings.

The people of Imperial Valley need that power and we need the revenue and I thank you, sir, for that statement.

Mr. MURDOCK. Are there other questions?

Mr. WHITE. Now, Mr. Chairman, I have been sitting here 2 days and I am wondering if the members in order are going to have another right to interrogate.

Mr. MURDOCK. You may go right ahead, Mr. White.

Mr. WHITE. I must say to the committee that it has been very interesting to listen to this debate between Mr. Dowd of the Imperial Valley irrigation district and the chairman of our committee. There are a few things I would like to know. I am addressing myself to the witness in the way of making questions and not presenting my views. I am a little bit handicapped. I have carefully followed the witness, as carefully as I could, and I have made certain notations along the line of questions I desired to ask on the margin of his prepared statement previously submitted to the committee, but due to some error on my part maybe, or maybe the housekeeping of the clerk of the committee, my notations are lost and I will have to ask the questions as best I can from such as my faulty memory will permit me to do.

Mr. Dowd, in discussing this matter of the division of the water between these States, do you subscribe to the Biblical adage "Render unto Caesar what is Caesar's?"

Mr. DOWD. I certainly do. That is what I have been talking about this morning, sir.

Mr. WHITE. The basic approach to this problem would be to find out what water the State of California is entitled to in the division of waters of the Colorado River and the other States, particularly Arizona. Do you subscribe to that?

Mr. DOWD. I do.

Mr. WHITE. To divide it into just what each State is entitled to?

Mr. DOWD. I do. That is why we have introduced this resolution to give consent of the United States to being made a party to the suit which we must have before we can bring such a suit to determine these water matters.

Mr. WHITE. Well, then, as to the division of the water, when we have made that determination, it does not concern Arizona what California does with its water nor it would not concern California what Arizona does with the waters it shared, would it?

Mr. DOWD. To a certain extent that is true if they don't involve cost to the people of California for a project in Arizona and if they don't ask us to pay for it.

In other words, if Arizona is accorded a certain amount of water by the Supreme Court, what she does with it, of course, as a principle, is no concern to us. If, however, she proposes a project which we think might react dangerously to the entire western reclamation program, I think we have a right to appear and oppose it or if she proposes a project which is to be paid for a hundred percent through the sales of power, a large part of which will be sold in California, I think we have a right to make known our views in regard to it. But as a principle, no sir, if Arizona is granted a certain amount of water, what she does with it is up to her and that is what we told her at the time of the Gila project authorization hearings.

Mr. WHITE. The Congress and the Bureau of Reclamation are proceeding on the proposition that these projects are financed with Government money and the Government will be repaid with interest on the use of this money.

Mr. DOWD. Pardon me, sir, the United States is not repaid with interest at the present time on any of the money advances. Not only do reclamation projects that involve power get the money advanced without interest during construction, except in the Boulder Canyon project, where they had to pay interest during construction but under the present ruling, sir, of the Bureau of Reclamation the United States does not receive one dollar of interest for the money put into power projects, not one dollar.

Mr. WHITE. It is reimbursable without interest?

Mr. DOWD. Yes, sir; certain of the costs are reimbursible without interest.

Mr. WHITE. As a matter of fact, the initial large program that was undertaken by the Government was the construction of Boulder Dam, was it not?

Mr. DOWD. I did not get your question.

Mr. WHITE. The first big project undertaken by construction by the Federal Government was Boulder Canyon?

Mr. DOWD. It was the first multiple-purpose project and the last one of its kind, sir. If the others had been laid out on the good, sound business basis that the Boulder Canyon project was we would be all much better off.

Mr. WHITE. Boulder Canyon was predicated, as they understood it, on a proposition that the money advanced by the Government would be repaid and Boulder Canyon would pay, as I understand, 4 percent and the outlay for flood control was reimbursable. There was no allowance for flood control. Was that one of the provisions of the original program?

Mr. DOWD. There was $25,000,000 allowed for flood control repayment which was deferred until after the dam and power plant are paid for.

In other words, it was not forgiven, the repayment was simply deferred for 50 years.

Mr. WHITE. But it was to be repaid after the original project was paid for?

Mr. DOWD. That is right. Yes, sir.

Mr WHITE The contractors that undertook to finance projects paid an interest rate, didn't they?

Mr DOWD. Well, their contracts are for 50 years and in that 50 years——

Mr. WHITE. Didn't they pay interest?

Mr. DOWD. Yes, sir; they pay interest at 3 percent, not from the time the power plant went into operation but 3 percent was computed, as it should be, from the date the money was advanced from the Treasury of the United States into the Boulder Dam fund.

Mr. WHITE. If my memory does not fail me, the contention was made that Boulder Canyon paid 4 percent and also paid for flood control, reimbursed the Government, and subsequent to that when the Government started TVA and the Grand Coulee, those transactions were predicated on 3 percent, and an allowance, a substantial allowance for flood control and which was made in the nature of a discrimination and the people that contracted were obligated to repay the Government for the construction of Boulder Dam, came in with the contention that they wanted a contract revised and this committee sat here for a good many weeks and heard witnesses and did authorize a revision of the contract; is that correct?

Mr. DOWD. It was, and it was cut to 3 percent and now it is the feeling among many of the reclamation States that the interest should be 2 percent on all Federal power projects or, in other words, should be about the same as the cost of money to the United States.

Mr. WHITE. You have gone into the division of the water in quite some detail and the utilization of the water.

What would you say offhand is the State of Arizona entitled to in a fair division of the water from the Colorado River? What would you base your opinion on and what would you say they are entitled to?

Mr. DOWD. I would say they are entitled to the amount that is available for them, in view of the Colorado River compact, the Boulder Canyon Project Act, and their own water contract.

Mr. WHITE. You do not seek to deprive the State of Arizona of its water rights, in the negotiations that we have referred to over and over again that they are entitled to? You don't seek to deprive them of their rights?

Mr. DOWD. Absolutely not. That is why we are asking that we be permitted to go to the Supreme Court, so the Court can decide what the rights are. We are not afraid of our case, sir.

Mr. WHITE. You think the solution of this problem we have listened to pro and con here through so many witneses is an adjudication by the Supreme Court of the degree of the water that the several States are entitled to?

Mr. DOWD. Not seven.

Mr. WHITE. Several, I said.

Mr. DOWD. The lower basin States.

Mr. WHITE. You will let the upper basin States take care of themselves?

Mr. DOWD. They have made a compact now that has been ratified and confirmed and is the law.

Mr. WHITE. The first thing that should be done is the adjudication of the case and have the Supreme Court decide and decree the division of water between the lower basin States.

Mr. DOWD. Yes, sir; if I can put it this way, the rules of the game were laid down many years ago from 1920 to 1928. All we say is, let us ask the Supreme Court to decide just what were those rules and how they are to be interpreted. We do not believe Arizona should come in now and try to change the rules of the game.

Mr. WHITE. You touched upon the policy of the Bureau of Reclamation and the Federal Government in financing and allocation of costs and power in these projects. Do you know anything about the plan that is being followed in the pricing of power and allocating of power for sale and allocating power for pumping water on the Columbia River Basin now under construction?

Mr. DOWD. Just in a very general way, sir. There the Grand Coulee Dam is a part of the pump lift. In other words, they build Grand Coulee Dam and that raises the water a couple of hundred feet, and then they put in pumping plants at the dam, and raise it another hundred or 200 feet—I do not know the exact lift—and run it into the Columbia Basin project.

There the Grand Coulee Dam is a definite part of the project, but in this bill you have before you now the Bridge Canyon power development is in nowise a part of this project.

It is simply an arbitrary decision on the part of the Secretary of the Interior to include it.

Mr. WHITE. Where would the power be obtained to pump the water into the canal that will be taking water to the Central Valley?

Mr. DOWD. Part of it could come from Arizona's share of Hoover Dam power; part of it could come from Bridge or some other dam.

In the same way, when they built Hoover Dam they did not assign or include it with the metropolitan water district aqueduct.

The metropolitan water district has to have large blocks of power but they pay the regular base rate for Hoover power the same as anybody else. The Boulder Canyon Project Act did not let Hoover Dam power pay for the water district aqueduct.

Mr. WHITE. You just stated you recognized the fact that Arizona does have a share in the power of Boulder Dam?

Mr. DOWD. She pays the same as everybody else. There is not the discrimination that is set up in this project.

Mr. WHITE. That is a matter for the Bureau of Reclamation to arrange. There is, as you know, a $300,000-a-year fee given to Arizona out of the funds, the revenue from Boulder Canyon, to reimburse the State its loss in taxes as a means of in-lieu-of-taxes.

If they want to use that money to pump water; whatever they will do with it is a matter for Arizona?

Mr. DOWD. Certainly. They also are allocated a block of power from Hoover Dam which they are planning now to take.

Mr. WHITE. Coming back to the object of asking this question about Grand Coulee and Columbia Basin, do you know that to make the irrigation project economically feasible that the Government has made allocation of power on a very low rate for pumping water to the Columbia Basin?

Mr. DOWD. That is true, and most of that water will be pumped with dump power, too. That is another thing they are doing.

Mr. WHITE. Would it be fair if we applied that principle of making a very reduced rate for the use of power to pump water in Columbia Basin, would it not be fair to apply the same principle to Arizona?

Mr. DOWD. If it were a similar situation, yes. But I say that all discrimination should be eliminated.

Mr. WHITE. The power that pumps water from Grand Coulee on to the land of the Columbia Basin is Government-produced power and when we come down to the Colorado River it will be Government-produced power again, would it not?

Mr. DOWD. Yes; but then do the same way with all irrigation pumping.

Mr. WHITE. If the Government sees fit to make an allocation of power at a reduced rate similar to the rating that will be given at Grand Coulee and Columbia Basin, would it not be just as fair to do that for Arizona as it would be to do it for the State of Washington?

Mr. DOWD. The situation is entirely different, sir.

Mr. WHITE. Well, if Government produces power and if it wants to produce power to make a feasible project in one place it has a right to do it in another, has it not?

Mr. DOWD. The United States has the right to do anything it wants to.

Mr. WHITE. I mean in all fairness, in fairness to the State of California.

Mr. DOWD. It is not fair at all, sir. The Grand Coulee Dam is a definite and necessary part of that project.

The Bridge Canyon Dam and power plant is not a necessary part of this project.

Mr. WHITE. Do you not know that Grand Coulee could sell every kilowatt of power it produces commercially and obtain revenue for it?

Mr. DOWD. That is possible; but a lot of the power they are using for pumping at Grand Coulee for the Columbia Basin project is dump power and the dump-power rate is practically nothing. More than that, the Columbia Basin irrigators at least pay for operation and maintenance and $85 an acre toward the capital cost of building the irrigation system.

The irrigators on the central Arizona projects, as I pointed out, cannot pay more than 60 percent of just operation and maintenance and none of the capital cost of the irrigation project.

Mr. WHITE. It is not limited to dump power. That happens to be one of the assets or one of the products of that project. Is that a fact?

Mr. DOWD. That is true; dump-power is there at Grand Coulee and they will utilize it.

Mr. WHITE. The Colorado River is running away to waste now. We want to harness the Colorado River and use the power to pump water into Arizona. What is wrong with that?

Mr. DOWD. Not a thing is wrong with it. That is perfectly all right. In the same way we developed Hoover Dam, but don't give one class of irrigators a discriminatory low rate. Treat them all the same.

Mr. WHITE. In making your statements concerning the uneconomical situation in connection with these Arizona projects, do you recall the fact that in the depression years that the Arizona irrigation project was in better financial condition than most any other project in the country?

Mr. DOWD. No; I do not understand that, sir. As a matter of fact, as big a percent of the Arizona irrigation projects went through the wringer as in any other State.

Mr. WHITE. Well, to refresh your memory I will state that this committee has had to consider the granting of a moratorium before the Reorganization Act of the reclamation payments and it developed in those hearings that the Salt River Valley and other projects in Arizona were in good financial condition and could pay their construction charges but many of the projects in other parts of the county could not, and a moratorium was made and given so that it would protect and safeguard these other projects and naturally the Arizona project benefited but there is evidence in the record—I do not know where you get your information but there is evidence in the record that Arizona was in a very prosperous condition.

The Arizona irrigation project was in a very prosperous condition.

Mr. DOWD. You speak of the Salt River Water Users Association. That is a very fine and prosperous project. Nobody would deny it. That is only one of many irrigation projects in Arizona and I repeat that, as far as percentage is concerned, about the same percentage of irrigation projects in Arizona had to go through the wringer during the depression as in any other State.

Mr. WHITE. Is that due to shortage of water? Was that due to dry period or shortage of water?

Mr. DOWD. I do not believe so.

Mr. MURDOCK. Will you yield?

Mr. WHITE. I will yield to my chairman.

Mr. DOWD. Why I say that it was not due to shortage of water is that during the depression it did not make any difference how much water you had you could not sell your crops for enough to harvest them in many cases.

Mr. MURDOCK. I would like to get this matter straight. You had reference a moment ago, Mr. White, when you spoke of the law granting a moratorium to Federal reclamation projects; did you not?

Mr. WHITE. Yes.

Mr. MURDOCK. There are only two Federal reclamation projects in Arizona. Would you ask Mr. Dowd regarding the Yuma project and include that along with the Salt River project, and if both were in good condition, then of course, the record ought to show that. I believe that to be a fact.

Mr. DOWD. Of course, I will admit right here both the Salt River Valley Water Users Association and the Yuma irrigation project are in good shape. They are good projects.

Mr. MURDOCK. That makes a total of a hundred percent good on Arizona Federal reclamation projects.

Mr. WHITE. Is it not a matter of fact that the Bureau of Internal Revenue is contending that these projects should pay the Government dividends on their income from the sale of power?

Mr. DOWD. Of course, the point is that the Salt River Valley Water Users Association is not a public agency. It is a private corporation and the courts have so held. The United States says if it is a private corporation, then it is subject to taxes but that has been fixed up by an amendment put through by this committee.

Mr. WHITE. I do not think the individual members of this committee have time to go through every irrigation project in the United States and thrash out its status. When I was chairman I instructed my clerk of the committee to find out as best he could the classifications, and so forth, and bring it in so it would be on hand and available to members of the committee, but we do know that the contention was made that these projects in the southeast, where there was favorable climate and special products were in a prosperous conditions and we have had legislation before us relating to a contention of the Internal Revenue that they should pay dividends. As I understand it, some of them paid out their construction costs.

Mr. DOWD. One.

Mr. WHITE. In Arizona?

Mr. DOWD. I do not believe any in Arizona paid out. I believe one up in Washington paid out. If I might add, sir, the Yuma project and the Phoenix project, that is the Salt River Valley Water Users were the exception rather than the rule. For instance, here see a few of the Arizona projects that had to go through the wringer: Roosevelt Irrigation District; Roosevelt Water Conservation Districts; Maricopa County Water Conservation District, No. 1; Buckeye Irrigation District; New State Irrigation District.

There are a few of the irrigation projects that had to go through the wringer.

Now, it is true these projects did not have the Government subsidies that the Salt River project and Yuma project have had.

Neither did they have the power available to help them along that Salt River has.

Mr. WHITE. Well, the financial records of the projects such as Yuma and Phoenix have demonstrated an economic feasibility of irrigation projects in the State of Arizona.

Mr. DOWD. Oh, yes; that is true. They are good projects. No one would deny that.

Mr. WHITE. You have to go quite some length to contend that projects in Arizona may not be economically feasible?

Mr. DOWD. Oh, no.

Mr. WHITE. The record discloses that certain projects in Arizona have and are now economically feasible.

Mr. DOWD. No, sir. My contention was that the economy of this country was not such that we could use our national income to lift water twice the height of the Washington Monument and carry it 315 miles through a very expensive aqueduct to grow cotton and corn and hay. That was my point.

Mr. WHITE. You have made several references to the irrigation district through the Alamo canal.

Mr. DOWD. Pardon me, sir. There are no irrigation districts in Mexico as such.

Mr. WHITE. Is there not land in Mexico that is irrigated by water from the Colorado River?

Mr. DOWD. Yes, sir.

Mr. WHITE. How is that water obtained? Haven't we made a treaty to give a million acre-feet a year to the Republic of Mexico?

Mr. DOWD. A million, five hundred thousand.

Mr. WHITE. And is that water received through the Alamo canal? Is there any water that flows through the Alamo canal that goes into Mexico?

Mr. DOWD. All of the water that flows through the Alamo canal goes through or to Mexico and has for the last 50 years.

Mr. WHITE. Is it used for irrigation?

Mr. DOWD. Yes, sir.

Mr. WHITE. Do you know anything about where the money came from that put that water on the land and financed it? It is not districts. We are making a development. We will use the word "development" instead of "district." Do you know where the money came from that financed the development of putting water on land that flowed through the Alamo canal into Mexico?

Mr. DOWD. The money that it took to build the canal system in Mexico came from the farmers of the Imperial Valley to the total of about $4,000,000. In the same way the money——

Mr. WHITE. It came from California?

Mr. DOWD. May I finish? The money it took to build the protective levee system in Mexico to protect Mexico as well as Imperial Valley came from the farmers of Imperial Valley to the total of about $4,000,000.

In other words, the farmers of Imperial Valley had to invest in Mexico to get a water supply for Imperial Valley and to protect their lands, about $8,000,000. It came from the farmers of Imperial Valley.

Mr. WHITE. Is it not general knowledge and of newspaper account that a good many capitalists in the State of California went into Mexico and made heavy investments on the irrigation of land across the line?

Mr. DOWD. Yes; that is true. Of course, that land has been taken away from them now but that is true; yes.

Mr. WHITE. And the Imperial Valley people have an investment of $4,000,000 in diking and putting water on the land?

Mr. DOWD. Eight million in the dikes and canals.

Mr. WHITE. Do they get returns to investment?

Mr. DOWD. No, sir; not a dollar.

Mr. WHITE. Do they have any claim on the resources or the income from those districts?

Mr. DOWD. No, sir.

Mr. WHITE. They just did that for their own protection or eleemosynary reasons?

Mr. DOWD. We had to get a water supply and had to build the canal through Mexico because they could not finance an All-American Canal in the old days.

Mr. WHITE. And to get water to go around the corner, around the shoulder of a promontory of elevated land that extended into Mexico they had to build a Mexican canal?

Mr. DOWD. Yes, sir.

Mr. WHITE. They put in how much money?

Mr. DOWD. About $4,000,000.

Mr. WHITE. Did they have to agree that part of that water that flowed through that canal would be taken?

Mr. DOWD. We had to agree that 50 percent of the water flowing through the canal at any time had to be delivered to lands in Mexico upon demand.

Mr. WHITE. That development, using that 50 percent of water, was really for the benefit of capitalists in the State of California?

Mr. DOWD. Well, there were a number of owners from California who owned land down there.

Mr. WHITE. Now, then, coming to this Imperial Irrigation District: How was that financed?

Mr. DOWD. How was that, sir?

Mr. WHITE. Coming to your own irrigation district, how was that financed?

Mr. DOWD. Through the sale of bonds. General obligation bonds.

Mr. WHITE. By selling those general obligation bonds who was obligated?

Mr. DOWD. The landowners of Imperial Valley.

Mr. WHITE. What we commonly call water users?

Mr. DOWD. Yes, sir. They were obligated through the assessing power of the board of directors.

In other words, our board of directors places an assessment upon the lands every year in the same way a city assesses its lands.

Mr. WHITE. To go up on that land and become part of that organization you had to sign a contract and incur certain obligations?

Mr. DOWD. No, sir.

Mr. WHITE. You mean I could go out in the middle of that place and buy a piece of land and I would not be obligated to pay for water or maintenance charges?

Mr. DOWD. You would not sign a contract, sir. Under the law, when you buy that land that land is obligated.

Mr. WHITE. The land, but the contract exists?

Mr. DOWD. You do not have to sign any contract at all.

Mr. WHITE. But when I signed a deed I was in effect signing a contract.

Mr. DOWD. That is true. You assumed that obligation, that is true.

Mr. WHITE. Well, now, these people that are obligated on the lands, bought the land, what control did they exercise over the administration of the district?

Mr. DOWD. These people elected a board of directors which runs the district. There is a board of five directors. The district is divided into five divisions, and the people in each division elect their director.

The people also elect an assessor and a collector and a treasurer and they hold 4-year terms.

Mr. WHITE. Well, they had to pay certain water charges and maintenance charges. How was that assessed, against the land or paid in ordinary taxes?

Mr. DOWD. Yes, it is assessed against the real estate.

An irrigation district does not assess improvements. An irrigation district assesses only the real estate.

Mr. WHITE. That becomes a part of the owner's taxes and if he went delinquent in taxes, the land is sold in the usual procedure?

Mr. DOWD. By tax foreclosure and sale.

Mr. WHITE. But he has the power and the right as a landowner to exercise control of his district and to elect a board of directors.

Mr. DOWD. Yes, sir.

Mr. WHITE. He is enabled under the law to incur obligations?

Mr. DOWD. Well, the obligations the board can incur without a vote of the people are very minor.

In other words, this contract with the United States had to be voted on, any bond issue has to be voted on.

Mr. ENGLE. Will the gentleman yield?

Mr. WHITE. I will yield.

That is about the end of my questions.

Mr. ENGLE. I was going to suggest, Mr. Chairman, that I think these other members might want to ask a few questions. I have a few to ask.

Mr. WHITE. I will yield to the gentleman from California.

Mr. ENGLE. I will yield to the chairman.

Mr. WHITE. I have been sitting here 2 or 3 days, and I should be entitled to know what is going on.

Mr. MURDOCK. We have in the House today a bill which will have only 2 hours of general debate.

The rule on that bill has been voted. The general debate will begin at once, but I think it will terminate too soon for us to ask permission this afternoon for a session of the committee. What is the feeling about that?

Perhaps we should not ask for special permission to sit during the general debate today, but the Chair will probably ask for permission to sit during general debate tomorrow.

I am not sure what it is, but we should have morning and afternoon sessions of this committee in order to hurry matters along a little bit.

I think if we take another half hour at this session we will not attempt, then, until tomorrow to reconvene. I would like to hurry hearings along a little bit. We do not want to shut anybody off on this kind of a report from the chairman who took so much time himself.

Do I understand Mr. Peterson will be the next witness following Mr. Dowd?

Mr. PETERSON. Yes; Mr. Chairman.

Mr. MILES. I want to ask a question.

Mr. MURDOCK. Governor Miles.

Mr. MILES. I want to kind of satisfy myself here. I have been listening to a great deal of testimony, and I am trying to test my ability to understand and reason and analyze the testimony. I am almost convinced from the testimony that I have been listening to from Mr. Dowd from the beginning to the end that he is not in favor of building this central Arizona project.

He made a reply to a question that you asked and I was a little bit surprised and I want to put in New Mexico request. He was asked who that water belonged to and he said it did not belong to anybody and I want to make a claim now for New Mexico for that water as soon as it can be pumped up over there where we can use it.

Mr. DOWD. I said, sir, when it was put to use the most of it would belong to the upper basin States.

Mr. MILES. I understood you to say it did not belong to anyone. I may be mistaken, but we will go back and get your statement.

Mr. DOWD. There are claims on it, but I doubt if the corpus of the water is owned by anyone at this time.

Mr. WHITE. I think that concludes my questions, Mr. Chairman.

Mr. MURDOCK. Mr. Engle?

Mr. ENGLE. Mr. Dowd, there are two or three matters I would like to have you go into a little further if you would.

In the first place, I understood from reading your statement that the Imperial irrigation district and those people served by the All-American Canal have certain established water rights. Is that correct?

Mr. DOWD. We consider so; yes, sir.

Mr. ENGLE. What do they amount to in all?

Mr. DOWD. We consider we have an established right to a flow of 10,000 second-feet and under the California limitation act to a right up to 3,800,000 acre-feet.

Mr. ENGLE. I observe in your statement you refer to the fact that those water rights had accrued over a long period of time and then you referred to section—I believe article 7 of the basic Colorado compact.

Mr. DOWD. Article 8, sir.

Mr. ENGLE. Article 8.

Mr. DOWD. At the time the compact was being drafted it was well known and considered as a very serious threat that Imperial, through the State of California, might institute a court proceeding for an adjudication of all the water rights in the entire Colorado River Basin. It was that threat which was thoroughly understood by the upper basin States that, I say, was one of the main reasons for article 8.

As a matter of fact, the State engineer of Colorado made the statement at that time that if such a suit were brought it would result in the closing down of about one-half of the headgates in Colorado—article 8, if you would care to have me read it, I would be glad to—it is short—says:

> **Present perfected rights to the beneficial use of waters of the Colorado River system are unimpaired by this compact.**
>
> **Whenever storage capacity of 5,000,000 acre-feet shall have been provided on the main Colorado River within or for the benefit of the lower basin, then claims of such rights, if any, by appropriators or users of water in the lower basin against appropriators or users of water in the upper basin shall attach to and be satisfied from water that may be stored not in conflict with article 3.**

Mr. ENGLE. Well now, the compact does not undertake to determine what rights are perfected, but it says all perfected rights are protected and unimpaired by the compact.

Mr. DOWD. That is correct.

Mr. ENGLE. And water which services those protected rights comes out of 3–A water, does it not, 7,500,000 acre-feet?

Mr. DOWD. That is right.

Mr. ENGLE. I think that is rather significant, Mr. Dowd, and I refer your attention to page 8 of your statement in which you said—and I refer to the last paragraph on page 8—that it is Arizona which seeks in effect to confiscate Imperial's established rights.

In view of this situation, if Arizona is to secure a water supply for the central Arizona project and if the compact is not to be violated, such water supply can be available only by taking water away from one or more of the existing projects in the lower basin.

Now, directing your attention particularly to that clause which says, "If the compact is not to be violated," what do you mean by that?

Mr. DOWD. I had this in mind, sir: Assuming that the central Arizona project is constructed, or I will say the central Arizona aqueduct, because that is what I am talking about, and this million acre-feet is taken to central Arizona, prior to a determination of the rights of Arizona to that water, and then in say 20 or 25 years we do get into the Supreme Court and the Supreme Court says that California is right, I wonder, then, if the water will be taken away from the central Arizona aqueduct.

Now, if it is not taken away from the central Arizona aqueduct, then it will result in a violation of the main Colorado River compact.

Mr. ENGLE. In other words, it boils down to this, that if the Imperial Valley or those people served by the All-American Canal do have the established water rights which they claim and if those rights are protected under article 8 of the basic compact, and if the matter ever goes to the Supreme Court, somebody is going to have a dry irrigation ditch; is that not true?

Either on one side of the line or the other?

Mr. DOWD. I would not say a dry irrigation ditch. It may be the Metropolitan aqueduct to southern California will be dry. What I was pointing to here, sir, was the statement by Arizona that what California should do was to stop any further development in Imperial Valley, quit where we are, then they say there would be plenty of water for the Metropolitan water district aqueduct as well as plenty of water for Arizona.

Now, of course, as amatter of fact, under the laws of California and under the California water agreement, the Metropolitan water district of southern California's rights are junior to those of the All-American Canal, so that if this water is taken to central Arizona, and California has to give up water the first to be taken away would be from the Metropolitan water district aqueduct to southern California.

Mr. ENGLE. In that event, it is going to be taken away from one place or the other.

Mr. DOWD. That is correct. It will either be taken away from the coast areas of southern California or from the aqueduct to central Arizona and my point is, I don't think it will be taken away from either.

What I think will happen is just a logical consequence, it will be that they simply won't build projects in the upper basin that will take the seven and a half million acre-feet. Doing that, will in effect violate the compact. That is the practical result of the whole thing. That is one reason we think this thing should be settled by the Supreme Court before that develops.

Mr. ENGLE. Thank you very much.

Mr. MURDOCK. Would you yield for a question?

Mr. ENGLE. Yes.

Mr. MURDOCK. Would you—and I am putting the question also to Mr. Engle—would you two gentlemen be willing to see legislation that would authorize that ditch that you speak of in Arizona, authorized and before it is built, have this decision by the court?

Mr. DOWD. Why, of course not. That is not a fair proposition at all. We want to go before the Supreme Court on an equal footing. We do not want to go before the Supreme Court with the Congress saying, "Yes, here is a project, we want to build it, all you have got to do is find some water for Arizona."

Mr. MURDOCK. It would not be quite that. In California you have two ditches, the All-American Canal and the Los Angeles aqueduct which are functioning; they also were authorized by Congress. On the other side, on the east side of the river in Arizona you would have a blueprint and the court would look at that and make its decision. What is unfair about that?

Mr. DOWD. I still feel the same way, sir, that it would not be a fair proposition at all.

Mr. ENGLE. There is this to be said about it, that as far as that is concerned, Mr. Carson has stated before this committee that the authorization of this project would have evidentiary weight in the Supreme Court and that it would be used in the Supreme Court when and if we get to the Supreme Court for whatever effect it may have, and that it would be construed and argued by Arizona as a legislative determination of water rights on the Colorado River and a construction by Congress of the basic documents.

Mr. MURDOCK. Would not this act of 1928, the Boulder Canyon Project Act, have the same weight and influence in regard to the All-American Canal and the Los Angeles aqueduct in just the same way, or more powerfully so?

Mr. ENGLE. Mr. Brittenstein, when he was here, said it would not, and he further so insistent that it would not that he objected to writing into the Upper Colorado basic compact a definite declaration that the consent of Congress to that compact was not an acquiescence in any interpretations of the basic compact in that compact.

Mr. MURDOCK. I think you misunderstood his interpretation of the powers of Congress concerning such compacts.

Mr. ENGLE. I have talked to him since, and I do not think I did.

I want to get to another matter here before our time is up, Mr. Dowd.

Your testimony in regard to the cost of this project and the ability of the irrigators to pay is in conflict with the testimony of Mr. Larson. I asked Mr. Larson if it was not true that if the United States Government gave Arizona this project, that the irrigators still could not pay the cost of operating it in order to get the water provided by the project on their land, and he contended that the irrigators would

pay the actual cost of operation and perhaps even a little on the construction cost, and on page 548 of the reporter's transcript of his testimony, given on April 28, 1949, the following colloquy occurred between Mr. Larson and me:

Mr. ENGLE. That is what I am getting at. The power is going to carry, is it not, all that lift cost? In other words, when you get down to it, although you have allocated it to irrigation you are in fact making power revenues carry it and the irrigators are not going to pay for it. Is that right?

I was directing his attention to the fact that he had not charged the irrigators with the cost of lifting that water a thousand feet in the air, but was crediting the irrigators with the fact that because they had that lift they did not have to pump as much and as deep with the pumps they now have on the land and here is how Mr. Larson answered:

The power will carry a large part of the cost. That is true, but that is the same principle we use on all irrigation projects of the multiple-purpose type. In other words, the revenues from the sale of electrical energy is to be used in assisting irrigation.

What I would like to ask you, Mr. Dowd, is to explain the differences, if there are any, between the way power is made to operate in this project and in other projects, and why it is that you say that the cost per acre-foot for this water would be something like I think you said, $7.50 an acre-foot, whereas the irrigators are only required to pay $4.50 an acre-foot which would mean, according to your testimony, that if the Federal Government gives this project to Arizona, the irrigators will have to be helped to pay the maintenance and operation to actually put the water on the land.

Now, I believe that that is what you testified to, but Mr. Larson said something different and can you explain to this committee how you and Mr. Larson happened to differ on that conclusion?

Mr. DOWD. We differ in this respect. As I mentioned, I believe, when I was discussing this subject, when you pump irrigation water, the power cost to pump that water is an operating expense.

Now, the Bureau of Reclamation does not look at it in that same way in this report of theirs.

In other words, in the operating expenses of the aqueduct for instance, the Bureau does not include all of the power cost. All the Bureau includes is the cost of operation and maintenance of the power generation and transmission facilities. In my set-up, I included both the cost of operations as well as amortization of investment in power facilities, in the cost of pumping power. The resulting price for power, which I claim is a discriminatory price, is nevertheless the actual cost of power necessary to lift this water a thousand feet. As I pointed out, any irrigator who buys power to pump from a well or to pump out of a river includes his power bill in operating expenses. Applying the same principle to this project, users of Colorado River water in central Arizona would pay about 60 percent of the cost of operating and maintaining the central Arizona aqueduct and pay nothing on the cost of the aqueduct or the water distribution and drainage facilities.

Now, as to this project being the same as others, of course it is not the same as the Hoover Dam project. In that project, the Boulder Canyon Project Act authorized the construction of Hoover Dam and

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the All-American Canal, but it provided that not a dollar of revenue from the sale of Hoover Dam power could be applied to the repayment of the All-American Canal cost.

That is entirely an expense of the irrigators in California.

Secondly, there are two types of power development projects. There is the type where the development of power is an incident to the irrigation features of the project, such as, for instance, the Big Thompson project in Colorado, where they drilled through the Continental Divide for about 13 miles and drop the water down on the eastern side to the lands in Colorado and as they drop the water down they make power with it.

Now, you would never build that tunnel and those power plants only as a power project.

The only reason the power plants are there is because they have built an irrigation project and the power is an incidental byproduct, just like it is on the All-American Canal.

Then you have the other type which is primarily a power project in which irrigation has nothing to do with the construction or development or the feasibility of the power project; that is the type of this proposed central Arizona project.

The Bridge Canyon power development is a separate and distinct power project justified in its own right entirely separate and distinct from the irrigation features as you might say, Hoover was.

Mr. ENGLE. How far is it from the water lift?

Mr. DOWD. Something like 200 miles. In other words, so far as the irrigation project is concerned, that is the central Arizona aqueduct, the Bridge Canyon Dam in no way stores any water for it, in no way contributes the water to it. Bridge Canyon Dam is not necessary to the acqueduct in any physical respect whatsoever. It is just arbitrarily included in this project as a means of providing revenue from the sale of the commercial power to pay for the cost of the aqueduct.

Mr. ENGLE. In setting up your figures on what the irrigators would pay, have you accepted the Bureau of Reclamation's figures on nonreimbursables?

Mr. DOWD. Oh, yes. I have used the same figures the Bureau has used in the matter of costs.

Mr. ENGLE. As far as you are concerned, however, do you believe that the figures of the Bureau of Reclamation on nonreimbursables have been justified?

Mr. DOWD. I cannot believe, sir, that there is any justification for charging off as a nonreimbursable one-half of the capital cost of building a drainage system, and in perpetuity one-half the annual operation and maintenance cost. Every other project in the West has to pay for its own drainage system. Also, I think it is completely unjustified to attempt to charge off as nonreimbursable $35,000,000 for recreation alone at one little reservoir on the Colorado River, to ask the taxpayers of the United States to contribute this $35,000,000 as a presumed recreational benefit from Bridge Canyon Reservoir.

I think it is absurd, if you want my opinion of it, as well as being unjustifiable. It is one of the things, when the taxpayers of this country understand what we are asking for western reclamation which might defeat or at least set back the whole program for many years.

I say it is dangerous.

Mr. ENGLE. Thank you very much, Mr. Dowd.

Mr. MURDOCK. At this point, since reference was made to the fact by the witness that the Bridge Canyon Dam would be suitable for power in no connection whatsoever with the rest of the project, and that has been brought out in other testimony, or at least it has been referred to, I ask that there be inserted in the record at this point a letter from the Federal Power Commission dated May 27, 1949, covering that point.

Without objection, it will be inserted at the close of Mr. Dowd's statement.

(The letter is as follows:)

FEDERAL POWER COMMISSION,
Washington 25, May 27, 1949.

HON. ERNEST W. MCFARLAND,
United States Senate, Washington 25, D. C.

MY DEAR SENATOR MCFARLAND: In accordance with your request of May 14, 1949, the Commission has forwarded its comments to Chairman Joseph C. O'Mahoney on the points raised in your letter.

A copy of the letter to Senator O'Mahoney is transmitted for your information.

Sincerely yours,

NELSON LEE SMITH, *Chairman.*

FEDERAL POWER COMMISSION,
Washington 25, May 27, 1949.

HON. JOSEPH C. O'MAHONEY,
Chairman, Senate Interior and Insular Affairs Committee,
United States Senate, Washington 25, D. C.

DEAR SENATOR O'MAHONEY: In a letter dated May 14, 1949, Senator Ernest W. McFarland asked that I write you giving the Commission's comments concerning certain questions regarding the proposed Bridge Canyon power and irrigation project described in bill S. 75, introduced into the Senate of the United States on January 5, 1949, by Senator McFarland. The particular matters on which comments of the Commission are desired concern a letter to the Commissioner of Reclamation dated May 21, 1948, reporting on the then proposed project at Bridge Canyon and in central Arizona and its relation to changes made in the proposed project in the certain respects which Senator McFarland points out in his letter. It is to these points in particular that the Commission's comments are directed. A copy of Senator McFarland's letter is attached for your convenient reference.

The project originally conceived, and upon which the Commission reported, would have taken water from Lake Havasu at Parker Dam for the irrigation of lands in central Arizona. As part of the project a dam would have been built in the Colorado River above the existing Hoover Dam at a site know as Bridge Canyon. Under this project there appeared to be no physical connection between the Bridge Canyon Reservoir and the central Arizona irrigation project. However, the project proposed in bill S. 75 includes the use of the forebay at Bridge Canyon as a water supply and a waterway connected thereto with central Arizona, utilizing gravity flow through a long tunnel and canal system. In answer to Senator McFarland's question on this point there would be a direct physical connection between the project described in S. 75 and the lands to be irrigated in central Arizona.

The matter of power supply and its availability to meet the needs for pumping water for the irrigation project is a further point upon which Senator McFarland desires you be advised by the Commisison. All of the existing power supply in the Colorado River Valley, the Commission understands, has been disposed of and a demand for additional power from the Colorado River now exists. In order to secure any large supply of power for pumping purposes, additional power sources must be made available. The Bridge Canyon project, which would develop a large amount of power, could readily be used for this purpose. It is pointed out that a transmission grid connecting the projects in the Colorado Valley will probably be utilized in marketing the Bridge Canyon power. However, the increment of power required in such a system will have to come from sources not now developed and, as stated above, the Bridge Canyon site would provide a suitable source.

It is proposed in the project to utilize returns from the sale of power to assist in meeting some of the expense in the irrigation project. In the report previously referred to the Commissioner of Reclamation indicated that the cost of such power delivered to load centers in Arizona and southern California, including the cost of power and such additional costs as are necessary to assist the irrigation program would result in a rate of 4.82 mills per kilowatt-hour. This estimated rate of 4.82 mills per kilowatt-hour may be compared with the cost in 1947 of energy from the best steam-electric plants in the area. For example, the cost of energy from the Harbor plant, Los Angeles Department of Water and Power was 5.5 mills per kilowatt-hour; the Silver Gate plant of the San Diego Gas & Electric Co. showed costs for energy of 5.25 mills per kilowatt-hour; energy costs of 6.1 mills per kilowatt-hour. The cost of energy from steam plants in Arizona was 12.2 mills per kilowatt-hour for the Tuscon plant of the Tuscon Gas, Electric Light & Power Co. and 10.0 mills per kilowatt-hour (approximately) for the Phoenix plant of the Central Arizona Light & Power Co.

Sincerely yours,

NELSON LEE SMITH, *Chairman.*

Mr. MURDOCK. Are there other questions from the members of the committee?

Mr. WELCH. Mr. Dowd, what is the exact distance between the projected Pilot Knob plant and the international American-Mexican line?

Mr. DOWD. It is about a half a mile from the point where the Pilot Knob spillway discharges into the Alamo canal, which is the same point at which the water from the power plant would discharge into the Alamo canal. It is about half mile from there to the international boundary and between those two points on the Alamo canal is this Hanlon headgate which, of course, is the control structure.

In other words, any water released into the Alamo canal either through the spillway or the power plant for Mexico would have to pass through this Hanlon headgate and that headgate would regulate the amount of water going to Mexico through the Alamo canal. The purchase of that headgate as well as the Alamo canal itself in the United States is now under negotiation with the State Department, so that the United States of America can acquire the ownership and perpetual operation of those works in accordance with the treaty.

Mr. MURDOCK. If there are no further questions, we thank you, then, Mr. Dowd.

Mr. ENGLE. Mr. Chairman, may I ask that Senator McFarland's letter to the Federal Power Commission, dated May 14, 1949, be inserted at this point in the record?

Mr. MURDOCK. Without objection, it is so ordered.

(The letter is as follows:)

UNITED STATES SENATE,
May 14, 1949.

Mr. NELSON LEE SMITH,
Chairman, Federal Power Commission,
Washington, D. C.

DEAR SIR: On February 4, 1949, Mr. Frank Pace, Jr., Director of the Bureau of the Budget, wrote to Secretary Krug concerning the Secretary's report on the central Arizona project. In this letter, Mr. Pace refers to the letter you wrote on May 21, 1948, to the Commissioner of Reclamation in connection with that project, and he states in part:

"The Federal Power Commission points out that there is no essential physical relationship between the Bridge Canyon power project and the central Arizona diversion project but that the two are linked together in the report because of the need for subsidies from electric power income to help finance the irrigation improvement. It also indicates that the burden of the irrigation costs are con-

siderable and that the proposed charges for electric power consequently approach a level where such power cannot be classed as 'low-cost' in this region."

I am sure that in view of the developments since the writing of your letter of May 21, and particularly on account of the introduction during the Eighty-first Congress of S. 75, you will agree that you should give further consideration and make prompt early statement with respect to the factors briefly outlined as follows:

1. There are very definite relationships other than financial which require the inclusion of the Bridge Canyon Dam and the Bridge Canyon power project in the authorization bill, which reasons are set forth in S. 75, and which were not included in the request for your comment on the project. Briefly, Bridge Canyon is the only nearby source for development of power to effectuate the project on its first phase, which contemplates pumping operations. In the project's later phase, Bridge Canyon Dam is required to create a forebay for delivery of water to the tunnel which will carry by gravity the water theretofore pumped.

2. When your letter was written, contracts for the acquisition of Davis Dam power had not been made. Since that date, all of this power has been disposed of by contract; and all such power fell far short of meeting the applications and demand therefor. Present and future scarcity of power supply in this area urgently requires the development of Bridge Canyon Dam and power plant at the earliest possible time.

3. The cost of power which can be produced at Bridge Canyon power plant as one feature of the central Arizona project is, in relation to costs of other recently developed and potential sources of power in the region, low-cost power and is probably the lowest cost potential power that can now be developed in the future in that area.

I would greatly appreciate your writing a letter to the chairman of the Senate Interior and Insular Affairs Committee bringing your comments up to date on the matters set forth above. As time is an urgent factor, prompt action upon your part will be most welcome.

With kindest personal regards, I remain,

Sincerely yours,

ERNEST W. MCFARLAND.

Mr. MURDOCK. I believe we will have time to start with another witness. Is Mr. Peterson present?

Mr. ENGLE. Mr. Chaiman, I do not know whether we ought to start another witness or not. It is quarter to 12 and everyone wants to eat.

Mr. MURDOCK. Then we will merely call him and ask him to give his name to the reporter.

Mr. Peterson, if you will merely give your name for the record and your official position?

The committee feels we should not more than start with you this morning.

Mr. PETERSON. My name is William S. Peterson. My position is that of assistant chief electrical engineer for the department of water and power, city of Los Angeles.

I have a prepared statement and an appendix to which reference is made in the statement.

Mr. MURDOCK. Thank you, Mr. Peterson, for the appearance this morning and if you will hold yourself in readiness at 10 o'clock tomorrow morning, the committee stands adjourned until 10 o'clock tomorrow.

Mr. PETERSON. Thank you.

(Whereupon, at 12:05 p. m., the committee adjourned, to reconvene 10 a. m., Friday, June 3, 1949.)

THE CENTRAL ARIZONA PROJECT

FRIDAY, JUNE 3, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met at 10 o'clock a. m., Hon. John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The committee will come to order.

We will continue our hearing on H. R. 934 with Mr. William S. Peterson, assistant chief electrical engineer, department of water and power, city of Los Angeles, as our witness.

Mr. Peterson appeared just at the time of adjournment, and we asked him to hold himself ready to begin at the convening of the committee this morning.

There is no session of the House today; for that reason, I am anxious to see if we cannot have two shorter committee sessions today instead of one morning session.

Mr. Peterson, will you proceed with your statement?

STATEMENT OF WILLIAM S. PETERSON, ASSISTANT CHIEF ELECTRICAL ENGINEER, DEPARTMENT OF WATER AND POWER, CITY OF LOS ANGELES, CALIF.

Mr. PETERSON. Mr. Chairman and members of the committee, my name is William S. Peterson. I am assistant chief electrical engineer of the power system of the department of water and power of the city of Los Angeles. I appear here on behalf of the department of water and power, which is a municipal agency that is one of the original allottees receiving power from Hoover Dam power plant and is one of the agencies acting for the Federal Government in operating the power plant at Hoover Dam under the provisions of the Boulder Canyon Project Adjustment Act, and is one of the principal agencies supplying and distributing domestic water and electric power in southern California.

FINANCING

Under section 3 of H. R. 934 "The estimated cost of the construction of the said works shall be determined by the Secretary." It should be recalled that the Secretary is to determine the parts of the cost to be allocated to a very considerable list of nonreimbursable items together with the operating cost for same, and is also to determine (1) the costs allocable to irrigation and returnable from irrigation revenues; (2) the costs allocable to irrigation which can be returned from other revenue sources; (3) the parts allocable to power returnable from

power revenues; (4) the part allocable to municipal water supply and probably be returned to the United States.

The Secretary thus becomes the arbiter of cost, and it would be logical to look to his report for the prospective financial operation of the project. In project planning report No. 3–8b. 4–2, December 1947, on the central Arizona project, submitted by the regional director of region III of the Bureau of Reclamation of the Department of the Interior, and transmitted with the approval of the Secretary of the Interior, financial data were presented on four different bases of consideration with the data on the fourth method being singled out for special emphasis in the letter of transmittal. However, it now appears that it has been necessary, during the course of these hearings to present a financial study on yet another basis. In presenting this in a memorandum which was also obtained from Mr. Larson, Mr. V. E. Larson, of the Bureau of Reclamation, states:

> In this study the full interest component of power is applied to the irrigation debt. Both irrigation and municipal water supply are interest-free. All net returns except municipal which accrue over the 70-year period would be applied against the total project costs. Municipal returns are only considered for a period of 40 years in considering both annual costs and returns.

Under this proposal 78.5 percent of all of the revenues accruing to the project are to be received from commercial power and such revenues after paying the operating and maintenance and replacement costs pertaining to the commercial power operations will be required to pay 95.8 percent of the total reimbursable debt of the entire project.

The allocations of investment costs have been changed slightly from the previous report and as presented in the new study are as follows:

Municipal cost allocation	$ 16,922,000
Power cost allocation	248,964,000
Irrigation cost allocation	399,424,000
Total	665,310,000

To this amount should be added the nonreimbursable capital provided by the Government, which amount is not stated in Mr. Larson's memorandum, but which would amount to $73,098,000 if the former value for total cost of $738,408,000 is still adhered to.

According to Mr. Larson's memorandum, revenues from irrigation for the 70-year period at $4.75 per acre-foot at the farm head gate will amount to $220,353,000, which will only slightly exceed the cost of operation, maintenance, and replacements for irrigation amounting to $210,210,000, having a balance of $10,143,000 applicable toward reimbursing irrigation capital. This retires only 2.5 percent of such capital.

Revenues from municipal water for the 40-year period will amount to $21,116,000, which will pay operation, maintenance, and replacements for municipal water amounting to $1,956,000, will pay the capital allocation for same and also contribute $2,238,000 toward paying the irrigation capital. This retires less than 0.6 percent of such capital.

It thus becomes evident that power revenues must be relied upon to repay 96.9 percent of the irrigation investment and 95.8 percent of the reimbursable capital of the entire project. In addition, power revenues must, of course, pay operation, maintenance, and replacements for commercial power, which over the 70-year period will

amount to $248,416,000, an amount almost identical in amount to the power investment allocation, which power must pay. The total obligation of power under the new proposal as set out by Mr. V. E. Larson is $884,423,000.

The fact that the power development is primarily for the purpose of paying for the cost of this project and not providing low cost or reasonable cost power for the market area is indicated by the following quotation from section 4 of H. R. 934:

> Electrical energy developed at any of the generating plants herein authorized shall be used first for the operation of pumping plants and other facilities herein authorized, and for replacement purposes, and the remainder thereof sold or exchanged to effectuate the purposes of this Act.

It thus becomes evident that the financial success of this project rests completely on the adequacy of power revenues. It will be my purpose to show that there are certain very important reasons why adequate power revenues cannot be obtained from this project as it is presently conceived.

COORDINATED OPERATION

The figures for firm energy generation resulting from the construction and operation of the central Arizona project are derived from a study presented in table E–7 in appendix E of the Project Planning Report No. 3–8b. 4–2 on the central Arizona project.

Of the total energy declared to be available from the project, 1.5 percent is derived from the small power plants in Arizona, such as Horseshoe, McDowell, and Buttes plants and the remaining 98.5 percent is derived from the coordinated operation of the Bridge Canyon power plant with the other lower Colorado River plants including Hoover, Davis, and Parker.

In this proposed set-up, the installed capacity of the Bridge Canyon power plant is 750,000 kilowatts and has a reservoir with a total storage capacity of 3,720,000 acre-feet of which the active storage above dead storage is 2,650,000 acre-feet. Auxiliary to this storage is Bluff Reservoir with a total capacity of 3,000,000 acre-feet of which 300,000 acre-feet is dead storage and 850,000 acre-feet is reserved for the control of floods.

The Hoover project is considered as having available its total ultimate generating capacity of 1,317,500 kilowatts. It has a reservoir of 32,359,000 acre-feet of which about 3,207,000 acre-feet is dead storage below the lowest outlets. Lake Mead is thus—and this point is of particular importance in my later discussion—about nine times as large as the Bridge Canyon Reservoir and the active Lake Mead storage is about 5½ times the combined active storage of both Bridge and Bluff Reservoirs.

The Davis project will have a storage of 1,530,000 acre-feet and a generating capacity of 225,000 kilowatts.

The Parker project was constructed by the Bureau of Reclamation cooperatively with the Metropolitan Water District of Southern California with funds provided by the district with some small help from the Federal Works funds, but on a 50–50 basis for the powerhouse, and each has an equal interest in the power production. This project has a generating capacity of 120,000 kilowatts and a reservoir capacity of 716,600 acre-feet of which 200,000 acre-feet is held for reregulation of flood flows and general reregulation purposes.

To a large extent the outputs at Davis and Parker directly relate to the water discharged and therefore power output at Hoover. Their combined energy output is about one-third of the output at Hoover. Their reservoir manipulation and capacity has a negligible effect on the intergrated and coordinated operations.

The study presented by the Bureau of Reclamation under which the firm energy is determined covers the 10 years of record from 1931 to 1940, inclusive, that have proved to be the 10 consecutive years with lowest flow. In this study interchange and integration is largely between Hoover Dam plant and the Bridge Canyon plant; that is, during periods of high run-off during May, June, and July, Bridge is operated at high capacity and Hoover plant is held back, and then during low run-off in August and September Hoover is operated at high capacity. In many instances the range of monthly output from Hoover is called on to vary from as low as 183,000,000 kilowatt-hours to 576,000,000 kilowatt-hours, which difference or variation exceeds the firm power output of the plant. The normal monthly output of the plant is about 350,000,000 kilowatt-hours. In years of minimum flow like the calendar year 1934 the amount of such auxiliary stand-by capacity and energy to meet the deficiency in the firm energy output credited to the Bridge Canyon plant would be 2,044,000,000 kilowatt-hours and 600,000 to 700,000 kilowatts of capacity. This means that—and this is a very important part of the presentation—nearly half of the Hoover plant is dedicated to the function of firming up Bridge Canyon deficiencies, and all without any payments or compensation or consideration to the Hoover project.

Despite the fact that the Bridge Canyon plant, by itself or even augmented by the storage afforded by the silt-control reservoir at Bluff, is a project with very limited capabilities for the generation of firm energy, yet for the purposes of this project it has been credited with the total incremental benefits derived from the coordinated use of all generating equipment presently installed at Hoover Dam, plus the use of over 287,500 kilowatts of generating equipment at Hoover Dam yet to be installed for this purpose plus the use of storage capacity in Lake Mead so as to firm up the inherent secondary energy of the Bridge plant. For this service no payments or credits are given to the Hoover Dam project or to the contractors or allottees that have guaranteed and are returning to the Government the cost of that project with interest.

COORDINATION LIMITATIONS

The methods of coordination used in the study by the Bureau of Reclamation are totally inconsistent with and ignore the rights of the operating agents and allottees at Hoover.

Over 2 years ago, in Los Angeles, a preliminary conference was held with the power and water contractors of the Hoover Dam project at the invitation of the Bureau of Reclamation to feel out the possibilities of instituting and operating a fully developed plan of integration for the power plants along the Colorado River. It became evident in this meeting that under the present contracts and regulations there was not an obligation to integrate the use of the river without at the same time taking into account the right of the principal contractors to integrate the operations of the Hoover plant with their own systems. The fol-

lowing quotations from sections 20 (a) and 20 (b) (i) of the "Agency contract" express this idea as follows:

20. (a) The United States, subject to the statutory requirement referred to in article 20 (b) (i) hereof and pursuant to agreement with the district, will interchange energy from its hydroelectric plants on the Colorado River *below Boulder Dam* with energy allocated to the district and generated at Boulder power plant insofar as such interchange can be effected without interfering with service to the district and without impairing or extending the rights or obligations, respectively, of other allottees. The United States will *so interchange energy insofar as practicable*, as a means of effecting integration of operations as between Boulder power plant and other projects on the Colorado River owned and operated by the United States at which power is or may be developed, as the primary step in any program of integration of operations agreed upon, decided or determined pursuant to article 20 (b) hereof.

(b) (i) Subject to the statutory requirement that Boulder Dam and the reservoir created thereby shall be used: First, for river regulation, improvement of navigation, and flood control; second, for irrigation and domestic uses and satisfaction of perfected rights mentioned in section 6 of the project act; and third, for power, *the operation of Boulder power plant shall be reasonably integrated with the operation of other projects on the Colorado River* owned and operated by the United States at which power is or may be developed *and with the operations by the operating agents of their respective systems, including their other sources of electrical energy—*

The point is that the operation of the plant shall be integrated with the other projects on that river and with the respective systems of the operating agents not exclusively on the river—

provided that the time and rate of delivery of energy to allottees and contractors other than the city and Edison Co. (while they are operating agents under this contract) shall not be affected by any program of integrated operation agreed to, decided on, or determined under this article 20. Such reasonable integration of operation shall be with the view of effecting economical and efficient use of generating machinery and equipment and economical and efficient use of water at Boulder Dam and such other projects and at the operating agents' other sources of electrical energy.

Again showing that it must be combined with the operating agents' sources—

It is understood and agreed that *within the limits of use of water for power purposes at Boulder power plant fixed in a program of integration of operations agreed upon*, decided or determined under article 20 (b) hereof, and during the effective period of such program, *the manner of integration between Boulder power plant and the other sources of power on the respective systems of the operating agents shall rest with the respective operating agents*, it being the intention of the parties *that the programs of integration*, although agreed upon, decided on, or determined for the purposes and with the views set forth above, *shall directly control only the manner in which the operating agents shall or may operate Boulder power plant and shall not affect the manner in which the operating agents operate their respective systems*, including their other sources of electrical energy, except as such operations by the operating agents of their respective systems may be consequentially affected by such direct control of Boulder power plant operations. [Italics supplied.]

In summary, I make the point that the operations at Boulder are to be integrated with the companies' individual systems as well as with the Colorado projects of the United States.

The systems supplied from Hoover Dam plant have each become responsible for certain generating equipment because of their needs for this capacity not only to generate energy, but to use it for stand-by for emergency outages or for overhaul of equipment or to meet peak demands for kilowatts on their systems. Under their Hoover contracts the agents would vary the outputs also to integrate with other California hydroelectric plants as wet and dry years are encountered.

For the operations proposed by the Bureau of Reclamation, it is clear that the seasonal heavy demands on Hoover Dam plant equipment will directly interfere with the use contemplated by the power contractors on their own systems. The seasonal run-off in the early spring for California plants precedes that of the Colorado River. If Hoover is held back to coordinate with Bridge in summer and with California in the spring, there is not an opportunity to get all of its own firm kilowatt-hours out. Also, since no estimate of cost is included in the report for completion of generator installations at the Hoover Dam plant, it must have been assumed that the power contractors were going to assume that responsibility also. The only reason for such generators going in would be to supply Nevada and Arizona loads separate from the California utility loads and let the California utilities preserve their present peaking capacity, for integration with their own systems. The use of such equipment to the extent contemplated by the Bureau of Reclamation is incompatible with that use which is the present right of the contractors.

It is further stated that the integration operations are on the basis of 36 percent of the energy, presumably the energy allocated to the metropolitan water district, being supplied at a uniform rate and that 64 percent of the firm output at Hoover power plant would be produced in a pattern suitable for integration with power produced at hydroelectric and fuel-burning plants in southern California. Although the pattern of generation would vary from year to year depending on the availability of hydroelectric energy in California, actually in the study a fixed pattern of energy use was used and the one selected was not a typical one. Whereas high use of Hoover Dam energy is apt to occur in May, June, and July because of Edison system load conditions and in December and January due to city of Los Angeles load conditions, as well as Edison Co. conditions, the high demands for energy assumed in this study were shown as occurring in April, August, and September with low values occurring in March and July—totally out of step with the actual needs.

This method of procedure taken in conjunction with the tremendously high values of output required from Hoover to firm up Bridge Canyon power plant deficiencies require an interchange of power which is beyond that contemplated by present contracts calling for interchange of energy with Government plants below Hoover Dam.

The report does not indicate that any consideration has been given to the limitations incorporated in the Hoover Dam power contracts. The program of coordinated operation proposed by the Bureau of Reclamation for the advantage of the central Arizona project would take away valuable rights of integrating Hoover plant with their own systems and would require substantial and fundamental changes in the existing contracts that would not be acceptable to the present principal allottees of Hoover Dam power.

UNREALISTIC COORDINATION

A sample of a very simple and economical type of coordination is that where a large reservoir exists at the top of the plant system and the releases are made to meet the demands as required, and where the lower plants have small reservoirs to compensate for the differences in time for the water from above to reach such plants and to take care of

minor variations that may be required in the several plants. Representative of this is the Hoover, Davis, and Parker combination, as operated presently, except Davis is not yet completed. To a large degree, the reservoirs become the medium by which coordination is accomplished.

The type of coordination proposed when a plant with a relatively small reservoir is placed at the head of the system, such as is the case when the Bridge Canyon plant is added to the Hoover, Davis, Parker combination, is inherently uneconomical and complicated to operate, particularly on a stream wuith the variable characteristics of the Colorado River. In this stream, approximately half of the annual flow occurs during May and June, and two-thirds to three-quarters of the flow occurs in April to July, inclusive. Therefore, Bridge Canyon must be operated at full output for relatively a short time during the heavy flows and the Hoover plant must run at reduced capacity to conserve such flows so as to make up for the later deficiencies at Bridge by operating at the later time at full capacity while Bridge is operating at lower outputs. It is obvious this type of coordination not only requires storage capacity coordination, but requires a larger installation of generators so that they can operate alternately rather than concurrently.

Having these complications in mind, the first thing that casts doubt on the results obtained in the Bureau of Reclamation study is that the following annual firm outputs are listed as being obtained for the conditions pertinent to the initial year of the project: Bridge Canyon is credited with 4,675,000,000 kilowatt-hours; Hoover is credited with 4,500,000,000 kilowatt-hours; Davis and Parker is credited with 1,550,000,000 kilowatt-hours; total, 10,725,000,000 kilowatt-hours.

Recall now that Bridge Canyon, in combination with Bluff Reservoir, has only about 18 percent as much active storage as Hoover and has only about one-half the generating capacity, operates at about the same head, and is in the unfavorable storage position just discussed. With those conditions in mind, it is not reasonable that such an inferior plant should be given credit for producing more firm energy than the Hoover plant. One does not have to be an engineer to understand that such results are highly improbable and unreasonable. Now, that is one of the most important statements in this document. I want you to realize the emphasis I am trying to put on that.

What then is the explanation of such results as are displayed in the report on this project by the Bureau of Reclamation?

It is simply that the study of coordinated operation and the resulting energy outputs set forth in table E–7 of the report by the Bureau of Reclamation represents a perfection of integrated operation that can only be obtained by having a foreknowledge of the entire 10-year period of water supply used for the study. Such results could not be achieved in practical operation. If you will refer to table E–7 of the report you will note that for every year the firm energy is exactly 10,725,000,000 kilowatt-hours and that in only 2 years is there a negligible amount of secondary energy amounting to about 1 percent.

Actual operation of the Hoover plant does not come anywhere near reaching such perfection. For example, let us follow through the forecasts and decisions regarding water supply for the current contract year, May 31, 1948, to May 31, 1949:

In August 1948, after the main run-off had occurred, the integrating committee met and with the Government officials determined that there would be water sufficient for generation of 5,300,000,000 kilowatt-hours for the contract year, and the schedules of generation were set accordingly. To us these amounts seemed optimistically high as the reservoir at the previous April had been below flood-control level and the anticipated spring run-off had been below normal and considerably less than forecast. In November the conditions were reviewed by the Government and reaffirmed. However, on January 26, 1949, the Government declared available an additional 330,000,000 kilowatt-hours on the basis of a forecast of exceptionally heavy spring run-off. Such forecast was for the four months (prospective), April to July 1949, inclusive, and was 12,000,000 acre-feet, plus or minus 2,900,000 acre-feet. Please note the range of doubt. The forecast was from 9,100,000 acre-feet to 14,900,000 acre-feet. The high figure exceeds the low figure by 63.8 percent. Such figures are based on precipitation and snow-pack surveys.

If the higher amount were to occur, then releases must be increased in order to lower the reservoir to an appropriate flood-control level. In April the Government again declared an additional amount of 208,000,000 of kilowatt hours available. As the reservoir level was then about 2,000,000 acre-feet below normal flood control, the power contractors questioned the conclusions.

By this time presumably good precipitation and snow data were available and individual persons estimated the prospective 4-month run-off at from 8,000,000 acre-feet to 12,000,000 acre-feet and the Government was still using its value of 12,000,000 plus or minus 2,900,000.

By May 16 the operating agents received a letter indicating that the May 1, 1949, estimate for the 4 months April to July, inclusive, with 1 month by that time being factual, was 700,000 acre-feet less than before and thus the 12,000,000 acre-feet was reduced to 11,300,000 acre-feet and the top maximum to be considered was 13,600,000 acre-feet, indicating a plus or minus tolerance of 2,300,000 acre-feet. The relationship of the high value to the low value is that the high value would be 51.1 percent higher than the low value.

The above forecasts were based on precipitation. If the snow survey results had been used, the forecast would have been, for the 4 months, 10,000,000 acre-feet plus or minus 2,300,000 acre-feet. These variations and wide tolerances in forecasting are not given in criticism. The Colorado River is a difficult river to forecast.

Fundamentally, the river is difficult to forecast because approximately only 10 percent of the precipitation that falls in the basin finds its way to the stream. A small variation in the absorption of the water has a large effect on the small residium left for stream flow. For example, if the percentage of absorption would vary from 88 to 92 percent, or a 4 percent range, it would mean the run-off would be either 12 or 8 percent of the total quantity of water that had fallen on the ground, and such run-off, therefore, has a 50 percent variation between the minimum and the maximum.

Knowing of these tremendous margins of plus or minus 25 percent in forecasting, I am positive no operation of the four power plants can be evolved whereby all the water is used up during the low 10-year period, leaving the capacities in the reservoirs in their starting condi-

tion at the end of the period and come out even throughout the 10 years in output and have essentially no secondary energy. That is essentially 99.8 percent perfection and it cannot be done as a practical operating procedure.

If one assumes the known average for 10 years and works to that he can come fairly close, but the difficult part is that you do not know that you are into the low-water period until a considerable number of the years have gone by. Exceptionally low-water years come in the periods of high water and high-water years come during the periods of low water. Normal operations are to produce both firm and secondary energy, but with the idea of protecting the firm energy both present and future by conservative operation. At best considerable variations will ensue and it is unprofitable to operate as though every year were a part of a minimum period.

It is interesting to note that in the study, the years 1932 and 1933 were almost identical with years 1938 and 1939, yet in these two cases the operation was different, apparently because the calculator couldn't help knowing that the very critical year was going to be 1934. Also it appears that the total flood-control capacity of 9,500,000 acre-feet supposed to be available in April was about 7,400,000 in 1931, 7,150,000 in 1933, 8,300,000 in 1934, and 8,400,000 in 1939. This represents an overstorage of water in the first two instances in advance of the 1934 prospective lean year which was coming up; but which conditions you cannot know for 2 years in advance. Under present operations at Hoover, the flood-control capacity has always been held intact.

Although future 10-year periods will be undoubtedly as deficient in total run-off as the one under consideration, the monthly, seasonal, and annual distribution of the run-off will be different, and neither the distribution nor the approach of such an extended critical period of run-off could be known in advance. A sequence of dry years could occur even with the same 10-year run-off, which would result in depletion of Lake Mead to the point where the available storage would be insufficient to meet generating requirements and have a disastrous effect on the firm power outputs, and value of the energy.

It should be reemphasized that with the erratic and undependable flow of the Colorado River, perfection of coordination cannot be accomplished, particularly with the small reservoir at the top of the system.

INDEPENDENT ESTIMATES OF BRIDGE CANYON POWER OUTPUT

In order to appraise the output capability of the Bridge Canyon power plant with its related facilities as proposed in the report under review, on a more realistic operating basis, independent studies have been made, by the department of water and power.

For this purpose, studies have been made for coordinated operation of existing and authorized power plants on the Colorado River, with and without the potential Bridge Canyon development. These studies are based upon water supply during the same period 1931–40 as used in the Bureau report and downstream water requirements also substantially the same as assumed therein, both corresponding to what are termed in the Bureau report as "initial conditions."

The first study was made for coordinated operation of Hoover, Davis, and Parker plants, based on the above assumptions, with

Hoover power plant operated so that the contents of Lake Mead would not exceed 22,800,000 acre-feet on April 1 of each year, in order to insure the availability of the required flood-control storage space on that date, 9.5 million acre-feet. For comparison, a second study was made on the same basis but with the inclusion of the proposed Bridge Canyon power plant operated in conjunction with the central Arizona project and in coordination with the operation of Hoover, Davis, and Parker plants, and with the further assumption that the permissible contents of Lake Mead on April 1 could be increased to 25,800,000 acre-feet, because of the proposed flood-control storage regulation in Bluff and Bridge Canyon Reservoirs, amounting to 3,000,000 acre-feet difference.

The studies were based on the assumption that the existing and proposed plants would be operated similar to operations under the Hoover Dam contracts, with power generated and disposed of under similar terms and conditions to those prevailing thereunder and with due regard to the system characteristics of the allottees.

In all the studies consideration was given to the fact that run-off conditions throughout the critical period could not be known in advance, and to the probability that the sequence of annual run-off conditions would be different and possibly more critical than the sequence during the period 1931 to 1940. Because of the variation of run-off, the amount of energy that could be produced would vary from year to year.

The study was made for average hydroelectric generation conditions in California so did not reveal all the problems of coordination and integration with the California systems. Neither could it take account of the use of Hoover equipment because of emergency outages of equipment on the various systems. The results are therefore more favorable rather than less favorable to the Colorado River projects.

Under this assumed basis of generation and disposal of power output, it is considered that "firm energy" would constitute the amount of energy that is continuously available, in accordance with the definition of firm power by the Federal Power Commission. It is not that amount that can be fitted under some assumed load curve as was done in the Bureau of Reclamation study. In other words, firm energy would be the amount that could be made available as a minimum in any month of the most critical period. On this basis the studies of coordinate operation of the three plants, Hoover, Davis, and Parker, show that the annual firm energy that would be available under initial conditions during a critical period of run-off such as 1931 to 1940 would be as follows:

	Kilowatt-hours
Hoover	4,150,000,000
Davis and Parker	1,550,000,000
Total	5,700,000,000

Because of Lake Mead storage and the firming capability of Hoover power plant, this 5,700,000,000 kilowatt-hours could be divided into 12 equal monthly quantities, resulting in a monthly firm output of 475,000,000 kilowatt hours.

Comparable studies of coordinate operation with Bridge Canyon power plant added to the Hoover, Davis, and Parker plants show that the energy output of the four plants under initial conditions with run-off such as occurred during the period 1931 to 1940 would range

from 9,600,000,000 kilowatt-hours to over 12,000,000,000 kilowatt-hours annually. The firm energy output of the four plants would be the minimum during the critical period, namely 9,600,000,000 kilowatt-hours annually, which is 1,125,000,000 kilowatt-hours less than the 10,725,000,000 kilowatt-hours shown in the report by the Bureau of Reclamation. That difference in output is another important point in this document; such output is over 1,000,000,000 kilowatt-hours less than that shown by the Bureau of Reclamation's report. This alone, at Bureau of Reclamation figures, represents a reduction in annual revenue of approximately $5,000,000. Of the total energy output, the studies show that Bridge Canyon would contribute an annual energy output ranging from 2,700,000,000 to 5,600,000,000 kilowatt-hours annually; however, the monthly output of the Bridge Canyon plant would be only 200,000,000 kilowatt-hours in several months of the period studied. Therefore, under the Federal Power Commission definition, the firm annual energy output of the Bridge Canyon plant would be 2,400,000,000 kilowatt-hours. The balance of the increase for four-plant operation over three-plant operation would be made possible from Hoover, Davis, and Parker plants by the firming capabilities of Lake Mead storage. The production of monthly firm energy for four-plant operation under initial conditions for the period 1931–40 would be as follows:

(At this point, a point of no quorum having been made, after a short recess the committee proceeded as follows:)

Mr. MURDOCK. The committee will come to order.

Earlier in the session, the gentleman from California, Mr. Poulson, called attention to the fact that there was not a quorum present and was about to raise a point of order to the effect that a quorum was not present. He reserved that for 15 minutes to see whether other members could be reached. A few have come in. I would like to ask the gentleman from California (Mr. Poulson) how he feels about it at this time. Your point of order is in order, Mr. Poulson.

Mr. POULSON. With those two who have come in here, I would still like to insist upon my point of order until 2 o'clock this afternoon.

Mr. MURDOCK. Obviously there is not a quorum present. The committee has agreed—those who are present, at least—to meet this afternoon at 2 o'clock. Accordingly, the committee stands in recess until 2 o'clock this afternoon.

AFTERNOON SESSION

The subcommittee resumed at 2 o'clock p. m., pursuant to recess.

Mr. MURDOCK. The committee will come to order, please.

A subcommittee is meeting in the adjoining room, and they have agreed to recess their meeting for a short period. I explained to the chairman that we had a witness before us who had a technical paper of great importance, and that I would like to have as many of the committee hear this presentation as possible, so I feel sure that we will have them with us in very short order.

Before Mr. Peterson continues with his paper, I hope that we can make arrangements for a committee session tomorrow morning and possibly make arrangements to finish the hearings on H. R. 934 by Monday at the latest. We could do that by having the witnesses summarize their statements in lieu of giving a full reading.

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I was just talking with Mr. Shaw and he said that some of their witnesses can succeed in doing that.

Further, for the record, while the members from the adjoining room are joining us, it is customary in lengthy, technical hearings of this sort for the proponents to sum up the case with rebuttal, and that could take a lot of time. Naturally, I think it ought to be abbreviated, and if we can arrange for completion of the testimony on the part of the opposition, being author of the bill, I feel much concerned about insisting that the rebuttal be encompassed within the very shortest space, not to be too brief, probably not to exceed an hour.

Now, a good deal of the testimony of the proponents has been submitted in writing. I would not want that done to any great extent by the proponents in their rebuttal, but, of course, Mr. Carson, we must see to it that we get the rebuttal narrowed down to the very briefest point.

Mr. CARSON. Mr. Chairman, I think we can do it in about an hour. I think that will be sufficient for rebuttal.

Mr. MILES. As much testimony as we have had, if you offered rebuttal to all of it, it would take more than an hour.

Mr. CARSON. I think we could condense it to that time.

STATEMENT OF WILLIAM S. PETERSON, ASSISTANT CHIEF ELECTRICAL ENGINEER, DEPARTMENT OF WATER AND POWER, CITY OF LOS ANGELES, CALIF.—Resumed

Mr. MURDOCK. Mr. Peterson, what point had you reached in your presentation?

Mr. PETERSON. I had reached two or three lines down from the top of page 19, and I will begin this at the very bottom line of page 18 to restart. In the interests of saving time, I have made some cuts in the presentation; and, if I may assume that the total paper will be put in the record, I will try to abbreviate the presentation at the moment.

Mr. MURDOCK. That will be a very fine thing for you to do, and it will be understood, Mr. Reporter, that the statement is to be presented in its entirety, of course, in the same type.

Mr. PETERSON. And, together with that right now, let us also cover this little addition here. I will read this at the moment: The details of this study are of a technical nature and are included in a statement headed "Appendix I—Statement of William S. Peterson," which has the title "Determination of the Termination of Availability of Firm Commercial Energy." I would like to have that also included as part of this statement. It is this part, Appendix I.

Mr. MURDOCK. We may interrupt you as the others come in, but go ahead, Mr. Peterson.

Mr. PETERSON. I will begin with the last sentence at the bottom of page 18.

Therefore, under the Federal Power Commission definition, the firm annual energy output of the Bridge Canyon plant would be 2,400 million kilowatt-hours. The balance of the increase for four-plant operation over three-plant operation would be made possible from Hoover, Davis, and Parker plants by the firming capabilities of Lake Mead storage. The production of monthly firm energy for four-plant

operation under initial conditions for the period 1931–40 would be as follows:

	Million kilowatt-hours
Monthly firm energy, Hoover, Davis, and Parker (three plants)	475
Monthly firm energy, Hoover, Davis, Parker, and Bridge (four plants)	800
Increase in monthly firm energy	325
Monthly firm energy, Bridge Canyon	200
Additional firm energy from Lake Mead storage	125

The additional 125 million kilowatt-hours per month, or 1,500 million kilowatt-hours per year, would be made possible by the permissible decrease of 3,000,000 acre-feet in space reserved for flood control in Lake Mead together with coordinate four-plant operation.

As has been indicated heretofore, there is considerable question in crediting this amount of energy to the project, as much of it comes from diverting generation at Hoover from its original obligations to those of firming up Bridge Canyon and results in the operating agencies having to use steam-plant generation when they might otherwise be using Hoover generating equipment.

The utilization in the commercial market of the large and variable amounts of energy output that could be produced by the Bridge Canyon plant and the other plants of the system in excess of the firm energy output could be made only by provision of auxiliary capacity from other sources, chiefly, if not entirely, by steam electric-generating plants. The energy output of Bridge Canyon in excess of the firm output would become essentially, after allowing for transmission losses, fuel-replacement energy, as the steam generating capacity would be available to carry the load irrespective of such secondary energy.

The studies show that the maximum firm energy output of the four plants under coordinate operation would not exceed 9,600 million kilowatt-hours annually or 800 million kilowatt-hours per month; and that, even to obtain this amount of combined firm energy output, Hoover, Davis, and Parker plants with Lake Mead storage would be called upon, in the most critical year of the period studied, to furnish 1,500 million kilowatt-hours of energy annually in excess of their combined firm output. Such a firming operation would use capacity and energy that the Hoover Dam power allottees now have a contractual right to use and that are needed for proper integration with their other sources of power. Moreover, such a firming operation could not be continued during two successive dry years as severe as the driest year of the period studied. Therefore, it would be unsound to depend upon auxiliary or stand-by capacity furnished by a hydroelectric plant or plants on the same stream.

SILT PROBLEMS

The silt problem on the Colorado River must be viewed from its long-term effects, and in general no sacrifice must be made to expediencies. Under the proposed project, the Bluff Reservoir of 3,000,000 acre-feet is receiving silt at the rate of 29,300 acre-feet per year. The Coconino Reservoir, with a capacity of 1,700,000 acre-feet, is receiving silt at the rate of 27,500 acre-feet per year. With such dams in place, the Bridge Canyon Reservoir of 3,720,000 acre-feet is receiving silt at the rate of 70,200 acre-feet per year.

In this matter, it is not the all-important consideration to say that in 102 years Bluff Reservoir will be filled with silt or that in 62 years Coconino Reservoir will be filled with silt or that in 53 years Bridge Canyon Reservoir will be filled with silt. It is important to realize that, as you get part way along on the projects, the reservoir capacity for water regulation is gradually getting less and the kilowatt-hours that can be obtained with integrated control are vastly reduced, with tremendous effects on the salable firm energy. Also, in the course of a few years, the flood control assumed for these reservoirs could no longer be obtained. To indicate these effects, I have made a study to approximately determine the performance of the project as silting and upper-basin depletion take place. Of the two effects, the silting effect is about seven times the importance of the depletion effects.

The details of this study are of a technical nature and are included in a statement headed "Appendix I—Statement of William S. Peterson," which has the title "Determination of the Termination of Availability of Firm Commercial Energy." In the interest of saving time. I will not go into the full detail of the study here but will interpret the results. It is requested that the appendix be made a part of the record.

After 40 years, the storage in the reservoirs, particulary Bridge Canyon Reservoir, will have been reduced in capacity to where the firm energy, determined for initial conditions, can no longer be obtained. In 50 years, the firm power has been reduced to the point that the full demands of the pumping system can no longer be met, in minimum years, when the pumping would be most urgent. By the end of 50 years, about 90 percent of the flood control of 3,000,000 acre-feet that was transferred to Bridge Canyon and Bluff Reservoirs will have been transferred back to Lake Mead.

As a result of this, we find that essentially all firm commercial energy that is being depended upon to pay back the costs of the project is not available after 50 years of operations.

The firm energy for the 50-year period available from the Bridge Canyon plant for 40 years of operation at normal firm energy and 10 years of operation while tapering down to the maximum pumping load will amount to 116 billion kilowatt-hours. In the same period the pumping operation will take 69.7 billion kilowatt-hours, leaving a remainder of 46.3 billion kilowatt-hours, or a little less than 1,000,000,000 kilowatt-hours of commercial power per year.

Giving consideration to the 1.5 billion kilowatt-hours developed at Hoover as a consequence of shifting the flood-control storage, it is found that in 15 years the flood-control storage at Bridge Canyon will begin to be encroached on by silt. At the end of 50 years, only a small portion of the Bluff Reservoir storage will be effective. As a consequence, the total commercial firm energy from this source for the 50-year period will be 51.1 billion kilowatt-hours. This, added to the previously determined 46.3 billion kilowatt-hours, makes a total of 97.4 billion kilowatt-hours commercially salable firm energy, or less than 2 billion kilowatt-hours per year as contrasted with the figure of 4 395 billion kilowatt-hours given in the report.

When adjusted for the addition of the small Arizona plants and decreased for 7 percent transmission losses, the total salable firm energy at the market to liquidate the project is 1.875 billion kilowatt-hours per year average over 50 years and none available thereafter,

assuming the project rests on its own resources. This is a total of only 93.75 billion kilowatt-hours, while Mr. Larson's memo indicates 70 times 2.715 billion or 190.05 billion kilowatt-hours.

Thus we find that the electrical revenues are cut approximately in half from those anticipated.

In addition to the primary or firm energy, there is an average of 1.6 billion kilowatt-hours of secondary energy at the market which would have a fuel-saving value of not over 2 mills per kilowatt-hour on a long-term basis.

EFFECT OF LIMITATIONS ON PAY-OUT

In order to determine the effect of these limitations of energy on the salability of the power or the ability of the project to pay operation and replacement costs and reimburse the Federal Government for the capital cost of irrigation and power investment and interest on the power investment within a period of 50 years, I make reference to table 5–8 in the report entitled "Views and Recommendations of State of California on Proposed Report of Secretary of Interior on Central Arizona Project, December 1948." Using this table of annual costs and making allowances for revenues received from water and secondary energy, it is found that, if the costs are to be met, the following revenues must be received from firm power available during the physical life of the project: At 3 percent interest, 9.45 mills per kilowatt-hour; at 2½ percent interest, 8.98 mills per kilowatt-hour; at 2 percent interest, 8.53 mills per kilowatt-hour.

Obviously, power cannot be sold in competition with fuel-produced energy at any such price, as the lowest of such prices is more than double that which could be contracted on a long-time basis.

Even at 2-percent interest the Government subsidy on the basis of failure to get more than one-half the required return from firm power is $8,000,000 per year for 50 years, or $400,000,000. Our interest in trying to avoid overloading the power projects with uneconomic irrigation is so that, after realistic estimates of power output and life are made and proper and economical combinations of projects evolved, the costs will not be higher than for which a public utility will be willing to make a contract. Such contracts, for the protection of both the utility and the Government, should be for a long period of time, preferably, as were the Hoover contracts, for a period of 50 years. In making such a contract, the utility cannot make it on the then current cost of generating energy with other competitive sources, principally fuel, as such costs are subject to considerable fluctuation.

For example, within the last 2-year period, oil went up from prices of the order of $1.35 per barrel to a high point of about $2.40, and recently have come down in one of our recent contracts to about $1.54 per barrel. The recent decrease from the high point to the present price represents a reduction in generating cost of nearly 1.5 mills per kilowatt-hour. Earlier in these recent congressional hearings, I was prepared to indicate the steam electric generation in Los Angeles would cost about 5.18 mills per kilowatt-hour over-all cost, but in only a few weeks this has changed to where the cost would be reduced to about 4.85 mills per kilowatt-hour for load factors similiar to those experienced in hydroprojects with long transmission lines.

It is thus apparent that prices for electric power such as even 4.65 mills per kilowatt-hour, as now estimated by the Bureau of Reclamation, would not be attractive to a utility in the Los Angeles area which constitutes the principal market for Colorado River power. Since we are sure that in the last analysis the project will not be productive of firm power to the extent claimed, no utility manager is going to buy what is inherently secondary energy at firm-power rates. If energy is not available all the time, other generating capacity must be provided to meet the demand in its absence. The noncontinuous energy, therefore, becomes essentially fuel-saving energy and must be priced accordingly.

Arizona's answer to this has been to make an offer to purchase all electric energy which may be generated at the Bridge Canyon project. Presumably, the basis for such offer is the testimony offered to the committee by Mr. K. S. Wingfield, an engineering consultant to the Arizona Power Authority. On this, I wish to make the following comments.

Although Arizona makes the claim that throughout its history it has been short of electric power and has consequently suffered great damage, nevertheless, up to the present time it has not availed itself of the opportunity that has existed since 1936 to take some of the energy available to it from the Hoover Dam project. This right amounts to approximately 18 percent of the total firm energy developed at Hoover Dam and is approximately 750,000,000 kilowatt-hours annually. In the meantime, the city of Los Angeles and the Southern California Edison Co. have guaranteed the payments to the Government for such energy and have held it available for Arizona. Arizona has received a very substantial proportion of the energy at Parker power plant and will receive approximately one-half of Davis Dam power. The availability of these two sources of energy has undoubtedly caused some hesitancy on the part of Arizona in withdrawing power in accordance with its rights at Hoover, and probably indicates some degree of uncertainty as to the rate of growth and need for energy.

In the letter where Arizona applied for Bridge Canyon power reference is made to a recent power survey for the State of Arizona. It is my understanding that possibly two surveys have been made. One such survey is being carried on by the Federal Power Commission, and although preliminary data has apparently been made available to the State of Arizona, it has not yet been made available to others. It is interesting to note that in connection with such surveys the Federal Power Commission does not have funds sufficient to publish its own reports but is having to depend on local State authorities to make publication after the survey is completed. It appears that Congress might well make some adjustments to cure this situation, which has the effect of limiting the value of such survey. The other survey is probably that given in Mr. Wingfield's statement presented before the House Public Lands Committee in hearings on H. R. 934, to which report reference will now be made.

In the historical years under consideration in this report and for some time previous, Arizona has been experiencing operations under the dry portion of the cycles of water flow and has also faced the necessity of making considerable development involving pumping for irri-

gation, in order to meet the wartime demand for agricultural products and thereby profit from the correspondingly high prices received for such products. The unusual electrical demands thereby incurred have a tendency to indicate a rate of electrical load growth which may not be sustained.

It appears that if the central Arizona project were to be developed, part of the object of such development is to reduce irrigation pumping, and under such circumstances the higher rates of load growth shown in Mr. Wingfield's report might not be experienced.

Furthermore, since the proposed project will only increase the agricultural economy by something less than 200,000 acres in comparison with a present development of approximately three times that amount, it is doubtful if the ultimate growths indicated, which are in excess of double the present level, would be realized, or at least whether they would be realized as soon as shown in the Wingfield report. In the event the central Arizona project is not built, and if Arizona makes the most advantageous use of its underground reservoir and local water supply, there undoubtedly would be some increase in pumping during the dry cycle to effectively use such reservoir, and some increases in power would be shown above present uses for such purposes. There would also be the same expansion in the agricultural economy but probably not sufficient to reach twice the present development as shown in the report.

It is my general conclusion that if Arizona were depended upon to take the total output from Bridge Canyon the taking of such energy would probably be postponed considerably beyond the point of first availability of such energy with consequent detriment to the economy of the project.

Another point of great interest to Arizona in a long-term contract is that although oil in Arizona is more expensive than in California, gas which is being transmitted from the Texas area is undoubtedly going to be cheaper than in California. I am not sure Arizona will want to purchase Colorado River power as against prospective gas availability and prices.

For final emphasis in this discussion of limitations on pay out, let it be repeated that the physical life of the project, predicated upon a reasonable operation of the project, due to effects of silt, is 50 years, and its financing and payment must be on that basis, and those responsible for its conception cannot contemplate revenues for 70 years that are not there. Under the terms of the bill H. R. 934 the long-term pay-out cannot be used, for in section 3 it says:

> *Provided*, That the repayment period for costs so allocated shall be such reasonable period of years, not to exceed the useful life of the project, as may be determined by the Secretary.

GENERAL ECONOMIC ASPECT

Under the financing indicated in Mr. Larson's memorandum, power assumes the burden of paying $387,043,000 to repay irrigation capital. This amount is 43.7 percent of all the money provided by power revenues and represents an extremely heavy loading, that jeopardizes the economy of the project. If the project were totally a power project made up of Bridge, Bluff, and coconino with transmission and energy available all as assumed in the Bureau of Reclamation report

the power rate for 50-year amortization would be 3.82 mills per kilowatt-hour for 2.5 percent interest and 3.56 mills per kilowatt-hour for 2 percent interest as compared with 4.65 mills recently evolved for the present project. In the project for power only, however, the Government would get the benefit of true interest which it does not get under the central Arizona project.

As a power project, however, our studies indicate that when adjustment is made for decreased power production due to taking a realistic practical view of coordinated operation and taking into account silting, the Bridge Canyon project is still not attractive economically. It is only when the Glen Canyon project is also brought into the picture with large reservoir capacity that the silt problem is largely solved, that aid can be given to upper basin States to solve their problem of reregulations to accomplish the 10-year average deliveries under article 3 (d) of the Colorado River compact, and that coordination of power plants can be reasonably accomplished without upsetting Hoover contracts. But even then, with the long transmission distances involved with correspondingly increased costs, there is not room for liberality in proving unduly heavy irrigation subsidies by power revenues. Most of such subsidies must be found in joint use of reservoirs, such as at Glen, and such general subsidy as the final figures may show as being practicable as the details are worked out.

Because of our interest in hydroelectric development along the Colorado River in order to conserve the national resources of oil to the extent of about 25,000,000 barrels annually, we desire that prospective projects be not loaded with inherently uneconomical irrigation. The central Arizona project does not qualify as economical irrigation. The following discussion should demonstrate that point.

On page 2 of the report the active irrigated acreage is given as 566,000 acres. The water received from this project will supplement the supply for this acreage and permit 73,500 acres of other land to be brought back to production. In the report this has been stated as the equivalent of saving 152,500 acres from going back to the desert and adding 73,500 acres making a total of 226,000 acres of total additional benefit.

The water duty of the land as given on page R–8 of the report is 3.4 acre-feet per acre on the upper Gila, including about 7 percent of the land and 4.0 acre-feet per acre on the main lower area constituting the remainder. On the basis of a maximum delivery of 749,000 acre-feet at the head gate, the equivalent acreage of full benefit is more nearly 749,000/3.96, or approximately 190,000 acres.

If the average water use for revenue purposes is taken as the measure of acres benefited, then we find from Mr. V. E. Larson's memorandum that the average annual amount sold over his assumed 70-year period is 667,730 acre-feet which at the average duty of 3.96 feet would irrigate 168,000 acres, and that particular duty of 3.96 feet represents the adjustment to take care of the upper Gila use of water and the remaining use of water in the remainder of the central Arizona system. That is, 168,000 acres seems to be the true measure of the benefit. From this you will readily observe that the irrigation capital allocation of $399,424,000 amounts to an investment of $2,380 per acre, which is to be compared with a normal value for such land, as stated in the Bureau of Reclamation report, with water on the land, of $300 per

acre. Thus the power users will be spending approximately eight times the ultimate value of the land to put water on it. (See pp. R–8 for water duty, R–10 for land values and R–42 for reliable water making such modification as is necessary for 70-year pay-out.)

By the processes proposed in this bill H. R. 934, investment amounting to $380,000 is made available to the owner of a 160-acre farm, without the necessity for him to pay back the investment or pay interest.

It is not the intent to take isue with the general principle of interest-free money for irrigation developments, nevertheless it should be the case that those called upon to reimburse such investments should not be called upon to finance such fantastically uneconomical projects to the extent that no benefits are left for the group destined to make the payments. Neither should the general public of the entire Nation be required to carry the generally unmentioned interest burden put on the Government by such projects. In general, such interest burden over the period of amortization is about equal to the original investment.

In the case of the Arizona project, according to testimony given by Mr. V. E. Larson of the Bureau of Reclamation, we find that the amount paid on capital investment by all sources of revenue is $9,547,-200 which is found by subtracting annual operation, maintenance and replacements from total revenues. When this amount is subtracted from the total annual cost of amortization the remaining cost to the Government is $10,144,400 annually or $710,108,000 for the 70 years of pay-out for the project.

This total amount is a Nation-wide subsidy to this project and when expressed in terms of per acre benefited is beyond all belief, that is $4,250, or $680,000 per 160 acre farm. The total cost of $10,144,000 to the Federal Government per year amounts to $60 per acre per year which is vastly more than the profits per acre per year, let alone the income tax that would be paid on such profits.

A normal irrigation project, such as the Salt River Water Users' Association in Arizona has an investment of $50,000,000 to supply 240,000 acres approximately or about $200 per acre. Values of this character are within reason. The ones I have pointed out are not.

In the case of the Arizona project the loading of irrigation on to both the power user and the Government is so heavy that every device possible has been used to try to accomplish its justification. Power outputs have been pushed too high, project life has been assumed too long, Glen Canyon, by implication, has been silently leaned on free of charge for silt control. Lake Havasu, the result of an investment by another public body, is used free of charge for diversion of water, Lake Mead and Hoover power-plant facilities have been imposed on without compensation or advantage to firm up the otherwise secondary energy of the Bridge Canyon plant, the project proposes to use water for which no clear title exists and the major payments are to be made by California interests whose water would be taken for this project after they had invested or obligated themselves for over one-half billion dollars for the things that make it possible for such water to come to California. This project is truly a parasitic one. If it is built, the tremendous costs, will stifle the development of other irrigation.

The Nation cannot afford to follow its exorbitant pattern for very long without calling a halt in self-defense. It makes splendid power projects unfeasible. The inclusion of the long canal and the pumping of water through an elevation of 985 feet for agricultural purposes and the free use of power capital for such purpose, with respect to future reclamation work in the West is indeed an example of "Killing the goose that laid the golden egg."

CONCLUSIONS

In conclusion, it is submitted for your earnest consideration that the bill, H. R. 934, under which the central Arizona project would be authorized, should either be not acted on or should be disapproved for the following reasons:

1. Due to the subsidies for irrigation, capital, amounting to nearly $400,000,000 or about eight times the ultimate value of the land benefited, power production is called upon to provide 78.5 percent of the total revenues and pay 96.9 percent of the irrigation capital and 95.8 percent of the total reimbursable capital, so the project is utterly dependent on electric power sales and revenues and fails if they are not realized.

2. In normal operation of the central Arizona project substantial use is made of all Hoover plant facilities, the costs of which have been guaranteed by present Hoover power allottees, to firm up Bridge Canyon energy and thus provide revenues to support uneconomical irrigation in Arizona.

3. Coordinate operation on the scale proposed cannot be conducted on the basis of present Hoover contracts and is not acceptable to the operating agents and no appropriate arrangements have been proposed under which such operations could be carried out.

4. The data provided to judge the results of integration and the estimates of the firm energy that can be produced by the project are based on a perfection of operation that is not realistic for a river with the highly variable and unpredictable flow characteristics of the Colorado River and exceed the energy determined by a parallel study of the department of water and power by over 1,000,000,000 kilowatt-hours per year for the initial conditions.

5. The encroachment on project reservoir capacity by silt seriously reduces continuously the amounts of firm energy obtainable from the integrated operation and will reduce the economic life to 50 years as no firm commercial energy will be available after that and deficiencies in pumping energy will be experienced.

6. With the tremendous subsidy burden and with the economic life shortened to 50 years and with the integrating operations conducted realistically with limited ability to forecast the availability of water for power purposes, revenues would be required from power at rates more than double the market value of competitive power sources and would thus render the power unsalable except at a loss of over $400,000,000 to the Government during the life of the project.

7. Although we in the western States are in agreement with the principle of providing interest-free capital for reasonable irrigation projects, the central Arizona project is not reasonable or economical

in its demands for capital subsidy by power or the Government subsidy in nonreimbursable capital and interest amounting to over $10,000,000 annually or $60 per acre benefited per year which vastly exceeds the profits to be made from the crops.

8. Because of its high subsidies of all kinds, and its free use of Lake Havasu, Lake Mead, and the Hoover plant, and because of an implied reliance without cost on other projects for silt control, and because it proposes to use water for which it has no clear title and because the major payments are to be made by the same California interests who have guaranteed or paid for works to bring such water to California, this central Arizona project is truly a parasitical project.

9. The most feasible next development of the Colorado River is one divested of the wholly uneconomic pump lift and long canal and inordinate use of investment-free power that are presently a part of the central Arizona project and which provides instead, a joint development of Glen and Bridge Canyon projects to acomplish over-all silt control, provide aid to the upper basin States to deliver their 10-year requirements to the lower basin States and obtain over-all coordinated power operation without unreasonable interference with Hoover contracts and have a self-supporting project that can give limited aid to irrigation and still pay out.

(The appendix submitted by Mr. Peterson is as follows:)

APPENDIX I. STATEMENT OF WILLIAM S. PETERSON

DETERMINATION OF THE TERMINATION OF AVAILABILITY OF FIRM COMMERCIAL ENERGY

Due to silting up of the reservoirs contemplated in the central Arizona project, there will ultimately come a time at which firm commercial energy will become either very small or disappear. On the basis that the project is self-contained and receives no other help than that afforded by its own structures, the following conditions pertain:

1. Length of availability of firm commercial energy

Rates of silting:	*Years to fill reservoir*
Bluff at 29,300 acre-feet per year (3,000,000÷29,300)	102
Coconino at 27,500 acre-feet per year (1,700,000÷27,500)	62
Bridge at 70,200[1] acre-feet per year (3,720,000÷70,200)	53

[1] This figure is with Bluff and Coconino in service. Without them, the time to fill Bridge Canyon reservoir would be 29 years.

Commercial firm power is that available over and above pumping requirements. Pumping requirements for Parker route-central Arizona project, as taken from table E–8, are as follows:

	Billion kilowatt-hours
First year	1.154
Fiftieth year	1.633
Average	1.393

In a study worked out by engineers of the department of water and power the firm energy of power generated at Bridge Canyon was 200,000,000 kilowatt-hours per month. This was the result of flow and storage conditions existing from water conditions given for the 8-month period for the months of August 1934 to March 1935, inclusive, covering the points of highest and lowest reservoir content. For this period the water inflow was 1,915,000 acre-feet augmented by 1,873,000 acre-feet from storage to give 3,788,000 acre-feet for power generation during the period.

The effects of depletion due to upper-basin development applicable for the period of 8 months' flow under consideration are as follows:

Months of critical flow	Acre-feet of flow for depletion conditions	
	1948	1998
August 1934	179,000	92,000
September	172,000	66,000
October	177,000	67,000
November	203,000	106,000
December	255,000	133,000
January 1935	302,000	302,000
February	322,000	322,000
March	397,000	397,000
	2,007,000	1,489,000

Change in 50 years, 518,000 acre-feet; rate of change, 10,360 acre-feet per year for the 8-month period involved.

As Bluff has a relatively long life, examination of power study indicated that it might make contributions ranging from very little but generally of 500,000 to 1,000,000 acre-feet of stored water during such period, limited not by its capacity but by the water available in the stream.

For this study, an intermediate value of availability of stored water from Bluff was assumed as 700,000 acre-feet.

For Bridge Canyon reservoir, capacity was decreasing at the rate of 70,200 acre-feet per year average.

Using such data and making trial figures, it is found that at 40 years the reservoir capacity and minimum river flow will be such that the firm power output is influenced by lack of storage capacity to augment the otherwise low flow. From this time on, the firm power decreases. The data are as follows:

	Acre-feet
Bridge storage (3,720,000—40×70,200)	912,000
Assumed storage at Bluff	700,000
Water flow (1,915,000—40×10,360)	1,500,000
Total water	3,112,000

For average head available (kilowatt-hour per acre-foot=513):	*Kilowatt-hours*
Output for 8 months	1,597,000,000
Average per month (approximately)	200,000,000

By the time 50 years is reached, the reservoir capacity has decreased to the point where the firm output is approximately equal to the pumping requirements. The data are as follows:

	Acre-feet
Bridge storage (3,720,000—50×70,200)	210,000
Assumed storage at Bluff	700,000
Water flow (1,915,000—50×10,360)	1,397,000
Total water	2,307,000

	Kilowatt-hours
Total energy for 8 months (kilowatt-hours per acre-foot=532)	1,225,000,000
Average per month	153,000,000

This is very close to the amount of energy needed for pumping and will be regarded as the end of firm energy for commercial sale, particularly as a heavy influence on the amount of power available is help from Bluff Reservoir and the assumption of 700,000 acre-feet of stored water available there, for low water is very liberal.

It has thus been determined that the firm-power value of 200,000,000 kilowatt-hours per month will be subject to reduction after 40 years and all commercial firm power will be eliminated after about 50 years, or perhaps sooner.

2. Total commercial firm energy at Bridge Canyon

On basis of preceding data, commercial firm energy at Bridge Canyon is given by:

	Billion kilowatt-hours
40×12×200,000,000 kilowatt-hours equals	96.0
Plus average of tapering down to pumping requirements:	
10 (12×200,000,000+1,633,000,000) ½=10×$\frac{2.4+1.6}{2}$ billion equals	20.0
Total firm energy in 50 years	116.0
Less pumping (50×1.393 billion)	69.7
Remainder (commercial firm energy)	46.3

3. Other firm energy credited to Bridge Canyon

Studies by engineers of the Department of Water and Power indicated that as a result of transferring 3,000,000 acre-feet of flood control to the Bridge, Coconino, and Bluff Reservoirs there was obtained another 1.5 billion kilowatt-hours generated at Hoover but creditable to Bridge Canyon. (This is not intended to convey the idea that such generation is the result of a legal right to be granted without valuable consideration.) In a fifty-year period the storage at Bridge will be negligible. However, about half of Bluff storage on the San Juan River will be useful. The San Juan River contributes only 13 percent of the total run-off at Lee Ferry. Since the timing of floods on various tributaries of a stream is not identical, the beneficial flood-control effect of this dam is still further reduced to, say, 0.7 × 13 percent or, say, 9 percent of the flood control that was originally transferred.

The flood control at Bridge would maintain its original value for the period required to fill the dead storage, which is: 1,070,000÷70,200=15 years.

The firm energy creditable to Bridge Canyon as a result of shifting and reshifting flood control is calculated as follows:

	Billion kilowatt-hours
15 × 1.5 billion equals	22.5
35 ÷ 2 × (1.5 + .09 × 1.5) billion equals	28.6
Total	51.1

The total firm commercial energy available for the fifty-year period is the above plus that previously determined for Bridge Canyon. These amounts are:

	Billion kilowatt-hours
Bridge Canyon	46.3
Flood-control effects at Hoover	51.1

The total firm energy available, including the amount of 69.7 billion kilowatt-hours used for pumping, is 167.1 billion kilowatt-hours.

4. Bridge secondary energy

Average Colorado River run-off conditions prevailed in the 1938–39 contract year. From the department of water and power study for coordinated four-plant operation, the total generation creditable to Bridge, including effects of flood-control shift, was calculated to be 5.433 billion kilowatt-hours, which is a reasonable value for initial conditions under average water conditions. With average water conditions but with depletions considered as of 1998, the annual total generation creditable to Bridge for coordinated operation was calculated similarly to be 4.706 billion kilowatt-hours.

Assuming that the depletions increase uniformly from initial to 1998 conditions, then the total generation is as follows:

	Billion kilowatt-hours
5.433 + 4.706 + 2 = 50 equals	253.5
Less firm energy	167.1
Secondary energy available	86.4

5. Assumed value of secondary energy

Although it is difficult to forecast the true value of secondary or fuel-replacement energy over a 50-year period, it will be assumed to be 2 mills at the load center corresponding to an oil price of about $1.30 per barrel and a fuel economy of 650 kilowatt-hours per barrel. The total value at load center of such energy is then determined to be: .93 × 86.4 billion ÷ 50 × $0.002 = $3,213,000 per year.

6. Required rate for firm energy

(See table 5–8, p. 138, of Views and Recommendations of State of California on Central Arizona Project (Project Planning Report No. 3–8b, 4–2). Table is applicable to 50-year project life.)

	Assumed interest rate on commercial power investment		
	3 percent	2½ percent	2 percent
Average annual costs	$24,209,400	$23,329,500	[illegible]
Average annual water revenue	3,284,300	3,284,300	[illegible]
Average annual costs to be borne by commercial power	20,925,100	20,045,200	[illegible]
Average annual revenue from secondary energy	3,213,000	3,213,000	[illegible]
Required average annual revenue from firm commercial power	17,712,100	16,832,200	[illegible]

The average annual Bridge commercial firm energy delivered to load center assuming a 7 percent loss is:

$$0.93\frac{97.4}{50}\text{billion kilowatt-hours}=1.812\text{ billion kilowatt-hours.}$$

To this must be added that energy derived from Arizona plants within the project amounting at the load center to 63,240,000 kilowatt-hours. The resulting total is 1.875 billion kilowatt-hours.

With this availability of energy and the required revenues as given above, the rates per firm energy have to be as follows:

	Interest rates		
	3 percent	2½ percent	2 percent
Required average revenue from firm commercial energy	$17,712,100	$16,832,200	$15,993,700
Rate per kilowatt-hour	9.45	8.98	8.53

These figures are substantialy higher than power can be marketed for in load centers in competition with other power sources.

Mr. PETERSON. That completes my formal statement.

Mr. MURDOCK. Mr. Peterson, you and I agree that we ought to have a dam built at Bridge Canyon and at Glen Canyon.

Mr. PETERSON. That is correct.

Mr. MURDOCK. As I said before, your paper is highly technical and I will have to read it several times before I can ask intelligent questions. I think there are engineers from the Bureau who will probably have something to say by way of rebuttal.

Mr. Welch.

Mr. WELCH. Mr. Peterson, in your judgment, if new irrigation and reclamation projects were to cease right now, how long would the water allocated to the lower basin States last for domestic and industrial uses, based on the enormous increase in population in that section of the country?

Mr. PETERSON. If all irrigation projects should stop?

Mr. WELCH. New projects.

Mr. PETERSON. On new projects?

Mr. WELCH. Yes.

Mr. PETERSON. We would then face the situation that the upper basin States, who have just completed their compact arrangements, would have been stopped also. I am not sure you meant that in your question, and I will go ahead and reach the other conclusion. They are presently discharging unused 5,000,000 acre-feet or so of water which it is their own right to have and use as soon as projects can be developed.

Now, coming to the lower basin, and not trying to indicate the use of upper basin water, which is their rightful water——

Mr. WELCH. They can only use that which is allocated?

Mr. PETERSON. Yes; that which is allocated. We are to the point now in our estimation where Arizona has used up its share of water and that the remaining water will be barely adequate to take care of the things that California has contracted for and which are a part of their priority agreement, which the Secretary demanded that California draw up in advance of the Boulder Canyon project and the contracts, and the amount of water involved is 5,362,000 acre-feet. To my best knowledge, part of that water is found, under the same reasoning that Arizona will receive some water and has some rights to it on the same equal basis, namely, one-half of the—I cannot give the exact words—unappropriated balance of surplus water, that condition which the legal representatives have been telling us about.

Essentially now, in summing up, there is very little, if any, water left for any developments beyond those contracted for in the lower basin.

Mr. POULSON. You mean for irrigation?

Mr. PETERSON. For irrigation or domestic water supply, either.

Mr. POULSON. Yes, but the power dams have nothing to do with that.

Mr. PETERSON. The power dams are not regarded as consumptive use of water.

Mr. WELCH. Do you believe that water for domestic and industrial purposes should be given priority?

Mr. PETERSON. In water use, I am not sure of the law on this. I regard domestic use as having a very high priority in the general case, but in California's set-up it does not have that. Due to the long appropriation and use by the Imperial Valley and other irrigation interests, their priority out-ranks Metropolitan Water District priority. So, I presume irrigation is the high use.

Mr. WELCH. Maybe I did not make myself understood. If I did, you are not answering my question in the direct manner in which I would like to have it answered. I asked you if waters allocated to domestic and industrial uses should not have priority over other purposes, over irrigation and other uses?

Mr. PETERSON. The problem is one I would rather have the attorneys answer. I can merely draw my information from the actual priorities that California has agreed to. They have agreed that the agricultural use is ahead of the other, but there is the point of time of use that has been involved.

They have established their rights to that. That is why that priority was arranged. I do not think we can upset that priority.

Mr. WELCH. If you are reaching the limit of the water supply of the Colorado River, and there is no question but it will be reached in due course of time by reason of the enormous increase in population in that section of the country, it resolves itself down to the question as to which use should get priority, domestic and industrial users or irrigation. If you had to decide, which would you decide?

Mr. PETERSON. If I had to decide, I would like to accommodate the millions of people that are coming into that area and give them a domestic water supply there, and I am interested in it from the viewpoint of my being connected with the group that is supplying that kind of water to people, but there are legal complications. We would have to buy the rights we need over and above those that we have spoken of as being priorities granted to the Metropolitan Water District.

I would like to have domestic water first, but I do not think I could settle the problem.

Mr. WELCH. That is not exactly the answer I expected. If you were out on the trail, which I take it you have been, and as I have been in the past, and you met a stricken man, even though he might not be very friendly toward you, you would give him a swig out of your canteen, would you not?

Mr. PETERSON. I surely would.

Mr. WELCH. But that does not mean you would spread the water out of your canteen on a prairie flower. However, you would give it to a human being.

Mr. PETERSON. I agree with you. From my viewpoint I would like to hold the domestic water supply higher in regard than the agricultural use.

Mr. WELCH. Should it not have a higher priority?

Mr. PETERSON. If I were in a position to grant priority, I would say "Yes."

Mr. POULSON. Will the gentlemen yield?

Mr. WELCH. Yes.

Mr. POULSON. As I understood you to say, your personal preference would be with the domestic and industrial use that is tied in, that it should have the preference, but the laws of the State are such that it is not that way?

Mr. PETERSON. The laws and agreements between these water people are not in agreement with that, and I do not advocate breaking those agreements.

Mr. MURDOCK. Judge Bosone, do you have any questions?

Mrs. BOSONE. No, thank you.

Mr. MURDOCK. Do you have any questions, Governor Miles?

Mr. MILES. No, Mr. Chairman.

Mr. MURDOCK. Do you have any questions, Mr. Poulson?

Mr. POULSON. Yes, Mr. Chairman.

Mr. MURDOCK. Mr. Poulson.

Mr. POULSON. Now, summarizing what you have brought out, it is this, is it not, that their plan was to have this Bridge Canyon dam along with the other four dams on a coordinated basis, is that right?

Mr. PETERSON. Yes.

Mr. POULSON. And first of all that the power from Bridge Canyon dam was to pay for this project?

Mr. PETERSON. Yes.

Mr. POULSON. But you maintain that the power that they could get from that dam, because of its location, will not produce it?

Mr. PETERSON. That is right.

Mr. POULSON. In other words, you contend that in order to have a fully coordinated plan the dam at the top should have a large reservoir so that it would control the water and regulate the water that goes through the following dams in order to have constant flow, and to have an average supply of power?

Mr. PETERSON. That is the most advantageous way of handling the problem and the more economical.

Mr. POULSON. But as it is today the Bridge Canyon dam is up against this fact, that the flow of the Colorado River is very erratic and, in fact, that is shown on the basis of the records, and with the average flow of the river going through there, not having a reservoir to control it, the power supply would be there at certain times of the year, and there would be other times when they would not be able to deliver very much power?

Mr. PETERSON. Yes, sir; that is correct.

Mr. POULSON. Because of the fact that we do not have any reservoir up above there to correct or regulate the flow?

Mr. PETERSON. That is correct.

Mr. POULSON. It will be silted, and the reservoir capacity then will be diminished because of the fact that the silt is gathered above?

Mr. PETERSON. That is correct.

Mr. POULSON. And for that reason you claim that they would have to rely upon using some of the power from the Hoover Dam, the Parker Dam, and the Davis Dam below, and that, in turn, would cause other contractors for power to carry a part of the load of this Bridge Canyon dam and part of the load of financing the Arizona project?

Mr. PETERSON. Yes, largely what you have said is true. I want to make one little adjustment in your statement.

These other projects by the way that you outlined them are, in truth, adding to the power output from that river and the system of four plants. The revenues for this increased energy are all credited in this case to the Bridge Canyon project. This gives only the normal revenues to these others. That is the correction I wanted to make.

Mr. POULSON. In other words, they would have to depend on these three dams?

Mr. PETERSON. They would have to depend physically on those lower projects to integrate them.

Mr. POULSON. But the most practical set-up is that there must be the joint development of both the Glen Canyon and the Bridge Canyon projects?

Mr. PETERSON. That is correct.

Mr. POULSON. And, of course, the engineering data and the costs have not been turned in on the Glen Canyon project.

Mr. PETERSON. I would say that, that as long ago as 1946 the Department of Water and Power made up some very preliminary figures on that problem to determine which was the most feasible project to start

with. Should you start with Glen Canyon, or start with the Bridge Canyon project, or a combination of the two? The situation that we found is that you should start with Bridge Canyon together, and coincidental with Glen Canyon's storage, and then as time goes on bring in the Glen Canyon powerhouse. That theory and discussion was made the subject of a letter, I believe, in July of 1946 to Commissioner Straus.

I believe that it has served to intensify the interest of the Bureau of Reclamation and give the Glen Canyon project backing so that, at least, it is being worked on and it is prospective. My interest in having them both was to get storage there, just as you have outlined in your question. It makes for considerably improved firm power production at Bridge Canyon, and it lays the ground work for a normal development to take care of growth by putting in the second powerhouse, and it provides long-term silt control in one project, so that it is understood exactly what the elements of the silt control are and who is getting the benefits of it, and so forth, in addition to the other things that I have mentioned in my presentation.

Mr. POULSON. Is it not true that the engineering report from the Department itself is to the effect that it looks like the Bridge Canyon Dam would silt up in about 50 years?

Mr. PETERSON. The figures I used for silting are taken from the Bureau of Reclamation's material.

Mr. POULSON. If that dam silts up in 50 years, is there going to be enough additional power revenue which can be had from the other dams to finish paying out the balance of those 20 years?

Mr. PETERSON. No. The other dams below could not possibly pay that out. They have their own obligations to take care of. What will finally happen is this: if we get hungry for power, as we undoubtedly will, I have no doubt that Glen Canyon will be built ultimately—how soon I do not know—but what I am afraid of is this, that if you have this project and it is not a success, and then we come to Congress and say "Oh, well, now, if you will let us build Glen Canyon, we can make this pay." I am afraid Congress will have lost patience with us. I want a unified total project with a good report on the whole river system, so that when Congress acts they will know they have a reliable presentation and one whose success can be guaranteed and not one that starts with a project which is not going to be a success and then find we have to fix it some way and pad it up with various propositions. I am afraid that won't work.

Mr. POULSON. Even knowing now, as we are being informed, that the Bridge Canyon Dam will only last 50 years and it would take Glen Canyon project above to make this really work out, would not Congress, knowing those facts, be certainly in error in authorizing a project which we know will not work out unless we add on the Glen Canyon project?

Mr. PETERSON. I think so; yes.

Mr. POULSON. In other words, it should be a complete one to start with?

Mr. PETERSON. Correct.

Mr. MILES. Mr. Chairman, may I ask are they advocating that Glen Canyon Dam be added to the central Arizona project?

Mr. PETERSON. The statement I made, Congressman, was that if the central Arizona project were divested of this pump lift, the long canal of two hundred and thirty-odd miles, and the pumping plant, of course, that goes with it, and the use of one-third of the energy for pumping water they have to put into the irrigation allocation—if the project were divested of that but had its local projects for certain auxiliary development and if Arizona would make proper use of its underground reservoirs—the type of thing that was presented by Mr. Conkling to the Senate committee on this same project a few weeks ago—and then if you had these power projects to perform as a part of the comprehensive river system below, I think yes; it could go through. But, as you see, I have divested the central Arizona project of a very considerable amount of its investment that constitutes the present $738,000,000; also I have definitely, as I hope even Arizona has, relegated to a point of no consideration the long tunnel that has been placed in the bill to take water from in back of Bridge Canyon Dam and transmit it to, I think, the same waterway that they use for the Havasu pumping canal, except there is about 70 miles of waterway, more or less, from the tunnel to reach the other channel, and also that you sacrifice, I think, 49 miles of waterway to the west after you have done that. I did not consider that project. That would add, according to the figures my engineers have compiled, about $550,000,000 or $600,000,000 to the project. I am assuming that is not done.

However, I am a little bit alarmed at whether that is a true assumption, because, despite the fact that the bill provides this pumping plant be built first and maybe the other will be built when it is economical to, I notice by a letter which the chairman put into our record yesterday that that letter pertained to the fact that the bill does conain the tunnel and, as a result of some mention, evidently, to the Federal Power Commission about that tunnel, they have stated that that permits the project to be connected; that is, the Bridge Canyon project to be part of this project. I say that alarms me. I do not know whether the purpose of such action was to try to say "Well, the Federal Power Commission report was of no avail." Actually the Federal Power Commission reported on the Secretary of the Interior's report and not on the old bill in the last Congress, and now they evidently have been informed that this bill has some provision for a tunnel and they would no longer say Bridge Canyon was not connected.

I think their report is still applicable to the bill as people of Arizona really intend to use it. I think it is a pumping project as Arizona proposes it, but the Federal Power Commission reported on the pumping project. I do not understand the submission of the letter that came in yesterday. If it is to include the long tunnel, I would object to their not trying to put the project on an economical basis.

Mr. POULSON. In this Glen Canyon project, would there be a large reservoir capacity?

Mr. PETERSON. The Glen Canyon Reservoir has had several different capacities under consideration. The smallest has been 8,600,000 acre-feet; the largest that I have heard spoken of in official reports by the Bureau of Reclamation is something over 30,000,000 acre-feet—another one equal to Boulder Canyon. In general, but not with enough figures to conclusively say so, I think we should build just as large a reservoir as is physically available to be built, because the long-

term life of all the lower projects is dependent on the silt control we can get.

Mr. POULSON. It would also be beneficial in this way, that the larger reservoir capacity would mean the upper basin could store up water in there for delivery to the lower basin which, in turn, would mean the upper basin could have the use of a greater amount of water. Is not that right?

Mr. PETERSON. That is correct; the reregulation storage afforded by this project, I think, is distinctly helpful to the total amount of water the upper basin can take out.

Mr. MURDOCK. Are there any further questions?

Mr. WELCH. Mr. Peterson, you estimated the life of a number of reservoirs due to silting. Have estimates been made as to the life of Lake Mead due to silting?

Mr. PETERSON. If Lake Mead is estimated on the basis of no other projects above it, as it now stands, the estimate is found by taking the approximately 32,000,000 acre-feet and dividing it by a number which I remember as being 137,000 or 139,000. I will not do the arithmetic, but I will say that is something in the vicinity of 225 years or maybe more, but it is of that order.

Mr. WELCH. Silt is relieved by projects farther up?

Mr. PETERSON. No; that is the total quantity of silt that is coming down now, but the reservoir is so tremendously large that it takes a long time to fill it up. That reservoir is nine times as large as Bridge Canyon, and if you get to figuring there is other water besides that intercepted by Bridge Canyon. the figure is a long, long time, simply because the reservoir is big. Bridge Canyon silts up quickly because the reservoir is small.

Mr. WELCH. How many reservoirs are proposed up the river from Mead? I know there are none in the bill.

Mr. PETERSON. I cannot answer that completely, but as you come up the river, there are Parker, Davis, and Hoover. The next one above Hoover is Bridge; the next feasible one above Bridge is Glen Canyon. That puts you up to the Utah border. Beyond that, the Bureau of Reclamation have mentioned innumerable projects on the upper basin rivers and on the main river, and Dark Canyon is one of them. But if Glen Canyon is made as large as we have talked of, the Dark Canyon one would probably be submerged, and we would go higher.

I cannot give you this accurately, but the Bureau of Reclamation, in its complete report on the river, has cited the individual projects. There is a record of them, and some of them will be built to satisfy the upper basin's need for irrigation.

Mr. WELCH. I did not expect the exact figure, but approximately.

Mr. PETERSON. It may be you had in mind those protecting against the silt. Many of those are on the upper branches of the river. As you may recall from your own experience, many of the rivers like the Green run pretty clear; they are not heavily loaded with silt.

Mr. WELCH. If and when they are built, would they not afford certain protection to Lake Mead from silt?

Mr. PETERSON. Every reservoir built on the system will afford some measure of protection to all of the reservoirs below it. Of course, that includes Lake Mead.

Mr. WELCH. I mean from silting up.

Mr. PETERSON. Yes, sir.

Mr. WELCH. Mr. Chairman, it is 20 years since I went over this territory, and I am due for another visit there. If the Lord is kind to me, I am going down there when we adjourn.

Mr. MURDOCK. I hope you do, and I would like to go along with you.

Mr. POULSON. If my colleague goes, I want to go along.

Mr. MURDOCK. I have one or two questions, Mr. Peterson. I was impressed by the question Mr. Welch asked you first, which he did not expect you to decide on legal grounds but on human grounds, that is, what is the highest use of water. I believe you said if you could have your way about it, it would be for human consumption.

Mr. PETERSON. Yes.

Mr. MURDOCK. Rather than for irrigation.

Mr. PETERSON. Yes.

Mr. MURDOCK. I want to agree with you on that. I find you and I are in agreement on a point or two, and I certainly do agree with you on that.

But this is the point I wanted to raise with you. You said something like this: "It is not up to me to decide; there are certain agencies who have legal claims, and the irrigator has a prior claim over the fellow who drinks water" or something like that.

Mr. PETERSON. Yes. I was referring to the California system of priorities that was contracted upon and agreed to by her various agencies at the time Boulder Dam project was passed.

Mr. MURDOCK. There were seven of those. Two of them would be the Imperial irrigation district for the men who irrigate——

Mr. PETERSON. That is right.

Mr. MURDOCK. And the other would be the city of Los Angeles for domestic use, as samples. They are two that contrast, are they not?

Mr. PETERSON. The city of Los Angeles is in this position, that we had a very ancient right to water for domestic purposes in the Los Angeles River, and then, as you well know, we built the Los Angeles-Owens Valley aqueduct, and that has served us; so that with the water from the river and the water from pumping and the water from the aqueduct, it is only within the last year or two that we have reached a population for which that combination is a satisfactory source and which just about supplies the requirements. From now on, as we grow, practically all of the growth has to be taken on the metropolitan water district aqueduct water from the Colorado River.

Mr. MURDOCK. I can see that, but my question was that is the thing you are confronted with, is it not?

Mr. PETERSON. Yes.

Mr. MURDOCK. You feel that human consumption ought to rate high, and you and I and Congressman Welch would so rate it, but there is a legal difficulty in the way.

I wonder if you would mind expressing yourself on this: Supposing there is a contract between two of those agencies, one using water for irrigating land and another using water for human consumption as to which there is an agreement or contract and, on the other hand, there is an agreement between the sovereign State of California and the

United States of America, which of those would you say ought to receive the higher consideration?

Mr. PETERSON. You are considering that we have a contractual relationship either between the United States Government and States, or between States, or within a State amongst groups?

Mr. MURDOCK. Yes.

Mr. PETERSON. Now, did you say which of those two contracts should have the higher consideration?

Mr. MURDOCK. Yes—if they conflict.

Mr. PETERSON. I do not think I am competent to answer that one. I am not trying to dodge the question, but it is a legal question.

Now, let me give you an example of this higher-use business. I have cited the Los Angeles-Owens River aqueduct. There is a case where the city, in order to provide domestic water, made an actual purchase of land and water rights to satisfy its domestic use. It did not take the water away, so to speak, because it had a high priority right or exercised any such right as that; it purchased it outright and developed it.

Mr. MURDOCK. I am sure of that. We had testimony before this committee last year to a considerable extent on that.

Mr. WELCH. I was about to say I have created enemies in the past and expect to create more in the future by giving preference to human values over material values.

Mr. MURDOCK. I have noticed that, Mr. Welch, and honor you more because of it.

Mr. PETERSON. I would like to volunteer a little statement on the point you have made.

Mr. MURDOCK. And I want to tell my friend here (Mr. Welch) that I highly respect him because of his attitude on that very matter.

Mr. PETERSON. What I was wondering about is this: If we were to take those domestic rights of high priority, which would be illustrated by the Metropolitan water district, and the agricultural rights would be the lesser priority, which is the type you are seeking in this condition, I have found a good argument for our contentions.

Mr. MURDOCK. I do not believe my bill jeopardizes your city's water supply at all when the true relationships are understood. Arizona does not ask for water belonging to Los Angeles. The fact that the quantity is the same may be made very confusing. But it is not the same water and there is ample water in the river for both.

If there are no further questions, we thank you kindly.

The next witness is Mr. C. C. Elder, hydrographic engineer, Metropolitan water district of southern California.

STATEMENT OF CLAY C. ELDER, HYDROGRAPHIC ENGINEER, METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Mr. ELDER. My name is Clay C. Elder, a registered civil engineer of California, holding an engineering degree from the University of Utah, and Utah is still my home in many respects, whenever I can get there from Washington hearings.

Mr. POULSON. I hope the judge heard that.

Mrs. BOSONE. Mr. Chairman, he should make an excellent witness.

Mr. MURDOCK. I think he will.

Mr. ELDER. Thank you.

Because some of my engineering conclusions here will be at variance with other earlier witnesses, I have given my engineering experience in some detail.

My engineering experience, in summary, includes irrigation construction and operation work, also highway construction work, in Utah and southern Idaho, followed by 2 years in France and Germany with a combat specialist regiment of the United States Army engineers during the First World War. I next spent 7 years as an engineer with the United States Bureau of Reclamation, on the American Falls Dam and other large projects in Idaho, in the Jackson Hole region of Wyoming, and at the Denver, Colo., officer of the Bureau. There I worked as chief assistant to Mr. E. B. Debler, a previous witness here, on hydrographic and power studies for Hoover (Boulder) Dam. I was later assigned to ground water and other investigations in the Pecos and the Rio Grande Basins of New Mexico. Much of my earlier work in Idaho and Wyoming had also involved ground-water studies, as has my subsequent work in southern California.

Resigning from the Bureau, I went to Mexico for about 2 years as chief water-supply engineer with its National Reclamation Commission, helping to investigate and plan irrigation projects in Chihuahua and Sonora in northern Mexico; also to prepare and review water supply reports in the Mexico City office of the Commission.

Returning to the United States in 1929, I have since served continuously for more than 20 years as an engineer on the staff of the Metropolitan water district of southern California, aiding in preliminary investigations and project planning, then on construction and operation of the Colorado River aqueduct to the coastal sections of southern California. During this period I have attended, as a technical adviser, practically all of the very numerous Colorado River Basin interstate water conferences, beginning with one of several weeks' duration in Washington, D. C., in May and June of 1929. This work has taken me to every Colorado River gaging station and to practically every project in the Colorado River Basin, present or proposed.

With special reference to Arizona, one entire summer was spent in the State 35 years ago and I have ever since been returning to Arizona frequently, either on engineering work or for vacations. During the last 2 years in particular, I have made detailed inspections and thorough studies of the central Arizona project for the Colorado River board of California, in association with various other engineers. My particular interest in the project relates to its important and complex ground-water problems. It is my conclusion, in brief, that these have not, as yet at least, been adequately investigated and considered in connection with planning the central Arizona project. It is my further conclusion and firm belief, based on such tentative and preliminary reports and data as are now available, that if the proposals of H. R. 934 and the Bureau of Reclamation report on the central Arizona project are carried out unchanged, serious or even prohibitive losses and waste of local water supplies which are now occurring will con-

tinue to occur, and will increase with further damage to the lower portions of the project area.

In order to conserve the time of this committee, Mr. Chairman, it is requested that a detailed supporting statement relating exclusively to the ground-water problems of the project as I will summarize them, and prepared by consulting engineer Harold Conkling (in association with myself and others of our engineers) be inserted in the record to follow my own statement. Mr. Conkling is one of our most experienced and best-known ground-water experts. For many years he was in charge of project investigations in the Denver office of the United States Bureau of Reclamation and for some years Mr. E. B. Debler served as his assistant. Until recently retired Mr. Conkling was long in charge of our division of water rights in the California State engineer's office. We offer the benefit of his experience and suggestions in the hope that these will receive more thoughtful consideration than is usually the case with such unsolicited advice.

Mr. MURDOCK. Without objection, the supplemental statement referred to will follow Mr. Elder's oral statement.

Mr. ELDER. Continuing then with the discussion relating to the project ground-water problems (and referring to the Conkling statement for supporting details) it is considered evident that the existence of the very large ground-water basin beneath the central Arizona valleys has been largely ignored by the Bureau of Reclamation in planning the "rescue" project as now proposed. This refers particularly to the total absence in the bill H. R. 934 and the Bureau report of any provision for using or spreading or otherwise causing the percolation of reservoir flood spills and the resulting conservation in the ground-water basin.

Beneath the central Arizona project and within a certainly economic pump lift of, say, 200 feet and not over 150 feet long-time average, there is a ground-water reservoir still nearly filled with water in spite of years of drought and pumping. Its capacity is at least 45,000,000 acre-feet, or 50 percent greater than the total capacity created by Hoover Dam at Lake Mead. It is more than 10 times the capacity of all the numerous great central Arizona surface reservoirs combined, including those now proposed as well as all reservoirs now in operation. This ground-water basin capacity is ample to conserve and regulate all flood spills and wastes of wet years until needed in subsequent dry periods. The proposed "rescue" project involves a pump lift for Colorado River water of 985 feet, which proponent's witnesses and the Bureau seem to consider an economically feasible pump lift for general irrigation. (Of course, this can only be true if the farmer is subsidized by free power.) But within a 200-foot pump lift (and many wells have been drilled to far more than this depth and some even to 1,000 feet), the water in the project ground-water basin is, as I have said, more than 50 percent greater than that of Lake Mead. Below ground, the reservoirs are safe from evaporation losses and silt encroachment, other losses and escape of water being largely preventable by regulated pumping and the destruction of natural, nonbeneficial vegetation.

As elsewhere in the Southwest, stream run-off into central Arizona from the 50,000-square-mile watershed of the Gila-Salt-Verde River

system and tributaries has shown widely varying cycles of excess and deficiency. For example, the run-off of the Salt and Verde Rivers in the period since 1897 has averaged about 1,500,000 acre-feet annually, but the average for the period 1905–20 was 48 percent above this long-time average and the average for the period since 1921 has been about 16 percent below the long-time average. Although there has been a long-continued drought since 1921, it is as certain as anything can be that long, wet cycles will occur again. Annual flows have varied from one-quarter of, to about 4 times the long-time average. Available reports and records supporting the following conclusion include those of the United States Geological Survey, Bureau of Reclamation, United States Army engineers, and local districts. It is concluded (subject to the results of continued Federal investigations) that out of the erratic, wet-year wastes and spills that would occur, even with present developments plus proposed local reservoirs, an average of at least 400,000 acre-feet per year can be conserved, economically and feasibly. This 400,000 acre-feet of new water will go a long way toward meeting the needs of the "rescue" project.

In addition to flood wastes escaping out of the project area (unless conserved by underground storage as suggested) there are at present very large water losses due to transpiration and evaporation from swampy areas overgrown with water-loving native vegetation (phreatophytes, in technical jargon). The area of these swamps, approximated from Army air photos, is at least 48,000 acres. It may seem surprising that in such a desert region as central Arizona there is now, after years of drought, an area of nearly 50,000 acres of swamp, but this is an established, well-known and readily observed fact. And the swamp area has been and is progressively increasing. The consumption of water by this swamp's vegetation and evaporation was estimated to be as much as 350,000 acre-feet per year by Mr. W. W. Lane, a previous Arizona witness. Mr. Lane estimated that it is possible to salvage at least one-half or 175,000 acre-feet per year. Mr. Conkling has more conservatively computed the swamp area loss to be not less than 270,000 acre-feet and the possible salvage to be from a minimum of 100,000 acre-feet to as high as 200,000 acre-feet per year. I concur in Mr. Conkling's estimates. Conservation of such transpiration and evaporation losses, based on experience in other similar areas, can be accomplished by lowering of the ground-water level in the area, first by river channelization work, and second but more important over a long period, by intensive pumpage to intercept the ground water flowing in the swamp areas. Salinity control will require the rejection of part of such pumpage, particularly from the lower project areas, and the release of that part past Gillespie Dam for an indeterminate period of possibly several years. Much of it, however, will be at once of satisfactory quality for irrigation in areas of water shortage to the north of the Gila and Salt Rivers. Rapid improvement of water quality will occur merely as a result of the elimination of the present heavy growth of vegetation (salt cedar or tamarisk, mesquite, willows, cottonwoods, etc.).

This last statement follows from the fact that all vegetation, even salt cedar, consumes and transpires only pure water (evaporated "distilled" vapor in fact), leaving the salt contents of the water to

increase the salt concentration in the soil or remaining ground water. As this fact has assumed the appearance of a mystery on previous occasions an arithmetical example seems to be required. Numerous previous Arizona witnesses have stated that at times the water escaping past Gillespie Dam equals or approaches 4,000 parts per million (5.5 tons per acre-foot) of dissolved salts. Let it be assumed that in a given year 100,000 acre-feet of water of this concentration of salinity leaves the project area and passes Gillespie Dam either by seepage and channel flow or by pumpage for irrigation and in the same period 300,000 acre-feet of transpiration and evaporation loss occurs in the phreatophytic area. If then by lowering of the water level, channelization, chemical applications, mechanical removal of tree growth, etc., the phreatophyte water loss is reduced by 200,000 acre-feet annually, the available supply for irrigation is increased by the same 200,000 acre-feet, namely, to a total of 300,000 acre-feet annually. As a result, since the 300,000 acre-feet would contain only the salt previously carried by the 100,000 acre-feet of outflows as soon as conditions became stabilized, the concentration of salt would be reduced to only one-third of the present amount, or 1,333 parts per million, instead of 4,000 parts per million. Technically, the salinity of the increased water supply is obviously given by the equation 100,000 acre-feet (4,000 p. p. m.) plus 300,000 acre-feet (0. p. p. m.) equals 100,000 acre-feet (0 p. p. m.) plus 300,000 acre-feet (X p. p. m.) so that X=1,333 parts per million. Such complete improvement would necessarily involve a period of some years of controlled operations because the present saline content of the ground water just above Gillespie Dam has gradually become so bad. But a water supply of usable, satisfactory quality should be attainable even here after only a relatively few years of effective control.

Reference was previously made to the even more important objective, over a long cycle of years, of the salvage and underground conservation of flood wastes and spills. On a long-time view, this is perhaps less immediately valuable for "rescue" operations in the midst of a long drought, which it is hoped (as now appears probable) ended last year. As an outline or preliminary schedule of proposals, requiring further data and investigations for finality, this effort at salvage of the flood spills can in part be accomplished by construction of the Buttes and McDowell Reservoirs as proposed by the Bureau of Reclamation, but with the latter reservoir operated primarily for conservation. In addition, canals of enlarged capacity for diversion of reservoir storage, and of floodwater when available should be constructed from above Granite Reef Dam with tentative capacities of 3,000 second-feet for the north-side canal flowing westerly and 1,100 second-feet for the south-side canal. These canals would deliver surface flows to all project lands, whether in or out of the older districts now having senior water priorities. In addition, the large north-side canal would deliver water to spreading grounds along the Agua Fria River and other localities, as and where further studies may show these to be more or less feasible and desirable. Such spreading grounds might have areas of 4,000 acres along the Agua Fria River and possibly 1,500 acres along the east side of the project.

Similar conservation of wet-year wastes past the Buttes Reservoir on the Gila River and also the conservation of present wet-areas losses by lowering of the water table are proposed for the "rescue" of the Pinal unit of the project. New features proposed for construction include a floodwater canal of about 420-second-foot capacity from the Ashurst-Hayden Dam to supplement present installations and speading ground along the Gila River of about 500 acres in area.

As a final feature, the construction of the Salt-Gila canal from above Stewart Mountain Dam might be determined as feasible to a capacity of about 400 second-feet to enable the development of the full Pinal unit to be made. It would also be necessary to acquire, by negotiated purchase or the exchange of water, the right to operate present irrigation reservoirs for the benefit of the entire central Arizona project, not merely as now for the use of the older water districts which control these reservoirs at present.

As will be evident to most engineers and others from the irrigated sections of the West, there is nothing new about this plan. It is an old story in many California and other localities which are fortunate enough to overlie large ground-water basins and where the water supplies are approaching the stage of full development. In essence, it involves a minimum of well pumping in wet periods with correspondingly heavy diversions of surface water. Pumping is in turn increased markedly in dry periods when floodwaters are not available and surface reservoir storage is becoming exhausted.

All local features of the central Arizona project, excluding only the controversial Colorado River aqueduct, could be authorized and constructed promptly at a cost, as estimated by the bureau, of about $212,000,000, of which $169,000,000 are allocated to irrigation. With our suggested plan, each of these amounts could be reduced by a saving of more than $28,000,000, giving a revised irrigation allocation of about $141,000,000. The Colorado River to Salt River aqueduct project, as also estimated by the Bureau, would cost another $161,000,000 plus an added $90,000,000 allocation to irrigation as part of the cost of the Bridge Canyon Dam and power plant and related upstream dams.

Contrasted with this combined total of a quarter billion dollars, the new items proposed herein, as indicated by the best available preliminary estimates, would cost less than one-fourth of that amount, and only about one-third of the Bureau's estimate for the central Arizona aqueduct alone, disregarding power construction costs allocated to irrigation.

The next page is a tabulation showing the supporting data for that final statement. It is probably self-explanatory. The figures at the bottom show items that are suggested, including $30,000,000 for a large flood-diversion canal of the north side from Granite Reef Dam, $4,000,000 for a flood-diversion canal on the south side from Ganite Reef Dam, and so on.

There is $20,000,000 for rights to operate present reservoir for maximum efficiency. It should be mentioned that that is a bookkeeping item and would not involve new construction, but perhaps would take the form of a financial credit to older units of the project.

(The table referred to is as follows:)

Central Arizona project—U. S. Bureau of Reclamation report and suggested revised plan

Project features	Estimated construction costs	
	Allocation to irrigation	Total
Noncontroversial, 14 items, including irrigation allocation only of transmission lines:		
U. S. Bureau of Reclamation report	$169,356,000	$212,537,000
Suggested revision for local conservation plan	140,880,000	184,061,000
Indicated possible saving on noncontroversial items	28,476,000	28,476,000
Percent of total	16.8	13.4
Excluded items:		
Colorado River-Granite Reef aqueduct and related pumping plants	$160,899,000	
Bridge Canyon Dam, etc., and power plant (not a part of irrigation project)	89,764,000	
Total U. S. Bureau of Reclamation report	250,663,000	
Added items:		
For full conservation as suggested under proposed "local rescue" plan:		
Flood-diversion canals:		
North side from Granite Reef Dam	30,000,000	
South side from Granite Reef Dam	4,000,000	
Pinal unit from Gila River	1,000,000	
Spreading grounds, etc.:		
Agua Fria area and vicinity	800,000	
East side of project area	300,000	
Pinal unit along Gila River	100,000	
Rights to operate present reservoir for maximum efficiency	20,000,000	
Total, alternative plan	56,200,000	
Percent of U. S. Bureau of Reclamation total	22.4	
Percent of excluded aqueduct items	34.9	
Total irrigation allocation, U. S. Bureau of Reclamation report	$420,019,000	
Total estimated cost, alternative plan	197,080,000	
Total indicated saving, irrigation project	222,939,000	
Percent of U. S. Bureau of Reclamation report's cost	53.0	

Of perhaps even greater importance than the saving of this large, unneeded investment of about $223,000,000 is the immense saving in hydro power that will result from this change of plans.

The Bureau estimates that the 985-foot lift for imported Colorado River water will require about one-third of the Bridge Canyon power, or approximately 1.5 billion kilowatt-hours annually. The Bureau estimates that the proposed aqueduct would lose by seepage and evaporation, 17 percent of the diverted water within the 225 miles of its length.

In addition, a larger release for salt balance is required for Colorado River water because it is much more saline than the average of local central Arizona waters.

Because of these factors, it is computed that 100 acre-feet of local water will irrigate the same number of acres in central Arizona as 130 acre-feet of the imported Colorado River water. The Bureau report indicates that by importing Colorado River water and thereby keeping the ground-water basin filled to higher levels, the average pump lift for local water in the project area will be about 80 feet. It indicates that without the imported water the project pump lift would be about 70 feet greater, or average about 150 feet.

Disregarding the varying efficiency of farm or project pumps, the Bureau's importation plan would consume 8.5 times as much power as with our suggested local "rescue" plan. Mathematically, this is given by the ratio $\frac{985 \text{ feet} \times 130 \text{ acre-feet}}{150 \text{ feet} \times 100 \text{ acre-feet}}$, or 8.5. Allowing for the probably higher efficiency of the large-sized pump units on the Bureau's proposed aqueduct, but also for the larger average diversions of local gravity water in the suggested revised plan, due to conservation of flood wastes, the annual saving in power by the suggested conservation plan is about 1.3 billion kilowatt-hours. At the Bureau's indicated rate of 4.8 mills per kilowatt-hour, this saving amounts to more than $6,000,000 annually.

The conservation of local water that would otherwise be wasted by swamp transpiration and evaporation or spilled as floods over Gillespie Dam and out of the project area will be not less than 500,000 acre-feet annually. This saving of water is possibly of even greater importance than the above saving of power, in view of the Bureau's determination that present and planned projects in the Colorado River Basin need 25 percent more water than the total amount of water that the Colorado River system can supply.

That additional ground-water investigations in the central Arizona area are necessary before final determinations can be made of the safe yield of the basin's pumped wells, etc., is indicated by page G–15 of the United States Geological Survey section of the Bureau's report on H. R. 934. On that page, for example, three essential elements of the attempted computation of the safe yield of the ground-water basin are marked "unknown" and therefore ignored or assumed as zero. In more current United States Geological Survey reports, this same computation is excluded entirely, being called impossible until more and better data can be obtained by further field investigations. The statement of Mr. Conkling, which is attached herewith, and its related studies, using the best available data, indicates strongly that with all features of the suggested plan in operation, the full project area as described in the Bureau report can be supplied with the Bureau's stipulated consumptive use of 3.2 acre-feet per acre, in addition to salt balance releases.

But we are not inclined to be dogmatic about this conclusion. The needed further investigations may, in the end, show that more or less than the Bureau's projects area can be fully irrigated without any Colorado River importations. The probability is considered very high, however, that a full "rescue" can be accomplished from local sources only, including the irrigation of the new or historical land, wherever it may be located, many years sooner and at a mere fraction of the cost of the plan of H. R. 934 and the Bureau of Reclamation report.

These ground-water studies and alternative "rescue" plans lead naturally and logically to the conclusion that there is not and has not as yet been an actual shortage of water in central Arizona but rather, in some recent years, a shortage of surface and reservoir water accompanied by a scarcity of power for pumping the still-abundant ground water. Also, there is a general unwillingness on the part of well owners to assume the increased pumping costs as water levels gradually fall, causing increased pump lifts. Along with this lack of enthusiasm for higher water costs and therefore higher farm production

cost is the natural fear of actual inability of many pumpers to pay their power costs if the price of farm products continues to drop.

This view of the central Arizona situation was well expressed in a report on the local water prospects published in the Arizona Daily Citizen (that is a Tucson paper), April 4, 1949, by my respected friend and senior in the engineering profession, Mr. G. E. P. Smith, of Tucson, who until recently retired was professor of civil engineering at the University of Arizona and is still very active in engineering studies. Mr. Smith reported that, as a result of run-off and storage records, actual and forecast, this year's water prospects are very satisfactory. He then added that the period during which farming could continue at Eloy, for example, where concern is greatest over water problems, at times would depend primarily on the availability of electric power and the price of crops, as reflecting the ability of farmers to pay for needed power. This is essentially our conclusion.

If this analysis of the case is checked by such experienced Arizona engineers as Mr. G. E. P. Smith and is found to be substantially correct (after further extensive field investigations by the Bureau of Reclamation, the U. S. Geological Survey, et cetera) by an engineering board of review for the project, for example, then it would become evident that what the region really needs for its "rescue" is ample low-cost power for irrigation pumping. This would not require the gift of one-third of the Bridge Canyon power, as proposed by the Bureau to permit the 985-foot pump-lift fantasy. Rather it would require the immediate construction of Bridge and Glen Canyon Dams, to remove all threat of Arizona power shortages, and to provide at a relatively low cost, this needed power for irrigation pumping within the project area.

Touching on this ground-water matter there has been some doubt expressed as to the ability of Arizona to find any new wells to carry on the development of the ground-water supply that we think is still available.

Some light is thrown on that question by a short clipping from the Arizona Republic, dated May 4, 1949, headed, "Well-drilling program is a success." It states:

> Progress in the Salt River Valley Water Users Association well-developing program has been most encouraging, Richard D. Searles, president, said Tuesday.
>
> If our luck holds as good on the future wells to be drilled, the total production capacity of the new system will be close to 180,000 acre-feet of water per year.
>
> On our pump-well-drilling program 26 wells already have been sunk, cased, and perforated. Fourteen of these wells have been tested, their pumps are installed and they are operating. These 14 wells have averaged 300 miners inches each. That is very promising. In addition, we have 2 wells now being tested and 18 more now drilling.

That indicates to our mind that the Salt River Valley users, since they are able to finance such a program, are not waiting to be rescued by any aid from Washington, they are going ahead on their own capacity and are finding it possible to reach out and get other local water supplies.

That does not necessarily mean that those water supplies would be permanent without some conservation scheme such as we are suggesting, of spreading and the percolation of the floodwaters when they come and the destruction of the phreatophytes.

The statement was made that the real trouble in the central Arizona project was because of the power shortage which existed, and light is cast on that by a statement also from the Arizona Republic. This article appeared May 12, 1949. It is headed, "Well pump power curb is removed."

It states:

> Water users warn restrictions may be reimposed. The Salt River Valley Water Users Association announced Wednesday that all restrictions on use of power for irrigation pumps had been lifted. Farmers were warned, however, that it might be necessary to reestablish regulations for use later in the summer.

The pertinent part states:

> Restrictions on power use were enforced all last summer, because of the low hydroelectric output and high demands for pumping. They were dropped in the winter, but reinstated in early March. Subsequently, large gains were made in stored water.

The point of that paragraph is that we have not been told previously that farmers owning wells with water in the wells were unable to get the necessary water they needed simply because their power was turned off. They were necessarily given a quota of power because of the shortage of power in the region, and now this year they are being restored to the list of eligible customers and have sufficient power to pump as they desire. How long that can continue is not stated, of course, because the reservoirs may fall low again. But if we had Bridge Canyon Dam today producing its output of power, in addition to all the other lower Colorado River dams, there could be no shortage of power in Arizona for an indefinite period and no such restrictions would be necessary on the farmers' pumping program as was applied last year, and was the fundamental cause of the water shortages as experienced by individual irrigators.

So much for the interesting ground-water phases of the central Arizona project and some of their related problems, with a suggested solution.

As an engineering representative of the Metropolitan Water District of Southern Califronia and a witness here for the State of California, my interest in the central Arizona project naturally extends much beyond its special ground-water problems. I am here opposing H. R. 934 because the success of its plans would totally deprive my project, the constructed, operating Colorado River aqueduct to the southern California coastal areas, of its long-established and vitally needed water rights. Since needs for water in Arizona have been discussed at this hearing at such great length, a brief reference to the water needs of my own area becomes necessary.

Southern California is generally described as semiarid and on the average this phrase is accurate enough. But even along the coast, during such a protracted drought cycle as prevails at present, we closely resemble the true Arizona desert—equally dry if not quite so hot. Our so-called rainy season has just ended with a total, since July 1, 1948, of 8 inches at Los Angeles, or about half of normal. That is just the average rainfall that Phoenix gets, by the way.

The preceding season was even drier. This is the fifth successive season of subnormal precipitation, a new and alarming record, as never before in the 180 years of white settlement had more than four successive dry years occurred. Likewise, the calendar year 1947 was the

driest 12 months in our records and 1947 plus 1948 were the driest 24 months we have known. Of course, there have been much longer and more severe drought periods in the past but always these have been interrupted by occasional wet years that help greatly to replenish wells and springs, reservoirs, and lakes, and reduce the irrigation demands. This time there is no let-up. Arizona's severe drought seems broken, for the present at least, but such is not the case in southern California.

It is to guard against the worst effects of such protracted droughts, always threatening to be more severe than any as yet experienced during our short records, that our Colorado River aqueduct was built. It must also supply all future industrial growth and population increases, as our local supplies including all possible imports from the Sierra Nevada Mountains (for a latitude beyond that of San Francisco) are fully in use or even suffering from pumped overdrafts.

The Colorado River aqueduct now furnishes about 10 percent of the water requirements in the Los Angeles metropolitan area and 100 second-feet (the full pipe-line capacity) to San Diego and vicinity. Our present diversions are at the rate of 200,000 acre-feet annually or 16 percent of our contract water rights for diversions of Colorado River water from Lake Mead storage. The project was initiated in 1924 when, due to a severe drought, water rationing was necessary in the San Fernando Valley section of Los Angeles.

After lengthy investigations and surveys, construction started in 1933 and pump water diversions in 1939. Water use from the aqueduct has increased steadily throughout the operation period since 1941. The metropolitan water district aqueduct has sometimes been referred to here as a Los Angeles project. Of course, it is far more than that. It serves 26 incorporated cities and large additional suburban areas. Its potential, near-future service area extends into 5 counties and has a present population of about 5,000,000.

It is not generally realized that our regional local water supply, including all possible importations from distant sources except the Colorado River, is only one-half of the normal local supply of the central Arizona area. Including our full contract quota of Colorado River water, our total available water supply is just about equal to the the present average supply of central Arizona, without its proposed importation.

On a strictly comparable basis, the equities between the two metropolitan regions of southern California and Arizona thus seem hardly out of balance, or certainly not tipped in our favor, considering the 10-times greater population involved, the relative number of water-using industries in each case and the approximately equal irrigated areas involved. We are getting by at all, under these circumstances, only because our average irrigation consumptive use is held down to less than half the amount required in central Arizona. Naturally, we prefer and expect to stand on our established water rights, in defending our use of Colorado River water, but if needs must enter into the argument, we can prove just as great a need as any other desert area.

It is not necessary here to match legal arguments concerning Colorado River water rights, compacts, et cetera, with my one-time instructor, guide and boss, Mr. E. B. Debler, as protocol requires this to be done by our legal witnesses. Obviously, however, every judicial decision he has rendered in his recent statement before this committee

is in serious controversy. An over-all measure of our major differences is indicated by Mr. Debler's determination of the lower basin's unapportioned excess and surplus as being only 220,000 acre-feet annually. My own carefully checked and reviewed computations, based on California's interpretations of the compact and other documents, give for this surplus a figure in excess of 2,000,000 acre-feet annually. On this basis, California's contract rights above 4,400,000 acre-feet annually, that is, 962,000 acre-feet, are less than one-half the surplus. They are in exact agreement with and well within our Limitation Act. Possibly it should be added that using the Arizona interpretations, which I have often heard Arizona's representatives state, I find no difficulty in getting about the same arithmetical results as Mr. Debler or other Arizona witnesses. I presume that in the same sense, they have checked my results.

A rather different sort of statistical table is presented here, of more interest from the engineering point of view as it attempts to navigate around the various legal controversies that have haunted our conferences for 20 years or more. It shows the lower basin supply and demand on the main Colorado River only, and their present lack of balance, by entering the same figure for the disputed Gila River Basin on both the debit and credit sides of the ledger. The unsettled controversies relating to the Gila River thus cannot affect the determination of the main stream deficit for operating and authorized projects only. That deficit is at least 100,000 acre-feet annually and probably as much as 300,000 acre-feet or more annually. This fact cannot be successfully controverted, that any permanent water right gained by the central Arizona project, can only be at the expense and loss of an operating or previously authorized project.

Page 20 is a table which is probably self-explanatory. The deficit of 100,000 acre-feet is based strictly on Bureau of Reclamation's figures. Bringing those figures beyond 1943 up to date does indicate a strictly comparable defict of at least 300,000 acre-feet, and many other competent engineers have computed it as high as 400,000 acre-feet annually.

(The table referred to is as follows:)

Colorado River Water Available in Lower Basin[1]

	Acre-feet
Colorado River average (1897–1943 period) annual virgin or undepleted flow at Lee Ferry	16,270,000
Upper basin allocation by Colorado River compact	−7,500,000
Lower basin's available supply at Lee Ferry (estimated long-time average, which would be reduced to 7,500,000 acre-feet as a 10-year average, in severe drought periods)	8,770,000
Net average gain (less river losses) of lower basin tributaries, except Gila River	+400,000
Main stream reservoir losses, Lake Mead, etc. (U. S. Bureau of Reclamation estimate, including Davis and Bridge Canyon projects)	−870,000
Lower basin available supply from main Colorado River	8,300,000
Gila River Basin of Arizona net beneficial consumptive use	2,300,000
Probable salvage of natural main stream losses, upper and lower basins	300,000
Lower basin total average available supply	10,900,000

[1] Data from U. S. Bureau of Reclamation, March 1946 report, The Colorado River (appendix I, pp. 282–283), except as noted. Lee Ferry is division point between upper and lower basins.

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WATER REQUIREMENTS

		Acre-feet
Nevada: Contract with United States, plus a possible claim on portion of surplus		300,000
Utah and New Mexico: Portions in lower basin U. S. Bureau of Reclamation estimate, but these States' claims may be greater		138,000
Mexico: Including regulation losses, estimated not less than average of		1,700,000
California: Operating projects, by contracts with the United States		5,362,000
Arizona:		
Gila Basin present use	2,300,000	
Yuma project in Arizona	200,000	
Parker Valley Indian lands	300,000	
Little Colorado River and other tributaries	90,000	
Mojave Valley, etc. on Colorado River	10,000	
Gila project (new) from Colorado River	600,000	
Total for present and authorized projects (does not include 1,200,000 acre-feet annually called for by the proposed central Arizona project)		3,500,000
Lower basin total for present and authorized projects		11,000,000
Lower basin total average available supply		10,900,000
Deficit indicated on long-time average basis (amount of beneficial consumptive use on the Gila River is in controversy, but this does not affect the main stream deficit because the figure for such beneficial consumptive use, no matter what it may be, appears on both the credit and debit sides of the computation)		100,000
The figure of 100,000 is based upon United States Bureau of Reclamation records up to 1943. Low flows on the river since that date increase the deficit to		300,000

NOTE.—Despite the ultimate deficit of from 100,000 to 300,000 acre-feet now confronting operating and authorized projects, the proposed central Arizona project seeks to take another 1,200,000 acre-feet annually.

Mr. ELDER. It will be noticed from this table that the total water requirements for existing California projects will amount to 5,362,000 acre-feet, while the total requirements of all existing and authorized projects in Arizona amount to 3,500,000 acre-feet. The disparity between these two totals is not the result of chance, nor is it the result of comparative aggressiveness in developing projects, or financial strength. It results primarily from the natural desert topography of the lands available for irrigation in the lower basin.

When the pioneers entered the region, they settled first where irrigation from the river by gravity was possible and where it appeared possible to raise crops at minimum cost. It so happens that larger areas in California can be irrigated by gravity diversion from the main stream of the Colorado River than in Arizona. These old gravity projects acquired the older water right priorities by reason of their early development. Under the basic law of appropriation in the Western States, "First in time is first in right," the early appropriative rights, now reinforced by contracts for Lake Mead water, cannot at this late date be successfully challenged.

It should be noted that every acre of valley lands along the Colorado River in Arizona which can be irrigated by gravity has long been conceded and assured a full irrigation water right. The same is true with irrigable lands in Arizona which are subject to irrigation with moderate pump lifts such as the lower Gila project, which is to be irrigated from the main Colorado River.

It has been the extreme pump lift and the extravagant cost of a

project to divert water from the Colorado River to central Arizona that has prevented Arizona from acquiring a claim more relatively equal with California on Colorado River water. Arizona can only blame the inescapable laws of economics for her failure to acquire a right as great as, or greater than California in the waters of the lower basin.

The report of the Bureau of Reclamation on the central Arizona project is particularly disturbing in one serious respect because for the first time in the Bureau's long and fine engineering record, a project has been endorsed and recommended for immediate authorization and construction that was known to have no assured, permanent water right but only a claim long involved in complex controversy. It was with great hesitance that the Bureau even included in its report a mild comment that such a controversy exists about the water right. Still the report contains no reference to or analysis of the inevitable damage to constructed and operating water projects by loss of their water supply, if the proposed plans are approved by the Congress.

Statements of Bureau witnesses here are equally silent in this respect. This concealment is more to be wondered at when it is realized that one of such important projects, the San Diego aqueduct, would lose its water right completely in such case, assuming the Bureau and Arizona to win what they claim and demand, and yet this San Diego aqueduct was completed by the Bureau of Reclamation and the United States Navy only recently—not over a year and a half ago, in fact.

As an Army veteran, I cannot be satisfied with the politically inspired and conspicuous overemphasis given in this postwar period by the Bureau of Reclamation to a proposed high-cost project that, so far as I can learn, includes not an acre of vacant public land, which will become available for veterans' farm settlement. The budget demands for this Arizona private-land project, if authorized, would certainly have a very serious retarding effect on the construction programs of other projects that might otherwise, within the near future, be of aid to the veterans.

It was an Arizona editor at Ajo, outside of the area to be benefited by the central Arizona project, that recently reported the number of individual farmers in more or less need of "rescue" to be about 1,100. At the estimated cost of irrigation features of $420,000,000, the average as worked out by the editor came to about $400,000 apiece. More recently, it has been noted in the Bureau's own report, that of the 6,000 individual farms within the entire project area, 7 percent or 420 individuals own 55 percent of the area to be benefited. On this basis, the proposed expenditures for this small number of big farmers averages $550,000 apiece. No wonder it is called a "rescue" project by those seeking such subsidies.

Considering that the estimated cost of the proposed project exceeds in amount the total appropriations for the entire great Tennessee Valley Authority (so long discussed and frequently investigated), and that the 80-mile tunnel for which authorization is asked, although construction of it is apparently to be long deferred, is estimated to cost more than the Panama Canal project itself, investigations and reports on the proposed project are definitely inadequate to permit an informed decision to be arrived at by this committee.

Referring to the same 80-mile tunnel, two recent witnesses here have been seriously in error in declaring that the date of its construction

would be determined by the time when it becomes necessary or desirable to save the 1.5 billion kilowatt-hours of energy per year required for the project's 985-foot pump lift. Of course, the construction of this tunnel can at best save only a negligible portion of this energy.

Diversion of the project's water supply from above Bridge Canyon Dam would decrease the power output at Bridge, Boulder, and Davis Dams by practically the amount which it is claimed would be saved. The loss in entrance head and fall through the tunnel must approximately cancel out any indicated saving of even the energy losses in pumping, generation, and transmission. This type of error makes it even more evident that the project as outlined in H. R. 934 has not been adequately investigated and reported on by the Bureau of Reclamation.

For these numerous reasons, along with many serious objections mentioned by other witnesses, H. R. 934 should not be approved by this committee or by the Congress.

Thank you very much, Mr. Chairman.

(The matter submitted for the record by Mr. Elder is as follows:)

ANALYSIS OF WATER SUPPLY, PROPOSED CENTRAL ARIZONA PROJECT, MARCH 1949

(NOTE.—Numbers such as B–1, B–2, C–3, etc., refer to pages or tables in the report of the United States Reclamation Bureau entitled, "Central Arizona Project" 1947.)

SUMMARY

This report considers only the Maricopa and Pinal units of the proposed central Arizona project. Consideration of the other two units would cause no change in the conclusions reached herein.

Stream run-off into the area occurs in long cyclic variations, as does run-off in most of the Southwest. Although reservoir development is large on the principal streams, the waste from the reservoirs is also large. With present development of projects, the waste of Salt and Verde Rivers past Granite Reef Dam would average about 1,000,000 acre-feet a year during the 1905–20 surplus period. Over the long-time average, the waste past that point alone would be about 350,000 acre-feet or about 23 percent of the average annual virgin discharge which passes it.

Similarly with the Gila River, average annual waste past the Ashurst-Hayden diversion dam is about 200,000 acre-feet. After construction of Buttes Reservoir, it is estimated that it will average 124,000 acre-feet.

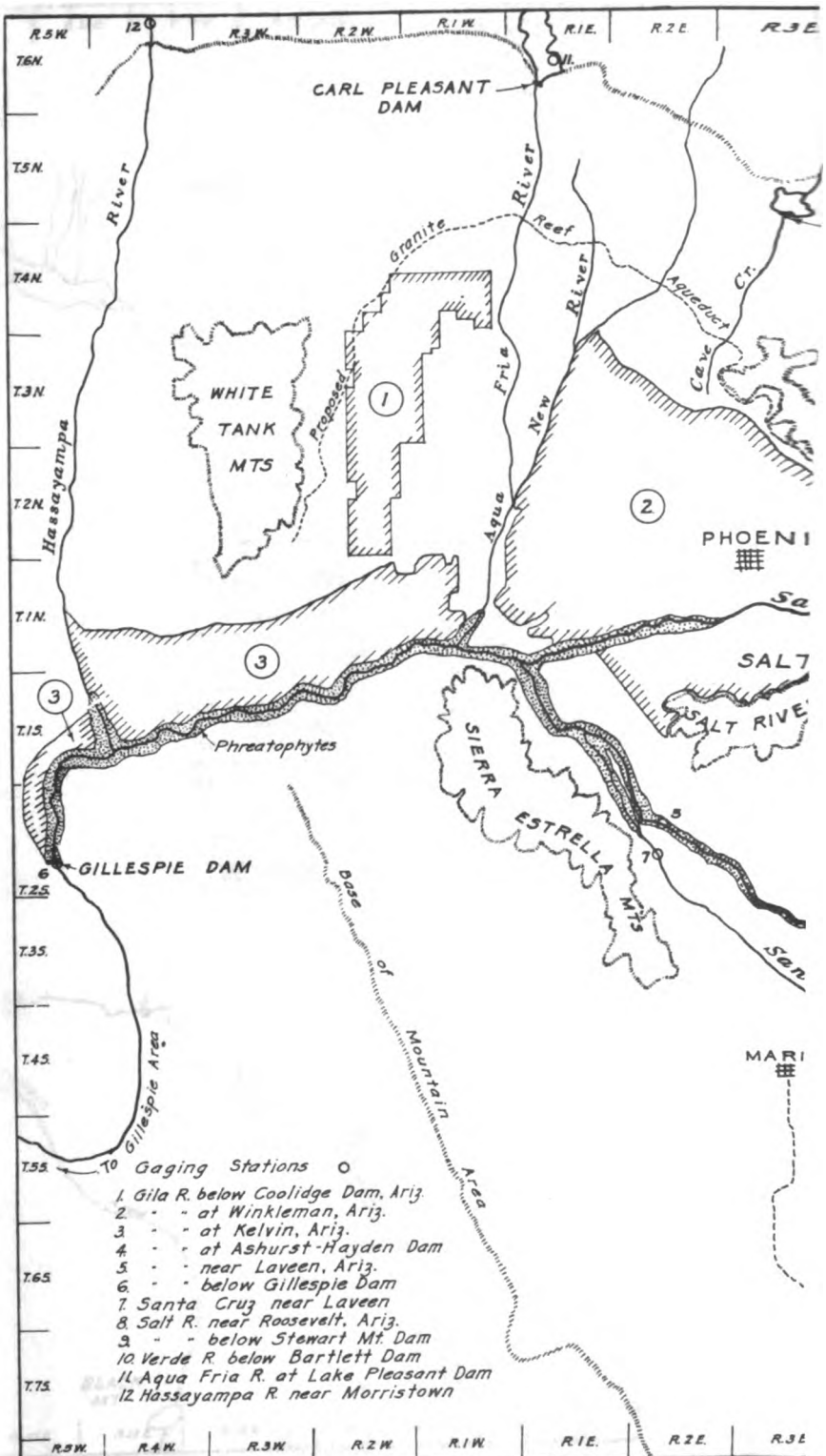
Similarly also with Agua Fria River on which a reservoir has been constructed. Other streams also contribute. With present development, long time average annual flood waste past Gillespie Dam is estimated at 470,000 acre-feet.

Waste of underground water occurs also. This is due to the presence of water-loving vegetation in the stream bottoms in the lower and western end of the project area where the water table is at the ground surface, causing swampy areas. They are estimated to be wasting 270,000 acre-feet a year. The total of both wastes averages 740,000 acre-feet per year.

In the surplus "cycles," surface reservoirs fill as do the underground reservoirs which also are recharged by surface waters. Underground outflow increases. Salt which has accumulated in the ground water during the deficient cycles is flushed out. Precipitation is comparatively large and a greater part of the consumptive use of the crops on the irrigated areas is supplied by it, making the draft on ground water less. It is believed that in some years, a considerable amount of precipitation in the cropped area recharges the ground water.

In the deficient years the exact opposite occurs. The surface reservoirs empty and the contents of the ground-water reservoirs are somewhat depleted. Salt accumulates in the ground water.

The capacity of the ground-water reservoirs is many times that of the surface reservoirs. They are capable of tiding over any conceivable period of deficiency in surface water.



However, no matter what their capacity, the draft on them cannot exceed the long-time average annual recharge through periods of drought and of surplus.

The present period of drought began in 1921. In it there have been only 7 years in which run-off has been equal to or above the long-time average. The storage in ground water reservoirs has decreased and water levels have fallen as is only natural. Large increase in annual amount of water pumped has occurred. This has been responsible for part of the recession in ground-water levels. Plates 2 and 3, in the rear of the report proper and ahead of the appendix, show the alternating periods of surplus and deficiency.

The claimed large water shortage requiring importation of water from Colorado River should be viewed in the light of average conditions rather than in the light of present conditions caused by the long drought, which began in 1921.

Information approaching adequacy as to underground water conditions is available only for the past 10 years or so. It cannot be considered that a report, based only on that information and which ignores the large discharges available in the recurrent periods of surplus, has reached valid conclusions. The Bureau's report, insofar as the Maricopa unit is concerned does not give adequate consideration to the actual water supply available.

If consideration is given to the years of surplus, a conclusion must be reached much different from that of the Bureau.

The conclusion is: There is sufficient excess local water which can be salvaged to provide a full supply not only to the 519,000 acres which the Bureau states was irrigated in 1940–44 but to the entire 591,000 acres which the Bureau proposes as an ultimate project in the two units under consideration.

The Bureau proposes to divert for use only 68 percent of the average annual discharge which reaches Maricopa and Pinal units according to the Bureau's estimates after subtracting depletion above. The remaining 32 percent is an annual average of 700,000 acre-feet. Most of this will continue to waste out of the project area in the form of floods. Most of such waste will occur in the surplus periods of the weather cycle. It can be economically salvaged only the utilization of underground reservoirs. The remainder of the 700,000 acre-feet percolates and keeps alive the water-loving vegetation in the western part of the project area.

1. The central Arizona project proposes to import 1,200,000 acre-feet of water to the broad valley of the Gila River watershed, most of which lies immediately eastward from the confluence of Salt River, a tributary, with the Gila itself. Within this valley are the Maricopa and Pinal units of the project. There are two other units called the Upper Gila and the San Pedro, both upstream from the main valley area. Water from Colorado River cannot be taken to these areas and the developments proposed in them will have a negligible effect on the water supply of the Maricopa and Pinal units. They are not further considered herein.

2. From data in the Bureau's report, the areas proposed to be included in the project and the present sources of water are as follows. The irrigated acreage is the average for the years 1940–44. This is the period used by the Bureau on which to base computations.

Maricopa unit:	*Acres*
A. Land irrigated from Salt River supplemented by pumping from from ground water derived primarily from Salt River: This area is in organized water districts and has been irrigated for many years past. It lies primarily between Granite Reef Dam on Salt River, at which point the upper and principal diversion from Salt River is made, and Gillespie Dam, about 77 miles downstream on the Gila River where the last surface diversion is made	313,330
B. Land north and west of the above area: The Maricopa County municipal water conservation district No. 1 with 20,740 irrigated acres has the entire flow of Agua Fria River which enters this area. It supplements its surface water by pumping from ground water which is recharged mainly by Agua Fria and New River water. This development was made considerably later than that in the Salt River area. The land irrigated outside the district is dependent entirely on pumping from ground water. Much of the irrigated acreage has been developed in past 10 years	44,630

Maricopa unit—Continued	Acres
C. Miscellaneous areas south and east of the Salt River project area using underground water exclusively, derived from percolation of small streams in part and in part by draft on the ground water under the lands of the Salt River Valley Water Users Association which is derived from Salt River. Much of this has also been developed in the past 10 years	22,630
D. Areas in the valley not located by the Bureau and not irrigated in 1940–44	46,030
(Note.—In 1944, 10,880 more acres were irrigated than the average of 1940–44, and it is believed that by 1948 even more of this land had been irrigated.)	
Subtotal	426,620
E. Gillespie area down river from Gillespie Dam and deriving its water from water rising in the swampy areas at the lower end of area A	14,380
Total, Maricopa unit	441,000
Pinal unit:	
F. Irrigated land in the portion of the San Carlos project lying north of Sacaton Mountains and north of a line extending southeast from the east end of Sacaton Mountains to Picacha Reservoir. This has a surface supply from Gila River and procures supplementary water by pumping from ground water. In addition, private lands outside the project boundary, mostly on the south side of the Gila River, derive their entire supply by pumping from ground water. This is replenished by percolation of water diverted from Gila River at Ashrust-Hayden Dam to lands in the San Carlos project and by percolation from the river bed itself, in that portion of the bed where the water table is sufficiently below the surface so that percolation can occur, i. e., in the 40-mile reach of the river east of the west end of San Carlos project	66,880
(Note.—In 1943 an estimated 7,000 more acres were irrigated than the average for 1940–44. Most of this increase was in project lands.)	
G. Irrigated land south of the Sacaton Mountains both inside and outside of the San Carlos project. The land in the south part of the San Carlos project shares in the water diverted from Gila River and supplements its supply by pumping from ground water. The land outside the project derives all its water by pumping from ground water which is replenished partly by percolation coming from Santa Cruz Valley to the south and partly by percolation of water brought in for the San Carlos project and salvaged by San Carlos Reservoir which was completed in 1928. Irrigated area inside this portion of San Carlos project is 18,600 acres. Remaining 38,330 irrigated acres of private land outside the project was mostly developed in the past 10 years, total	56,930
(Note.—No data are available as to private land irrigated in 1944 in adition to the average above given. It is believed to be considerable.)	
H. New land not irrigated in 1940–44 believed to be mostly in the southern part of the unit in the Eloy area	26,270
Total, Pinal unit	150,000
(Note.—This would be smaller by the increase in item G.)	

3. The valley in which the two units lie is filled with coarse alluvium from the hills. Most wells drilled in the past few years are said to have penetrated it to a depth of about 500–600 feet without striking bottom and some to a depth of 1,000 feet. Water flowing across the surface in canals or streams or used for irrigation penetrates to ground water readily. Many millions of acre-feet of water are stored in the alluvium. Wells give large yields. Such underground

reservoirs are a most important feature for the development of the water supply of much of the arid portion of the United States. Their capacities are generally large, but whatever they are, they cannot be drawn on continuously at rates greater than their recharge. However, their large capacities make it possible to draw on them for long periods of shortage of surface waters. They are recharged in the next period of surplus.

4. Water in these underground reservoirs is not stationary. It slopes downstream and is constantly moving toward an outlet. A large amount can move through the broad upper valley of the central Arizona region but with distance west the valley narrows and the underground water is forced to the surface. Swampy areas exist because of this. These support dense growths of salt cedar which is a type of water-loving vegetation (phreatophyte) of no economic benefit. These growths evaporate large quantities of water which might otherwise be used for irrigation. Most of the excess water in the underground reservoirs is thus disposed of. (See frontispiece.)

5. The area of phreatophytes above Gillespie Dam and the estimated average annual acre-feet they have evaporated are as follows:

	Acres	Acre-feet evaporated annually
A. Gillespie Dam up Gila River and then up Salt River to a point near Phoenix. This is believed to be maintained from Salt River mostly	20,000	130,000
B. Confluence of Salt and Gila upstream along Gila 16 miles to Laveen. About ¾ of this is believed to be maintained by Salt River water	15,000	90,000
C. Gila from Laveen upstream to Sacaton Dam	13,000	50,000
Total	48,000	270,000

6. Discharge of the streams entering the project area varies in what may be termed "cycles" for want of a better term. That is, on balance, the discharge may be subnormal for a long period of years in succession, but in occasional years of the period, the discharge will be above normal. Alternating with these periods are long periods with opposite characteristics. Most of the years will have above normal discharge, but in some years it will be below normal. The same "cyclic" condition is shown by records in southern California and by the cyclic rise and fall of the elevation of Salt Lake in Utah. It prevails throughout the Southwest.

7. On plates 2 and 3 are shown graphically the alternating cycles for the period of recorded run-off of the Salt and Verde Rivers combined above Roosevelt and Bartlett Reservoirs, respectively, and of the Gila above San Carlos Reservoir. The discharges at these points are unregulated flows. The percent variation from average should be the same as for the larger flows at the points of diversion for irrigation. However, the flows at those diversion points are regulated by reservoirs and cannot be used for the purpose of these plates.

The cyclic variations as shown by these plates are as follows:

Gila River above San Carlos Reservoir (pl. 6)			Salt and Verde above Roosevelt and Bartlett Reservoirs (pl. 5)		
Period	Number of years	Percent of long-time average	Period	Number of years	Percent of long-time average
1868 to 1873 [1]	6	45.2	1889 to 1891 [2]	3	185.7
1874 to 1891	18	163.8	1892 to 1904	13	53.2
1892 to 1904	13	34.7	1905 to 1920	16	148.1
1905 to 1920	16	193.2	1921 to 1946 [3]	26	83.9
1921 to 1946 [3]	26	67.3			

[1] Beginning of estimate by Corps of Engineers, War Department.
[2] Beginning of record.
[3] Discharge of 1946 last record available.

8. During periods of surplus stream flow both the surface reservoirs and the ground-water reservoirs filled to overflowing. During periods of deficiency, the surface reservoirs empty but the content of the underground reservoirs merely decreases; that is, the water table lowers (the term "water table" means the surface of the saturated alluvium). It becomes deeper from the ground surface to the water surface in the wells. This recession involves only the upper part of the very large storage in the underground reservoirs.

9. Plate 2 also shows the elevation of water table in Salt River Valley since 1903. It should be noted that the water table in the Salt River Valley has fallen 40 feet since 1920 when the present dry cycle began, but it is only about 6 feet below the level of 1903, which was near the end of the last preceding dry cycle.

10. When the water table rises, the area of water-loving vegetation increases; when it falls the area decreases because water must be near or at the surface to support the growth. The areas given in paragraph 5 were taken from aerial photographs made in 1937 of the Gila above its junction with the Salt and in 1948 of the Gila and Salt from Gillespie Dam up to Granite Reef on the Salt. Thus both series were made in the present long period of drought. The area must have been much larger in the 1920's and early 1930's.

11. Capacities of dams and reservoirs and dates of construction are as follows:

Salt River:
- Roosevelt Dam and Reservoir, 1,398,430 acre-feet, 1911.
- Mormon Flat Dam (Canyon Lake), 57,852 acre-feet, 1925.
- Horse Mesa Dam (Apache Lake), 245,138 acre-feet, 1927.
- Stewart Mountain Dam (Sahuaro Lake), 69,765 acre-feet, 1930.

Verde River, a tributary of the Salt:
- Bartlett Dam and Reservoir, 179,480 acre-feet, 1939.
- Horseshoe Dam and Reservoir, 68,000 acre-feet, 1946.

These reservoirs on the Salt and Verde belong to Salt River Water Users Association.

Gila River: Coolidge Dam (San Carlos Reservoir) 1,200,000 acre-feet, 1928. Belongs to San Carlos project.

Agua Fria River: Carl Pleasant Dam and Reservoir, 178,000 acre-feet, 1927. Belongs to Maricopa district.

The capacity of the older reservoirs has been slightly decreased by silt deposition.

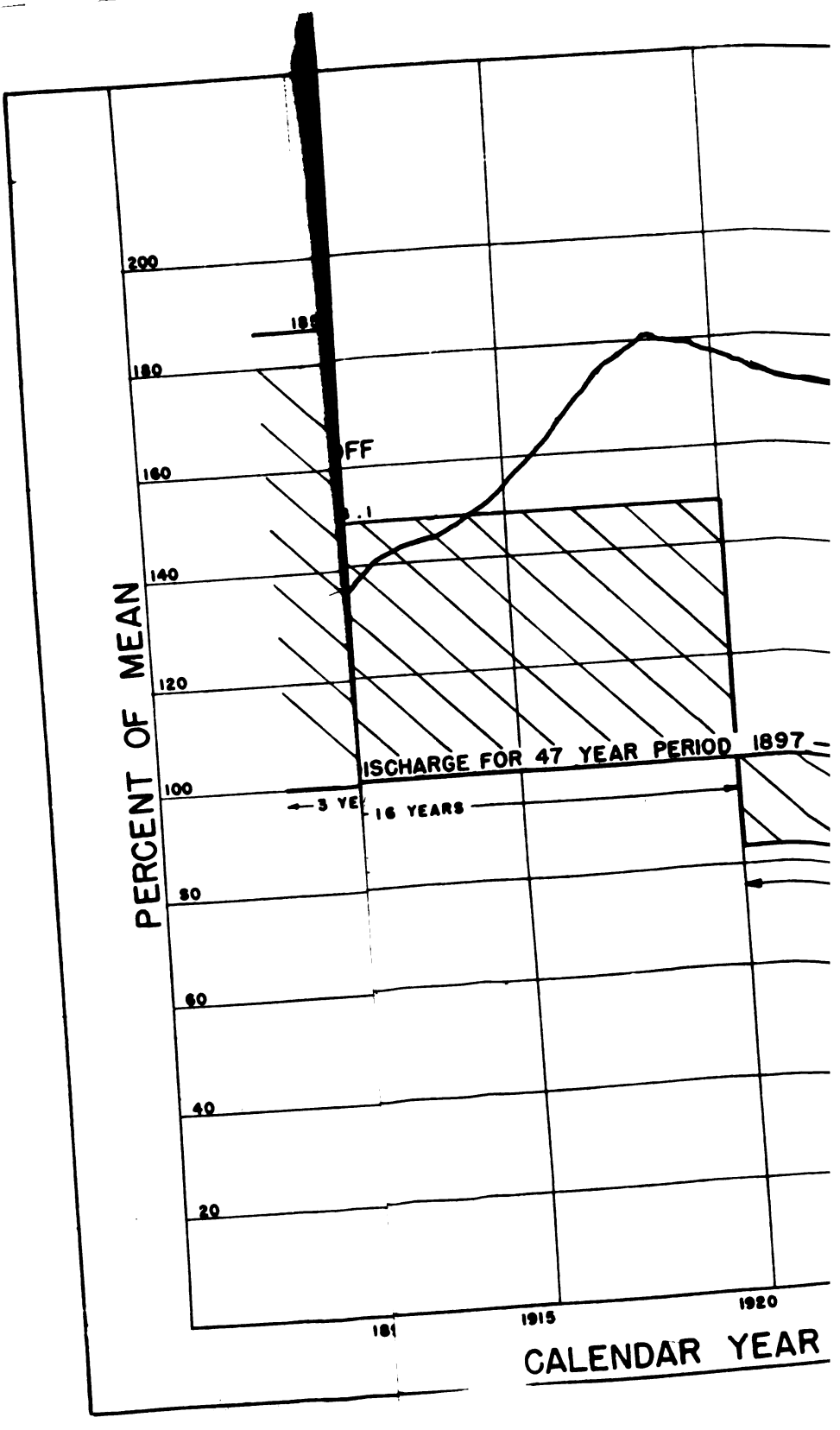
12. Average annual virgin flow of the streams entering the region is estimated by the Bureau as follows for the period 1897–1943 (table B–10):

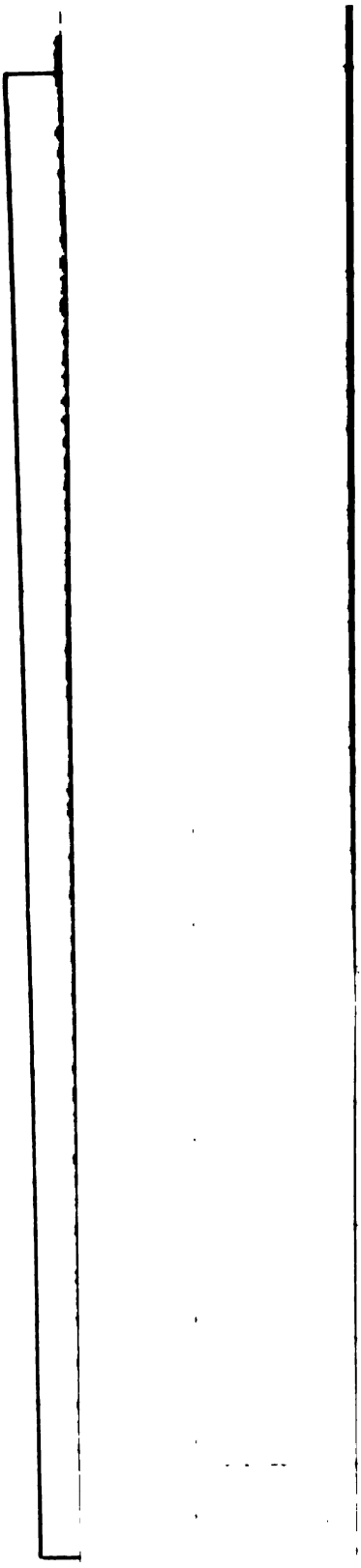
	Average annual discharge, acre-feet
Maricopa unit:	
Salt at Granite Reef Dam (below junction with Verde)	1,508,000
Unmeasured natural flow to Phoenix area [1]	244,000
Total	1,752,000
Pinal unit:	
Gila at Kelvin	527,000
Santa Cruz at Laveen	15,000
Total	542,000
Grand total	2,279,000

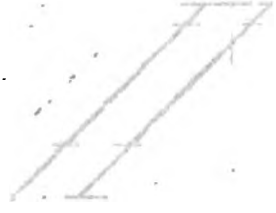
[1] Table B–10 minus 15,000 assumed to be from Santa Cruz River at mouth.

13. The Bureau estimates that with the acreage irrigated, 1940–44, ground water must be wasted in the following amounts from the project area to keep down the salt content of the ground water to a tolerable concentration.

	Acre-feet
Maricopa unit	108,000
Pinal unit	46,000
Total	154,000







The above is based on the assumption that the water wasted for salt balance must carry 5.5 tons of salt per acre-foot. In addition to the consumptive use of 3.2 acre-feet per acre sufficient additional water must be brought in for salt balance to bring the amount of water required per acre to the following values:

	Acre-feet per acre
From Salt River and tributaries and miscellaneous streams	3.49
From Gila River	3.78
From Colorado River	3.84

14. The Bureau proposes that this waste should be made in such a way that the Gillespie area of 14,380 acres which diverts ground water which has come to the surface (plus water from the mountains in time of flood) at Gillespie Dam could be provided with better water. The average rising water diverted to that area 1940 to 1944 was 81,000 acre-feet a year containing approximately 5.5 tons of salt per acre-foot. In other words, that much water was wasting and carrying out salt from the portion of the unit above Gillespie Dam. As the area below Gillespie Dam is a separate hydrographic unit, in the present analysis that area is excluded, resulting in a necessary additional waste of only 27,000 acre-feet from the Maricopa unit (108,000—81,000). The Gillespie unit is given consideration separately in a later step of the analysis.

15. The Bureau estimates that the consumptive use of water (except precipitation) used on crops averages 3.2 acre-feet per acre per year. Consumptive use is the amount evaporated into the air by the crop and from the soil in process of irrigation. The Bureau estimates that 5.7 acre-feet of water per acre must be diverted from streams and 4.7 acre-feet per acre must be pumped. The excess above 3.2 percolates downward to replenish the ground-water reservoir from which it may be pumped again.

RESULTS OF INVESTIGATION

16. An important objective of the present investigation has been an estimate of the local water which could be salvaged.

17. Methods by which local water can be salvaged are:

1. Construction of additional surface reservoirs.
2. Elimination of phreatophytes which grow in swampy portions of the project area. "Phreatophyate" is the technical name for water-loving vegetation whose roots must have access to very moist ground or which must grow in water to survive.
3. Utilization of the present surface reservoirs more efficiently than has been the custom in the past.
4. Utilization of the ground-water reservoirs to the fullest extent needful to consume local water.
5. Disposal of all or part of the salt which impregnates the run-off before it contaminates it. The results will be discussed in the above order.

Additional surface reservoirs

18. The Bureau proposes—

Raising the height of Horseshoe Dam on Verde River so that it would impound 212,000 acre-feet, an increase of 144,000 in active capacity. Annual yield, due to this increase, is estimated by the Bureau at 42,000 acre-feet.

Construction of Buttes Reservoir of 400,000 acre-feet capacity on Gila River above Ashurst-Hayden Dam. Annual yield estimated 64,000 acre-feet.

Elimination of phreatophytes

19. A growth of phreatophytes covers about 48,000 acres in the river bottoms of the Maricopa and Pinal units, but mostly in the Maricopa unit. The United States Geological Survey estimates that they are consuming about 225,000 to 350,000 acre-feet of water per year. For this report the estimate is 270,000 acre-feet.

20. To the extent that these growths can be partially or wholly eliminated, the water which they now transpire can be utilized for irrigation. Assuming that 75 percent can be saved, there would be 200,000 acre-feet of water available which is now lost.

21. This could be pumped to the North and utilized in the Maricopa unit.

22. In Safford Valley along Gila River about 30 miles upstream from San Carlos Reservoir the United States Geological Survey[1] has made detailed investigations of loss by phreatophytes. There is only a comparatively small area of salt cedar which is the largest user of water of any of the phreatophytes. From 9,300 acres they found 28,000 acre-feet of loss. Total area of phreatophytes is 12,000 acres from which, on the same basis, loss should be 8,000 acre-feet more, or a total of 36,000 acre-feet. Assuming 75 percent recovery, drainage of this would give 27,000 acre-feet of usable water. The Bureau gives consideration to salvaging this loss. The water saved is proposed to be used upstream by exchange.

The Bureau does not mention the much larger area of salt cedar in the Phoenix area.

Utilization of present and proposed surface and underground reservoir capacity

Capacity of present and proposed surface reservoirs on streams tributary to the project are as follows:

	Acre-feet
On Salt and Verde Rivers owned by Salt River Valley Water Users Association (Horseshoe Reservoir enlarged)	2,162,000
On Agua Fria River owned by Maricopa district	178,000
Total Maricopa unit	2,340,000
On Gila River San Carlos Reservoir	1,200,000
Buttes Reservoir	[1]147,000
Total	3,687,000

[1] 400,000 gross; 147,000 for conservation.

Water supply of central Arizona project

Total surface supply entering area in streams estimated as follows:

(*a*) Virgin flows from table B–10 of Bureau of Reclamation Report on Central Arizona Project, 1947.

(*b*) From the above values are substracted the depletions for irrigation above reservoirs on Salt and Verde Rivers and in upper Gila Basin from Report of Bureau of Recelamtion entitled "Stream Flow of Lower Colorado River and its Tributaries" by E. B. Debler, J. R. Riter, and A. F. Johnson. This report contains estimates of depletion up to 1933. Depletion in subsequent years estimated to be same as in 1933.

(*c*) The results are discharges which would have occurred had no reservoirs been constructed in the watershed.

This calculation is made to evaluate the excess water of the preceding cycle of surplus as compared to the supply in the present drought cycle.

[Unit is 1,000 acre-feet]

	Salt River at Granite Reef Dam	Unmeasured inflow	Subtotal	Gila River at Kelvin	Total
1905–20	2,249	332	2,581	704	3,285
1921–43	1,263	227	1,490	336	1,826
Excess of 1905–20 over 1921–43	986	105	1,091	368	1,459

23. The Bureau estimates the present supply available from Salt River at Granite Reef Dam to be 980,000 acre-feet. This is the average during the period 1923–43. The Bureau disregards the large surplus available in the previous period of excess discharge.

24. It also disregards the cumulative effect that a 16-year period of excess discharge would have on recharge of ground water.

25. On the Gila River the United States Engineer Department has made a thorough study of the Gila River in relation to supply for San Carlos project, on which the Bureau has based the portion of its report dealing with the water supply.

[1] Use of Water by Bottom Land Vegetation in Lower Safford Valley, Ariz., unpublished.

26. The conclusion of the United States Engineer Department is that after construction of Buttes Reservoir of 400,000 acre-feet capacity, it, with San Carlos Reservoir, will give an annual yield of 291,000 acre-feet to San Carlos project, which is a part of the Pinal unit of central Arizona project. San Carlos project embraces 100,000 acres. The Bureau states that 85,000 acres are irrigated on the project.

27. The United States Engineer Department estimates that spill past Buttes Reservoir will average 124,000 acre-feet.

Maricopa unit

28. Study of operation of the reservoirs on Salt and Verde Rivers during the period 1905–20, with an average annual diversion of 1,000,000 acre-feet at Granite Reef Dam, to Salt River Water Users Association and others having diversion rights, gave the following results:

Diversion:

	Acre-feet
Loss in reservoirs and channels above Granite Reef Dam	81,000
Spill past Granite Reef Dam	1,053,000
Gain in reservoir contents	114,000
Average annual discharge during the period 1905–20	2,248,000

29. The 1,000,000 acre-feet would not be the entire supply to the Salt River Valley Water Users Association. There would be percolation from the unmeasured streams and from spills, so that the diversion above noted is considered adequate.

30. There could be diverted to the areas in the Maricopa Unit west, north, and east of the Salt River Association area, for direct irrigation and for spreading to recharge the groundwater basin, large average annual amounts of water which would have spilled if the reservoirs were used only to supply 1,000,000 acre-feet to the Salt River Valley Water Users Association.

31. In addition there would be available a considerable amount from Carl Pleasant Reservoir on Agua Fria River. This reservoir has a capacity of 178,000 acre-feet. Average annual run-off 1897–1943 is estimated at 95,000 acre-feet and during 1905–20 at 190,000 acre-feet.

32. Further studies showed that if the reservoirs were operated to conserve the excess supply and make it available to others, the following could be accomplished:

Average annual diversion of water during period, in excess of Bureau's estimate[1]

[In thousands of acre-feet]

	At Granite Reef for old rights	From Agua Fria below Carl Pleasant Reservoir	For irrigation of other lands in Maricopa unit	For irrigation in Pinal unit	Total for irrigation	For spreading	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Period:							
1905–20	46	115	383	147	691	432	1,123
1897–1943	−117	37	196	147	263	180	443

[1] Total capacity of added conduits 4,500 second feet (p. A–10).

(1) In excess of the 980,000 acre-feet annual average for old rights estimated by the USBR. Actually the diversion in column 1 would be some other larger value unless diversion to the other areas adjacent and at higher elevations caused sufficient under flow to the Salt River Valley Water Users Association areas.
(2) For 1905–20 period, 169,000 acre-feet −54,000 acre-feet = 115,000 acre-feet. (See p. A–15 for estimate of 169,000.) USBR estimates present use as 54,000. For 1897–1943 period, 91,000−54,000=37,000 acre-feet. (p. A–13).
(3) Outside of area with old rights at Granite Reef. (p. A–8).
(4) Page A–8.
(5) Column (5)=column (1)+(2)+(3)+(4).
(6) Page A–8.
(7) Column (7)=column (5)+column (6).

Underground storage required for diversion of 93,000 acre-feet of spills past Ashurst-Hayden Dam for Pinal unit

33. Assume area of ground surface over the underground reservoir is 170,000 acres and that none of the spill which can be salvaged can be used for irrigation direct but that it all must be introduced into the underground reservoir.

34. On approximately the same basis as the maximum estimated salvage of spills from Salt and Verde Rivers the average spill past Ashurst-Hayden Dam on Gila River will give an average annual increase in the supply to the Pinal unit of 93,000 acre-feet during the Bureau's 47-year period, and will require an average annual diversion during the 16 years, 1905 to 1920, of 273,000 acre-feet.

273,000 acre-feet for 16 years=4,370,000 acre-feet.
4,370,000÷225,000 (acres)=19.4=the feet of water stored.

35. At 15 percent voids in the alluvium the change in elevation of water table required would be 129 feet.

36. Assuming that at the end of the flood season of 1920 the water table would average 20 feet higher than the elevation in fall 1947, it would have to be 109 feet lower than in fall 1947, at the beginning of the flood season of 1905. Average lift would be 112 feet.

Salt disposal

37. The United States Geological Survey has investigated sources of the salt which contaminates the water of Salt River. It finds that a considerable part of it, perhaps half, is contained in the water of springs which issue from the ground some distance above Roosevelt Reservoir.

38. The possibility thus presents itself of disposing of this water in some way before it enters the river. If this is possible, the amount of water which must be wasted to maintain salt balance would be decreased.

Summary

39. Possibilities of salvage of local water are substtantial through efficient utilization of surface and ground-water reservoirs. The amount which can be thus salvaged is estimated at an annual average of at least 400,000 acre-feet for the Bureau's 47-year period.

40. It is also possible to salvage waste by phreatophytes in substantial amount. The estimated total is about 220,000 acre-feet, making an apparent total of about 620,000 acre-feet. However, salvage of water by utilization of underground reservoirs will require that the water table be at a lower average elevation than at present, which would automatically reduce the loss by phreatophytes. Assuming that the average area would be about half the present area in the Phoenix region the total salvage would be over 500,000 acre-feet. Due to added percolation opportunity, if the water table is held at a lower elevation, miscellaneous floods originating in streams where no reservoirs exist should contribute a substantial amount to the ground water also. Disregarding this, the 500,000 acre-feet would, with other local supplies, be sufficient for the 591,000 acres which the Bureau proposes to irrigate in the Maricopa and Pinal units.

SAFE YIELD OF MARICOPA UNIT GROUND-WATER RESERVOIRS

41. The portion of the Maricopa unit above Gillespie Dam is regarded as one ground-water reservoir and the Pinal unit above the western end of the San Carlos project as another.

42. On page G–15 of the volume of the Bureau's Report on Central Arizona Project 1947, containing appendixes, the United States Geological Survey outlines a method of estimating the safe yield for the Maricopa unit including the Gillespie area below Gillespie Dam.

43. The Maricopa unit as a whole is not a ground-water unit because the geological barrier on which the dam rests divides the Maricopa unit into two parts. If the portion above Gillespie Dam is taken separately an approximation of its safe yield can be obtained.

Safe yield of ground-water reservoir, Maricopa unit, above Gillespie Dam

44. The formula of United States Geological Survey is as follows:

Safe yield=(1) total water pumped
plus
(2) Water leaving basin as surface flow or underflow
plus
(3) Evaporation and transpiration on bottom lands
minus
(4) Water that must leave basin as surface flow and underflow to carry out excess salts
plus
(5) Change in storage in acre-feet=849,000+200,000—108,000—34,000=907,000.

NOTE.—No rising water left the unit in 1940–44 except an annual average of 81,000 acre-feet carrying about 5.5 tons of salt per acre-foot, so item (2) is zero.

45. The values in the foregoing are the averages for the period 1940–44 which the Bureau assumes to be an average period. All the items are yields from the ground-water reservoir. The result means that 58,000 acre-feet net could be taken from the ground-water reservoir in addition to the draft which was placed on it and which should have been placed on it for salt balance.

46. Inasmuch as the period 1940–44 was one in which run-off in the Maricopa unit was approximately the long-time average, another item must be considered. During the period the contents of the reservoirs on the Salt and Verde Rivers increased an annual average of 148,000 acre-feet. This much more water was available. Thus the supply in this average period was 148,000+58,000=206,000 acre-feet more than the demand.

Second method of estimating safe yield

47. This method involves comparison of the surface flow entering the unit during the period 1940–44 with the estimated consumptive use of the irrigated acreage in the unit above Gillespie Dam plus outflow for salt balance.

Total supply from surface flow except return flow (table B–2)

		Acre-feet
Total diversions		1,236,100
Diversion of return flow and spills		101,900
		1,134,200
Demand:		
Total acres	394,970	
Acres below Gillespie Dam	14,380	
	380,590	
Consumptive use (Bureau's unit value accepted for sake of the computation): 380,590 acres, at 3.2	1,217,900	
Required for salt balance:		
Required (tab. B–5)	108,000	
Actual outflow at Gillespie Dam carrying 5.5 tons per acre-foot	81,000	
Net required	27,000	
		1,244,900
Apparent deficiency		110,700

48. In addition to the supply at the diversion points there were additional supplies consisting of the average annual 148,000 acre-feet increase in reservoir content and the considerable percolation from all the streams which enter the basin. The latter can be given consideration by adding the amounts lost by phreatophytes and substracting the decrease in storage in the underground reservoir.

The final value is obtained thus:

148,000 + (−111,000) plus 200,000 plus (−34,000) = 203,000.

This is the surplus in the 1940–44 period calculated by this method.

49. This is the situation even though over 1,000,000 acre-feet of floodwater wasted out of the Maricopa unit during the period.

50. Summing up: The conclusion is inescapable that, without attempting to salvage the spills as outlined in a previous section of this report, there is surplus water in the Maricopa unit over and above the amount required for the 1940–44 irrigated acreage. The acreage irrigated in those years, together with that irrigated in the Pinal unit, 1940–44, as the "rescue" project proposed by the Bureau.

51. While there is surplus in the unit as a whole that fact does not mean that there is not overdraft in parts of it. Even if no works were constructed to distribute the surplus the maldistribution would become at least partially rectified as time goes on by underflow from the surplus areas to be deficient. The fact that the water table is falling is not the criterion as to long-time overdraft. The water table must recede when pumping from ground water begins, no matter whether the recharge of the ground-water reservoir is equal to the demand or not.

52. This occurs because ground water is not stationary. On the contrary, it is moving from the locus of recharge to the locus of escape. In a state of nature, recharge and escape are in balance over any complete cycle of drought and surplus. When pumping draft begins a new avenue of escape from the ground-water reservoir is provided. The amount of escape at the natural location must decrease by the amount of the new draft. Rate of movement of the ground water toward the natural locus of escape is in proportion to the steepness of slope of the water table toward that point. The only way by which the rate of movement can decrease is by a flattening of the slope. The amount of water escaping at the natural locus is reduced as the slope flattens. Therefore the decrease in natural escape can be accomplished only by recession of the water table elevation all the way from the locus of pumping to the locus of natural escape.

Additional possible salvage of water in 1941

53. In 1941, over 1,000,000 acre-feet spilled past Granite Reef Dam, January-May, inclusive. Had there been adequate diversion facilities as heretofore suggested, all of the spill could have been diverted for use elsewhere. If, furthermore, the water held in surface storage had been released from the reservoir more rapidly than it was and placed underground much additional water which was evaporated could have been saved for use.

Deficiency in Pinal unit

54. The situation in the Pinal unit does not lend itself as readily to analysis by more than one method as does that in the Maricopa unit.

55. The second method used in the Maricopa unit gives the following results.

Pinal unit—long time average

Local supply:		
Diversion at Ashurst-Hayden Dam (table 8, enclosure 9, Report of U. S. Engineer Office 1945). Buttes Reservoir assumed to have been constructed to 400,000 acre-feet capacity		291,000
Underground water (supplies which it is estimated can be retained in unit by lowering the water table sufficiently):		
Eloy area	25,000	
Casa Grande-Florence area	5,000	
		30,000
Ground-water resources of Santa Cruz Basin, Ariz., U. S. Geological survey, 1943.		
Waste past Buttes Reservoir U. S. Engineer Office Report 1945	124,000	
Assumed that 75 percent can be diverted by larger canals to unit from river or can be caused to percolate in river		93,000
Total		414,000
Demand:		
Salt balance:		
Surface water 384,000 acre-feet at 1 ton per acre-foot.		
Required outflow for salt balance (384,000÷5.5 equals)	70,000	
Consumptive use of 124,000 acres at 3.2	397,000	
		467,000
Deficiency		53,000

56. Average annual diversion at Ashurst-Hayden Dam was 294,000 acre-feet in 1940–44 which is almost the same as that given in the preceding table for the long-time average. Recession of water table does not indicate so large an overdraft as given in that table. It averaged 0.4 feet north of the Sacaton Mountains and a line running southeast from the eastern end of the mountains to Picacho Reservoir, and 0.125 feet south of the mountains and the line, and north of a line running east and west through the south end of Picacho Reservoir.

57. However, for the sake of the argument, the results of the calculation are accepted and the deficiency for the 1940–44 acerage is accepted.

58. This deficiency could be made up by importation from the Maricopa unit. The conduit would divert from Salt River at the same point the Salt-Gila canal of the Bureau diverts and would follow the same route. In addition, enough water could be diverted to take care of the entire 150,000 acres which the Bureau proposes to irrigate in the Pinal unit.

NOTE

In all of this report beneficial consumptive use of 3.2 acre-feet per acre has been used as the basis of calculations in which such use was a necessary part. This was done for the sake of the argument and not because this value is accepted as valid. It is believed that 3.2 acre-feet per acre is larger than the actual values.

Similarly, estimates as to run-off made by the Bureau have been accepted for the sake of the argument, but this does not indicate that they are accepted as valid.

MISCELLANEOUS NOTES

1. The Bureau's project proposes to lift 1,200,000 acre-feet 985 feet from Colorado River and also proposes to pump about 1,000,000 acre-feet per year from groundwater through an undetermined lift. The project outlined herein pumps no water from the Colorado River. The lift of groundwater in the Maricopa unit would average about 44 feet more than the 1947 lift and about 64 feet more than the lift of ground water required in that unit by the Bureau's project. In the Pinal unit the lift would average about 60 feet more than the 1947 lift and about 80 feet more than the lift of ground water required in that unit in the Bureau's project.

2. Because of losses in transit and large salt content, it requires 140,000 acre-feet of Colorado River water to irrigate as much land as 100,000 acre-feet of average water tributary to the Maricopa unit would irrigate. It requires 127,000 acre-feet of Colorado River water to irrigate as much land in central Arizona as 100,000 acre-feet of Gila River water will irrigate.

3. Colorado River water is potentially available for use anywhere in Colorado River Basin. On the contrary, it is not practical to use the water tributary to central Arizona project anywhere else than in central Arizona. If the spills from reservoirs are not salvaged as proposed herein or by surface reservoirs, they will continue to waste into the ocean or be lost in traversing the hot desert areas.

4. The Bureau reports that the total demand for water from Colorado River exceeds the supply by 25 percent. Every acre-foot diverted from Colorado River which could be secured by salvaging local waste water, as is possible in central Arizona, is a deprivation to the whole Colorado River Basin.

5. There is no emergency as to water supply in central Arizona. Every water user, actual or potential, has access to ground water. When a surplus cycle begins, surface and underground reservoirs will be replenished. The situation can then be assessed with facts not available now.

APPENDIX

AUTHORITIES ON WHICH CONCLUSIONS OF TESTIMONY ARE BASED

UNITED STATES GEOLOGICAL SURVEY

Water Resources Branch, Division of Surface Water:

Reports giving records of stream discharge at all gaging stations in Gila River Basin:

Annual reports:

No. 11, part 2, page 100.
No. 12, part 2, page 311.
No. 18, part 4, page 297.
No. 19, part 4, page 420.
No. 20, part 4, page 59.
No. 21, part 4, page 382.
No. 22, part 4, page 397.

Bulletins: No. 131, page 51.

Water Supply Papers: Nos. 33, 38, 39, 50, 52, 66, 75, 81, 85, 100, 133, 175, 211, 249, 269, 289, 309, 329, 359, 389, 409, 439, 459, 479, 509, 529, 549, 569, 589, 609, 629, 649, 669, 689, 704, 734, 749, 764, 789, 809, 829, 859, 879, 899, 929, 959, 979, 1009, 1039, 1049, 1059.

Water Resources Branch, Division of Ground Water:

Water Supply Paper 136. Underground Waters of Salt River Valley. W. T. Lee. 1903.
Ground Water Resources of the Santa Cruz Basin, Ariz., 1943. Mimeographed.
Geology and Ground Water Resources of the Salt River Valley Area. February 1947. Mimeographed.
Geology and Ground Water Resources of Paradise Valley, Maricopa County, Ariz. January 1947. Mimeographed.
Further Investigations of the Ground Water Resources of the Santa Cruz Basin, Ariz. 1947. Mimeographed.
Annual reports, Pumpage and Groundwater Levels in Arizona, 1946, 1947. Mimeographed.

UNITED STATES INDIAN SERVICE

Depth to Water at Wells, San Carlos Project, 1934–48.
Crops raised and crop values.
Surface water diverted and water pumped.

WAR DEPARTMENT, UNITED STATES ENGINEER OFFICE, LOS ANGELES, CALIF.

Interim report.
Flood Control, Gila River and Tributaries above Salt River, Arizona and New Mexico, December 1, 1945.
Enclosures 7, 8, 10: Estimates of Long Term Seasonal Precipitation and Runoff of Gila River; Safe draft on San Carlos Reservoir; Reservoir yield studies.

UNITED STATES BUREAU OF RECLAMATION

Stream Flow of Lower Colorado River and Its Tributaries, 1934. E. B. Debler, J. R. Riter, A. F. Johnson.
Report on Central Arizona Project, December 1947.
Appendixes to report on central Arizona project.

SAFE YIELD OF MARICOPA UNIT GROUND WATER RESERVOIRS

The portion of the Maricopa unit above Gillespie Dam is regarded as one ground water reservoir and the Pinal unit above the western end of the San Carlos project as another.

On page G–15 of the volume of the Bureau's Report on Central Arizona Project 1947, containing appendixes, the United States Geological Survey out-

lines a method of estimating the safe yield for the Maricopa unit including the Gillespie area below Gillespie Dam.

The Maricopa unit as a whole is not a ground-water unit because the geological barrier on which the dam rests divides the Maricopa unit into two parts. If the portion above Gillespie Dam is taken separately, an approximation of its safe yield can be obtained.

Safe yield of ground water reservoir—Maricopa unit—above Gillespie Dam

The formular of United States Geological Survey is as follows: Safe yield equals total water pumped plus water leaving basin as surface flow or underflow plus evaporation and transportation on bottom lands minus water that must leave basin as surface flow and underflow to carry out excess salts plus change in storage in acre feet equals

$$849{,}000+200{,}000-108{,}000-34{,}000=907{,}000$$

The values in the foregoing are the averages for the period 1940–44 which the Bureau assumes to be an average period. All the items are yields from the ground-water reservoir. The result means that 58,000 acre-feet net could be taken from the ground-water reservoir in addition to the draft which was placed on it and which should have been placed on it for salt balance.

Inasmuch as the period 1940–44 was one in which run-off in the Maricopa unit was approximately the long-time average, another item must be considered. During the period the contents of the reservoirs on the Salt and Verde Rivers increased an annual average of 148,000 acre-feet. This much more water was available. Thus the supply in this average period was 148,000 plus 58,000 which equals 206,000 acre-feet more than the demand.

Second method of estimating safe yield

This method involves comparison of the surface flow entering the unit during the period 1940–44 with the estimated consumptive use of the irrigated acreage in the unit above Gillespie Dam plus outflow for salt balance.

Total supply from surface flow except return flow (table B–2)

		Acre-feet
Total diversions		1,236,100
Diversion of return flow and spills		101,900
		1,134,200
Demand:		
Total acres	394,970	
Acres below Gillespie Dam	14,380	
	380,590	
Consumptive use (Bureau's unit value accepted for sake of the computation) 380 590 acres, at 3.2	1,219,900	
Required for salt balance:		
Required (table B–5)	108,000	
Actual outflow at Gillespie Dam carrying 5.5 tons per acre-foot	81,000	
Net required	27,000	
		1,244,900
Apparent deficiency		110,700

In addition to the supply at the diversion points there were additional supplies consisting of the average annual 148,000 acre-feet increase in reservoir content and the considerable percolation from all the streams which enter the basin. The latter can be given consideration by adding the amounts lost by phreatophytes and subtracting the decrease in storage in the underground reservoir.

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The final value is obtained thus:

$$148{,}000+(-111{,}000)+200{,}000+(-34{,}000)=203{,}000$$

This is the surplus in the 1940–44 period calculated by this method.

This is the situation even though over 1 000,000 acre-feet of flood water wasted out of the Maricopa unit during the period.

Estimate of flood flows past Gillespie Dam based on inflow into Phoenix area given in Bureau's table B–10 and on recorded waste past Gillespie Dam

[1,000 acre-feet]

	Years in period	Total discharge into area	Average annual discharge into area	Average flood waste past Gillespie Dam	Total
Period:					
1897–1904 [1]	8			0	0
1905–20 [2]	16	51,104	3,194	1,140	18,240
1921–29 [3]	9	17,167	1,907	200	1,800
1930–39 [4]	10	17,187	1,719	138	1,380
1940–43 [5]	4	10,550	2,637	214	856
Total	47				22,276
Average					474
Say					470

[1] Discharge was so small that flood discharge would be negligible at Gillespie.

[2] The period 1905–20 was a surplus cycle in which discharge into the area was large. In a period of similar discharge and with present reservoir development on Salt and Verde Rivers including Horseshoe enlargement, the estimated average annual spill past Granite Reef would be 1,053,000 acre-feet. Other streams would also contribute.

Waste past Granite Reef Dam in 1941 was 1,004,000 acre-feet and past Gillespie Dam was 1,039,000 acre-feet. Agua Fria contributed very little to the waste as only 10,000 acre-feet spilled from Carl Pleasant Reservoir.

In a series of wet years like 1905–20, floods from other sources than the major streams would be larger than in a single wet year. Also spill from Carl Pleasant Reservoir would be considerable. It would seem that average annual spill past Gillespie Dam would be at least 10 percent more than in 1941 or 1,140,000 acre-feet.

[3] 1921–29 discharge into area averaged 188,000 acre-feet more than average in 1930–39. San Carlos Reservoir on the Gila and Mormon Flat, Horse Mesa, Stewart Mountain, Bartlett, and Horseshoe were either not in existence until after the period or were built during the period. It is assumed a little less than 40 percent of the additional 188,000 acre-feet was flood flow which would have appeared at Gillespie Dam, had present reservoir and irrigation development been in existence during the period.

[4] The value here is the average flow past Gillespie Dam during period. Inspection of daily record at Kelvin, Laveen, and Gillespie Dam indicates these flows were minor floods which in part would have percolated had the water table been lower above Gillespie Dam. Coolidge Reservoir was fully functioning by 1930, so this period is one in which all major reservoirs were retaining all water reaching them.

[5] This practically all occurred in 1941.

Summary of reservoir operation study, Salt and Verde Rivers, for maximum conservation and utilization of underground reservoirs

[Units 1,000 acre-feet, 1897–1943]

Calendar year	Discharge at Granite Reef (1)	Historical change in reservoir content (2)	Historical losses (3)	Virgin discharge, Granite Reef (4)	Total irrigation demand (5)	Gross irrigation diversion (6)	Net consumptive use of surface water (7)	Contribution to ground water from irrigation (8)	Spreading diversion (9)	Total net contribution to ground water (10)	Reservoir losses (11)	Reservoir content end of year (12)	Spill (13)
1897–1904	4,683			4,683	13,888	4,683	3,874	809		809	0	0	0
1905	5,530			5,530	1,736	1,736	1,270	466	980	1,446	69	2,162	583
1906	2,384			2,384	1,736	1,736	1,270	466	818	1,284	74	1,502	416
1907	2,010			2,010	1,736	1,736	1,270	466	526	992	74	1,176	
1908	1,817			1,817	1,736	1,736	1,270	466	526	992	71	660	
1909	1,724			1,724	1,736	1,736	1,270	466	315	781	48	285	
1910	894	+22	1	917	1,736	979	806	173	210	383	13	0	
1911	1,674	+423	34	2,131	1,736	1,647	1,222	425	110	535	51	323	
1912	1,051	−60	39	1,030	1,736	1,178	963	215	154	369	21	0	
1913	1,062	−215	30	877	1,736	877	721	156		156		0	
1914	1,091	+222	25	1,338	1,736	1,210	989	221		221	15	113	
1915	1,794	+624	60	2,478	1,736	1,648	1,223	425	319	744	65	560	
1916	5,142	+83	64	5,289	1,736	1,736	1,270	466	1,055	1,521	75	1,754	1,229
1917	3,015	−270	62	2,807	1,736	1,736	1,270	466	818	1,284	69	1,099	839
1918	1,500	−539	45	1,006	1,736	1,736	1,270	466	304	770	55	10	
1919	1,401	+746	42	2,189	1,736	1,736	1,270	466	264	730	60	139	
1920	2,503	−101	64	2,466	1,736	1,736	1,270	466	514	980	70	285	
1921	1,214	−306	47	955	1,736	940	772	168	130	298	9	161	
1922	1,585	−79	51	1,557	1,736	1,210	989	221		221	28	480	
1923	1,488	+236	16	1,740	1,736	1,210	989	221		221	45	965	
1924	1,304	−422	72	954	1,736	1,736	1,270	466		466	51	132	
1925	874	−218	25	681	1,736	812	669	143		143	1	0	
1926	1,078	+210	34	1,322	1,736	1,210	989	221		221	1	111	
1927	1,501	+359	55	1,915	1,736	1,648	1,223	425		425	48	330	
1928	1,095	−502	38	631	1,736	955	784	171		171	6	0	
1929	1,099	−104	18	1,013	1,736	1,013	830	183		183	0	0	
1930	775	+50	20	845	1,736	845	695	150		150	0	0	
1931	957	+365	26	1,348	1,736	1,210	989	221		221	1	137	
1932	1,481	+483	78	2,042	1,736	1,692	1,246	446		446	55	432	
1933	909	−279	66	696	1,736	1,123	919	204		204	5	0	
1934				360	1,736	360	305	55		55	0	0	
1935				1,504	1,736	1,210	989	221		221	10	284	
1936				1,097	1,736	1,210	989	221		221	20	151	
1937				2,089	1,736	1,648	1,223	425		425	60	532	
1938				959	1,736	1,471	1,128	343		343	20	0	
1939				737	1,736	737	608	129		129	0	0	
1940				1,058	1,736	677	560	117		117	4	377	
1941				3,480	1,736	1,720	1,261	459	797	1,256	72	1,268	
1942				880	1,736	1,489	1,138	351	608	959	51	726	
1943				974	1,736	974	799	175		175	0	0	
Total, 1897–1943				69,512		56,682	43,862	12,820	8,448	21,268	1,317		3,067
Average				1,479	1,736	1,206	933	273	180	453	28		65

NOTES ON OPERATION STUDY FOR MAXIMUM CONSERVATION

The useful reservoir capacities are as follows:

Roosevelt	1,398,000	Horseshoe	212,000
Horse Mesa	245,000	Bartlett	179,000
Mormon Flat	58,000	McDowell	----------
Stewart Mountain	70,000		

All are present capacities according to USGS water-supply paper with the exception of Horseshoe. The capacity used for Horseshoe is with the proposed enlargement.

Demand for irrigation used in tabulation

[1,000 acre-feet]

	Old water users diverting at Granite Reef (1)	Pinal unit (2)	Total, columns 1 and 2 (3)	Areas to the north, west and east, outside of areas watered from Granite Reef Dam (4)	Total, columns 3 and 4 (5)
January	32.9	4.6	37.5	16.3	53.8
February	55.3	7.6	62.9	27.4	90.3
March	89.3	12.3	101.6	44.2	145.8
April	106.3	14.7	121.0	52.6	173.6
May	112.7	15.6	128.3	55.8	184.1
June	124.4	17.2	141.6	61.5	203.1
July	126.5	17.5	144.0	62.6	206.6
August	109.5	15.2	124.7	54.2	178.9
September	119.1	16.5	135.6	58.9	194.5
October	86.1	11.9	98.0	42.6	140.6
November	59.5	8.2	67.7	29.4	97.1
December	41.4	5.7	47.1	20.5	67.6
Total	1,063.0	147.0	1,210.0	526.0	1,736.0

NOTES ON MAIN TABLE

Column (1), Streamflow of Lower Colorado River by E. B. Debler, December 1934, USBR report, table 45.

Column (2), USGS WSP 918, p. 406.

Column (3), Report on Central Arizona Project, 1947, USBR, p. 104; column labeled "Evaporation loss" plus net storage increase minus change in storage given in column (2).

Column (4), Column (1) + (2) + (3) = Column (4).

Column (5), Total irrigation demand. (See table above.)

Column (6), Surface delivery depends on surface water available and reservoir content.

Column (7), Net use assumed to be 3.2 acre-feet per acre.

Column (8), Gross diversion column (6), net use column (7) contribution to ground water.

Areas to which water is diverted at Granite Reef Dam:

	Acres
SRWU Association Indian Lands and RWCD	266,860
West side of above	69,520
East side of above	18,180
	354,560

	Second-feet
Capacity of canal to west side	3,000
Capacity of canal to east side	1,100
Capacity of canal to Pinal unit	400

Many variations from the plan outlined here are possible. For instance, more water could be delivered to the 266,860 acres and more to the east side with less to the west side.

ADDITIONAL NOTES

It is assumed that McDowell Reservoir is constructed to a capacity of 578,000 acre-feet as a conservation reservoir instead of a flood-control reservoir as proposed by the Bureau. Capacity above 142,000 acre-feet would be rarely utilized and would be emptied as soon as possible.

In calculations of salvage of spills, McDowell Reservoir is not considered. However, the net loss by evaporation from area of water surface is treated as a demand.

The flows from the Salt and Verde are not in the same proportion each year. McDowell Reservoir is to be constructed because it is below the fork of the Verde and Salt and would regulate the excess flow that might come from either stream.

Also the floods of the streams are flashy. Computations on a monthly basis cannot give full consideration to this. Spills under such circumstances are larger than computed when discharges and demands are considered on a monthly basis. McDowell Reservoir would take care of this.

Its construction to 578,000 acre-feet capacity would salvage water in addition to that given in the above table but this additional salavage is neglected.

It is probable that more refined calculations would show that 578,000 acre-feet is not necessary.

In studies of virgin flow by the U. S. Reclamation Bureau, Streamflow of Lower Colorado River and Tributaries, by E. B. Debler, J. A. Riter, and A. F. Johnson, 1934, the net reservoir loss was assumed at 4.0 feet in depth. This same value was assumed for this study.

The above table represents only 1 method of salvaging the spilled water. Better methods will be found by more mature study.

It is assumed that 3 feet in depth per day will percolate in spreading grounds in the Agua Fria River bottom lands.

Evaporation in the spreading grounds would, on the average, be less than 0.4 of 1 percent so it would be negligible.

Calendar year	Discharge at Granite Reef (1)	Historical change in reservoir content (2)	Historical losses (3)	Virgin discharge, Granite Reef (4)	Total irrigation demand (5)	Gross irrigation diversion (6)	Net consumptive use of surface water (7)	Contribution to ground water from irrigation (8)	Spreading diversion (9)	Total net contribution to ground water (10)	Reservoir losses (11)	Reservoir content end of year (12)	Spill (13)
1897-1904					8,000	4,653	4,000	653		653	0	0	0
1905					1,000	1,000	854	146		146	76	2,162	2,295
1906					1,000	1,000	854	146		146	85	2,162	1,208
1907					1,000	1,000	854	146		146	83	1,924	1,165
1908					1,000	1,000	854	146		146	85	2,162	493
1909					1,000	1,000	854	146		146	84	1,971	831
1910					1,000	1,000	854	146		146	80	1,785	0
1911					1,000	1,000	854	146		146	82	1,786	1,048
1912					1,000	1,000	854	146		146	75	1,741	0
1913					1,000	1,000	854	146		146	72	1,546	0
1914					1,000	1,000	854	146		146	55	1,709	0
1915					1,000	1,000	854	146		146	85	1,870	1,313
1916					1,000	1,000	854	146		146	85	2,162	3,915
1917					1,000	1,000	854	146		146	82	1,780	2,104
1918					1,000	1,000	854	146		146	70	1,716	0
1919					1,000	1,000	854	146		146	85	2,162	558
1920					1,000	1,000	854	146		146	85	1,821	1,721
1921					1,000	1,000	854	146		146	70	1,706	0
1922					1,000	1,000	854	146		146	72	2,162	29
1923					1,000	1,000	854	146		146	85	2,162	660
1924					1,000	1,000	854	146		146	70	1,678	368
1925					1,000	1,000	854	146		146	50	1,309	0
1926					1,000	1,000	854	146		146	50	1,581	0
1927					1,000	1,000	854	146		146	50	1,869	547
1928					1,000	1,000	854	146		146	50	1,450	0
1929					1,000	1,000	854	146		146	50	1,413	0
1930					1,000	1,000	854	146		146	50	1,208	0
1931					1,000	1,000	854	146		146	50	1,506	0
1932					1,000	1,000	854	146		146	70	1,723	745
1933					1,000	1,000	854	146		146	85	1,869	0
1934					1,000	1,000	854	146		146	60	1,869	0
1935					1,000	1,000	854	146		146	50	1,148	0
1936					1,000	1,000	854	146		146	50	1,190	0
1937					1,000	1,000	854	146		146	85	1,869	893
1938					1,000	1,000	854	146		146	60	1,869	0

1939	(1)	(1)	(1)	(1)	1,000	1,000	854	146		146	60	1,262	0
1940	(1)	(1)	(1)	(1)	1,000	1,000	854	146		146	70	1,250	0
1941	(1)	(1)	(1)	(1)	1,000	1,000	854	146		146	85	2,086	1,558
1942	(1)	(1)	(1)	(1)	1,000	1,000	854	146		146	65	2,162	0
1943	(1)	(1)	(1)	(1)	1,000	1,000	854	146		146	60	1,594	0
1897–1943	(1)	(1)	(1)	69,512		43,683	37,305	6,378	0	6,378	2,721		21,477
Average	(1)	(1)	(1)	1,479	1,000	930	794	136	0	136	58	34	457

[1] Same as previous study.

NOTE.—This is approximately same demand as proposed by Bureau, which assumed diversion to be 980,000 acre-feet.

The useful reservoir capacities are as follows:

Roosevelt	1,398,000
Horse Mesa	245,000
Mormon Flat	58,000
Stewart Mountain	70,000
Horseshoe	212,000
Bartlett	179,000
McDowell	----------

All are present capacities according to the U. S. Geological Survey water supply papers with the exception of Horseshoe. The capacity used for Horseshoe is with the proposed enlargement.

Estimate of water supply available to Maricopa unit of central Arizona project (See preceding tabulation showing operation of reservoirs tributary to the unit)

		Average 1897–1943 (acre-feet)
1. Additional diversion at Granite Reef:		
Bureau's report	980,000	
By operating surface reservoirs as proposed in tabulation (p. A–8)	1,386,000	
		406,000
2. Additional diversion from Agua Fria		37,000
Total additional diversion		443,000
3. Surplus with Bureau's diversion for 1940–44 acreage above Gillespie Dam (p. A–4). (Increase in surface reservoir content not included)		58,000
Total surplus		501,000
4. Additional acreage in Maricopa unit:		
Bureau's ultimate project	46,000	
Gillespie Area	14,000	
Total	60,000	
60,000 acres, at 3.5 acre-feet (includes consumptive use and salt balance)		210,000
Exportation to Pinal unit		147,000
Total added demand		357,000
Remaining surplus in Maricopa unit		144,000

Note on item 2:	Acre-feet
Estimate average annual discharge Agua Fria (1897–1943)	95,000
Estimate average annual discharge Salt and Verde (Tab. B–10, U. S. Reclamation Bureau)	1,508,000

Agua Fria discharge is $\frac{95,000}{1,508,000} = 6.3$ percent of Salt and Verde.

Average annual spill of Salt and Verde Rivers past Granite Reef in operation to salvage water otherwise wasted equals 65,000 acre-feet, which is 4.3 percent of total discharge of the two streams.

Assume same percent applies to Agua Fria.

$0.043 \times 95,000 = 4,100$ acre-feet (say 4,000).

$95,000 - 4,000 = 91,000$ acre-feet.

Bureau assumes Agua Fria will yield an annual average of 54,000 acre-feet.

$91,000 - 54,000 = 37,000$ acre-feet = estimated yield in excess of that used by Bureau.

Maricopa unit.—Estimate of underground storage capacity required for salvaging surplus water of Agua Fria, Salt, and Verde Rivers

1905–20:	1,000 acre-feet
Total diversion for irrigation (from p. A–9)	1,556
Diversion to Pinal unit	147
Net diversion Maricopa unit	1,409
To rights at Granite Reef	1,063
Total to lands east, west and south of SRVWU Association in Maricopa unit	346
Diversion to SRVWU Association in excess of 1,000,000 acre-feet	63
Total additional diversion	409
Diverted for spreading	432
Total diversion from Granite Reef in excess of 1,000,000 acre-feet	841

Maricopa unit.—Estimate of underground storage capacity required for salvaging surplus water of Agua Fria, Salt, and Verde Rivers—Continued

		1,000 Acre-feet
Diverted from Agua Fria (estimated as follows):		
1905–20:		
Average annual discharge Salt and Verde		2,250
Spill	192	
Res. loss	52	
		244
Total diversion		2,006
Estimated discharge, Agua Fria		190
Diversion from Agua Fria on same basis as for Salt and Verda		
$190 \times \frac{2,006}{2,250} =$		169
Total diversion spreading and irrigation except Old Granite Reef rights		1,010
Consumptive use outside Old Granite Reef rights, 87,700 acres at 3.2		280
Net to ground water		730
Area within boundary of Maricopa unit	acres	654,000
730,000 acre-feet per year for 16 years	acre-feet	11,700,000

$\frac{11,700,000}{654,000} \times 0.15 = 120$ feet difference in elevation of water table top and bottom of underground storage capacity. Voids in alluvium equal 15 percent.

Average lift would be 143 feet assuming that at end of 1920 flood-season water table would be 20 inches higher than fall, 1947.

Pinal unit.—Estimate of underground storage capacity required for salvaging surplus water of Gila River

Average annual spill of Gila River water past Ashurst-Hayden Dam (point of diversion to San Carlos project) after Buttes Reservoir is constructed to 400,000 acre-feet capacity, is estimated at 124,000 acre-feet (War Department, United States Engineer office report on Flood Control, Gila River and Tributaries Above Salt River).

Records of run-off not available prior to 1915 and detail cannot be worked out as for Salt and Verde Rivers.

Assume that 75 percent of 124,000 equals 93,000 acre-feet can be salvaged by spreading and irrigation operations like those proposed for Salt and Verde and Agua Fria Rivers.

Assuming that all of the excess would occur in a period like 1905–20, an average annual diversion during the 16 years would be 273,000 acre-feet and the total would be 4,371,000 acre-feet.

Assuming that this storage would be concentrated under 225,000 acres, the vertical distance between top and bottom of the storage would be as follows:

$$\frac{4,371,000}{225,000} = \frac{19.4}{0.15} = 129 \text{ feet}$$

Assuming that at end of flood season 1920 the water table would be 20 feet higher than fall 1947 it would be 109 feet lower at beginning of flood season of 1905. Average lift would be 112 feet.

Pinal unit, estimate of water supply

			Long-time average, acre-feet
Local supply:			
1. Diversion from Gila River at Ashurst-Hayden Dam [1]			291,000
2. Underground water supplies retained in unit by lowering the water table sufficiently: [2]			
Eloy area	25,000		
Casta Grande-Florence area	5,000		
			30,000
3. Salvage of waste past Buttes Reservoir			93,000
Total local supply			414,000

[1] Report of War Department, U. S. Engineer Office, 1945, enclosure 9, Buttes Reservoir assumed constructed to 400,000 acre-feet.

[2] U .S. Geological Survey, Ground Water Resources of Santa Cruz Basin, 1943.

Pinal unit, estimate of water supply—Continued

		Long-time average, acre-feet
Demand:		
4. Waste for salt balance	70,000	
5. Consumptive use, 1940–44 acreage at 3.2	397,000	
		467,000
Deficiency for 1940–44 acreage		53,000
6. Requirement for 26,000 acres additional to make total 150,000 acres consumptive use 3.2 plus requirement on salt water		94,000
Importation required from Maricopa unit		147,000

PHREATOPHYTES

Aerial photographs were made for the Corps of Engineers, War Department, of the Gila River from its junction with the Salt in 1937 and of the Gila from Gillespie Dam to the influx of Salt River and thence up the Salt in 1948. These were reviewed for this report to obtain the area of phreatophytes and classification as to density insofar as revealed by the photographs.

The United States Geological Survey made investigations of the use of water by the same type of phreatophytes (salt cedar mostly) in Safford Valley, Ground water Resources and Problems of Safford Basin, Arizona, S. F. Turner and others, 1947, which show the large evapo-transpiration loss of water by that type of phreatophyte. In the areas of densest growth the loss of water per year was 7 feet in depth.

The higher temperatures at Phoenix indicate that for the same density of cover, the loss of this type of vegetation would be 9 feet in depth. This includes precipitation of which, according to the Bureau of Reclamation table B–5, about 0.55 would be effective. Loss of groundwater in the Phoenix area by these growths at 100 percent density would be 8.45 feet in depth.

A part of the phreatophyte growth in the Phoenix area especially above Laveen on the Gila is mesquite which, when it is able to reach groundwater with its roots, uses about half as much of it as salt cedar does.

Quotations from publications of the United States Geological Survey in regard to use of phreatophytes in the Phoenix area are:

Excerpt from Ground Water Resources of the Santa Cruz Basin, Ariz., by S. F. Turner and others, dated Tucson, Ariz., May 14, 1943: "Rott's estimates of the consumptive use of tamarisk were made before any data on their use were available. Extensive experiments, carried out by S. F. Turner[38] and others in Safford Valley along the Gila River about 150 miles above this part of the Casa Grande-Florence area, showed that the consumptive use of tamarisk in Safford Valley was about 7 feet a year, and that of mesquite was about 3 feet a year. The Safford Valley is about 1,500 feet higher than the Gila River Valley near Sacaton and the evaporation and transpiration are less in Safford Valley than in the lower area. Tamarisk has almost completely supplanted mesquite in the lowland areas in Safford Valley and the tests made on mesquite were made in areas where the depth to water was 20 feet or more. Thus in the Gila Valley near Sacaton the transpiration rate of 7 feet for tamarisk is probably the minimum and the rate of 3 feet for mesquite should probably be increased to 4 or 5 feet in the lowland areas. The tamarisk has kept on spreading since Rott's estimates were made in 1936 and at present covers close to 10,000 acres, leaving about 20,000 acres of mesquite thickets. Applying the transpiration rates given above gives the magnitude of the transpiration losses as 100,000 to 150,000 acre-feet a year. A more definite figure cannot be given without detailed experimental work in the area extending over a period of several years and detailed mapping of the plant types and abundance in the area."

Excerpt from Geology and Ground Water Resources of the Salt River Valley Area, Maricopa and Pinal Counties, Ariz., by H. R. McDonald, H. N. Wolcott, and J. D. Hem, dated February 4, 1947:

[38] Turner, S. F. and others, Geology and water resources of Safford Valley, Ariz.: U. S. Geological Survey Water Supply Paper, in preparation.

"Evaporation and transpiration

"The water used by plants and evaporated from the land surface constitutes the greatest part of the discharge from the Salt River Valley. Of this, the amount used by commercial crops is beneficial, but the amount used by the natural river-bottom growth represents an absolute waste of water.

"The use of water by phreatophytes (salt cedar and other natural river-bottom vegetation) in the Salt River Valley has never been determined. The following estimate of the amount of water used by this type of vegetation in the Salt River Valley is based upon areas and densities of growth estimated from aerial photographs, and upon rates of water use by salt cedars in Safford Valley, along the upper Gila River. The aerial photographs used were made in 1941 for the Maricopa County Board of Supervisors. The total area occupied by phreatophytes along the Salt River from Granite Reef Dam to its confluence with the Gila River, and along the Gila River from this point to Gillespie Dam, was estimated from the photographs to be about 18,500 acres. About 13,500 acres of this was estimated to have a density of growth of 100 percent (maximum density). The remaining 5,000 acres was estimated to have a density of growth of 50 percent, which would be equivalent to 2,500 acres at 100 percent. The amount of water used by these plants was estimated to be about 8 acre-feet per year per acre of 100 percent density, on the basis of the Safford experiments.[33 34] From these data, the total amount of water used within the Salt River Valley by this type of plant was estimated to be about 130,000 acre-feet in 1941. Since 1941 the area of growth has increased greatly.

"The amount of water used by phreatophytes along the Gila River from Sacaton Dam to the gaging station near Laveen was estimated by Turner and others[35] to be about 100,000 to 150,000 acre-feet in 1940. The area occupied by phreatophytes in the 13 miles between the gaging station near Laveen and the confluence of the Gila and Salt Rivers was not estimated, but it is known to be large.

"Detailed field surveys and recent aerial photographs would be necessary for closer estimates of the total amount of water used by phreatophytes in the valleys of the Salt and Gila Rivers in the region. However, on the basis of available data, it is estimated that the water used by phreatophytes in this region is not less than 200,000 acre-feet and may be as much as 350,000 acre-feet per year."

Bureau's proposal to divert from Colorado River for 1940–44 deficiency C. A. P.

	Acre-feet, pp. B-10 and B-11	
	Maricopa unit	Pinal unit
Present safe annual yield (table B-3)	550,000	110,000
Outflow for salt balance (table B-5)	108,000	46,000
Safe-pumping draft	442,000	64,000
Pumping draft 1940–44 (table B-1)	874,000	255,000
Overdraft	432,000	191,000

[33] Turner, S. F., and others, Water Resources of Safford and Duncan-Virder Valleys, Ariz.,
[34] Unpublished data in files of U. S. Geological Survey.
[35] Turner, S. F., and others, Ground-water Resources of the Santa Cruz Basin, Ariz., and N. Mex.: U. S. Geological Survey (mimeograph), pp. 7–10, 1941.

RECESSION OF WATER TABLE

Maricopa unit, 1940–44

Section of United States Geological Survey mimeographed report Pumpage and Ground Water Levels in Arizona in 1947, by Turner, Babcock, and others. The graph showing cumulative net change in water level and water pumped for irrigation in the Salt River Valley area, Maricopa County, Ariz., shows a net change in water level between 1940 and 1944 of 2 feet. The average annual lowering during the 5-year period = 2 feet + 5 = 0.4 foot.

The Maricopa unit is broken down into five separate areas and the change in water level in each of the areas is as follows:

Area (1)	Change in water level in 1940–44 year period (feet) [1] (2)	Average annual change during 5-year period column (2)÷5 (3)
Queen Creek-Higley-Gilbert area	−8.0	−1.6
Tempe-Mesa-Chandler area	+7.0	+1.4
Phoenix-Glendale-Tolleson area	−3.2	−.6
Litchfield-Beardsley-Marinette area	−9.2	−1.8
Liberty-Buckeye-Hassayampa area	+3	+.6

[1] (−) Indicates a lowering of water level; (+) indicates a rise in the water level.

Disposition of water of Salt and Verde Rivers 1940–44

[Thousands of acre-feet]

	Verde below Bartlett (1)	Salt below Stewart Mountain (2)	Sum (1) and (2) (3)	Estimated inflow between (1) and (2) and Granite Reef (4)	Evaporation transportation loss between gaging station and Granite Reef (5)	Net at Granite Reef Dam column (3)−(4)+(5) (6)	Diversion at Granite Reef Dam (7)	Discharge past Granite Reef Dam down river column (6)−(7) (8)	Change in reservoir content (9)	Total water available for diversion column (7)+(9) (10)
1940	250.5	384.8	635.3	6.4	30.0	611.3	594.0	17.3		
1941	1,107.0	1,046.0	2,153.0	38.5	27.0	2,164.5	1,160.0	1,004.5		
1942	291.3	859.1	1,150.4	3.6	30.0	1,123.6	1,089.0	34.6		
1943	284.0	740.8	1,024.8	4.2	30.0	999.0	973.0	26.0		
1944	445.4	603.2	1,048.6	8.5	30.0	1,027.1	991.1	36.0		
Total			6,011.7	61.2	147.0	5,925.5	4,807.1	+1,118.4	738.0	5,545.1
Average							961.4	223.5	147.6	1,109.0

Column 4: Area 500 square miles. Run-off assumed 20 percent of Agua Fria above Carl Pleasant Reservoir. Agua Fria watershed 1,460 square miles.
Column 5: Area phreatophytes and water surface estimated—5,120 acres. Assume constant use of water not including precipitation—6.0 feet in depth, except 1941, in which is assumed 5.5.

Estimate of cost

No.	Project	Proposed by Bureau of Reclamation	Proposed by State of California
1	Bluff Dam and Reservoir	$29,628,000	
2	Coconino Dam and Reservoir	7,487,000	
3	Bridge Canyon Dam and Reservoir	191,939,000	
4	Bridge Canyon power plant	73,419,000	
5	Havasu pumping plants	25,973,000	
6	Granite Reef aqueduct	131,716,000	
7	McDowell pumping plant and canal	3,346,000	
8	McDowell Dam and Reservoir and Phoenix W. S.	16,326,000	$16,326,000
9	McDowell power plant	1,012,000	1,012,000
10	Horseshoe Dam (enlargement and reservoir)	7,078,000	7,078,000
11	Horseshoe power plant	2,628,000	2,628,000
12	Salt Gila aqueduct	34,585,000	17,500,000
13	Buttes Dam and Reservoir	29,037,000	29,037,000
14	Buttes power plant	1,159,000	1,159,000
15	Charleston Dam and Reservoir	9,270,000	9,270,000
16	Tucson aqueduct	6,401,000	6,401,000
17	Irrigation distribution system	54,086,000	54,086,000
18	Irrigation drainage system	9,973,000	9,973,000
19	Hooker Dam and Reservoir	15,484,000	15,484,000
20	Safford Valley improvement	4,090,000	4,090,000
21	Power transmission system	83,771,000	10,000,000
22	Earth canal west from Granite Reef 50 miles (3,000 second-feet)		30,000,000
23	Earth canal south from Granite Reef 40 miles (1,100 second-feet)		4,000,000
24	Spreading grounds, west side (4,000 acres)		800,000
25	Spreading grounds, east side (1,500 acres)		300,000
26	Spreading canal from Ashurst-Hayden Dam, supplement to present installations (420 second-feet)		1,000,000
27	Spreading grounds Pinal unit along Gila River (500 acres)		100,000
28	Purchase of rights to operate reservoirs		20,000,000
	Total	738,408,000	240,244,000
	Cost of upper Gila, San Pedro, and Tucson units	35,245,000	35,245,000
		703,163,000	204,999,000

Mr. MURDOCK. Thank you, Mr. Elder. It was apparent in the first part of your statement that you had been over some of that ground. I have been over some of it myself.

Mr. ELDER. I am quite famiilar with it; yes sir.

Mr. MURDOCK. We have a meeting at 10 tomorrow morning. It might be possible for us to ask Mr. Elder a few questions now, although the hour of 4 has arrived. Perhaps we could put our questions now and release the witness.

Mr. Engle?

Mr. ENGLE. It is your considered opinion, Mr. Elder, that by water-conservation steps taken in the central Arizona area itself that water can be salvaged which will go a long way toward meeting the needs of Arizona for water development?

Mr. ELDER. Yes, sir. We are convinced that sufficient water can be salvaged to go a long way, and we believe on the available data, which needs confirmation by further studies of the Federal Geological Survey, that sufficient water can be conserved to fully rescue the historic irrigated lands.

How much further it would go depends on the diligence of that conservation, destruction of the phreatophytes and conservation of every drop of this spilled water so far as that is humanly possible.

Mr. ENGLE. Those savings can be accomplished in several ways. One of them will be the catching of floodwaters which now escape; is that right?

Mr. ELDER. That is a most important way in large volume.

Mr. ENGLE. The second would be the salvaging of losses due to transpiration and evaporation from overgrown seeped areas?

Mr. ELDER. That is right.

Mr. ENGLE. Swamp areas?

Mr. ELDER. That is right.

Mr. ENGLE. In short, it is your judgment it is not necessary to go into the vast project which is here proposed, but that a similar result can be secured by adequate conservation methods along the lines which we have discussed, without undertaking any such vast project?

Mr. ELDER. That is our conclusion, and one very brief support of it is this fact, that the Bureau report and the memories of the inhabitants there seem largely based on rather recent conditions, a long drought that has prevailed. If you go back far enough in the records, however—a very good study was made in 1903 by the United States Geological Survey—you will find that the average depth to the ground-water surface than in the Salt River-Verde River area was 48 feet. The following year, 1904, was very dry and we are sure that the water level dropped somewhat farther, possibly to 50 feet or below. At the end of 1948, for the same area, the data taken by the United States Geological Survey showed that the average depth of the ground-water surface was found to be about 54 feet. That is a net difference over this combined wet and dry period or complete cycle of somewhere from 4 to 6 feet, which presents quite a different picture from the equally true factual story that at certain wells, in limited districts, such as the Eloy and the Beardsley areas, water levels have dropped from 50 to 100 feet in recent dry years.

In order for the conclusion to be significant one must go back to the end of the previous long drought period which, as I said, was 1904, when you can make the over-all comparison and you find that the drop in the water levels is relatively slight; that is, no more than a reasonable pumping of such a large and growing project would cause. On that cyclic basis much of the alarm, I think, can be separated from this picture and we can get down to true conservation considerations such as the elimination of the phreatophytes and the saving of the previously lost flood spills, including, for example, one of over a million acre-feet as recently as 1941.

Mr. ENGLE. That is all.

Mr. MURDOCK. Mr. Welch?

Mr. WELCH. No.

Mr. MURDOCK. Governor Miles, have you any questions?

Mr. MILES. I was amazed at the statement of this underground water supply being 50 percent greater than the total capacity created by the Hoover Dam and Lake Mead.

Mr. MURDOCK. I was amazed at that, too. I hope Mr. Elder has good X-ray eyes.

Mr. ELDER. I have not X-ray eyes, Mr. Chairman, but I have the long records of the United States Geological Survey, your own water districts, and so forth, and not much study of those is required to compute averages. Mere arithmetic does that. I might add that this 50 percent greater than Lake Mead capacity is just the superficial top of this great reservoir, the part that we conclude can be economically developed. Many of these wells have gone to a thousand feet and

they find better quality water and very good water-bearing material at the bottom of some of these wells.

Only around the fringe of the valley where the rocky hills are close is there any chance at 1,000 feet of encountering bedrock, with the exception of two or three buried ridges which cross the basin, without changing the fact that it acts as all one great water basin. How much farther than 1,000 feet one can go has not been determined, but we cannot do it economically because it is out of reason on cost. The top 200 to 250 feet is there, still largely water filled, and has been the recent salvation of this irrigated area, the same as it has been of southern California and other irrigated localities which have had similar experience in relying upon very large ground-water storage in periods of prolonged drought.

Mr. ENGLE. Would it not be more sensible, Mr. Elder, to use the electric power to pump the water out of that reservoir rather than the 985 feet out of the Colorado River?

Mr. ELDER. That is our conclusion, since it amounts to possibly only one-eighth as much in the use of such a valuable asset as the hydroelectric power.

Mr. ENGLE. That is a very striking statement. I certainly agree with Governnor Miles on that. If it is correct, and is substantiated, it would seem to me to indicate a solution. It bears on this question as to which would be cheaper in the long run.

Mr. ELDER. The chief requirement for substantiating that conclusion seems to be 3 or 4 years of field investigation primarily by the United States Geological Survey, which has apparently in the past been restricted to determining what is the available safe yield of the basin under present existing conditions. That latter phrase needs emphasizing. It is evident that there is some degree of overdraft in some limited portions of the basin with present conditions, but these we conclude are very wasteful because of the continuance of 50,000 acres of swamp area at the lower end of the basin and of occasional large flood spills out of the basin, as in 1941 and many other years.

If the United States Geological Survey can be directed to determine the safe yield of this basin under reasonably ideal future conditions, that could be brought to pass within 5 or 10 years by proper activity, then we would know where we were in this basin. That study might substantiate, and we are sure it would, our conclusions as to the availability of local water to accomplish the rescue of this project. But we are satisfied that further such studies are needed and that is the proper move to make now to turn it over to the United States Geological Survey without this limiting directive which it has seemed to have so far, partly from local State officials and partly from Washington. It does need to be turned loose to make a truly scientific study there, and obtain all the facts in an objective manner.

Mr. MURDOCK. I have always advocated more Geological Survey studies and have tried to get money appropriated for such studies. This committee has done the same thing.

Mr. Sanborn, have you any questions?

Mr. SANBORN. No.

Mr. MURDOCK. Mr. Poulson?

Mr. POULSON. I believe the questions that I would ask have been asked and very ably answered by our witness.

Mr. MURDOCK. Have you a question, Mr. Welch?

Mr. WELCH. The statement which has been made has aroused my curiosity as to how you account for the large underground water deposits. Is there a subterranean reservoir in that section of the country?

Mr. ELDER. Yes. It is a large prehistoric lake bed, Mr. Welch, crossed at various depths by old stream beds. It has been crossed and recrossed by these for the last hundreds of thousands of years, and these meandering stream channels have become buried under a thousand feet or more of alluvial material, boulders, clay lenses, but chiefly sand and gravel, that are water bearing. So that ancient lake bed, in simple terms, is a large ground-water reservoir, but it does not have 100 percent of water capacity like a surface reservoir but only 15 percent, according to the United States Geological Survey; that is, on the average, there are 15 percent of voids filled with water. Some strata have no water-bearing capacity; others have as high as 20 percent or more. By that I mean the voids between the particles of sand and gravel, and that lake has been largely filled in prehistoric times, but even the concentrated pumping of the last decade, which has been more or less severe drought since 1941, has not been sufficient to lower the water level enough to stop this swamp at the lower end of the project from remaining saturated. There the water is right on the surface and only within recent months in the Buckeye District for example, near the basin's lower end, has it been pulled sufficiently below the surface to permit general farming in the area.

Mr. ENGLE. Is there any basis or precedent for the Bureau of Reclamation to operate a project wherein the pump lift is not surface water but underground water and allocating a power subsidy? In other words, my thought is this: If the Bureau of Reclamation is authorized to use a power subsidy to lift water a thousand feet out of the Colorado River and put it on the land, why would it not be better authorized to set up pumping stations after proper investigations, to bring the water a quarter of the distance out of that underground water pool?

Mr. ELDER. I am sure the authorization, such as would be required, would be very much simpler in the latter case than in the present proposal.

Mr. MURDOCK. Mr. Miles.

Mr. MILES. Is this underground supply referred to in any of the Government departments' survey?

Mr. ELDER. Yes, sir: the United States Geological Survey has put out numerous reports of the depths of wells, for example, and the quality of water, making analyses in some places where they have found that it is poor, and in others that it is good water. The material on that is very voluminous in the Government files.

Mr. MILES. On this particular supply?

Mr. ELDER. Yes, sir. For the Salt River Area, for example, the most complete report as yet available is by the United States Geological Survey, dated February 4, 1947.

Mr. MURDOCK. We thank you, Mr. Elder. I want to thank you for the first half of your testimony.

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If you had come in here and told me that a man—probably a rich man—had left an account for me in my name in the Chase National Bank sufficient to serve my purposes, it would make me very happy indeed. But, of course, I would not go straightaway and cancel my salary because I would want to know a few facts about that account.

Thank you very kindly. If there are no other questions, the committee stands adjourned until 10 o'clock.

(Whereupon, at 4:15 p. m., the committee was adjourned, to reconvene at 10 a. m., Saturday, June 4, 1949.)

THE CENTRAL ARIZONA PROJECT

SATURDAY, JUNE 4, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met, pursuant to recess, at 10 a. m., Hon. John R. Murdock (chairman of the subcommittee) presiding, for further consideration of H. R. 934.

Mr. MURDOCK. The committee will come to order, please.

We will continue with our hearings on H. R. 934, our first witness being Mr. Gilbert F. Nelson, deputy attorney general of California. I might say, in starting, that we had hoped to make progress today by asking the witnesses to summarize their statements in the briefest possible compact form, submitting their statements for the record in their entirety.

Can you do that?

Mr. NELSON. I will follow that procedure, Mr. Chairman.

STATEMENT OF GILBERT F. NELSON, DEPUTY ATTORNEY GENERAL OF THE STATE OF CALIFORNIA

Mr. MURDOCK. Go right ahead, Mr. Nelson.

Mr. NELSON. I would like to read the first page and a half of my statement.

My name is Gilbert F. Nelson. I am a member of the bar of California, with offices in Los Angeles, Calif. I am a deputy attorney general assigned to the work of the Colorado River Board of California, and appear here as one of the attorneys for the State of California.

It has been the contention of Arizona witnesses throughout these proceedings that the beneficial consumptive use of water under the Colorado River compact is solely a matter of measurement. It is contended by Arizona that the use of water under the compact must be measured by the amount any use depletes the natural flow of the main Colorado River. In the upper basin Arizona would measure the use by the amount that the natural flow of the main Colorado River is depleted at Lee Ferry. In the lower basin Arizona uses would be measured by the amount the natural main river flow is depleted at the international boundary. California disputes this form of measurement and urges that the actual water consumed on the whole river system must be charged under the Colorado River compact. The difference in the two contentions is well illustrated on the Gila. The Gila River is a wasting stream. As it crosses Arizona to its confluence with the main Colorado it loses water in the desert sands and in evaporation. Although more than 2,000,000 acre-feet flow through the Phoenix area and are all used in growing crops, only about 1,000,000 acre-feet of the natural flow reaches the main river. There is, therefore, a million difference in the measurement

taken in central Arizona where the water is used and a measurement taken on the main river where Arizona contends this use should be measured in terms of depletion of natural main river flow. Briefly stated, there is more water in the Colorado River system, including its tributaries, than there is just in the natural flow of the main stream of the Colorado. When a use is made, therefore, should it be measured by the amount of water consumed at the place it is used or should it be measured by its effect upon the natural flow of the main river? It may be of interest to the committee to see what the framers of the compact thought about this subject. This statement is therefore directed to the minutes of the Colorado River Commission as they reflect the thinking of the commissioners on this particular point.

I would like to pause here to ask that the balance of the statement be printed in the record to save time, in accordance with the chairman's suggestion.

Mr. MURDOCK. It is so ordered.

STATEMENT OF GILBERT F. NELSON

The minutes of 6 public meetings and of 18 executive sessions of the Compact Commission have been preserved. The minutes of nine of the final executive meetings cannot be located. Available minutes do disclose, however, that the Commissioners had a clear understanding of the meaning of the phrase "consumptive use."

The representatives of each of the seven Colorado River Basin States met for their first seven meetings here in Washington, D. C., in January 1922. The minutes disclose that their first order of business was the selection of the Federal representative, Herbert Hoover, as their chairman.

The next task undertaken by the Commission was to determine if possible, the existing as well as future water requirements for each of the seven basin States and the possible requirements for Mexico. The Commission was assisted by Reclamation Director A. P. Davis and by other engineers and attorneys representing the several States and the Federal Government. As a guide to a seven-State division of the water, the States presented their demands, in terms of irrigable land and water requirements. These demands were tabulated in several tables during the Washington meetings. The significant fact is that these tables disclose that water requirements were computed on the basis of so much water diverted less so much water returned, with the difference designated in the tables as "acre-feet of consumptive use." Two of these tables are set out in full:

TABLE B.—*Report of committee on water requirements on total number new acres claimed irrigable for which water is asked by States in Colorado River Basin to be irrigated from Colorado and tributaries (revised)*

	Acres—new	Acre-feet duty	Acre-feet diversion	Acre-feet return	Acre-feet per acre consumptive use	Acre-feet consumptive use
Wyoming	580,000	2½	1,450,000	1	1½	870,000
Colorado	1,515,000	2	3,030,000	7/10	1 3/10	1,606,500
	310,000	1	310,000	0	1	310,000
Utah	1,000,000	3	3,000,000	½	2½	2,500,000
New Mexico	1,400,000	2½	3,500,000	¾	1¾	2,450,000
Nevada	82,000	3	246,000	1	2	164,000
Arizona	1,172,000	3½	4,102,000	1 ½	2	2,344,000
California	481,000	4	1,924,000	0	4	1,924,000
Total United States	6,540,000		17,562,000			12,531,500
Mexico	620,000	4	2,480,000	0	4	2,480,000
Total	7,160,000		20,042,000			15,011,500

(Colorado River Commission minutes, Washington, D. C., meetings, p. 77.)

TABLE C.—*Report of committee on water requirements on cultivated acres of States in Colorado River (revised)*

	Cultivated acres, old	Acre-feet duty	Acre-feet diversion	Acre-feet return	Acre-feet loss	Acre-feet consumptive use
Wyoming	400,000	2.5	1,000,000	1	1.5	600,000
Colorado	850,000	2	1,700,000	0.7	1.3	1,105,000
Utah	188,000	3	564,000	1	2	376,000
Nevada	35,350	3	106,050	1	2	70,700
New Mexico	57,000	2.5	142,500	.75	1.75	99,750
Arizona	521,500	3.5	1,825,250	1.5	2	1,043,000
California	458,000	4	1,832,000	0	4	1,832,000
United States old	2,509,850	.....	7,169,800	.....	.....	5,126,450
United States new	6,540,000	.....	17,562,000	.....	.....	12,531,500
Total United States	9,049,850	.....	24,731,800	.....	.....	17,657,950
Mexico, old	200,000	4	800,000	0	4	800,000
Mexico, new	620,000	4	2,480,000	0	4	2,480,000
Grand total	9,869,850	.....	28,011,800	.....	.....	20,937,950

NOTE.—In analyzing the foregoing "Revised tables B and C" to determine if there is now sufficient surplus water to irrigate "New acres" claimed by all the States and at the same time allow for any allocation that may be given to Mexico, it is necessary to include both "Cultivated acres old" (See revised table C) and "Acres new" for California and Mexico as "New acres." This is due to the fact that the present diversion point for irrigation in California and Mexico is below the gaging station at Yuma, at which point the total flow of the Colorado River is recorded and an average annual run-off of 17,300,000 acre-feet is shown. (Colorado River Commission minutes, Washington, D. C., meetings, p. 78.)

TABLE

	Acres	Acre-feet duty	Acre-feet diversion	Acre-feet return	Acre-feet loss	Acre-feet consumptive use
Total "New acres," see revised table B	7,160,000	.....	20,042,000	.....	.....	15,011,500
"Cultivated acres old," see revised table C:						
California	458,000	4	1,832,000	0	4	1,832,000
Mexico	200,000	4	800,000	0	4	800,000
Total	7,818,000	.....	22,674,000	.....	.....	17,643,500

"The foregoing table shows that the present available surplus of 17,300,000 acre-feet average annual run-off will, on the claims of the various States and any allowance that may be accorded to Mexico, have to water 7,818,000 acres for which the diversion or duty will be 22,674,000 acre-feet and the consumptive use will be 17,643,500 acre-feet" (Colorado River Commission minutes, Washington, D. C., meetings, p. 79).

The net result of these tables was the discovery that the demands of the States for the consumptive use of water exceeded the supply of the Colorado River run-off as recorded at Yuma. It was this fact that later influenced the Commission to seek a solution through a division of the use of the waters between two basins rather than between the several States.

During these meetings in Washington in January 1922, the Commissioners agreed that it might be helpful for them to hold public meetings in several of the Colorado River Basin States. They expressed the hope that such meetings would aid them in formulating principles for a possible compact. They held their first public meeting in Phoenix, Arix., in March 1922. During that meeting this discussion appears:

"Mr. HOOVER. Do you not think that it is better * * * instead of dividing on a basis of percentage, that we should go clear back to the benficial use of the water?

"Mr. A. P. DAVIS. Absolutely. If you are going to divide the water at all, it should be divided on the basis of beneficial use. * * *

"* * * In a basin where the excess water would go into the subsoil, or go off into a stream, we can approximately tell how much it will deplete the water supply to irrigate, that is, we can if it is not taken out of the basin, because we can tell what would go into evaporation, and plant growth, but if we depend

upon what the farmer puts on the land, nobody can tell anything about it. He may put on half an acre-foot, or he may put on 1 acre-foot, or he may put on 30 acre-feet. I have known them to do that, but the excess returns to the stream. Thirty feet may sound to you ridiculous, but I can cite you an instance of where on one tract of several thousand acres in a season, the average applications to that land ran 30 feet in depth. Of course that land is sandy land, and it very soon drowned the country below, and we had to put in drainage to correct it. That was done deliberately, and it isn't the only case that was done deliberately. I could bring up the subject of putting on so much water that it could not get away, but that is another story. But you cannot irrigate, without using water and when you use water you consume some water. It goes into the tissues of the plant, it goes out of the leaves of the plant into the atmosphere.

"Mr. CARPENTER. As to the use of water in the upper reaches of the streams the only thing that is of any importance is the consumptive use, that is your conclusion?

"Mr. A. P. DAVIS. The chief, I don't say it is the only thing, by any means. More water is evaporated, if you keep the land saturated, than if you use it economically" (Colorado River Commission hearings, Phoenix, Ariz., pp. 202–204).

At a later public meeting held in Salt Lake City, Reclamation Director Davis was even more explicit in language as follows:

"When water is applied in the process of irrigation, part of it is consumed by the plants, and unless you restrict plant growth you cannot affect that by any great quantity. In other words, it is essential to the growth and maturity of the plant that it shall consume that water. Practical tests show it to be impossible to prevent evaporation of more water except by cultivation and tillage. For all practical purposes we may say that the amount of water consumd by the plant, and in a less degree the amount evaporated by the soil, cannot be materially reduced without some hurtful effect. Now, that amount consumed is a variable amount, due to various things, partly to the season, partly to the plants, and partly to the crops. We may average these things, under usual proportions and under usual agriculture, so that we can, in considering each area, approximate with a fair degree of accuracy the amount which must be used by crops, and by evaporation. That is what has been brought out here and called consumptive use" (Colorado River Commission hearings, Salt Lake City, Utah, pp. 157, 158).

R. I. Meeker, then the special deputy State engineer from Colorado, gave a brief explanation of return flow as follows:

"Mr. MEEKER. The amount of return flow is greater as water is applied in greater quantities to land; the return varies largely according to the application. Consumptive use of water in irrigation is substantially constant in amount per acre regardless of the quantity of water applied after sufficient water for ordinary crop production is supplied. There are exceptions of course; that is a general statement only" (Colorado River Commission hearings, Denver, Colo., p. 24).

During a public meeting in Grand Junction, Colo., Commissioner Carpenter, of Colorado, questioned a Colorado irrigator as follows:

"Mr. CARPENTER. Is that a diversion duty or use which will be attributable to the consumption?

"Mr. HARPER. Duty at the farm.

"Mr. CARPENTER. What is your consumptive use?

"Mr. HARPER. The consumptive use is—I don't know in just what way you use the term, but by consumptive use I mean the amount of water beneficially absorbed by the plant in growing, and that is something that is very indefinite; in fact the Reclamation Service is now running a set of experiments on several projects to determine this but it has never yet been done on a large scale.

"Mr. CARPENTER. What we mean by consumptive use is the difference between intake and output.

"Mr. HARPER. I would take it that under the present conditions probably the project returns approximately 40 percent of the water turned in at the upper end" (Colorado River Commission hearings, Grand Junction, Colo., p. 20).

Chairman Hoover questioned another irrigator in this same public meetng in language as follows:

"Mr. HOOVER. From your wide experience what would you formulate as a generalized figure for consumptive use, that is, assuming that a project is developed; what is your general feeling about that?

"Mr. FOSTER. I think the use of water will range somewhere in the neighborhood of from 3 to 3½ acre-feet per acre, for red, sandy soils on the west side project, and possibly from 2½ to 3 acre-feet for the adobe or heavy soils on the east side project.

"Mr. HOOVER. That is the applied water?

"Mr. FOSTER. Yes sir.

"Mr. HOOVER. And the consumptive use, assuming the water table as established—what sort of return flow there would you get?

"Mr. FOSTER. It will probably amount to about the same figures. We have now about 20 percent of the total amount diverted, wasting back into the river" (Colorado River Commission hearings, Grand Junction, Colo., p. 64).

Mr. Foster then discussed his problems with Commissioner Caldwell in language appearing in the record as follows:

"Mr. CALDWELL. Have you ever—has the Reclamation Service ever, to your knowledge, made any statements as to what was likely to be the return or consumptive use of water in the upper regions; by consumptive use, I mean that which never returns to the river and is used by the plants?

"Mr. FOSTER. The Board of Engineers have considered that subject for the Uncompahgre project and estimated that in their opinion such use would range somewhere in the neighborhood of 3 acre-feet per annum. In other words, the project was designed on that basis.

"Mr. CALDWELL. They would actually consume 3 acre-feet?

"Mr. FOSTER. Yes, sir" (Colorado River Commission hearings, Grand Junction, Colo., p. 67).

Mr. Caldwell then made this statement:

"Mr. CALDWELL. I have heard engineers speaking of return flow, try to express it in percentage. It seems to me it should not be expressed at all in percentages; as far as our experience in Utah goes, it cannot be expressed in percentages unless we know the actual condition established. For instance, if we divert 3 acre-feet of water on to a piece of land, only 1½ acre-foot returns to the river, or 50 percent, making a consumptive use of 1½ acre-feet. If we turn out 4½ say, acre-feet, we return 3 acre-feet, and the consumptive use remains the same, but the percentage returned is much higher; does that agree with your notion of return flow?

"Mr. FOSTER. Yes, sir" (Colorado River Commission hearings, Grand Junction, Colo., p. 68).

Commissioner Norviel disclosed his understanding of consumptive use as follows:

"Mr. NORVIEL. Mr. Foster, you said in your project you diverted about 6 acre-feet of water under the present system and that the return flow was about 20 percent?

"Mr. FOSTER. Yes sir.

"Mr. NORVIEL. Leaving about 4.8 consumptive use, acre-feet?" (Colorado River Commission hearings, Grand Junction, Colo., pp. 67–68.)

Commissioner Norviel makes clear his understanding in this discussion with this comment:

"Mr. MERRIELL. The term 'consumptive use' is not generally understood, so we might have a better definition of it.

"Mr. NORVIEL. Mr. Foster understands what we are driving at because he tells us there are 6 feet applied and 20 percent returned to the stream" (Colorado River Commisison hearings, Grand Junction, Colo., p. 69).

The Colorado River Commission and its advisers, therefore, had a clear understanding that "consumptive use" in irrigation was the diversion less the return flow on each project. They had expressed the hope that they could make a division of the water on the basis of consumptive use. Each State had figured its requirements on the basis of "consumptive use" and had described it as diversions less returns.

As stated, the Commissioners had discovered at their meetings in Washington that the recorded run-off would not supply sufficient water for division between the several States.

The final compact designates two drainage basins within the Colorado River system. The upper basin is the geographic area that is naturally drained above Lee Ferry. The lower basin is the geographic area that is naturally drained below Lee Ferry. Parts of five States are drained in the upper basin and parts of five States are drained in the lower basin. Wyoming and Colorado have no drainage in the lower basin and Nevada and California have no drainage in the upper basin. The other three States, Arizona, New Mexico, and Utah have drainage areas in both basins. These basin provisions of the compact read as follows:

"II (f) The term 'upper basin' means those parts of the States of Arizona, Colorado, New Mexico, Utah, and Wyoming within and from which waters nat-

urally drain into the Colorado River system above Lee Ferry, and also all parts of said States located without the drainage area of the Colorado River system which are now or shall hereafter be beneficially served by waters diverted from the system above Lee Ferry."

"II (g). The term 'lower basin' means those parts of the States of Arizona, California, Nevada, New Mexico, and Utah within and from which waters naturally drain into the Colorado River system below Lee Ferry ,and also all parts of said States located without the drainage area of the Colorado River system which are now or shall hereafter be beneficially served by waters diverted from the system below Lee Ferry."

It is these geographic basins that are given the use of designated amounts of water out of a defined Colorado River system:

The system is defined as follows:

"II (a). The term 'Colorado River system' means that portion of the Colorado River and its tributaries within the United States of America."

The basin use provisions are:

"III (a). There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist."

"III (b). In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000.000 acre-feet per annum."

The flow of the Colorado River at Lee Ferry is governed by a different group of provisions in the final compact. This flow of the river is governed by a political not a geographic separation of the States. The upper division is composed of four States and the lower division of three. The provisions are:

"II (c). The term 'States of the upper division' means the States of Colorado, New Mexico, Utah, and Wyoming."

"II (d). The term 'States of the lower division' means the States of Arizona, California, and Nevada."

The compact places on the upper division an obligation to deliver water at Lee Ferry and gives to the lower division the right to receive water in language as follows:

"III (d). The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series beginning with the 1st day of October next succeeding the ratification of this compact."

"III (e). The States of the upper division shall not withhold water, and the States of the lower division shall not require the delivery of water, which cannot reasonably be applied to domestic and agricultural uses."

These paragraphs govern the Lee Ferry flow. They govern the amount of wet water that the upper division can keep in the river above Lee Ferry. They also govern the amount of wet water that will be delivered to the lower division at Lee Ferry. With this division of the flow at Lee Ferry, an assured supply is provided in the main river for the two political divisions. These supplies of wet water are thus assured the political divisions, not the geographic basins. This, however, is but a division of that supply of water that flows in the main river at Lee Ferry. There is much additional water that never reaches the main river such as the water that is evaporated on the tributaries like the Gila and Little Colorado. To reach this supply as well as the main river supply, certain uses are permitted of system water within the geographic basins. The compact provisions covering the subject of water use apply exclusively to the two geographic basins within the system whereas the provisions covering the subject of the main river flow at Lee Ferry apply exclusively to the political divisions.

This distinction between those provisions dealing with basin uses out of the system and those that deal with division rights to Lee Ferry flow is further illustrated in the Mexican requirement provision of the compact. The compact contemplates a surplus of water in the river for Mexico after the division of the Lee Ferry flow. Should this surplus prove insufficient, however, then a burden falls upon each of the geographic basins to cut back their uses equally in sharing this burden. If it is necessary, then the burden shifts to the upper division to deliver one-half of any deficiency at Lee Ferry. This provision reads:

"III (c). If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of

any waters of the Colorado River system, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and, if such surplus shall prove insufficient for this purpose, then, the burden of such deficiency shall be equally borne by the upper basin and the lower basin, and whenever necessary the States of the upper division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d)."

It has been the position of Arizona before this committee that the word "depleted" found in article III (d) serves to define and measure the uses permitted under article III (a) and III (b) of the compact. As shown, the compact itself uses language that distinguishes the basins of the Colorado River system from the political divisions of the Colorado River. Arizona is not an upper division State but she is an upper basin State. The upper division obligation to deliver water under article III (d) is no burden on Arizona but she has the right to use her share of the water of the upper basin. Utah and New Mexico are not lower division States but they are lower basin States. The lower division rights to require delivery of water under articles III (d) and (e) do not apply to these two States but they have the right to use their share of the water of the lower basin. This difference in the language of the compact distinguishes the provisions regarding use in articles III (a) and (b) from article III (d). III (a) and III (b) deals with the water of the system. III (d), on the other hand, deals solely with the flow of the main stream of the river at Lee Ferry.

It has been explained by previous witnesses that 75,000,000 acre-feet in a 10-year period is not the 7,500,000 apportioned to the lower basin for use, by article III (a). There must be sufficient water in the lower basin for 8,500,000 acre-feet under articles III (a) and (b) plus enough for the Mexican Treaty, to wit, 1,500,000 acre-feet and a contemplated surplus. A total of more than 10,000,000 acre-feet will have to be consumed below Lee Ferry. Such an amount is contemplated by the language of the compact to exist in the lower basin. The compact does not segregate any particular water as representing the lower basin's perpetual apportionment of 7,500,000 acre-feet. The water in the Little Colorado, the Bill Williams, and the Gila River and other tributaries below Lee Ferry can never pass Lee Ferry because they enter the river below that point. These waters can therefore be no part of the 75,000,000 acre-feet that must pass Lee Ferry in any 10-year period. However, use was being made of those tributary waters at the time of the compact. Article III (a) apportions for use 7,500,000 acre-feet annually "which shall include all water necessary for the supply of any rights which may now exist." These lower basin tributary waters are thereby included in the 7,500,000 apportionment in article III (a) but they are physically excluded from the 75,000,000 acre-feet that must pass Lee Ferry as provided in article III (d). The argument of Mr. Carson and other Arizona witnesses that the 7,500,000 in article III (a) is merely a tenth part of the 75,000,000 in article III (d) is without foundation. It is not supported by the provisions of the compact and it is physically unworkable when applied to the river system.

It was a mere coincidence that in negotiating the compact the Commission selected 7,500,000 acre-feet in article III (a) and 75,000,000 acre-feet for any 10 years in article III (d). Note that the division concept is associated exclusively with a split between certain States of the water supply measured by depletion of the flow at Lee Ferry. Whereas the basin concept is solely concerned with the use of the entire supply of wet water of two different groups of States within the whole Colorado River system. This use of the supply is provided in the compact in terms of "beneficial consumptive use." It is one of the purposes of this statement to show how and when each of these separate concepts arose and why both appear in the final compact. Fortunately the minutes of the Compact Commission can be readily followed through the deliberations at Santa Fe to and including the eighteenth meeting and they show the distinction clearly.

When the Commission met in the concluding sessions at Santa Fe in November 1922, Commissioner Delph Carpenter of Colorado had drafted a proposed compact. Article II, section 1 of the Carpenter draft of the compact states this purpose:

"The flow of the Colorado River shall be divided between the territory included within the two divisions of said river upon the basis of an equal division of the mean or average annual established natural flow of said river as heretofore ascertained and recorded at Yuma" (minutes Colorado River Commission, eleventh meeting, p. 15).

Mr. Carpenter stated its object to the Commission as follows:

"* * * The 50–50 division plan proceeds as it appears in the tentative draft offered by me, upon the basis of the 20-year record at Yuma. Working out from that 20-year record, the object has been and is to ascertain how much more water must flow past Lee's Ferry in order that the amount when added to what comes in below, will give the lower division 50 percent of the Yuma flow" (minutes Colorado River Commission, twelfth meeting, pp. 2, 3).

It is this division of the flow of the river at Lee Ferry that was one of the principles carried into the final compact. However, it is interesting to note that by this simple division, Commissioner Carpenter sought to avoid the whole question of consumptive use. By his draft he allowed both the upper and lower States free and unrestricted use of the waters in each division. The provisions are as follows:

Article V provided for unrestricted use in the upper States:

"* * *, each of the States whose territory is in part included within the upper division shall have, possess, and enjoy the free and unrestricted uses and benefits of the waters of the river and of its tributaries as the same may flow within its territory of the upper division * * *" (minutes, Colorado River Commission, eleventh meeting, p. 17).

Article VI provided for unrestricted use in the lower States:

"* * * each of said States whose territory is in part included within the lower division shall have, possess and enjoy * * * within its territory, the free and unrestricted uses and benefits of those tributaries which enter the Colorado River below Lees Ferry and of all waters of said river which may pass said point from the upper division * * *" (minutes, Colorado River Commission, eleventh meeting, p. 18).

These provisions for unrestricted use in each division are a most important distinction between the Carpenter draft of compact and the Colorado River compact which was adopted. In the final compact, article III (a) and (b) designate definite and limited quantities for use in each basin defined to include the use on all tributaries. The process of transition from the Carpenter draft of compact to the final compact on this point is set out in the available minutes and can be clearly traced.

As Mr. Carpenter stated, the object in his proposed compact was to ascertain how much more water must flow past Lee Ferry in order that the amount when added to what comes in below Lee Ferry will give the lower States 50 percent of the recorded Yuma flow. The river had never been measured at Lee Ferry. Carpenter suggested that the figure necessary for delivery to the lower States be agreed upon. The upper States would then be assured that they could develop uses above Lee Ferry so long as they did not deplete or reduce the flow below the agreed delivery figure. The lower States would be assured of the amount delivered at Lee Ferry, which when added to the water contributed to the river below, should equal half of the historical flow at Yuma. This water could then be used freely both above and below Lee Ferry without any stated amounts such as are designated in article III (a) and III (b) of the final compact.

The Carpenter draft of compact was based on the mean average historical flow as recorded at Yuma, namely 17,400,000 acre-feet. Commissioner Carpenter did not simply divide this flow 50–50, because certain tributaries such as the Gila, Little Colorado and others flowed into the Colorado River between Lee Ferry and Yuma. These waters would be used only by the lower States. The inflow of these tributaries was figured for the purpose of his compact as 2,436,000 acre-feet. He reasoned that since the lower States had this amount from the tributaries below Lee Ferry the only question was how much more they needed at Lee Ferry for 50 percent of the river supply. His answer was 6,264,000, which, when added to this tributary inflow below of 2,436,000, gave him a total of 8,700,000, or half the Yuma flow of 17,400,000. This looked like a 50–50 division of the Yuma flow translated back as a measurement at Lee Ferry. It would permit the upper States to deplete or reduce the flow of the river at Lee Ferry down to 6,264,000 acre-feet. This was agreeable to the upper States because they could expand their uses as far as they wished, limited only by the 6,264,000 delivery at Lee Ferry. But it was not agreeable to Commissioner Norviel of Arizona because he thought that most of the tributary inflow below Lee Ferry was evaporated and lost before the lower States could use it.

Commissioner Norviel wanted the whole basis of division refigured. Chairman Hoover asked Reclamation Director Davis to check on this. Davis reported back

that Norviel was about right in his objection. In refiguring the basis of division Davis used the only record on the lower river, other than Yuma, which was the record at Laguna Dam. The average recorded annual flow at Laguna Dam was 16,400,000 acre-feet. Laguna Dam was above Yuma and also above the mouth of the Gila River. Director Davis' findings appear in the record:

"* * * we are now in accord that the nearest estimate we can make from existing data indicates that on the average the losses between Lee's Ferry and Laguna Dam just about balance the average contributions * * *" (minutes, Colorado River Commission, sixteenth meeting, p. 17).

He then continues as follows:

"So far we agreed upon those things and taking those figures and those conclusions it follows that, in the long run and on the average, *measurements at Laguna Dam are good for Lee's Ferry, corrected by individual years but the mean would be about the same.*" [Italics added.] (Minutes, Colorado River Commission, sixteenth meeting, p. 18.)

The next page of the record discloses that Chairman Hoover asked Commissioner Carpenter about the difference between his figures and the Laguna Dam record.

"Mr. CARPENTER. * * * I didn't deduct the loss in the river from Lee Ferry to Laguna."

Chairman Hoover then continues with the inquiry to see if Director Davis was correct in his conclusion that the measurement for Laguna Dam would serve as the measurement at Lee Ferry.

"Mr. HOOVER. Consequently at Laguna you have the whole flow of the Colorado River at that point?

"Mr. A. P. DAVIS. Yes.

"Mr. HOOVER. Without deductions except the Gila?

"Mr. A. P. DAVIS. Yes.

"Mr. HOOVER. And if you were to reconstruct the river you must also take account of the consumptive use of the upper basin and add that to the Laguna gagings and ought to add also the Gila flow. Have you a rough idea as to what the flow of the Gila would be if it had not been used for irrigation, or what the consumptive use, plus the present flow, is?

Mr. A. P. DAVIS. I can estimate that fairly closely. The mean annual flow as measured during the last 20 years is 1,070,000 acre-feet. The areas that are irrigated there are given in this document, 142, and we can apply a duty of consumptive use of water on that area and approximate fairly well, I believe, the consumptive use in the Gila Basin, if that is what is wanted.

Mr. HOOVER. My only point on that is, does it approximate possibly, the amount of consumptive use in the upper basin?

"Mr. A. P. DAVIS. Oh no it is smaller * * *" (minutes Colorado River Commission, sixteenth meeting, pp. 20–21).

It should perhaps be noted here that Arizona witnesses quote this question of Mr. Hoover in the hearings on S. 1175, page 528, as a basis for an argument that uses on the Gila River should be measured at its mouth. It can be stated with certainty that when Chairman Hoover asked the question he had only in mind to determine whether the Gila River flow together with the uses on the Gila would equal the uses in the upper States. Director Davis had reported that the Laguna Dam record of historical flow could serve as a Lee Ferry record. The mean average historical flow at Laguna Dam had been 16,400,000. Half of this flow would be 8,200,000 acre-feet. This flow did not, however, include the Gila and the question was what effect the Gila would have on this flow record. It must be kept in mind that the historical flow at the boundary was the basis for division being considered at this time. The river supply as reflected by the historical records of flow at the boundary, either at Yuma or Laguna Dam, was the water supply they were trying to divide. In trying to make this simple division of flow proposed in the Carpenter draft, they were not concerned with water that evaporated before reaching the boundary. Whatever water wasted out on the tributaries such as the Gila and the Little Colorado did not enter their computations at this time. It was the factors that would influence the flow at the boundary that had to be included. Mr. Hoover was interested at this point in the effect of the Gila on the main river flow. He thought he saw a way to get at it. The uses that were being made in the upper division would influence the flow at the boundary. The Gila flow and uses would also influence the main river flow at the boundary. Perhaps these two factors would offset one another. If they would, then nothing would need to be added or sub-

tracted from the Laguna Dam record of flow. It would serve as the Lee Ferry flow and be a fair basis for division. Mr. Davis gave his opinion that the flow and consumptive use on the Gila was a smaller figure than the consumptive use in the upper States. Mr. Hoover then pursues the inquiry further. He wants to be sure that he has included all the uses and inflow between Laguna Dam and Lee Ferry that would affect the Laguna Dam readings. When he has them all computed perhaps he can cancel or offset them against the uses in the upper States. He makes this objective even clearer as he proceeds with this inquiry. The minutes disclose both the process and the result:

"Mr. HOOVER. What would be added here, as a rough guess, would be, the flow and consumptive use of the Gila and Little Colorado and the consumptive use of the Colorado below Lee's Ferry and above Laguna. This all comes to about a million and a half, and the consumptive use in the upper basin is 2,400,000 so it would be a credit of water to the Laguna readings of approximately a million feet, something like that.

"Mr. CARPENTER. If there are others, like the Virgin and other rivers, that would be still more of a reduction.

"Mr. SCRUGHAM. I thought the Imperial Valley had a heading somewhere at Laguna. What was all the disturbance by the Yuma people?

"Mr. A. P. DAVIS. They have contracted for building their canal and heading it at Laguna and have agreed to do that, but never have done it. They have never taken any water out above the Yuma project. The best use of the Gila, as I said yesterday is in its own valley and that probably will be accomplished some day.

"Mr. HOOVER. Would it be possible for you to recast some figures in the light of the counteraction of deducting the Gila flow and consumption from the upper basin flow and consumption?

"Mr. A. P. DAVIS. The lower basin consumptive use you mean don't you? Make some approximation of a difference in consumptive use betwen the lower basin and the upper basin, exclusive of the Imperial Valley, and add that to these figures.

"Mr. HOOVER. You would have to add to the consumptive use the flow of the Gila River over and above its consumptive use.

"Mr. A. P. DAVIS. Did you want the flow of the Gila included also?

"Mr. HOOVER. It is a part of the drainage basin.

"Mr. CARPENTER. You are revolving as I revolved at one time, and I decided consumptive uses better offset one another and took the figures as printed.

"Mr. A. P. DAVIS. I don't know how near they would do that. You don't mean to undertake to run that back over 20 years—take it as it is now; is that what you mean?

"Mr. CALDWELL. Run it back over 20 years.

"Mr. A. P. DAVIS. If given time I could make an estimate that could be worth something. The present consumptive use we practically know. How that has grown is a matter of history.

"Mr. HOOVER. I might phrase it in another way perhaps, on page 5 of Senate Document 142 your mean flow at Laguna is 16,400,000. *Now if you went into this elaborate calculation to account for the Gila consumptive use below and consumptive use above it might add a certain amount to that mean flow*, it might add between 500,000 and a million feet. This is just a guess that might be the result of such an elaborate calculation.

"Mr. A. P. DAVIS. That is true.

"Mr. HOOVER. And if you took the low years as being 500,000 more than that and the high years as being 500,000 less than that, it probably wouldn't vary materially or affect the mean?

"Mr. A. P. DAVIS. No.

"Mr. HOOVER. So that you would get somewhere around 17,000,000 feet as the Lee Ferry flow?

"Mr. A. P. DAVIS. Yes; 17,000,000 would be a correction in the right direction, probably not very far wrong.

"Mr. HOOVER. I should think for matters of discussion we could take the reconstructed mean at Lees Ferry is a minimum of 16,400,000, and perhaps, with this elaborate calculation, half a million above, i. e., 17,000,000. Therefore, we would come to a discussion of a 50–50 basis on some figure lying between 16,400,000 and 17,000,000.

"Mr. S. B. DAVIS. With all due respect to these eminent gentlemen, I am still from Missouri, I have to be shown, but I am willing to enter into a discussion on that line.

"Mr. HOOVER. I should think the result of the deliberations and of our advices on that matter would have been to establish the 16,000,000 as a sort of least mean.

"Mr. S. B. DAVIS. As the average mean at Lees Ferry.

"Mr. HOOVER. Yes; and that an apportionment of a minimum would be half that sum, 8,200,000 acre-feet, instead of the 6,260,000 feet as suggested by Mr. Carpenter; so that this would be the question on your proposal, delivering approximately 82,000,000 acre-feet in 10-year blocks." [Emphasis added.] (Minutes Colorado River Commission, sixteenth meeting, pp. 23–26.)

Several facts appear to be definite in the above quotation:

1. The commissioners were not working from records nor estimates of virgin flow. They were working from records of mean average historical flow at Yuma and Laguna Dam that had been measured over a 20-year period, while uses were expanding. They were considering additions and deductions to these flows in order that the supply of water in the main river at the boundary could be translated back to Lee Ferry for an equal division at that point. In this connection they took into account historical records of flow of the Gila of similar character to the Yuma and Laguna records.

2. Whatever consumptive uses were then being made above and below Lee Ferry were estimated by applying a net duty of water to the irrigated acreage. Then, as a rough approximation by which some figure could be arrived at for discussion, the uses below were canceled against the uses above. Mr. Hoover then suggested that the differences be added to the Laguna Dam historical record for division at Lee Ferry, and finally omitted this addition in order that the resulting figure of 8,200,000 should be a minimum.

3. The minutes of the commissioners do not disclose that uses were measured in their deliberations by any other method than by applying a net duty of water to the area irrigated.

4. The record of flow on the Gila was not run back over 20 years as requested by Caldwell. No attempt was made to estimate any figure of the virgin flow of the Gila.

5. The commissioners tried by rough calculation to translate the mean average flow, as recorded at Laguna, into a mean average flow that could be assumed for Lee Ferry, which they termed "reconstructed flow."

6. Regardless of how accurate the figures were, the result obtained by this process was 16,400,000 to 17,000,000 acre-feet as the "reconstructed" Lee Ferry flow

7. A 50–50 division of the more conservative figure would be 8,200,000 acre-feet.

It could be argued that by using the term "reconstructed flow" the commissioners were working with virgin flow. They did take into their calculations the amount of use then being made both above and below. They were working from records of historical flow at Laguna Dam, not records nor estimates of virgin flow. They canceled existing uses above against existing uses below and decided that the difference was not sufficient to materially affect the Laguna Dam historical record. They therefore adopted this Laguna Dam historical record. Uses were expanding during compilation of the Laguna Dam record. It was not therefore a record of virgin flow in any sense.

The conservative figure for the reconstructed flow was 16,400,000 acre-feet. When divided 50–50 the upper States would be free to use all the water in the upper States limited by this figure of 8,200,000 or 82,000,000 acre-feet in any 10-year period. The lower States would receive 82,000,000 acre-feet in 10-year blocks and would also have the benefit of the inflow below and existing consumptive uses. This would give one-half of the adjusted boundary flow for unrestricted use in the lower States. The lower States had not been satisfied with the Carpenter compact that offered 6,242,000 acre-feet each year. The question now was whether the upper States could agree not to reduce or deplete the flow and thereby guarantee to the lower States the new figure of 8,200,000 acre-feet or 82,000,000 acre-feet in 10-year blocks

We must accept the fact that 8,200,000 acre-feet was believed to be a fair and conservative division of the "reconstructed" Lee Ferry flow. All the commissioners had participated in the figuring. There had been no objection by any commissioner to the method used in reaching the result. The question can therefore be fairly asked, why doesn't article III (d) provide 8,200,000 acre-feet or 82,000,000 in any 10-year period instead of 75,000,000 in any 10-year period? The answer to this question discloses a physical difficulty which the commissioners encountered. The flow of the river varies widely through wet and dry cycles. This fact turned out to be the cause of the inclusion of articles III (a) and (b),

as well as the scaling down of the guaranty to that which appears in article III (d), as will next be shown.

The upper States held a caucus on the 82,000,000 acre-foot figure between the sixteenth and seventeenth meetings of the commission. The physical difficulty encountered is expressed by Commissioner S. B. Davis of New Mexico at the opening of the seventeenth meeting in language as follows:

"Taking the figure presented yesterday, of 82,000,000 feet in a 10-year period, it is apparent from the figures which are now available that in the first 10-year period for which we have measurements any such guaranty would have been violated. The total flow of the river for the first 10 years for which we have measurements amounted to about 155,000,000, one-half of which is 77,500,000 acre-feet, so that I think it may be said at the outset that it is wholly out of the question to consider any guaranty based on any such figures as eighty-million or eight-million-odd feet * * * none of us want to sign a guaranty with the feeling that sometime it would be violated, and I presume none of the Southern States would want such a guaranty" (minutes, Colorado River Commission, seventeenth meeting, pp. 2, 3).

It should be particularly noticed that there is nothing in the above quotation that would indicate that 82,000,000 acre-feet was not an equitable division of the flow. The objection was that the history of the river in dry cycles showed that the flow at Lee Ferry would not exceed 77,500,000 in some 10-year periods.

Mr. S. B. Davis, of New Mexico, goes on to explain the upper States' view in language as follows:

"Further, there is decided opposition to guaranteeing anything in excess of the amount which appears to be necessary for the needs of the lower States. Taking the measured flow for the 10 years—the lowest 10 years for which we have a record, which is the first 10 years—one-half of that flow would amount, roughly, to 77,000,000 acre-feet. The span of 20 years is, of course, very short and it is impossible to know that there will be no lower flow in any subsequent period. We feel, therefore, that there should be applied to those figures a very considerable margin of safety. *If we were asked merely to divide the water, that would be another thing*, but we seem to be just now in the position of discussing a guaranty under which the penalty for drought—the penalty for a lack of water in the river—falls upon the upper States, as we are particularly asked to guarantee against such a situation, consequently we feel that there must be a wide margin of safety, and we suggest, along these lines, the figure be fixed at 65,000,000 acre-feet for any 10-year period." [Emphasis added.] (Minutes, Colorado River Commission, seventeenth meeting, pp. 3, 4.)

The deadlock of the commissioners was now made clear by Commissioner Scrugham speaking for the lower States and Commissioner Davis for the upper States:

"Mr. SCRUGHAM (of Nevada). * * * If the upper basin will only guarantee 65,000,000 acre-feet * * * we might as well abandon the discussion.

"Mr. S. B. DAVIS (of New Mexico). I think we could say the same thing of the lower States. If the lower States are set on 82,000,000 we might as well abandon the discussion (minutes, Colorado River Commission, seventeenth meeting, p. 21).

It might be well at this point to clarify the problem by simple illustration. If 82,000,000 was an equal or 50–50 division of the "reconstructed" Lee Ferry flow over a 10-year period and the upper States would only guarantee not to deplete the flow below 65,000,000 acre-feet there would be left for upper State development in periods of normal run-off 82,000,000 plus the difference between 82,000,000 and 65,000,000, or 17,000,000 acre-feet. These added together would give 99,000,000 acre-feet available for development in the upper States. During this same period of normal run-off the lower States could count on only 65,000,000 acre-feet of Lee Ferry delivery instead of 82,000,000 acre-feet. Admittedly a water-use project can be constructed only on the basis of an assured supply. This would mean that the lower States could never depend upon any more than the 65,000,000 guarantee, together with the contributions below which had already been taken into account as a part of the lower States' water supply. It is apparent that an allowance of 65,000,000 of the boundary flow for the lower States and 99,000,000 for the upper States would not be equitable. Such an allowance would have given the upper States approximately half again as much of the boundary flow as the lower States instead of a 50–50 division.

While this deadlock was being fully discussed during the seventeenth meeting we find several comments in the minutes that aid in explaining the solution that

was found in the eighteenth meeting. The upper States had said they would only guarantee the requirements of the lower States.

Mr. Hoover expressed the problem in the seventeenth meeting in these words:

"Mr. HOOVER. The difficulty that strikes me at the moment in the 65,000,000 guaranty is that it does not cover the needs of the Southern States. Including the Mexican burden you can estimate the needs of the Southern States at about seven and a half million, whereas you guarantee six and a half, so that it cannot be said to cover the needs" (minutes, Colorado River Commisison, seventeenth meeting, p. 18).

Later Mr. Hoover makes a suggestion:

"Mr. HOOVER. Of course, the business of the chairman is to find a medial ground. So I am wondering if the Northern States will make it 7,500,000?"

"Mr. S. B. DAVIS. If that is a suggestion for consideration by both divisions, I would presume it would necessitate further caucus" (minutes, Colorado River Commission, seventeenth meeting, p. 22).

The States of each division did caucus separately at the close of the seventeenth meeting and came out with the solution in the eighteenth meeting. It will be observed that at this point they had reached the following conclusions:

1. A 50–50 division of the "reconstructed" Lee Ferry flow would be 8,200,000 acre-feet each year in years of normal run-off.

2. In a dry cycle, half this Lee Ferry flow might not exceed 7,750,000 acre-feet each year.

3. The upper States could not consent, therefore, to guarantee 8,200,000. The most they could guarantee would be what the river would produce in a dry cycle.

4. The lower States and Mexico showed a requirement of 7,500,000 acre-feet each year.

The solution for the whole problem was found in the next meeting, the eighteenth. The minutes of the commission are complete through that meeting, and they can be readily followed to observe the method used by the commissioners to overcome the difficulty. After the caucus between the seventeenth and eighteenth meetings they emerged in agreement upon certain new principles that were read by Chairman Hoover and approved by all the States. These principles make the solution clear. One of the principles was a new idea, namely, that of limiting the firm consumptive use in each basin to certain specified quantities which would aggregate only a part of the total water supply.

The basic objective of the Carpenter draft was a disposition between the two basins of the use of all the water of the river, conditioned and limited only by an agreement that the upper States would not deplete the flow at Lee Ferry below an agreed amount. The introduction of the new idea above mentioned marked the commission's recognition that the scheme of the Carpenter draft, standing alone, could not produce an equitable nor acceptable result.

This "new hypothesis" was well expressed by Chairman Hoover:

"Mr. HOOVER. In our discussions yesterday we got away from the point of view of a 50–50 division of the water . We set up an entirely new hoypothesis. That was that we make, in effect, a preliminary division pending revision of this compact. The seven and a half million annual flow of rights are credited to the south, and seven and a half million will be credited to the north, and at some future day a revision of the distribution of the remaining water will be made or determined" (minutes, Colorado River Commission, eighteenth meeting, p. 32).

This is the "new hypothesis." It is this concept that was carried into the final compact in article III (a). It firmly apportions for use a part of the flow of the river system but leaves a balance for apportionment at a later date. With such a provision limiting firm uses in the upper States, now the lower States could accept a guaranty of less than 50 percent of the "reconstructed" Lee Ferry flow. The depletion-guaranty figure could be brought down to an amount that the river could be safely expected to produce in a dry cycle. This could be done because firm uses above were to be limited. The new concept or hypothesis solved the whole difficulty. It had been demonstrated that the simple depletion guaranty was not workable.

This new hypothesis was adopted as a principle in the eighteenth meeting and approved by all commissioners as follows:

"During the term of this compact, appropriations may be made in either division with equality of right as between them up to a total of 7,500,000 acre-feet per annum for each division. If upon the expiration of this compact, appropriations in one division shall aggregate more in quantity of water than in the other, there shall be vested in the one having the lesser appropriation the continuing

and prior right to appropriate further waters until the appropriations in each division shall be equal, but neither shall exceed 7,500,000 acre-feet annually. All waters in excess of such amount shall be equitably apportioned at the expiration of said period among the States by the commission to be created as above provided" (minutes, Colorado River Commission, eighteenth meeting, p. 25).

This principle gives each division the right to appropriate up to the amount of 7,500,000 acre-feet. This right to appropriate is defined and limited as a principle in this eighteenth meeting, reading in part as follows:

"The appropriation of water shall be considered as its actual application to beneficial use and such beneficial use shall rank in priority first, to agricultural and domestic purposes and industrial processes, second, power, third, navigation * * *" (minutes, Colorado River Commission, eighteenth meeting, p. 22).

These principles make it clear beyond question that in the eighteeenth meeting the commissioners had gotten completely away from any attempt to measure the rights of the two divisions to use water in terms of flow. Each division was to have a quantity of water for appropriation to beneficial uses in a named amount. Waters in excess of that amount were to be apportioned by a later commission.

These minutes of the eighteenth meeting are the last available complete minutes. They contain, however, a statement of principles agreed upon for the first time by all of the commisisoners. Up to this time there had been no unanimous agreement upon any principle. It is from these agreed principles that the final compact was drafted. Although the subsequent minutes are not available, it is easily seen that the final compact was drafted from this statement of principles.

This "new hypothesis" did not entirely abandon the idea of depletion-guaranty at Lee Ferry. It added the new covenant expressly limiting rights to appriate in each division. Then, as a second cevenant the depletion-guaranty figure was reduced to 75,000,000 acre-feet in 10-year blocks and became one of the agreed principles. This principle appears as follows:

"During the term of this compact the States in the upper division shall not deplete the flow of the river (at the point of diversion) below 75,000,000 acre-feet for any 10-year period * * *" (minutes, Colorado River Commission, eighteenth meeting, p. 30).

When Mr. Hoover read this principle in the eighteenth meeting, Mr. Norviel objected at first because he thought that the guaranty applied to only the excess over and above what the upper States had used and still the guaranty was less than half of the average delivery over the lowest 10-year period of record. It was in reply to these objections that Mr. Hoover stated that they had gotten away from a 50–50 division of the water in the "new hypothesis." He said that each basin would have certain limited rights, with the distribution of the remaining water left for a new commission. Mr. Norveil was not entirely satisfied and asked if this plan included a "reconstruction" of the river, pointing out that the upper basin had used a certain amount of water, and asking if this plan was a division of the rest of the water or if the amount given the upper basin for appropriation included the amount being presently used. He was assured that it did include present uses and with this assurance he withdrew his objection and approved the principle.

The depletion-guaranty principle that was incorporated in article III (d) remained a necessary part of the commissioners' thinking. It makes available a supply of water in each basin not only equaling but exceeding the 7,500,000 acre-feet of use given each basin by the agreement which resulted in article III (a).

It must be kept in mind that the commissioners were very much interested in the entire supply of the whole Colorado River Basin. They wanted that supply kept available for equitable use in each basin insofar as possible. The fact that the boundary flow could not be equitably divided, 82,000,000 to each over 10-year periods, plus existing uses, did not change their interest in dividing the river supply insofar as it was physically possible to do so. The reduced figure of 75,000,000 is short of a 50–50 division of the "reconstructed" flow by 7,000,000 acre-feet in any 10-year period of normal run-off. This results, in any normal period, in depriving the lower States of a guaranteed equitable supply in the amount of 7,000,000 acre-feet. Over the same period it provides a supply in the upper States of not only the equitable figure of 82,000,000 plus existing uses but the additional 7,000,000 acre-feet. This would permit an upper State development during such years of normal run-off of more than 89,000,000 acre-feet were it not for two factors. First, they must be prepared to deliver in 10-year dry

cycles 75,000,000 at Lee Ferry. Then in addition they are given a present firm right of use of only part of that supply to the extent of 7,500,000 acre-feet annually inclusive of existing uses. It therefore places a duty of self-regulation upon them for the protection of the lower States.

The balance of the water not consumed in the upper States must come down. The lower States do not receive the depletion-guaranty figure of 82,000,000 in 10-year periods, which would be an equal division of a "reconstructed" (not virgin) main river flow at the boundary. They do receive, however, whatever water remains unused in the upper States. Of this supply, certain uses inclusive of existing uses are permitted.

These principles are now found in articles III (a), (b) and (d) of the final compact. Article III (d) deals with the supply of water in the main river for use in such a manner as to make available at all times an excess supply in each basin to be dealt with equitably by later agreement. Article III (a) and (b) serve an entirely different purpose. They give each basin the right to use certain designated quantities. These rights to use are designated out of the river system not just the main river flow. They would be measured wherever the use takes place, in terms of beneficial consumptive use. This paper has shown at length that the division of the supply in article III (d) was approached upon the basis of a division of boundary flow. As finally approved, it is not an equitable division of that boundary flow but it is all the flow that could be safely guaranteed. It contemplates an excess available within each basin to be dealt with as future demands indicate. A right to make beneficial consumptive use of a portion of the whole system supply is given separately in articles III (a) and (b).

In the final compact, of course, much polishing and refinement was required to convey these principles and these two separate concepts. Instead of giving diversion rights to the two groups of States they came back in their thinking to a term they well understood, "beneficial consumptive use." Furthermore, they now had two concepts, one of main river supply and another of use. They therefore put in one set of provisions that deal with supply at Lee Ferry between two political divisions. By separate grouping of the States into geographic basins they wrote a different set of provisions dealing with "beneficial consumptive use" of the system water. They thus made the distinction clear.

Commissioner Carpenter in reporting to the Colorado Legislature when the Colorado River compact was up for approval in March 1923, about 4 months after the compact was signed at Santa Fe, N. Mex., defined beneficial consumptive use in these words:

"The 'beneficial consumptive use' refers to the amount of water exhausted or lost to the stream in the process of making all beneficial uses. As recently defined by Director Davis, of the United States Reclamation Service, it is the 'diversion minus the return flow' (Congressional Record, Jan. 31, 1923, p. 2815)" (H. Doc. 717, 71st Cong., 1st sess., the Hoover Dam Documents, p. A102).

It is also clear that the "beneficial consumptive use" of the full water supply of the Gila Basin was contemplated by the Colorado River Commission. Richard E. Sloan, the legal adviser to Commissioner Norviel, of Arizona, and a member of the drafting committee which put the compact into final form, contributed an article to the Arizona Mining Journal in January 1923, 2 months after the compact was signed, wherein he stated:

"* * * the known requirements of the upper basin being placed at 6,500,000 acre-feet, a million acre-feet of margin gave the upper basin an allotment of 7,500,000 acre-feet. The known future requirement of the lower basin from the Colorado River proper were estimated at 5,100,000 acre-feet. To this, when the total possible consumptive use of 2,350,000 acre-feet from the Gila and its tributaries are added, gives a total of 7,450,000 acre-feet. In addition to this, upon the insistence of Mr. Norviel, 1,000,000 acre-feet was added as a margin of safety, bringing the total allotment for the lower basin up to 8,500,000 acre-feet" (the Hoover Dam Documents, p. A69).

The commission did not work with figures of virgin flow. The commission worked entirely with figures of mean average historical flow over periods during which uses were building up in both the lower basin and the upper basin. The most important fact is that they were working with these flow records in an attempt to make, not an apportionment, but a simple division of the main river flow at Lee Ferry. The purpose of the Carpenter draft was to make this simple division and leave each division free to make full consumptive use of the divided water. They were not, therefore, concerned with the subject of consumptive

use while they were trying to make the simple division of the main river flow. They could not make a simple division of main river flow that would be equitable to the lower division. They turned, therefore to the "new hypothesis," as Mr. Hoover termed. They went back to the concept of consumptive use that was well understood to be diversions less return flow. They allocated beneficial consumptive uses out of the system which included tributaries in each basin. They made clear distinctions between divisions and basins in the compact. The provisions applicable to the divisions deal only with the subject of supply and flow. It was in computing supply and flow in the main river that the commissioners used historical-flow records, not virgin-flow records. The provisions applicable to the basins do not deal with the main river nor its flow. They deal with the river system as a whole, and with beneficial consumptive use from the system. The distinction is made clear not only in the wording of the compact but in the minutes of the commission. The Colorado River Commission did not ascertain nor arrive at the virgin flow of the river, even in connection with depletion guaranty which was finally embodied in article III (d) of the compact. With this fact in mind, it is concluded with confidence that there is no connection whatever between the entirely distinct provision which relates to consumptive use, and the idea, either of virgin flow, or the depletion thereof.

CONCLUSION

It has been the object of this paper to demonstrate how the provisions regarding consumptive use were formulated in the deliberations of the Colorado River Compact Commission. The various steps may be summarized as follows:

1. The commissioners understood consumptive use to mean the water exhausted or lost to the stream in the process of making all beneficial uses. This loss was measured as the amount diverted by a particular use less the amount returned to the stream.

2. Each State had urged such large demands for consumptive use that an effort was made to divide the water by another method.

3. It was hoped that a simple division of the recorded main river flow measured in terms of depletion at Lee Ferry would avoid the whole consumptive use problem. Such a simple division would leave the two groups of States free to make full use of the divided water.

4. A simple main stream division could not be made that would prove equitable. An inequitable division in terms of depletion could be made of all the main stream flow that could be safely guaranteed. This was not a fair measure, however, standing alone.

5. A new measure was added that had no reference to the main river flow. There was more water in the river system than ever reached the boundary. This water was wasted in nature out on the tributaries and could be put to use. The final compact therefore resulted in a whole separate group of provisions dealing with the beneficial consumptive use of this system water.

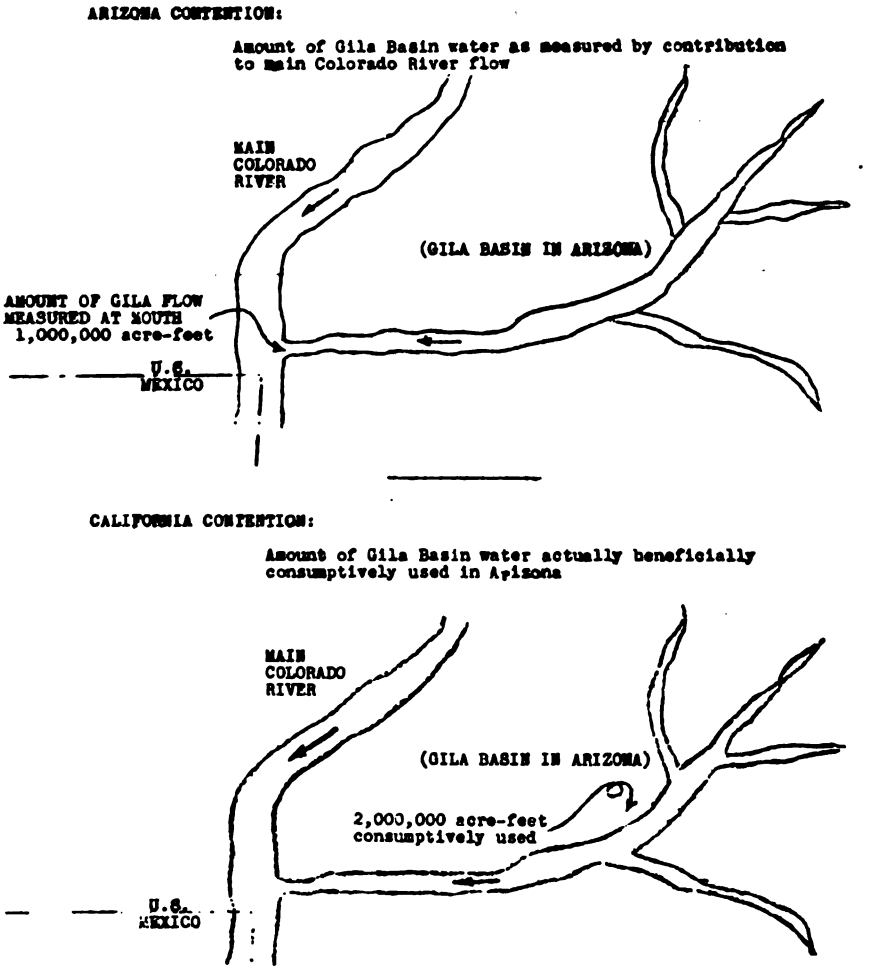
Mr. Debler, the engineer for Arizona, assumes that the water for use by the States of the Colorado River Basin is the long time average flow at the international boundary. This is not the water for use. The compact specifically provides that the water for use is system water, not main stream flow. The drawings appended to this statement illustrate this distinction.

Mr. NELSON. I would also like to call attention to the drawings that are appended to this statement, and I would like to make my brief remarks in summarization of the statement in reference to these drawings, and I would further like to ask the chairman to have these drawings made a part of the record with the statement.

Mr. MURDOCK. Without objection it is so ordered.

Mr. NELSON. I would like to direct the committee's attention to drawing No. 1. In that drawing I have attempted there to depict the main Colorado River as it flows down to the international boundary between the United States and Mexico and set forth the Arizona contention pictorially there somewhat.

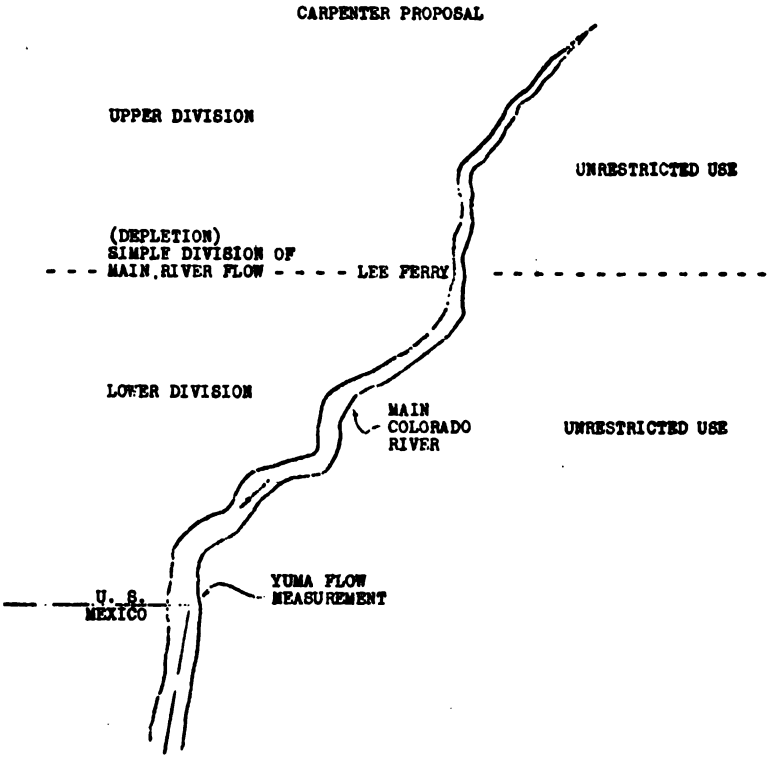
The branch of that stream off to the right there is the Gila with its tributaries, and that is set forth to represent the Gila Basin in Arizona.



Now, Arizona's contention is that the amount of Gila flow out of this basin should be measured at the mouth or at the international boundary by the amount that it depletes the natural flow of the main Colorado River, and that is approximately 1,000,000 acre-feet. Mr. Debler, in his statement, made it, I think, 1,138,000 acre-feet. That figure has varied somewhat, but it is 1,000,000 at least.

The second drawing, at the bottom of this drawing No. 1, is to represent the California contention, the amount of Gila Basin water actually beneficially consumptively used in Arizona. There, again, the main Colorado River is depicted by the vertical lines, and the Gila system by the horizontal lines. In the Gila Basin I have shown there that some 2,000,000 acre-feet are consumptively used.

Now, the inflow into the Gila Basin as a matter of engineering fact is something in excess of 2,000,000 acre-feet. There is no question about that. It has been put variously by the Bureau at about 2,300,000 acre-feet, and a number of engineers have agreed on that figure.

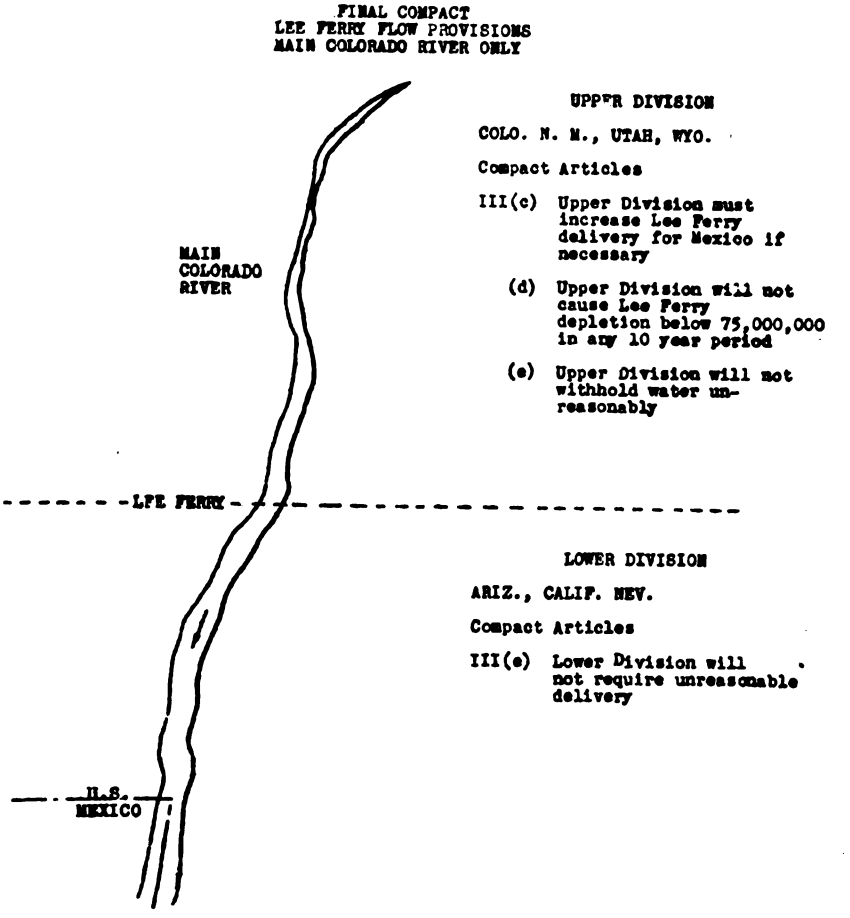


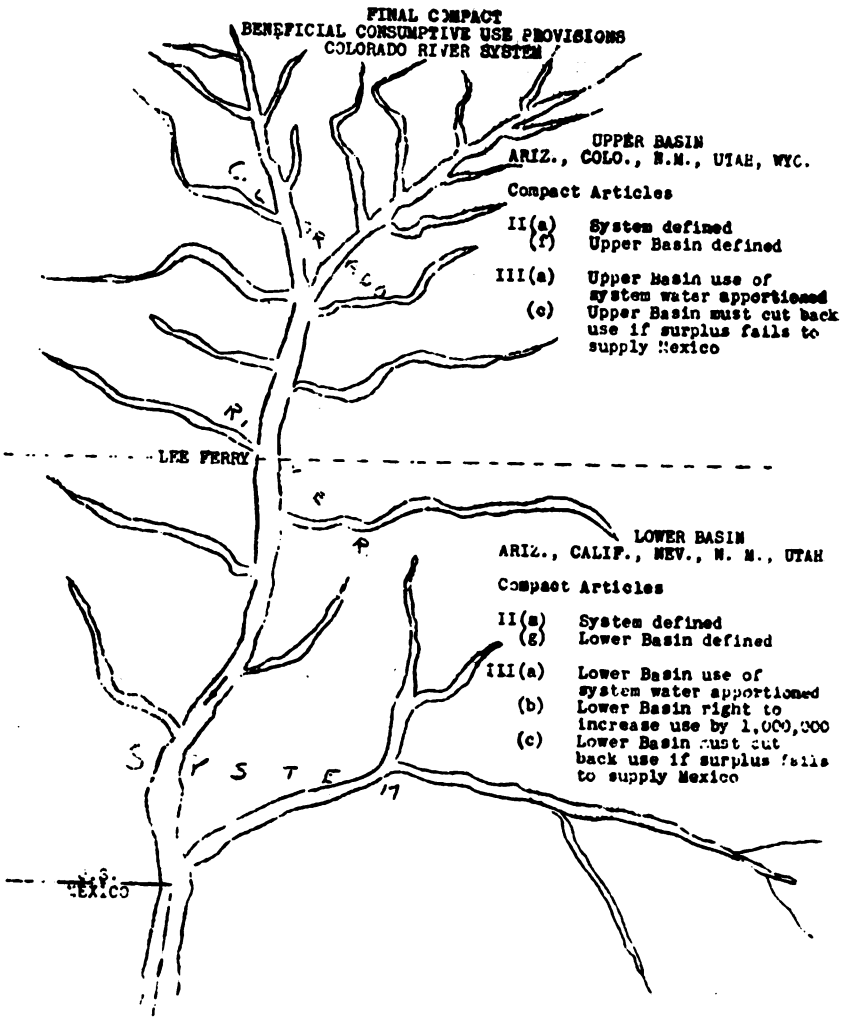
It has also been figured at about 2,600,000 acre-feet, and also at about 2,900,000 acre-feet.

I would like to make one contention of Arizona in reference to this use clear at this point. She says that we charge for her reuse of water in the Gila Basin. As a matter of fact, we do not. We charge her with the water that is actually consumptively used on each project. That is, of course, water is reused, that is, it will be reused on a particular project in central Arizona and there will be a return flow. Not all of the water will return, however. A portion of it will be used by the plants in transpiration, evaporation, and in plant consumption. The return flow will then go down to another project and a portion of that will be used. The entire amount now is being presently used in central Arizona, and that is simple to illustrate because they are here saying that the amount they have in central Arizona of surplus inflow is not adequate, and they want a supplemental supply. So, there is no question but what they are burning up and using up, and I presume that has been their position, they are burning up and using this water most beneficially from their standpoint, without reference to the ground water, merely the surface inflow in excess of 2,000,000 acre-feet. This method of accounting by Arizona is very devious, and it results in this, it lifts 1,000,000 acre-feet of the inflow of the Gila River out from under the compact and it assigns it to Arizona. It says that we are not accountable under the compact for measurement beyond a little in excess of 1,000,000 acre-feet, rather

than in excess of 2,000,000 acre-feet of inflow of the Gila. It lifts out, therefore, 1,000,000 acre-feet out from under the cover of the compact and assigns it to Arizona. The reason that is very upsetting to the whole system is because of the fact that the compact makes definite assignments of water for use. If the bank account is to be shorted by 1,000,000, obviously you cannot withdraw the quantity that was anticipated when the bank was set up by the compact commissioners. For that reason it is rather interesting to go into the question of this beneficial consumptive use as it was viewed by the compact commissioners in their meetings back in 1922. They held their first meetings here in Washington, D. C., in January of 1922.

The first thing that they did was to select Herbert Hoover as their chairman, and then they went about trying to find out what the prospective uses would be in each one of the seven basin States of the Colorado. Each one of the commissioners figured up the prospective use in his State. He figured the prospective acreage that would need water—this additional water that was going down the Colorado River. He computed how it should be applied, the amount of water to be diverted, and the prospective return flow that would come back





from each diversion. The difference was called by each State as consumptive use. They added all of those consumptive uses together for all of the States and then they tried to relate that total amount to the amount of water they had left in the river. The only figures they had of the amount of water they had left in the river were measurements that had been kept at the boundary.

There had been measurements kept at Laguna, and at Yuma, right down near the international boundary. Those were main river flows, and when they related the amount of prospective consumptive use in all of the States to this historical record of flow at Yuma, they found that they did not have enough water to go around. That nearly broke up the Washington meetings.

They practically gave up the whole idea of a compact. However, they decided that it would be better to go out into the several States

of the basin and see if they could not get some ideas for a compact. So, they did. They held public meetings in Los Angeles, in Phoenix, Ariz., in Salt Lake City, in Denver, Grand Junction, and Cheyenne. Two very definite things with regard to this question came out of those public meetings. One was that they found that this whole Colorado River Basin had a very logical dividing point in its canyon section. It was much like an hour glass. It gathered its waters up in the Rockies and poured them through this canyon section. It then opened out in these lower desert regions below. There was a logical division, therefore, for this system in the canyon section, and at a very famous place which was familiar to them all, a place called Lee Ferry, where a fugitive from justice had fled, and where a fort had been built, at the Arizona boundary just above the Grand Canyon. Most of the tributary inflow to the main river above that point drained this upper region, and the tributary inflow below that point would drain this lower divison in the desert region. So, they began to look at the river as separable into two divisions geographically.

They also went into this matter of consumptive use very thoroughly along the various tributaries, along the tributaries of the river. They found for a particular project, the water that was being diverted, and from which diversion there would be a return flow. The difference they definitely designated, in the records that we have of their meetings, as consumptive use, measured project by project.

They adjourned these public meetings in April of 1922, and did not hold any more meetings during the summer, but agreed to convene again in the fall. They did convene at Santa Fe, N. Mex., and it was these final sessions that resulted in this final compact.

At this meeting in Santa Fe, almost at the start, Commissioner Carpenter, of Colorado, had a draft of compact, a proposal. He is actually known as the father of the final compact. Colorado had been through litigation in interstate streams, and it had gone through litigation on Kansas versus Colorado and the case of Wyoming versus Colorado had just then been decided. It was decided during the summer of 1922. Mr. Carpenter was therefore eminently qualified to know the problems of an interstate river.

If the members of the committee will turn to drawing No. 2 at the back of the statement, I have tried to depict there this simple form of compact that Commissioner Carpenter proposed at this Santa Fe meeting. It was the simplest kind of a division. He divided the Colorado River Basin in this geographical natural division in the canyon at Lee Ferry. What he hoped to do, he stated very clearly, was to give to the upper division and to the lower division 50 percent of the recorded flow of the main river, that is, divided equally, and he would do it in this manner. He would determine the amount of tributary inflow to the main river that came in between Lee Ferry and the boundary, and whatever that tributary inflow was, to that would be added a sufficient quantity so that the lower division would get 50 percent of the recorded Yuma flow. That was his simple method.

As far as use was concerned, he hoped to get away from the whole question of consumptive use. The Commission had found at Washington that there was not enough water to go around. In his compact

draft therefore, he had two provisions that very clearly stated that the upper division, limited only by the amount they had to deliver at Lee Ferry, would have unrestricted use of the waters above that point. Likewise, the lower division, limited only by the amount that would be delivered at Lee Ferry to make up the 50 percent of the Yuma flow, would have unrestricted use of all the water they wanted below Lee Ferry. That was his simple compact, by which he hoped to get away from this whole question of consumptive use.

The commissioners, therefore, went into the question namely how much was this tributary inflow between Lee Ferry and the boundary? Once that was determined, they then could say how much had to be added at Lee Ferry to give the lower division 50 percent of the Yuma flow. They struggled with this question for approximately seven meetings. They hoped to ascertain, as accurately as possible, what that measurable inflow would be, then to that had to be added enough flow at Lee Ferry to give 50 percent of the Yuma flow to the lower division.

They finally came out with a figure of 82,000,000 acre-feet as being the amount that had to be delivered at Lee Ferry in a 10-year period to give to the lower division 50 percent of the Yuma flow.

Now, at that time they were not interested in the amount of wastage out on the tributaries. They were not interested in losses out on the Gila, or anywhere else on the tributaries. They were interested in the amount that made up this recorded flow at Yuma in the main river, and that is all they were interested in at that time. They came out with this figure of 82,000,000 acre-feet as the amount that had to be delivered in any 10-year period at Lee Ferry to give the lower division 50 percent of the Yuma flow. Then the question was posed, could the upper basin deliver that quantity of water at Lee Ferry? Right here they ran into the question of a physical difficulty in the production of water in this river. It runs in cycles, and they took the 10 years of lowest flow, and they found that over this 10 years of lowest flow they could not deliver 82,000,000 acre-feet. The most that they could hope to deliver yould be 77,500,000 acre-feet because that is all the river would physically produce. So, they were not going to guarantee—the upper basin States made it very clear that they were not going to guarantee, as I have set forth in this paper, a delivery of more flow than the river would physically produce.

They were again at a place where it looked as though it would be impossible to make a compact. In the next to the last meeting for which we have records, we find that they went into conference and debated whether they could ever come out with any kind of a compact. The whole Carpenter idea had broken down. They could not make a division of 82,000,000 acre-feet as the river would not produce it.

However, in the last meeting for which we have minutes, we find that they came out with a solution. They decided to have two systems of measurement, one for the main river, and one for use of part of the water of the whole basin.

They left this idea of main river delivery at Lee Ferry in their agreement, and they came out with two fixed principles, and stated them. One was that there should be the delivery at Lee Ferry of 75,000,000 acre-feet in a 10-year period. That is in the eighteenth meeting minutes. That was on November 16, 8 days before they

finally met there for the completion of the compact on November 24. They had another provision in there that solved the whole problem, and that was to give to both of these divisions, appropriations up to 7,500,000 acre-feet. How did they happen to select 7,500,000 acre-feet? Not by the amount of water that the river could physically produce, which was in the principle of Lee Ferry delivery. They went into the question of how much water did the lower basin require for its needs, and Mr. Hoover, right in these minutes, came out and said that the lower river basin needed 7,450,000 acre-feet, so they set these appropriations at 7,500,000 acre-feet.

Now, I have here a statement that appears in Hoover Dam Documents, House Document 717 of the Eightieth Congress, which has in it a paper that was prepared and written for the Arizona Mining Journal of January 15, 1923, less than 2 months after the compact was signed. This was written by Mr. Richard E. Sloan, legal adviser to Mr. Norviel, the commissioner from Arizona, and this Mr. Sloan was appointed by Mr. Hoover during these compact negotiations in the last minutes that we have as one of the men who was to perfect the wording in the final compact. He was one of the men who drew up the final compact, and this is what he says on page A69 of these Hoover documents:

> The known requirements of the upper basin being placed at 6,500,000 acre-feet, a million acre-feet of margin gave the upper basin an allotment of 7,500,000 acre-feet. The known future requirements of the lower basin from the Colorado River proper were estimated at 5,100,000 acre-feet. To this, when the total possible consumptive use of 2,350,000 acre-feet from the Gila and its tributaries are added, gives a total of 7,450,000 acre-feet. In addition to this, upon the instance of Mr. Norviel, 1,000,000 acre-feet was added as a margin of safety, bringing the total allotment for the lower basin up to 8,500,000 acre-feet.

My point there is that this figure for apportionment was set at 7,500,000 acre-feet because the needs of the lower basin were known to be 7,450,000 acre-feet, whereas this delivery at Lee Ferry was set by the amount that the river could physically produce in a dry cycle. Mr. Sloan makes that clear too in this very statement on the same page, page A69 of the Hoover documents. He says:

> In clause D of article III of the compact there is a provision which in effect guarantees that the States of the upper division will not cause the flow of the river at Lee's Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series. Manifestly, the only purpose of this provision is to safeguard the lower basin during periods of prolonged drought.

Now, that is the purpose of the Lee Ferry delivery. The appropriations permitted or as in the final compact, the apportionments permitted were on the basis of the amount of need of the lower basin.

Now, curiously enough, that is further illustrated by a draft of a table that I find in the files of Mr. McClure, who was the commissioner from California on this compact commission. It is with some drafts of compact under date of November 23, the day before the compact was signed.

I would like at this time to offer the photostat of that table in the record.

(The matter referred to is as follows:)

Use of water in lower basin, Colorado River and tributaries

Basin	Irrigated 1920	Water	Acreage	Water	Total	Water
Gila Basin	430,000	1,290,000	350,000	1,050,000	780,000	2,340,000
Little Colorado	19,000	57,000	61,000	183,000	80,000	240,000
Total	449,000	1,347,000	411,000	1,233,000	860,000	2,580,000
Colorado direct	513,000	2,560,000	754,000	2,540,000	1,267,000	5,100,000
Grand total	962,000	3,907,000	1,165,000	3,773,000	2,127,000	7,680,000

Mr. NELSON. I offer it at this time. It shows the needs of the lower basin with the Gila. You will see it follows exactly what Mr. Sloan says about the use of water in the lower basin of the Colorado River and tributaries. That Mr. Davis underneath there, apparently that is Mr. A. P. Davis, who was then the Commissioner of Reclamation. The Norviel request written up in the right-hand corner there is in the handwriting of Mr. McClure. Mr. Norviel was commissioner for Arizona on this compact commission.

This table does set up the Gila Basin water supply as 2,340,000 acre-feet, and it gives the Little Colorado as 240,000 acre-feet, and the total then would be 2,580,000 acre-feet, against the Colorado direct as 5,100,000 acre-feet, and just as Mr. Sloan gives it, the only difference in the final figure is that little bit from the Little Colorado. His final figure here is 7,680,000 acre-feet as the needs for the lower basin and the water supply required for use in the lower basin.

Mr. MURDOCK. Without objection that table may be inserted in the record at the point where presented.

Mr. NELSON. Here is another example of these figures. Following the compact by some years there was a table prepared by Mr. R. I. Meeker. At this time I would like to have this table passed to the members of the committee, and a copy furnished to the reporter.

Now, this table was prepared by Mr. R. I. Meeker, who was an irrigation engineer, supporting and advising Mr. Carpenter all through the negotiations for this compact. Mr. Carpenter of Colorado was the compact commissioner and Mr. Meeker was his advising engineer.

This table was prepared in 1925 by Mr. Meeker, and it was introduced or submitted by Mr. Delph Carpenter, the commissioner from Colorado in hearings on a Senate resolution in the Sixty-eighth Congress, second session. That was also in 1925. Those were hearings in reference to further investigations of the Colorado River for the Boulder Canyon Project Act.

That table sets forth at the head of it the following:

These figures represent conditions of reconstructed river or river flow unreduced by irrigation uses. Actual river flow is now less due to consumption by irrigation. The Arizona figures include the Gila River, which is a part of the Colorado River system.

Table A sets up the Colorado River Basin water supply, contributions by States.

You will notice there the contribution of Arizona is 3,850,000 acre-feet. Then the most interesting figure here appears on page 3, and to save the time of the committee, and not to go too far with the table, over on page 3, at the middle of the page he gives the Gila system production in Arizona as 2,677,000 acre-feet under Arizona water pro-

duction, Colorado River Basin. That is the figure he uses over on page 2 of this table to figure in the amount of water supply in the lower basin, and from which he finds that under table 2 on page 2, Colorado River compact allocations, upper Colorado River Basin, 7,500,000 acre-feet; lower Colorado River Basin, 8,500,000 acre-feet; and then he gives an unallotted surplus of 5,600,000 acre-feet. Of course, at that time there was no treaty with Mexico, and that 5,600,000 acre-feet surplus would be that high, but he figures the Gila in as the water supply within the basin for the full amount of its production which he terms 2,677,000 acre-feet.

May that table be admitted in the record at this point, Mr. Chairman?

Mr. MURDOCK. Without objection this table may be admitted in the record.

(The matter referred to is as follows:)

(P. 691, hearings on S. Res. 320, 68th Cong., 2d sess.):

TABLE A.—*Colorado River Basin water supply, contributions by States*

[Approximate values only]

State	Acre-feet	Percent of basin supply
Colorado	12,000,000	55.0
Arizona	3,850,000	18.0
Utah	3,100,000	14.0
Wyoming	2,200,000	10.0
New Mexico	500,000	2.0
Nevada	75,000	.3
California	0	0
Total	21,725,000	100.0

These figures represent conditions of reconstructed river or river flow unreduced by irrigation uses. Actual river flow is now less due to consumption by irrigation. The Arizona figures include the Gila River, which is a part of the Colorado River system.

Colorado produces 55 percent of the Colorado River water supply.

The upper basin States contribute 79 percent of the basin water supply.

Upper basin allotment under the terms of the compact will be 85 percent of the basin water supply and 44 percent of upper basin production.

COLORADO RIVER BASIN WATER SUPPLY, AVERAGE YEARLY FLOW OF BASIN

Based on long-time mean, covering wet and dry cycles. Recorded flow corrected for depletion by irrigation. These figures represent approximately the total yearly flow of the Colorado River Basin unreduced by irrigation consumption; in other words, the run-off of the reconstructed river. Upper and lower basin terms fit definitions of same in Colorado River compact, as drafted at Santa Fe, N. Mex., November 1922.

TABLE 1.—*Total basin water supply, reconstructed river*

	Acre-feet	Percent
Upper Colorado River Basin	17,000,000	79
Lower Colorado River Basin	4,600,000	21
Total basin supply	21,600,000	100

TABLE 2.—*Colorado River compact allocations*

[Compact of November 1922]

	Acre-feet	Percent
Upper Colorado River Basin	7,500,000	35
Lower Colorado River Basin	8,500,000	39
Unallotted surplus	5,600,000	26
Total basin supply	21,600,000	100

TABLE 3.—*Water-supply data*

[Values in acre-feet]

Reconstructed Colorado River at Lees Ferry		17,000,000
Inflow to Colorado River between Lees Ferry and above mouth of Gila River:		
Utah (Pariah, Kanab, and Virgin Rivers)	225,000	
Nevada (Virgin)	75,000	
Arizona (other tributaries)	1,175,000	
		1,475,000
Reconstructed Gila River:		
New Mexico supply	443,000	
	2,677,000	
		3,120,000
Total water resources, Colorado River Basin		21,595,000

TABLE 4.—*Lower Colorado Basin resources*

[Values in acre-feet]

Average yearly water supply	4,600,000
Utah	225,000
Nevada	75,000
New Mexico	443,000
Total	743,000
Arizona	3,852,000
Total	4,595,000

TABLE 5.—*Arizona water production, Colorado River Basin*

[Average yearly water supply; values in acre-feet]

Gila River system:		
Gila River at Kelvin		787,000
Salt River at McDowell		1,470,000
Verde River at McDowell		609,000
Aqua Fria at Glendale		181,000
Hassayampa		23,000
Consumption above gaging stations		50,000
Total		3,120,000
New Mexico production:		
Gila at Guthrie, Ariz	244,000	
San Francisco at Clifton	199,000	
Total		443,000
Gila system production in Arizona		2,677,000

TABLE 6.—*Summary, Arizona water contribution*

[Average yearly values in acre-feet]

Gila system production		2,677,000
Main Colorado River:		
Little Colorado River	200,00	
Williams River	75,000	
Other tributaries	900,000	
		1,175,000
Total water production, Arizona		3,852,000

(P. 704:)

Senator JOHNSON. I assume you can tell me, however, what, approximately, is the amount of water being utilized by Colorado from the Colorado River at the present time?

Mr. CARPENTER. We are irrigating at present between 800,000 and 900,000 acres.

Senator JOHNSON. And that takes from the Colorado River about how much water?

Mr. CARPENTER. The theory is that the acreage would be multiplied by 1.3 acre-feet per acre.

Of course, in each diversion, Senator, there are two types of water, so to speak; there is the water that is consumed and the vehicle that is necessary to take that out. That vehicle water comes back in the form of a return.

Mr. WELCH. To what extent has the unallotted surplus of 5,600,000 acre-feet been reduced due to the American-Mexican Treaty?

Mr. NELSON. 1,500,000 acre-feet is definitely allotted under that treaty to Mexico.

Mr. WELCH. What reduction would it make in this figure of the unallotted surplus?

Mr. NELSON. I would not care to go too much into the exact engineering figures. I would rather have the engineers take up the matter of exact quantity of water supply. I am trying to point out here the principle upon which that compact was worked out.

Mr. WELCH. You do not have the figures?

Mr. NELSON. No, sir. Matters of water supply are engineering matters and they are a little beyond the scope of an attorney who is not qualified as an engineer.

In this final drawing here, drawing No. 3, I have set up the two principles of measurement that we find in the final compact, as they are separable in the wording of the compact.

I have done this because, of course, as you have heard, Arizona contends that the measurement of use of the Colorado River water is determined by that article III (d) that the upper division shall not cause the flow of the river at Lee Ferry to be depleted in any given 10-year period below 75,000,000 acre-feet. She says that depletion is the key to the whole use of water of the Colorado River system.

Of course, at the time that they were trying to make this simple compact proposed by Commissioner Carpenter, they were not interested in the amount of wastage in the river system, they were only interested in that main river flow. You do find, and there are in the minutes, some references to the amount that the Gila did contribute to that main river flow, but they were not interested in the system supply at this time. They were merely interested in trying to split the flow of the main river 50–50 as recorded at Yuma by a measurement of delivery at Lee Ferry. Then, as I say, that was a physical impossibility and the whole idea had to be changed. We find first an

appropriation given to both divisions of 7,500,000 acre-feet. This was perfected in the final compact as apportionments for these amounts. When the final compact was adopted, we see that these two systems of measurements have been very carefully separated in the wording of the compact.

Take drawing 3–A over here [indicating] the final compact, Lee Ferry flow provisions, main Colorado River only, and we find that those provisions dealing with Lee Ferry obligate the upper division States made up of the four States of Colorado, New Mexico, Utah, and Wyoming, whereas in the case of the upper basin over here [indicating] we see under final compact, beneficial consumptive use provisions, Colorado River system, the upper basin is made up of the States of Arizona, Colorado, New Mexico, Utah, and Wyoming, a whole different grouping of States.

It is the same way with the lower division States, under drawing 3–A it is Arizona, California, and Nevada, under III (e), whereas over under the lower basin States in drawing No. 3–B we find again five States, Arizona, California, Nevada, New Mexico, and Utah, a different grouping of States. One is designated as divisions and the other is designated as basins. Now, let us see what the compact articles with reference to the division under 3–A provide.

In the upper division, article III (c) provides that the upper division must increase Lee Ferry delivery for Mexico if it is necessary.

Then article III (d) provides the upper division will not cause Lee Ferry depletion below 75,000,000 in any 10-year period, and article III (e) provides the upper division will not withhold any water unreasonably, and in the lower division there is only one provision of compact articles, article III (e), the lower division will not require the delivery of water unreasonably. That is in article III (e).

Now, examining the provisions of the compact for the upper basin and the lower basin, we see in the upper basin compact articles that under II (a) the system is defined; under II (f) the upper basin is defined within the system, and under III (a) the upper basin use of system water is apportioned, and under III (c) there is a provision there that the upper basin must cut back its use if the surplus fails to supply Mexico, should there be a Mexican treaty for the delivery of water to Mexico.

In the lower basin the compact articles, much like the compact articles in the upper basin, provide under II (a) the system defined, and under II (g) lower basin defined, and under III (a) lower basin use of system of water apportioned, under III (b) lower basin right to increase its use 1,000,000 acre-feet. You remember that is the one that has caused so much trouble in these hearings. Under III (c) lower basin must cut back use if the surplus fails to satisfy the Mexican burden.

Now, just one or two concluding remarks here, and then I think I will be through.

Arizona contends, and has always contended, that no other State can use the Gila River. She would not come into the compact because she thought that the Gila River should properly belong to herself. By this argument she now says that just half of it belongs to her. This argument that Arizona is the only State that can use the Gila is not true, even as a matter of physical fact.

Whatever the Gila pours out down into the main Colorado could be used in two ways. Of course, it could be used in the satisfaction of the Mexican treaty. Curiously enough, it flows right by the All-American Canal, right parallel to the All-American Canal, and instead of attempting to lift the water twice as high as the Washington Monument to carry it back into Arizona, it would only require a pump lift of about 50 feet to pick it out of the Colorado River and put it over into the All-American Canal. So that physically the Gila waters could be used unquestionably.

That, however, is not the point. We are not trying to take water away from Arizona, and I am sure that no one else is. The point is that it affects the whole accounting on the river. How much water is in this system for use, is it a million acre-feet short, or is that million to be counted in? How big is the bank account when we have been given by the compact certain uses out of this fund of water? Can you take a million acre-feet and lift it out from under the compact? That is the question.

The Supreme Court said in one of the cases having to do with the perpetuation of testimony, that any water useful to Arizona is by that fact useful to the lower basin. Of course, it is in the accounting on the whole river system.

One word of caution to those upper basin States who have been led, I think, by Arizona to adopt somewhat this depletion theory in their upper basin compact. Fortunately, in that compact they saved themselves with an out. They said they would measure it by depletion unless they decided upon another system of measurement.

I think that eventually they will decide on another system because the depletion method would be a very dangerous method to measure upper basin uses for this reason.

It has been said variously, and I think that Mr. Tipton in the Mexican water treaty discussion proposed that, perhaps, the upper basin States could save as much as 400,000 acre-feet if they too could take some of the water out from under the compact, as Arizona is contending she should do here.

However, when you examine the articles of the compact, and particularly article III (c), you find that if there is any deficiency in the fulfillment of the Mexican treaty requirement out of surplus, such a deficiency must be met. Of course, the thing to look at is the full development of this river. When we are using all we are allowed in the lower basin, and at the same time they are using all they are allowed in the upper basin, then when we come to a dry period, that is when the bind comes. That is when the pinch will come for the delivery to Mexico according to the treaty requirement of 1,500,000 acre-feet. If there is a deficiency then, first, each basin must cut back its consumptive uses to share this deficiency, and then, if necessary, the upper basin must increase its delivery at Lee Ferry for one-half of the deficiency.

Now, as far as the 1,000,000 acre-feet that Arizona contends can be lifted out of this compact and be set over to her account and remain untouchable for these requirements under this compact. If she has that 1,000,000 acre-feet for exclusive use and you cannot touch it, if you cannot cut it back under article III (c), just that much sooner the upper division States will have to make that additional delivery

at Lee Ferry. Then what will the little that they have saved by this depletion method in the upper States mean to them?

It is, therefore, the position of California that this whole theory is contrary to the compact, contrary to the intent of the compact commissioners, and utterly without merit.

I think that concludes my statement, Mr. Chairman.

Mr. MURDOCK. Thank you kindly for that statement, Mr. Nelson. I must say that it is an interesting statement. My views are contrary and they have already been expressed and are to be found in the public records, so I will take no time on that.

Are there any questions that you have in mind, Mr. Welch?

Mr. WELCH. Except to say that Mr. Nelson's statement was very interesting. I shall take your prepared statement home with me and read it with care tomorrow.

Mr. NELSON. Thank you, Mr. Welch.

Mr. MURDOCK. Mr. Engle, have you questions?

Mr. ENGLE. Yes. I want to compliment Mr. Nelson on his statement, and especially as related to the negotiations which went into the creation of this basin compact. That is a very interesting history. How many of the minutes of the meetings are available now?

Mr. NELSON. Congressman Engle——

Mr. ENGLE. You do not have them all?

Mr. NELSON. No, we do not have them all. We have the minutes of 18 of their executive sessions, that is, when they were in what they called executive sessions?

Mr. ENGLE. Was there a stenographic report on some of that?

Mr. NELSON. Yes, I have here a complete volume containing the minutes of all 18 of their executive sessions in one volume. In addition to that, we have the minutes that make up about five or six other volumes that I did not bring with me of the public meetings that these commissioners held in these six cities.

Mr. ENGLE. Some of the minutes are missing?

Mr. NELSON. The minutes from the eighteenth to what we believe the twenty-seventh are missing. That would be the minutes of nine of their concluding sessions, but fortunately in this tenth meeting they came out with these two principles so clearly there is no question but what they had two measurements in mind, and not one, and they cannot be confused.

Mr. ENGLE. I was interested in that particular, Mr. Nelson, in the quotation from Mr. Hoover on page 30 of your statement, in which he said—and I assume this is a stenographic report—he said:

> In our discussions yesterday, we got away from the point of view of a 50-50 division of the water. We set up an entirely new hypothesis. That was that we make in effect a preliminary revision of this compact, and 7½ million annual flow of rights are credited to the South, and 7½ million would be credited to the North, and at some future day, a revision of the distribution of the remaining water will be made or determined.

Now, you go on to say that that is the hypothesis on which they finally set up article III (a)?

Mr. NELSON. That is right.

Mr. ENGLE. In other words, as I understand it, you started out to begin with and said, "Let us cut this river in half and give each basin half of it."

Mr. NELSON. That is right.

Mr. ENGLE. They tried to figure out how to do that and they got in difficulty because when they measured the water at the Mexican line and then tried to figure up how much the upper basin would have to put through the canyon to make up half of it, they were getting more water than they could guarantee because of the great fluctuations in the river. So then they turned around and said, "We will give each basin a beneficial consumptive use of 7.5 million, and just to be sure that the upper basin does not get its uses so high that the lower basin is cut off, they have to always guarantee 7.5 million a year over a 10-year period."

In other words, that is a minimum and a guaranty and not to be associated with the problem of use.

Mr. NELSON. That is correct.

Mr. ENGLE. Now, is it true that if you take Arizona's theory of a distribution of this river that you could cut out the provisions of the compact relating to beneficial uses under III (a) and just take the provision which set up the 7.5 million 10-year flow at Lee Ferry, is that correct?

Mr. NELSON. That is what they are trying to do. They are trying to come back to the original Carpenter proposal for the measurement here and that was found to be wholly impossible because of the production of the river, and that is what they are trying to do, come back and use this Lee Ferry flow and the amount that those tributaries affected the main river, not the amount of water they had out on the tributaries regardless of where it was, but just the amount that those tributaries contributed to the natural flow of the main river.

They are trying to say, "That is our measurement of use," and by that measurement, of course, they are leaving out whatever water is out there just as they are leaving out a million acre-feet of this Gila.

Mrs. BOSONE. May I interject a question there?

Mr. MURDOCK. Yes, Judge Bosone.

Mrs. BOSONE. Is Gila the point where you say Arizona is taking 1,000,000 acre-feet; that is the water measurement is 1,000,000 acre-feet short?

Mr. NELSON. 1,000,000 acre-feet short. She has shorted the bank account by that amount in her figuring.

Mr. ENGLE. To get that straight and make the issue very clear, this is the situation, is it not, Mr. Nelson, that the Gila River, as an illustration, delivers 1.3 million acre-feet into the Colorado River at its mouth?

Mr. NELSON. Mr. Debler said, I think I have his exact figure on it—I think it was 1.38.

Mr. ENGLE. If that is approximately correct——

Mr. NELSON. 1,138,000. I will be glad to accept that figure. The commissioners, by the way, found it was 1,085,000, so the difference is not very much.

Mr. ENGLE. I understand there is some difference about the exact figure, but the point is that where the Gila actually dumps into the Colorado it is a little over a million acre-feet, but the actual uses of Arizona along the Gila run 2.3, is that correct?

Mr. NELSON. That is correct.

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Mr. ENGLE. In other words, it is the difference between what dumps out at the mouth and what is used. That is the million acre-feet. Now, as a matter of fact, is the Gila putting any water into the Colorado River at all?

Mr. NELSON. Not now, no. Obviously, they want a supplemental supply. They are using as beneficially as they know now, all of this inflow, disregarding Mr. Elder's statement regarding the ground water.

Mr. ENGLE. So what we are talking about is the river that is dry, where it dumps into the Colorado. Arizona says "you should charge us for our uses for that water just what it contributed to the Colorado in its natural state, a little over a million acre-feet." We say in California "you are using 2.3 and you ought to be charged under the compact with 2.3 because the compact says that each basin shall get 7.5 of beneficial consumptive use, and the Gila is a part of the Colorado stream system" in the basin, is that correct?

Mr. NELSON. Yes, and it says 7,500,000 acre-feet out of the system and it defines the Colorado River system as the Colorado with all its tributaries.

Mr. ENGLE. The point is Arizona says she should be charged with 1.13 or 1.3, whatever it is, which the Gila in its natural state contributed to the Colorado. As a matter of fact, now it is dry and there is no water going into the Colorado. It is a question of how much they will be charged with. We say, "No, that is not what you charge yourself. You are charged under the system uses and you are actually using 2.3." The difference between 1.3 and 2.3 is the million acre-feet we are quarreling about, and it is a question of the construction of these documents as to whether or not Arizona is correct or California is correct.

I just wanted to make the issue clear. Thank you very much.

Mr. MILES. May I make a point here?

Mr. MURDOCK. Yes, sir, Governor.

Mr. MILES. I would like to say in regard to the States that use the water of the Gila, New Mexico has in the past used a small part, but could use a great deal more very profitably, and I, too, want to compliment the gentleman on his statement and particularly that point where he said that even a lawyer could not understand the computations that were indicated.

Mr. NELSON. Thank you, Governor Miles.

Mr. MURDOCK. There is much more of this mathematics which must be presented later. Dr. Miller, have you any questions?

Mr. MILLER. No.

Mr. MURDOCK. Mr. Morris?

Mr. MORRIS. I wanted to ask one question that involved a point that is maybe a little irrelevant at this time, but might be important in a final solution of this question out there. According to this table, one of the tables you furnished, you say that Colorado produces 55 percent of the Colorado River supply and you list the others: Arizona, 18 percent, Utah 14, Wyoming 10, New Mexico 2, Nevada three-tenths of 1 percent, and California the rest, making a total of a hundred.

Do you know approximately, Mr. Nelson—maybe this will not be answered by an engineer, but I wondered if you knew approximately—

what percentage of the water that is produced by these various States is produced by original rainfall or by melting snow?

Mr. NELSON. In answer to your question, Congressman Morris, I just do not know. Of course, snow and rain are both precipitation and it is the snow pack on the Rockies that really makes this river. I have no idea of the figures.

Mr. MORRIS. I will get to the point in just a minute. Now, 55 percent, of course, is the large portion of it and that is furnished by Colorado. Do you have any idea at all of the approximate size of the watershed that produces that 55 percent?

Mr. NELSON. The entire Colorado River Basin is 242,000 square miles, I think is the correct figure.

Mr. MORRIS. At this point, I shall conclude. This might not be of materiality, but I wanted it in the record especially from my own standpoint.

Has any study been made at all on the proposition of whether or not man could, by any engineering projects, at all increase the water supply? The point is, is there a lot of snow that is wasting there and doing nobody any good, or could some projects be initiated that would increase the flow of melting snow into the water stream?

Mr. NELSON. I am afraid that is an engineering question I could not answer. All I can say is that Hoover Dam catches all the water that does come down for an entire year. As a matter of fact, it can handle, supposedly, a couple of years' supply. It may be that reforestation will have some effect upon the quantity of water produced, but I know of no correct answer.

Mr. MORRIS. No study has been made along that line?

Mr. NELSON. No, sir.

Mr. MORRIS. There is no feasible plan that you have in your mind or anyone else's that you know of?

Mr. POULSON. If the gentleman will yield—yes, I believe one of the engineers, Mr. Elder, did present to the committee a study that has been made by the National Geodetic Survey along the line of conserving a lot of the water in the underground reservoir in Arizona where they could conserve a lot of water which they could utilize. Is that not true?

Mr. NELSON. Yes, that is correct.

Mr. POULSON. That is about the only study along that line?

Mr. NELSON. That is the only study I know about.

Mr. MORRIS. All right.

Mr. MURDOCK. Mr. Morris, your question is a good one. Perhaps this witness cannot answer it, but I think it ought to be in the record along with the table on page 1 as submitted, giving the acre-feet and the percentage of basin supply. You would like to know the percentage of area in the watershed, I presume.

Mr. MORRIS. Yes, sir.

Mr. MURDOCK. Of those seven States. Perhaps the present witness cannot supply that, but I think this table, or this part of the table then referred to, should be reproduced, and another computed, giving perhaps the actual acreage or area of the seven States.

Mr. NELSON. I think I have the area of the seven States. That is 242,000 square miles, one-twelfth of the United States—that is the total.

Mr. MURDOCK. How much is in Colorado, how much in Arizona Utah, and so forth?

Mr. MORRIS. I certainly do not want to waste time. I do not think it is a waste of time, but I do not want to get off on some issues that would not afford any practical solution, but that question arose in my mind. I think it would be beneficial to have that in the record. It might not result in anything worth while, and on the other hand it might.

Mr. MURDOCK. I am not anxious to waste time. In fact, I am trying to conserve it. The committee ought to know what part of each State is in the watershed.

Mr. MORRIS. I am directing my criticism to myself—not criticism—but I do not want to waste time.

Mr. MURDOCK. I will ask that that information be supplied for the record by someone who can give it if the present witness cannot. What percentage of the watershed is contained in each of the seven States?

Mr. NELSON. I am informed, Mr. Chairman, that those figures can be found in the comprehensive department report here on the Colorado River. I do not know where I could turn to it now.

Mr. MORRIS. May I suggest this? The point I make is this: I think I am a practical person; I believe I am. I guess everybody thinks he is, but I think I am very practical. Yet, we have to do some dreaming, in my judgment, in order to be practical men, and I think the time is coming when we are going to have to do a lot of searching for extra water. I think definitely the time will come when we probably can use the ocean's water and take the salt out of it and irrigate these western plains.

I think there is a possibility that there might be a lot of waste going on there that, by some man-made endeavor, we could get more water into this stream. That is a possibility. I do not see any reason why we might not think about those things, so I wanted to raise that question.

Mr. WELCH. It should be remembered, Mr. Chairman, that the entire flow from the upper basin does not go into the Colorado. Quite a portion of it flows eastward toward the Mississippi.

Mr. MORRIS. That is the very question I raised: Of that that does go east, are people using it?

Mr. WELCH. I do not know what use is being made of it.

Mr. MORRIS. That is the question I raised. If there is something that is going away from there that nobody is using, it might be diverted to this stream.

Mr. NELSON. I might make this suggestion: Right now we are a little stymied on the development of this river. There is a great quantity of water of this river that is wasting into the Gulf. There are certain projects that should be initiated, certainly in the upper basin. The upper basin wants to go ahead with its development. There is water supply in this river for a good many years, but we are encountering legal difficulties and it is in these legal differences that I have been trying to testify this morning.

Mr. MILLER. I would suggest to the gentleman from Oklahoma that if they try to take some of the water from the river that flows over into the eastern part of Colorado or down into Nebraska and

Kansas, he might anticipate some difficulties. The water is being used and to good advantage.

Mr. MORRIS. I will say to the gentleman from Nebraska that his statement is very pertinent and a wise statement, but I am asking—I am not suggesting it be done—I am merely trying to find out what the set-up is.

Mr. MURDOCK. Mr. D'Ewart, you had a question?

Mr. D'EWART. No.

Mr. MURDOCK. Mrs. Bosone, did you have further questions?

Mrs. BOSONE. No.

Mr. MURDOCK. Mr. Poulson?

Mr. POULSON. No.

Mr. MURDOCK. Mr. Sanborn?

Mr. SANBORN. No.

Mr. MURDOCK. We thank you, Mr. Nelson, for the testimony.

Before calling the next witness, I wonder if we could take stock just a little bit. As is well known, this subcommittee, although a very large committee, is only one of five of the Public Lands Committee. We have to take our turn. We are sitting today on time—well, since this is Saturday, we are sitting today on extra time, so to speak, but we have been sitting the last 2 days and we have Monday the section reserved at the kindness of Chairman Redden, who had the committee room and the time reserved for another subcommittee.

After that, this subcommittee does not have a regularly scheduled time of meeting for two or more weeks and there are some very important matters in addition to this bill that ought to come before this subcommittee. You see the importance. I wish we might wind up these hearings by the close of the day Monday, the 6th. I just throw that out for your information.

A full committee meeting has been called for a very short time on Monday to consider a bill which is submitted by the Subcommittee on Mines and Mining. We think it will not take much time.

Mr. ENGLE. That is Mr. Baring's bill that was previously reported out of the subcommittee and there was some question about it and it went back and we want to get it out. It will only take a few minutes.

Mr. MURDOCK. Mr. Carson tells me that 1 hour will suffice, although he wanted more and I whittled him down on it for rebuttal. We must think of an hour's time in completing these hearings, but I am rather anxious that the hearing be completely by the close of the sixth.

Mr. ENGLE. I would say that we are hurrying along, Mr. Chairman. We will do the best we can. Our witnesses have been asked to submit their statements, except for a preliminary reading of the introduction and summarize them in order to do that. I might point out, however, that Arizona used something like 18 days in the presentation of their testimony, and while California does not expect to use that much time, at present I do not believe we have used half of it, and the same urgency which I suppose motivates the chairman now to suggest we speed these hearings, existed at all times heretofore.

Mr. MURDOCK. I have worked for a complete hearing.

Mr. MILLER. Will the gentleman yield, and off the record?

(Discussion off the record.)

Mr. MURDOCK. Are the members of the committee willing to have an afternoon session today?

Mr. SANBORN. Mr. Chairman, I think it is very important that this hearing is rounded up, because as the chairman has suggested, there are some other very important matters the committee should consider.

Mr. MURDOCK. Well, two others, for instance.

Mr. SANBORN. One of them is the report of the commission on the Columbia River Basin. At the present time, the Army engineers are having their hearing before the Public Works Committee on their report on the Columbia River Basin, their Report 308, and I believe that it would be proper and in order that this committee consider the Bureau of Reclamation's report at the same time.

Mr. MURDOCK. And there is another one which I have mentioned, but which we will not take time on now.

Mrs. BOSONE. Mr. Chairman, is there any objection to night sessions to clear up the business? I would dislike very much getting all enthusiastic about some hearing, then have something intervene. I do not know the days we are going to have hearings, so I set conferences with people from out of town.

Mr. MURDOCK. Would the committee be willing to have a night session if necessary on Monday?

Mrs. BOSONE. Certainly I would be willing to have one.

Mr. ENGLE. I doubt if that is necessary. I will have a little time next week I can give this committee, and I will be glad to do it. Mines and Mining has, I think, 3 days next week.

Mr. WELCH. Shall we finish Monday?

Mr. MURDOCK. That is what we are trying to do.

Mr. ENGLE. I cannot say we will finish. Mr. Murdock has an hour of rebuttal. I have Tuesday, Wednesday, and Thursday on Mines and Mining.

Mr. POULSON. Tuesday, I think, this room is reserved for another committee.

Mr. ENGLE. I can possibly give Wednesday and Thursday. I might say I contributed to this committee in getting Monday, and I think the record should show that California has tried to expedite this matter by giving some time occasionally.

Mr. MURDOCK. I want to add to that and thank the chairman of the Subcommittee on Mines and Mining for helping us on other occasions, too.

Our next witness is Mr. Hardy, assistant city attorney for Los Angeles. As has been said, the witnesses are now summarizing their statement and are submitting the statement as a whole to be included in the record.

STATEMENT OF REX HARDY, ASSISTANT CITY ATTORNEY OF THE CITY OF LOS ANGELES

Mr. HARDY. I am assistant city attorney for the city of Los Angeles, Calif. I am assigned to the department of water and power of the city, and I am exclusively engaged in the study, consideration, application, and protection of the rights of the city in the water and hydroelectric resources of the Colorado River. I am a graduate of the College of Law, University of Southern California, and I have practiced law in Los Angeles for more than 38 years.

I have, sir, a statement which I am afraid may not be summarized, but it can be read very rapidly. My statement has to do with a reply to Mr. Knapp, who appeared before this committee and presented Arizona's position on certain legal points, and who is so violently in opposition to California's position, as I will demonstrate, so full of inaccuracies of fact, so full of suppositions and speculations, that I would like the privilege of reading my statement, sir.

Mr. MURDOCK. You may. Go right ahead.

Mr. HARDY. On June 28, 1924, the city of Los Angeles, through its department of water and power, made an appropriation filing, under the laws of California, for the diversion of 1,500 second-feet of Colorado River water, as a part of the necessary program to provide a domestic and industrial water supply for its expanding population and industry.

From about February 1921, the city commenced to spend substantial amounts of money in investigation, surveys, field work, and so forth, all as a part of the plan to import Colorado River water, and in all a total of more than $2,000,000 was so expended during the next 10 years.

The laws of the State of California, then and now, provided for the doctrine of "relation back" insofar as water appropriations were concerned, meaning that from the time of the filing of the appropriation, a vested right came into existence as to the amount of water appropriated, dependent upon the development of a plan designed to put the appropriated water to beneficial use, and such a vested right was necessary in the very nature of things.

It is not possible, of course, for the delivery of water into an area to spring full grown just because of the conception of the idea. Preliminary work had to be done to demonstrate the engineering feasibility of the necessary works, then the filing was made, and then commence the development and construction of the necessary works—the intake plant, the pumping facilities, the aqueduct, the terminal reservoir, and the necessary distribution lines. All this, obviously, takes time, and the law protects the diligent appropriator.

Only in such way might a municipality be protected in its priority of the right to use the water necessary to meet the demands of future use. No municipality can come to any given date, current or future, and have water available only for the then existing population. A water supply, and a reserve of supply for future use, must be planned for, and the necessary facilities constructed, long before the actual need exists.

So then, the city's filings on Colorado River water contemplated the use of such water many years in the future. The filing of June 28, 1924, was, of course, after the signing of the Colorado River compact on November 24, 1922, but before the enactment of the Boulder Canyon Project Act, which approved the compact. This approval was given vitality by the proclamation of President Hoover, on June 25, 1929, wherein he declared the Project Act, which had approved the compact in its terms, to be effective.

Prior to the enactment of the Project Act, general sentiment for the construction of an aqueduct from the Colorado River which would benefit all of metropolitan southern California, and not only the city of Los Angeles, was beginning to develop. This sentiment crystal-

lized into legislation enacted by the Legislature of the State of California permitting the organization of metropolitan water districts, and that law became effective on July 29, 1927.

The Metropolitan Water District of Southern California was incorporated under this new law on December 6, 1928, and permanent organization effected on February 9, 1929. Thirteen municipalities, including the city of Los Angeles, thus became members of the Metropolitan Water District of Southern California. California enacted its Limitation Act of March 4, 1929. The Metropolitan Water District of Southern California filed an appropriation for 1,500 second-feet of Colorado River water on August 14, 1949.

The district continued with the investigations and engineering work, which had been commenced by the city. On September 29, 1931, the voters of the Metropolitan Water District of Southern California approved a bond issue of $220,000,000, and in January 1933, construction of the great metropolitan aqueduct was commenced. It was finished in 1941, and Colorado River water has been flowing in it ever since.

Many things had occurred, of course. The California priority system had been agreed upon, and, pursuant to the provisions of the Project Act, the Secretary of the Interior had made water-delivery contracts with various California agencies, including the metropolitan water district.

Note please the following sequence of events:

1. The Colorado River compact, signed in 1922, approved by the Congress in 1929, apportioned 7,500,000 acre-feet of Colorado River system water to the lower basin States of Arizona, California, Nevada, New Mexico, and Utah (art. III (a)), and authorized an increase of use of an additional million acre-feet (art. III (b)).

2. The city of Los Angeles made its filing in 1924, for 1,500 second-feet of Colorado River water. (Let me say here that 1,500 second-feet of continuous flow will produce an annual volume of about 1,086,000 acre-feet.)

3. The California Limitation Act of 1929 limited California in its use of Colorado River water to not to—

> exceed 4,400,000 acre-feet of the waters apportioned to the lower basin States by paragraph "a" of article III of the said Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

Thus developed the question as to what waters were meant by the phrase "excess or surplus waters unapportioned by said compact." Others appearing before you have detailed the respective contentions of Arizona and California on this subject, and I shall not pursue that point further. Note, however, please, that whatever vitality exists in the limitation upon California, such is effective, not because the Project Act required it, but because California accepted it, and enacted the law. And the law was enacted on the predicate of a six-State compact, one excluding Arizona therefrom.

4. The metropolitan water district made its filing in 1929.

5. The water delivery contracts between the Secretary of the Interior and the metropolitan water district, dating back to 1930, called, first for 1,050,000 acre-feet annually, later for 1,100,000 acre-feet annually, and finally, by the merger of the contract rights of San Diego, for a total of 1,212,000 acre-feet annually.

6. The aggregate of the volume of water contracted for by the Secretary with the California agencies is 5,362,000 acre-feet, and it is, of course, recognized that 962,000 acre-feet of that aggregate volume is a part of the "excess or surplus unapportioned" by the compact.

The rights of the member units of the metropolitan water district are apportioned in accordance with their respective assessed valuations, and hence it is that the city of Los Angeles currently represents some 60 percent of the entire assessed valuation of the district. And thus the interest of the city in seeing that the rights of the district are protected.

It has been my privilege to be present at a great many of the sessions of this committee, and I am well informed of the respective claims of the States of Arizona and California. Both are sovereign units in the Federal Union, and both are therefore charged with the highest degree of good faith in the presentation of their respective contentions. Any witness whose appearance is fostered by either State, therefore, is cloaked with the dignity of that State—at least he should be so cloaked.

On April 3, 1949, Mr. Cleon T. Knapp, who stated that he was a practicing lawyer in Arizona, and that he appeared at the invitation of the Arizona Interstate Stream Commission (a State agency), discussed "the respective rights of Arizona and California in and to the waters of the Colorado River." I propose to demonstrate with unquestionable factual matter that Mr. Knapp was, in large part, erroneous in his facts and inconclusive in his arguments, as presented in his written statement.

At the outset, let me remind the committee that it is the "right to use" rather than the actual "use" of water that is important. Thus it is, that the Colorado River compact provided, as article I thereof states:

> The major purposes of the compact are to provide for the equitable division and apportionment of the use of the waters of the Colorado River system; * * * To these ends the Colorado River Basin is divided into two basins, and an apportionment of the use of part of the water of the Colorado River system is made to each of them with the provision that further equitable apportionments may be made.

I call your attention, then, to article III (a) of the compact which reads as follows:

> There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

The dictionary defines the word "apportion" as "to divide and assign in just proportion; distribute proportionally; portion out; allocate."

The word "apportionment" is defined as "the act or result of apportioning."

The compact cut across the theory of appropriation, and the effects of all appropriations in each basin, and awarded, allotted, assigned, distributed, and allocated to each basin the "exclusive beneficial consumptive use," in perpetuity, of a specific quantity of the system waters. I doubt if anybody will contend otherwise, and therefore it is not the use by either basin that determines that basin's priority. Each basin has the right to use in perpetuity.

So, we find the upper basin, with its right to use in perpetuity a total of 7,500,000 acre-feet per annum, currently using something less than one-third of that amount, and the remainder is wasting to the sea. So, also, the lower basin is not using all of its apportionment of 7,500,000 acre-feet per annum, and a part thereof is also wasting to the sea. Neither basin can be criticized because it is not currently using all of its apportioned water, and its right to use is not affected because of such nonuse.

I will now comment upon and demonstrate the general inaccuracy of Mr. Knapp, as the same appears from his statement before the committee.

For instance:

1. On page 1 of his written statement, in talking about the "law of the river," he refers to the Colorado River compact. He states:

> The four first named [the States of Wyoming, Colorado, Utah, and New Mexico] are known as the upper basin States; the last three [the States of Arizona, Nevada, and California] as the lower basin States.

Of course, the fact is that the compact, in article II (f) designates five States—not four—as the States of the upper basin, and article II (g) designates five States—not three—as the States of the lower basin. This is indicative of Mr. Knapp's unfamiliarity with the compact.

2. On page 1, Mr. Knapp, in referring to the Boulder Canyon Project Act, says:

> This act required California to pass the California Limitation Act.

But this is only a partial statement of the fact and is misleading. Section 4 (a) of the Project Act is the section wherein Congress declared that the act should not take effect until one of two alternatives has been accomplished. The first of these alternatives was the ratification of the Colorado River compact by all of the seven basin States, and the President shall have so declared by public proclamation; the second of these alternatives was the ratification of the compact by only six of the basin States, including California, within 6 months, and the President shall have so declared by public proclamation and the State of California shall have enacted what is now known as its Limitation Act. There was no congressional requirement on California whatsoever. Congress just said the act was not effective unless one of the two alternatives was accomplished. This language of the law is plain; there is nothing uncertain or ambiguous in it.

If there is any doubt in the mind of any committeeman I can make an actual demonstration from the project act.

3. On page 3, in paragraph B, Mr. Knapp departs even from a misstatement of factual matter and goes into the realm of wishful speculation. He states that "the virgin flow of the river" was being apportioned. I say to this committee, without fear of any contradition whatsoever, that the word "virgin," or the words "virgin flow," or the phrase "virgin flow of the river," do not appear in the compact. Worse than that, Mr. Knapp would have you believe that the "virgin flow of the river" at Lee Ferry was "to be apportioned." Mr. Knapp must know, as this committee knows, that it was not the flow, or the virgin flow or any flow "of the river" at Lee Ferry, or at any other point, that was apportioned. This is no speculative statement. The facts of the matter are that the compact dealt with the waters of the

Colorado River system and the only apportionment made was of the "beneficial consumptive use" of the waters of the system. Note, please that article II of the compact says:

As used in this compact:
(a) The term "Colorado River system" means that portion of the Colorado River and its tributaries within the United States of America.

Article III (a) says:

There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin respectively the exclusive beneficial use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

Article III (b) says:

In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

Clearly, then, it was the use of system waters—not river flow—not virgin flow—that was apportioned and permitted. Arizona wishes that it was virgin flow of the river that was dealt with by the compact, but Arizona—and Mr. Knapp—have to read something into the compact that is not there. I would not object if Mr. Knapp had said, "It is my opinion that the virgin flow of the river was apportioned." He has the right to his opinion, but he did not state it as his opinion—he stated it as a fact, and he stated it erroneously.

4. Then Mr. Knapp, on page 3, paragraph C, states that "it was decided that an additional million acre-feet should be apportioned to the lower basin." The best that can be said on this is that Arizona so contends. But let it be noted that the commissioners of the various States were all intelligent public servants who know about the use of words.

Read as much as you will, the word "apportioned" or the words "in perpetuity" cannot be found in article III (b). If it was the intention to use such words, if article III (b) was intended to be an additional apportionment, the words could easily have been used. Reference to article III (a) definitely indicates that if it was intended for the lower basin to have an additional apportionment, the words could easily have been used, and the lower basin could have had 8½ million acre-feet apportioned to it, and article III (b) was then unnecessary.

The fact of the matter is that in the first *Arizona* v. *California* case (283 U. S. 423), filed in 1930, the official position of Arizona was that the waters mentioned in article III (b) were not apportioned. This I state not as opinion, but as fact, and the official records of the Supreme Court will bear me out.

I would like to interrupt my statement here and say I have a copy of the Arizona complaint in that case. I have a copy of the Arizona brief in that case, filed by the Arizona attorney general, associated with Mr. Dean Acheson of Washigton, now Secretary of State, as Arizona's counsel. If the committee would like to hear it I will read you the words of Arizona where they say in their complaint and they say in their brief that the article III (b) waters were not apportioned.

5. On page 4, in paragraph (a), Mr. Knapp again says that "the waters of the river are divided at Lee Ferry." I state flatly that no

such language appears in article III (a), or in the compact, and, in my opinion, no such conclusion can be drawn from the words used.

6. On page 4, in paragraph (d), Mr. Knapp uses the words "upper basin" when the compact says "upper division." There is a material difference between the "upper basin" and the "upper division."

7. On page 5, in paragraph (e), Mr. Knapp uses the words "upper basin" and "lower basin" when the compact says "upper division" and "lower division."

There is a material difference between the upper division and the upper basin.

8. In the last paragraph on page 5, Mr. Knapp says that Arizona contends that the million acre-feet

> * * * was apportioned for the sole benefit of Arizona and in recognition of uses and established rights by Arizona over a period of years in the waters of the Gila and its tributaries.

We know that such is Arizona's contention, but another look at article III (a) leads to the opposite conclusion. The last phrase of article III (a) reads:

> * * * which (the 7½ million acre-feet) shall include all water necessary for the supply of any rights which may now exist.

Everybody concerned knows that Arizona, long before the compact was drafted in 1922, had appropriated the waters of the Gila River system. Arizona officially told the Supreme Court that such was the fact. California has never disputed the fact. The Supreme Court in its decision reported in 283 U. S. 423, says, on page 460:

> The average annual flow of the Colorado River system, including the tributaries, is 18,000,000 acre-feet. Only 9,000,000 acre-feet have been appropriated by Arizona and the defendant States. Of this, 3,500,000 acre-feet have been appropriated in Arizona under its laws, 111.

Arizona's complaint in and brief to the Court, and I have them with me, says that Gila River system waters to the amount of 2,900,000 acre-feet had been diverted and put to use prior to June 25, 1929 (the date of the Presidential proclamation). Therefore, it is crystal clear that the 7½ million acre-feet apportioned to the lower basin by article III (a), which included "all water necessary for the supply of any rights which may now exist" necessarily included the uses of Gila River system waters by Arizona then in existence.

The text of article III (b) shows that the million acre-feet there referred to was an "additional use" over and above the 7½ million, and over and above the waters then being put to use. Upon this predicate the Gila River system waters were obviously, as to their use, covered by the III (a) apportionment.

If this be not enough, let me remind you that Arizona has unsuccessfully attempted to get the Supreme Court to decide that the III (b) waters were for Arizona's exclusive use. In 1934, the Supreme Court decided the second *Arizona* v. *California* case, reported in 292 United States 341. In that case, Arizona contended that the language in article III (b) was ambiguous and that the intent of the compact commissioners was to apportion the million acre-feet to Arizona. But the Supreme Court did not agree, saying on page 358:

> The considerations to which Arizona calls attention do not show that there is any ambiguity in article III (b) of the compact. * * * The compact makes an apportionment only between the upper and lower basin; the apportionment

among the States in each basin being left to later agreement. Arizona is one of the States of the lower basin and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone.

In 1934 Arizona in her second case sought to perpetuate testimony to demonstrate that the million acre-feet of water referred to in article III (b) had been intended for her. The court refused. But Mr. Knapp now contends for that million acre-feet. The contention is not convincing.

9. In the first paragraph on page 6, Mr. Knapp says that "California contends the water of the Gila should be considered 'surplus' waters, and to part of which California would have a right when surplus waters are divided after 1963." That statement is not accurate to the slightest degree. California has never so contended. All that California has ever contended, so far as the Gila River system is concerned, is that Arizona should be fairly charged with its consumptive use of those waters.

California does not claim one drop of Gila system waters. The right to use those waters belongs to New Mexico and Arizona, so far as California is concerned. California contends only that Arizona's use falls within the apportionment of article III (a) waters, and that Arizona's rights to the use of lower basin waters must include her uses of Gila system waters.

The method of measurement is in dispute, but California does not claim the right to use one drop of Gila River system waters. California does not claim that the Gila River system waters are "surplus" waters under the compact. California claims that they are article III (a) waters—a part of the 7½ million acre-feet apportionment to the lower basin.

10. On page 6 under the heading of "Contention one," Mr. Knapp repeats the Arizona contention that the million acre-feet of III (b) water is "apportioned water in recognition solely of Arizona's uses and rights in the Gila River, and not surplus water, as California contends." This constant repetition is, apparently, predicated on the doctrine that any statement, howsoever erroneous, will ultimately be accepted, if repeated enough times and to enough people. California again, unequivocally, flatly, and without reservation, denies that it does contend, or that it has contended, that the waters of the Gila system are "surplus" waters, or that California claims the right to use any thereof.

The contention of Arizona that the III (b) waters are "apportioned waters" has always been denied by California before and since Arizona changed its position on the point. And California insists that only the Supreme Court can determine which contention is correct.

11. Mr. Knapp devotes 5 pages—pages 7, 8, 9, 10, and 11 to a relation of ex parte statements made by Governor Campbell and Mr. Norviel of Arizona, all setting out the position of those gentlemen to the effect that the III (b) million acre-feet was intended for Arizona exclusively. All of this was shown to the Supreme Court in 1934, and the Court in its decision reported in 292 United States Reports 341, denied

Arizona's contention. Mr. Knapp now seeks to convince you by evidence which the Supreme Court rejected as wholly immaterial.

12. And now we come to Mr. Knapp's statements as to the "construction" placed by Congress on article III (b) of the compact. Mr. Knapp, at the top of page 12, quotes from section 4 (a) of the Project Act. He would have you believe that when Congress uses the words:

> The States of Arizona, California and Nevada are authorized to enter into an agreement—

and so forth, that the Congress was "apportioning waters between the States of Arizona, California, and Nevada. Mr. Knapp says:

> It will be noted that Congress apportions 7,500,000 acre-feet annually to Arizona, California, and Nevada out of the mainstream (III (a)), of which 2,800,000 is apportioned to Arizona.

and so forth.

This committee knows that the Congress did not, by authorizing an agreement, either thereby, (*a*) order the agreement made, or (*b*) divide the water, or (*c*) make any apportionment whatsoever. More than that, the legislative record concerning the paragraph quoted by Mr. Knapp is crystal clear as to the intention of the Congress to merely suggest a settlement between the States.

The Congressional Record shows that on December 12, 1928, Senator Hayden offered an amendment to the project bill, which amendment in terms actually did require a tri-State agreement between Arizona, California, and Nevada. Senator Pittman, objecting to the "coercion" upon the States, offered an amendment to Senator Hayden's amendment to authorize, rather than require the agreement.

The Record shows that Senator Hayden accepted the Pittman proposal, and thereupon the perfected amendment was accepted by Senator Johnson (of California), and page 472 of the Record shows the following:

> Mr. JOHNSON. * * * with the distinct understanding that this authorization is one that is after all an authorization that is wholly unnecessary, because the parties may, in any fashion they desire, meet together and contract and subsequently come to Congress for ratification of that contract; that there is no impress of the Congress upon the terms, which might be considered coercive to any one of those States, I am perfectly willing to accept the amendment.

And again, on page 472, the Record shows:

> Mr. JOHNSON. That is all right; but what I want to make clear is that this amendment shall not be construed hereafter by any of the parities to it or any of the States as being the expression of the will or the demand or the request of the Congress of the United States.
> Mr. PITTMAN. Exactly, not.
> Mr. JOHNSON. Very well, then.
> Mr. PITTMAN. It is not the request of Congress.
> Mr. JOHNSON. I accept the amendment then.

On that same day, December 12, 1928, as shown by the record, the bill, as amended, was adopted.

Moreover, it definitely appears from section 8 (b) of the project act, that the tri-State compact authorized by the second paragraph of section 4 (a) was to be actually effective only if it was negotiated and approved by the States and approved by the Congress on or before January 1, 1929. That is the language of the project act.

After such date any compact concluded between the States and approved by the Congress was to be subject to all intervening water

contracts made by the Secretary under the provisions of section 5 of the act. The project act was approved by President Coolidge on December 21, 1928, and hence Congress, in effect, only allowed a 10-day period for the negotiation and ratification of such a compact by the States, and the approval thereof by the Congress.

This does not indicate that Congress believed very much in the efficacy of any such compact. How can it be even suggested that the authorized tri-State compact was in fact the decree of the Congress? And it must not be forgotten that the authorized tri-State compact was not—has never been—accepted by any of the States.

13. At the bottom of page 12 and top of page 13, Mr. Knapp argues that the Department of the Interior construed the project act "with respect to the Gila, and the 1,000,000 acre-feet." Mr. Knapp refers to a contract proposed in 1933 by the Secretary of the Interior to be entered into with Arizona, and quotes from that proposed contract (which wasn't even accepted by Arizona) as the basis for showing that Arizona was to have 2,800,000 acre-feet from Lake Mead storage "in addition to all uses from waters of the Gila River and its tributaries."

I suggest to this committee that Mr. Knapp has made a misleading statement of fact. The real, the complete, the true fact is that the proposed contract (which has never been executed) in a later portion thereof contains these words:

(c) It is recognized by the parties hereto that differences of opinion may exist between the State of Arizona and other contractors as to what part of the water contracted for by each falls within article III (a) of the Colorado River compact, what part is within article III (b) thereof, what part is surplus water under said compact, what part is unaffected by said compact, and what part is affected by various provisions of section 4 (a) of the Boulder Canyon Project Act. Accordingly, while the United States undertakes to supply, from the regulated discharge of Hoover Dam, waters in quantities stated by this contract as well as contracts heretofore or hereafter made pursuant to regulations of April 23, 1930, amended September 28, 1931, this contract is without prejudice to relative claims of priorities as between the State of Arizona and other contractors with the United States, and shall not otherwise impair any contract heretofore authorized by said regulations.

Later on, in paragraph 19, the proposed contract states that it is—

without prejudice to the respective contentions of the State of Arizona and of the parties to said compact, as to interpretation thereof.

Instead of recognizing the claims of Arizona, as Mr. Knapp says, the Secretary of the Interior specifically preserved the rights of other States, including California, to press their respective contentions in opposition to Arizona's claims. Let's be fair about this.

14. On page 13, Mr. Knapp refers to the water delivery contract actually executed by the Secretary with the State of Arizona, on February 9, 1944. Mr. Knapp says that by the use of certain words, which he quotes out of context, the Interior Department "clearly recognizes that the waters (1,000,000 acre-feet) allotted under paragraph (b) are apportioned waters and not surplus waters." Mr. Knapp should have quoted also the language in paragraph 10 of that contract he refers to. I quote it for the committee:

10. Neither article 7 nor any other provision of this contract, shall impair the right of Arizona and other States and the users of water therein to maintain, prosecute, or defend any action respecting, and is without prejudice to, any of the respective contentions of said States and water users as to (1) the intent,

effect, meaning, and interpretation of said compact and said act; (2) what part, if any, of the water used or contracted for by any of them falls within article III (a) of the Colorado River compact; (3) what part, if any, is within article III (b) thereof; (4) what part, if any, is excess or surplus waters unapportioned by said compact; and (5) what limitations on use, right of use, and relative priorities exist as to the waters of the Colorado River system; provided, however, that by these reservations there is no intent to disturb the apportionment made by article III (a) of the Colorado River compact between the upper basin and the lower basin.

Thus speaks the Secretary of the Interior, thus speaks the United States, in the very contract under which Arizona now claims the right to use the waters of the Colorado River.

More than that, let me call the committee's attention to section 7 (h) of the water contract as actually executed pursuant to the act of the Arizona Legislature. That section reads:

Arizona recognizes the right of the United States and agencies of the State of California to contract for storage and delivery of water from Lake Mead for beneficial consumptive use in California, provided that the aggregate of all such deliveries and uses in California from the Colorado River shall not exceed the limitation of such uses in that State required by the provisions of the Boulder Canyon Project Act and agreed to by the State of California by an act of the legislature (ch. 16, Statutes of California of 1929) upon which limitation the State of Arizona expressly relies.

Thus Arizona recognized the California water delivery if the aggregate of the water delivered is within California's limitation, but Arizona, then knowing of the existence of such contracts and of the aggregate amount of water called for, now seeks to determine herself what the California Limitation Act means. And, by resisting California's resolutions seeking authority to make the Government a party to the necessary litigation, would be judge and jury, and preempt the right of the Court, while asking Congress to support her in such a remarkable proceeding.

15. Mr. Knapp, on page 17, in referring to the Gila River, says that "practically all of the waters of that river are now and have been for many years past put to beneficial use." California concedes that point, and asks only that Arizona be debited with the amount it "beneficially consumptively" uses.

16. Mr. Knapp, on pages 17 and 18, apparently accepts the principle of "diversions less returns to the river" as being the measure of consumptive use—and California has always so contended—but Mr. Knapp then claims that "depletion" is the "yardstick." This committee knows that the principles of "diversions less returns to the river" and "depletion" at some distant point such as the international boundary are diametrically opposed to each other. Which principle is correct must be determined by a court of competent jurisdiction—in the instance of interstate controversies—exclusively by the United States Supreme Court.

17. Then Mr. Knapp, in the last paragraph on page 19, refers to the upper basin States compact as authority for the propriety of the principle of "depletion." This committee knows of its own action taken in respect to that compact, and of the refusal of the committee and of this Congress to consent or agree to any intrepretations of the Colorado River compact that are expressed or implied in the upper Colorado River Basin compact. Mr. Knapp cannot properly now use

the upper basin compact interpretation as an element in his interpretation of the main compact—at least before this committee.

18. On page 22, Mr. Knapp again confuses the upper and lower divisions with the basins.

19. Now we come to what is probably the most amazing of all of the positions taken by Mr. Knapp. On page 23, Mr. Knapp discusses the California Limitation Act, and he says that—

> such limitation also is subject to "all water necessary for the supply of any rights which may now exist." One of such existing rights is set forth in section 4 (a) of the Boulder Canyon Project Act, which provides "that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State."

In these words Mr. Knapp says, first, that the California rights are "subject" to "all water necessary for the supply" of any existing rights. Actually the Limitation Act fixed California's rights as—

> including * * * all water necessary for the supply of any rights which may now exist—

obviously meaning existing rights in California, which are the only rights that could be included.

Second, Mr. Knapp says that among these existing rights are rights given by section 4 (a) of the project act and he quotes that act to say "that the State of Arizona shall have" exclusive use of the Gila. What section 4 (a) actually says is—

> the States of Arizona, California, and Nevada are authorized to enter into a compact which shall provide * * * (3) That the State of Arizona shall have—

the exclusive use of the Gila.

These two propositions thus made by Mr. Knapp are, unequivocally and flatly, misstatements of the text of the project act, not merely misinterpretations.

I regret that it has been necessary to devote so much argument in answer to Mr. Knapp. But he has appeared before this committee as an official spokesman for Arizona, and, as I have demonstrated, he has given the committee obvious erroneous facts, he has failed to fully quote, he has juggled quotations out of context, and he has made misstatements of text. I wish it understood that there is nothing personal in my position. The State of California is entitled to a fair contest, and to correct any false impressions received by the committee is the sole purpose of my presentation.

I would like to add to the committee, Mr. Chairman, that I have supporting data, copies of the acts, the compact, the contracts, the Limitation Act and anything else the committee would be interested in in having a demonstration made.

Mr. MURDOCK. Thank you, Mr. Hardy. There may be some questions to ask of you. I understand that Mr. Keith has a shorter presentation and would be willing to give it at this time, if the committee thinks proper and probably that would be the best sequence to follow. Are there any questions to ask of Mr. Hardy at this point? Mr. D'Ewart?

Mr. D'EWART. I would like to ask one or two. On page 1 you speak of the filing of the city of Los Angeles of 1,500 second-feet of Colorado River water. Where did they make that filing?

Mr. HARDY. We made it with the official bureau of the State of California which is obviously the only place we could make it.

Mr. D'EWART. In your State?

Mr. HARDY. Yes, sir.

Mr. D'EWART. Under your State laws that is an indication of intention of beneficial use.

Mr. HARDY. Yes, sir.

Mr. D'EWART. Without the filing it is simply an intention.

Mr. HARDY. Yes, sir. It must be demonstrated by the development of a plan, construction of the necessary works, and the ultimate application of the water within a reasonable period of time to the beneficial use.

Mr. D'EWART. It was contemplated this 1,500 second-feet would eventually come out of the water that would go to California under some compact for the division of waters of the lower division?

Mr. HARDY. Yes, sir. California as a lower-basin State had certainly an equitable proportion of the waters that were apportioned to and permitted to be used by the lower basin. That equitable proportion has never been determined, sir, except insafar as California has limited itself by its own Limitation Act of 1929.

Mr. D'EWART. And what you really filed on was 1,500 second-feet of the water that would be apportioned to California?

Mr. HARDY. Obviously; yes, sir.

Mr. D'EWART. Then on page 19 would you very briefly sketch the meaning of the definition "consumptive use" and "depletion," as you interpret them to be meant in the compact?

Mr. HARDY. Well, sir, I contend this, and anybody reading the compact can find no other language other than that what is apportioned to the basins, what the compact deals with, is beneficial consumptive use. The compact did not, however, define that phrase. However, there are many cases in lower courts particularly and only two that I know of in the Supreme Court of the United States where the phrase was defined.

The doctrine of depletion under virgin conditions is a doctrine that is in violent opposition to the doctrine of beneficial consumptive use as we in California construe it. We construe it to mean that the use of the water as it may consume that water is the charge against the credit. The depletion theory under virgin conditions as has been explained may be briefly illustrated by Arizona's position on the Gila. There is no question about it. The Bureau admits it. Everybody that has ever looked into it admits that something over two million three hundred thousand odd acre-feet of water flows into the Phoenix area, and today the Gila is dry so far as furnishing any water to the main stream of the Colorado River, it is dry throughout the year except for flash floods. Under virgin conditions, so it is contended, and before Arizona put the water to use in the upper reaches, the Gila River delivered 1,300,000 acre-feet to the Colorado River.

Therefore, the Arizona contention is that that being all the Gila contributed under natural virgin conditions before man diverted any and used any of the water above, that is the charge that should be made against Arizona, namely 1,300,000 acre-feet. We contend in California that Arizona under the compact is consumptively using 2,300,000 acre-feet, and that obviously they should be charged with the amount they consumptively use.

Mr. D'EWART. Apply that to the definition. Consumptive use under your definition is 2,300,000 feet and depletion is 1,300,000 acre-feet.

Mr. HARDY. Yes, sir. I don't know how it will be decided until the Supreme Court picks it up and settles it. California is not going to recede and Mr. Carson has said Arizona is not going to concede. There is a million acre-feet in controversy. If we are right that million acre-feet is in the main stem for California's use. If Arizona is right it is not in the main stem for California's use. That is important water, a million acre-feet in our country.

Mr. D'EWART. Do you contend the same as it is contended for the Colorado compact that this cannot be decided until it is heard by the Supreme Court? Can the Supreme Court decide this at this time without further action by the Congress or has there got to be a demonstration of that?

Mr. HARDY. I say this to you as a lawyer, and I have heard no lawyer deny this flat statement: The Supreme Court determines its own jurisdiction under the Constitution. The Supreme Court is a constitutional court. The Supreme Court has always accepted a case or rejected a case as its own determinations and deliberations demonstrate. In my opinion this Congress could pass a thousand resolutions and acts saying that a justiciable controversy existed and the Supreme Court would pay not the slightest attention to it, or this Congress could pass a thousand on the other side and say no justiciable controversy existed, and the Supreme Court if it would get the case would pay not attention to it.

Mr. D'EWART. Then what is the procedure to get this particular point before the Supreme Court?

Mr. HARDY. In the last case, sir, between Arizona and California and the other basin States, which was decided in 1935 and reported in volume 298 United States Reports—I think it was decided in 1936—the Supreme Court said in substance that in any action over the use of the waters of the Colorado River by any of the basin States between themselves, that the rights of the Government were so interwoven that the rights of no State could be determined without also determining the rights of the Government, and why, because the Government had built Hoover Dam and had assisted in the building of Parker Dam and it was then contemplating the building of Davis Dam and had built Imperial Dam, so the Supreme Court said the Government is a necessary party to any such litigation.

Now the Government is a sovereign, sir, and may not be sued without its consent. Traditionally, as long as we have had a republic, and as long as we have had a Congress and a Constitution, wherever it has been needed to get the Government into court as a party, application has been made to the Congress, which grants the consent for the Government to be sued.

Now all we ask in California is that this Congress grant the consent of Congress for the Government to be sued. The Supreme Court may or may not take the case. The Supreme Court may or may not decide in favor of California, may or may not decide in favor of Arizona, may find a middle or some other ground, but the thing has got to be settled sooner or later, and the Supreme Court is the only place that I know of, by the Constitution, where an interstate controversy may be settled.

Mr. D'EWART. The point they have to decide is the definition of "consumptive use" and "depletion."

Mr. HARDY. That is one of them, sir. There are at least three major points in the dispute between California and Arizona.

Mr. D'EWART. That is all. Thank you.

Mr. MURDOCK. The next witness is also an attorney. Maybe we ought to reserve these questions until the attorneys have finished. Possibly they will cover the same ground. It is my understanding that Mr. Keith could summarize his statement rather briefly. Is it the desire of the committee to hear Mr. Keith at this time?

Thank you, Mr. Hardy, for your statement.

(Witness excused.)

STATEMENT OF DONALD M. KEITH, DEPUTY GENERAL COUNSEL, THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Mr. KEITH. I must apologize to the committee for the fact that I have only a limited number of copies of my statement here this morning. I found that the mimeographer doesn't work on Saturday morning, to my surprise, and was unable to get the additional copies.

Mr. MURDOCK. One is furnished to the reporter and if you would prefer that this be put in as is and give us a summary, we will follow that procedure.

Mr. KEITH. If you please, Mr. Murdock, the paper itself is a summary. Contrary to the usual plan I had anticipated using it merely as a summary and enlarging as I went along. It would therefore save time if I used the paper, as it is, as the summary.

Perhaps by way of introduction, because the question is a legal one as I present it, I might state that I have been practicing law for some 30 years, admitted to practice in the States of California and Arizona and the Federal courts; and for the most part my practice, with the exception of time out for service in two wars, has had to do with municipal and public law.

Mr. Chairman, frequent reference has been made in these hearings to the ability or inability of the Congress to settle or finally determine controversies of the character of that which now exists between the States of Arizona and California over their respective rights to the use of the waters of the Colorado River.

It is my purpose to discuss the powers of the Congress in this regard and to point out the application of the principles involved to your consideration of the pending bill.

It is one of the fundamental principles of our constitutional system that the powers entrusted to Government are divided into three branches and that the functions appropriate to each are entrusted to a separate body of public servants. The object of the creation of separate and distinct departments was not merely a matter of convenience or of Government mechanism, but was to preclude a commingling of essentially different powers in the same hands.

The powers of Congress are prescribed in article I of the Federal Constitution and include all legislative power. The Congress may exercise only those powers specifically granted or which are necessarily implied. By article III of the Constitution all judicial power

of the United States is vested in the Supreme Court and such inferior courts as may be established by the Congress.

Our courts have held that the several departments are not only equal but exclusive, that one department cannot interfere with, or encroach upon, either of the other departments. Manifestly, the legislature cannot usurp the functions of the judiciary by attempting to adjudicate controversies nor can it adjudicate claims respecting title to property.

With these principles in mind let us see how they apply to the proposed legislation now before the committee.

Of first importance in the consideration of the bill under discussion is the availability of a supply of water sufficient to serve the proposed project. Two questions are involved—the physical existence of a sufficient quantity in the river system and the legal availability of such quantity for use in Arizona. While the physical existence of the quantity required is a matter for engineering opinion the two questions cannot be separated. One is of equal importance with the other.

Mr. E. B. Debler, the principal engineering witness for Arizona predicates his opinion of availability of water upon legal interpretations and conclusions. Eight of the thirteen pages of Mr. Debler's statement presented to this committee are devoted to purely legal discussion of the Colorado River compact, the Boulder Canyon Project Act, the California Self-Limitation Act, the water delivery contracts and allied documents. His interpretations are those of Arizona and his resulting computations show a balance of only 135,000 acre-feet over and above the amount required for the proposed central Arizona project.

And I call your attention now particularly to the question of consumptive use as stated to you by Mr. Nelson this morning, in that one question alone there is a million acre-feet of water involved—obviously if California is correct in any one of her three principal contentions there will not be, under Mr. Debler's computations, a sufficient dependable supply for the proposed project.

Mr. V. E. Larson, assistant regional planning engineer, and a witness for the Bureau of Reclamation, frankly points out in his statement presented to this committee (p. 10) that—

> * * * the determination of Colorado River water available for diversion to the central Arizona project herein presented is based upon interpretations by responsible officials of the State of Arizona.

Relying upon the Arizona interpretations Mr. Larson found an amount available for use in Arizona on the proposed project exactly equal to the estimated requirement with no surplus left over (Larson, p. 13). Again it is apparent that if any one of California's contentions is correct there is not a sufficient dependable supply available for the proposed project.

That a dispute exists between California and Arizona over the intent and meaning of the Colorado River compact, the Boulder Canyon Project Act, the California Self-Limitation Act, and allied documents must, by this time, be apparent to the committee. That the dispute has assumed the proportions of a controversy between States is evident from the official statements of authorized representatives of the contending States. It is difficult to follow the reasoning of Mr.

Carson when he states that there is no controversy, that these questions were "settled completely as though by compact by section 4 (a) of the Project Act."

That is the same as saying, "there can be no controversy because I am right and you are wrong." Mr. Carson, from his many years of experience at the bar, knows that the reports of our courts both State and Federal are full of decisions arising out of diverse interpretations of the meaning of statutes, contracts, and other writings. The very zeal with which the authorized representatives of Arizona have presented their case belies any such conclusion.

The dispute, while it involves the use of the waters of the river system is essentially one of contract law. California relies upon the validity of contracts made by her agencies with the Secretary of the Interior in the years 1931 to 1934 which call for the delivery for use in California of 5,362,000 acre-feet annually.

Since her purported ratification of the Colorado River compact in 1944, Arizona, relying upon her interpretation of the compact, the project act, and the California Limitation Act, contends that California is not entitled to the quantity of water called for in the California water-delivery contracts but that a substantial amount of that water is available for use in Arizona. The issues thus raised involve the interpretation of the compact, the Project Act, and the California Limitation Act which together constitute a legislative or statutory compact, and the water-delivery contracts.

I believe it is clear from what I have already said that a determination of the availability of water for the central Arizona project cannot be made without a determination of the controversy involved. As I have shown there is not sufficient water available for the project unless Arizona is correct in all of her contentions and therefore a determination of the legal issues is implicit in any determination of feasibility.

Who, then, is empowered to make such a determination? The Secretary of the Interior in transmitting his Report on Central Arizona Project (Project Planning Report No. 3–8b.4–2) to the President pro tempore of the Senate stated in his letter dated September 16, 1948:

> Assurance of a water supply is an important element of the plan yet to be resolved. * * * If the contentions of the State of Arizona are correct, there is an ample water supply for this project. If the contentions of California are correct, there will be no dependable water suppoly available from the Colorado River for this diversion. * * * The Bureau of Reclamation and the Department of the Interior cannot authoritatively resolve this conflict. It can be resolved only by agreement among the States, by court action, or by an agency having jurisdiction. * * *

Thus the executive branch has disavowed any power to resolve the issue.

But the last clause of the quoted statement might lead to the implication that the Congress is empowered to resolve the controversy. This, we submit, is not the case. The determination of such an issue is exclusively within the jurisdiction of the judicial branch under the Federal Constitution.

In his letter of May 13, 1948, reporting on Senate Joint Resolution 145 (hearings, p. 363), the Secretary of the Interior, after outlining the issues between the States, said:

> The bare statement of these questions, the knowledge that there is a disagreement between Arizona and California about the answers to be given them, and the fact that, if the contentions of either State are accepted in full and if

full development of the upper basin within the limits fixed by the Colorado River compact is assumed, there is not available for use in the other State sufficient water for all the projects, Federal and local, which are already in existence or authorized would seem to indicate that there exists a justiciable controversy between the States. * * *

Later in the same letter, the Secretary said:

* * * The controversy, nevertheless, appears to be of the sort that would justify the Court's determining the rights of the parties and definitely adjudicating their respective interests in the waters available to the lower basin. It matches in every particular the requirements for a "case" or a "controversy" in the constitutional sense of these words as those requirements were spelled out by the Supreme Court in *Aetna Life Insurance Company* v. *Haworth* (300 U. S. 277, 240 C 1937)). "A 'controversy' in this sense," the Court said, "must be one that is appropriate for judicial determination. * * * The controversy must be definite and concrete, touching the legal relations of parties having adverse legal interests. * * * It must be a real and substantial controversy admitting of specific relief through a decree of a conclusive character, as distinguished from an opinion advising what the law would be upon a hypothetical state of facts. * * * Where there is such a concrete case admitting of an immediate and definitive determination of the legal rights of the parties in an adversary proceeding upon the facts alleged, the judicial function may be appropriately exercised, although the adjudication of the rights of the litigants may not require the award of the process or the payment of damages. * * *"

Mr. MURDOCK. May I suggest that I think the committee should adjourn at 12:30 until Monday, 10 o'clock. I am wondering whether the witness would like to hold himself in readiness to come back at 10, or could you complete your statement?

Mr. KEITH. I have 12:30 now, Mr. Chairman. I may be a little fast. I doubt very much if I can properly present the balance of that before 12:30.

Mr. MURDOCK. You would prefer to do that?

Mr. KEITH. I would prefer to come back.

Mr. MURDOCK. It could be inserted in the record, of course, but go right ahead, Mr. Keith. We will not have an afternoon session.

Mr. KEITH. I will try to shorten some of the material which I have here.

On the question of whether the controversy is a justiciable one, the Department of Justice advised the committee (hearings, S. J. Res.145, p. 11):

It has been suggested that there is some question as to the existence of a justiciable controversy. That question itself can be determined authoritatively only by the Supreme Court. Cogent arguments can be made in support of, and also against, the existence of a justiciable controversy. Presumably, all aspects of this question will be thoroughly presented and vigorously maintained by the different States in case the question is presented to the Supreme Court.

This committee is, of course, thoroughly familiar with the fundamental division of functions upon which our system of government is based. The language used by the Supreme Court in the case of *Kilbourn* v. *Thompson* (103 U. S. 168), is particularly clear. The Court said (p. 387):

It is believed to be one of the chief merits of the American system of written constitutional law, that all the powers entrusted to governments, whether State or national, are divided into the three grand departments of the executive, the legislative, and the judicial. That the functions appropriate to each of these branches of Government shall be vested in a separate body of public servants, and that the perfection of the system requires that the lines which separate and divide these departments shall be broadly and clearly defined. It is also essential to the successful working of this system, that the persons entrusted with power in any one of these branches shall not be permitted to encroach upon the powers

confided to the others, but that each shall by the law of its creation be limited to the exercise of the powers appropriate to its own department and no other.

* * * * * * *

The Constitution declares that the judicial power of the United States shall be vested in one Supreme Court, and in such inferior courts as the Congress may from time to time ordain. If what we have said of the division of the powers of the Government among the three departments be sound, this is equivalent to a declaration that no judicial power is vested in the Congress or either branch of it, save in the cases specifically enumerated to which we have referred.

It would seem too obvious for argument, that the determination of issues of contract law between States of the Union is of justiciable character, and hence, under article III, section 2 of the Constitution, exclusive and original jurisdiction to determine the controversy rests with the Supreme Court of the United States.

Mr. Carson, in answer to a question of one of the members of this committee, stated in substance that Arizona is entitled to have a determination of Congress that there is water available for the project. It is unquestionably, not only within the power, but it is the duty of the Congress in the exercise of its legislative function to inquire into the availability of water as one of the first elements of feasibility before authorizing a reclamation project.

But this does not mean that the Congress may by legislative determination effect an adjudication or final determination of rights to the use of the waters of an interstate stream or resolve conflicts and diverse claims with respect to contractual rights.

As heretofore pointed out, there is no dependable supply of water available for the central Arizona project, unless Arizona prevails in all of her contentions, and a determination of the legal questions involved is, therefore, implicit in any finding of availabilty of water.

If the matter in dispute be considered as one of apportionment of the waters of the river, the Congress is equally without jurisdiction. It has been repeatedly asserted by witnesses for Arizona that Congress apportioned the waters available to the lower basin under the compact by legislative action, that is, by the adoption of the Boulder Canyon Project Act in 1928.

Nothing of the kind was done. A reading of the text of the Project Act shows clearly that Congress asserted no right to apportion or allocate water or the use of water between the States. By its Limitation Act, California limited itself in the quantity of water it would take for use in California. The adoption of the Limitation Act was a consideration for the taking effect of the Boulder Canyon Project Act. The relation between California and the United States is clearly contractual and no rights to the use of water stem from the adoption by Congress of the Boulder Canyon Project Act. It was fully recognized at the time of the adoption of the Project Act that the States, by agreement, might apportion the water among themselves.

In section 4 (a) of the Project Act the Congress authorized the making of a contract among the States of Arizona, California and Nevada in accordance with terms outlined therein. This was nothing more than an advance authorization and such an agreement was never made, nor could it have been without the joinder of the States of New Mexico and Utah which have interests in the lower basin.

Never, to my knowledge, in the history of the West has Congress ever attempted to apportion water among the States. It has always been the policy of the United States to recognize that control of such

uses of water vested in the States and that differences between States with respect to such uses must be settled by agreement or if agreement fails, by litigation.

A reversal of that policy, recognized by statute and in the decisions of the United States Supreme Court, would lead to untold confusion, litigation, and the impairment of vested rights of inestimable value.

As has heretofore been pointed out the availability of a dependable, adequate and continuous supply of water, sufficient to serve the proposed project is of first and utmost importance in the consideration of the pending bill. No Member of Congress, no matter where his sympathies may lie, is justified in taking favorable action on the bill if there is any doubt in his mind of the existence and availability for use on this project of such a supply.

Favorable action by the Congress can result only in one of two situations—either water will be taken from California—water for the delivery of which solemn contracts were entered into years before Arizona took steps to ratify the Colorado River compact and upon the validity of which works have been built—or a project of tremendous cost will have been authorized for which no dependable supply of water is available. It is inconceivable that Congress should place itself in any such position.

Some of the members of this committee will recall the position taken by California 2 years ago in the hearings before the House Committee on Public Lands of the Eightieth Congress on H. R. 1597, a bill for the reauthorization of the Gila project. California issued warning at that time that the authorization of a diversion of 600,000 acre-feet from the main stream for that project would leave no water available for the central Arizona project. Nevertheless, Arizona pressed for passage of that bill and it was passed. We are now faced with the situation recognized at that time and about which the committee had this to say (Rept. No. 910, July 14, 1947, on H. R. 1597):

> * * * The committee feels the dispute between these two States on the lower Colorado River Basin should be determined and settled by agreement between the two States or by court decision because the dispute between these two States jeopardizes and will delay the possibility of prompt development of any further projects for the diversion of water from the main stream of the Colorado River in the lower Colorado River Basin.
>
> Therefore the committee recommends that immediate settlement of this dispute by compact or arbitration be made, or that the Attorney General of he United States promptly institute an action in the United States Supreme Court against that States of the lower basin, and other necessary parties, requiring them to assert and have determined their claims and rights to the use of the waters of the Colorado River system available for use in the lower Colorado River Basin.

The recommendations of that committee are pertinent and valid today. There being no dependable water supply available for the proposed central Arizona project unless Arizona's contentions are correct, any finding of feasibility by this committee or the Congress would, of necessity, constitute a determination of the legal controversy involved. Such a determination would be beyond the powers of Congress and binding on no one.

What I have attempted to show, Mr. Chairman, and members of the committee, is this, that while it is a function of the legislative branch in passing upon a project or a bill of this kind to ascertain as a legislative matter the availability of water, in fact that is the first

step in determining the feasibility of a project, there is no room in this case for the exercise of any legislative discretion.

There is no water which you can determine to be available for the central Arizona project, unless you find that all of California's contentions are incorrect, or to put it the other way, unless you determine that all of Arizona's contentions are correct, and by so doing, if you should so do, you would be exercising a judicial function which would not be within the power of Congress.

Mr. MURDOCK. That last statement is in direct conflict with my own views as I have expressed them in the public print so I will not take time now to ask you questions about it.

Would you like to have this witness reappear on Monday at 10 o'clock to answer questions, or could we say to him we are ready now to dismiss him?

Mr. D'EWART. I have two brief questions that perhaps he could answer in a couple of minutes.

Mr. MURDOCK. Are there any other questions to be asked?

Mr. D'EWART. The second paragraph says that this committee recommended a settlement of the dispute to be undertaken either by the Attorney General or some other method. To your knowledge has the Attorney General carried out those recommendations in any way?

Mr. KEITH. No, sir. He has not. At the time of course I think it was the intent that it would be better if the Attorney General should initiate an action and of course that was the effect of the litigation resolution which we had in at the last session of Congress.

Now in accordance with recommendations of the Justice Department and the Department of the Interior, the bill which is pending this year, resolution which is now pending, is one authorizing any of the States to bring the action.

Mr. D'EWART. The other one perhaps is not a fair question and you don't need to answer it if you don't want to. Your contention on page 8 is that in the history of the West Congress has never attempted to apportion water among States. If valley authorities were set up, then the Commissioners that ran those authorities could apportion water between the States, couldn't they?

Mr. KEITH. I don't believe so, no, sir. I think if they attempt to do it, it would be over the violent protest of every State involved.

Mr. D'EWART. I agree with that but I believe as this authority legislation is written, in the Columbia Basin or Missouri Basin, it is intended to give them that authority. I agree the States would protest.

Mr. KEITH. Well I would question the validity of such legislation. It could of course provide that it be done by contract, by agreement.

Mr. D'EWART. Thank you, Mr. Chairman.

Mr. MURDOCK. Are there further questions? We thank you kindly, Mr. Keith, for the statement, and you may consider that you are excused.

Mr. KEITH. Thank you, Mr. Chairman. I will furnish the additional copies for the other members of the committee on Monday.

Mr. MURDOCK. We will be glad to have them for their personal use. Of course this is in the record as is.

The committee stands adjourned until 10 o'clock Monday morning.

(Whereupon, at 12:40 p. m., the committee adjourned, to reconvene on Monday, June 6, 1949, at 10 a. m.)

THE CENTRAL ARIZONA PROJECT

MONDAY, JUNE 6, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met at 10:30 a. m., Hon. John R. Murdock (chairman of the subcommittee) presiding.

Mr. MURDOCK. The subcommittee on Irrigation and Reclamation will resume its consideration of H. R. 934.

Mr. LEMKE. Mr. Chairman, there is a meeting of another subcommittee this morning, and while I would like to sit in on this hearing, I think I have heard the story pretty well and I do want to attend the other meeting.

Mr. ENGLE. May I say, Mr. Lemke, there are two concluding witnesses from California to go on the stand, and Mr. Northcutt Ely, the next witness, is going to discuss some points which I think will be of particular interest to you.

Mr. LEMKE. I am rather interested in the other hearing, and I assume I can have a copy of the gentleman's statement.

Mr. MURDOCK. We hope we may conclude the hearings today, and possibly may need to have an evening session if we cannot have an afternoon session.

Mr. LEMKE. I shall be glad to meet with the committee if possible.

Mr. MURDOCK. Mr. Northcutt Ely is the next witness. You have a prepared statement of some length, I assume, Mr. Ely, to be inserted in the record, or you may summarize it.

STATEMENT OF NORTHCUTT ELY, SPECIAL COUNSEL, COLORADO RIVER BOARD OF CALIFORNIA

Mr. ELY. Yes, Mr. Chairman. I assume it will be included in the record as read.

Mr. MURDOCK. Yes.

Mr. ELY. Mr. Chairman and members of the committee, because of the length of this prepared statement I have prepared an outline which the members of the committee may wish to follow.

OUTLINE OF STATEMENT OF NORTHCUTT ELY, SPECIAL COUNSEL, COLORADO RIVER BOARD OF CALIFORNIA

Introduction.

I. The issues.
   1. Re III (b) water.
   2. Re "beneficial consumptive use."
   3. Re evaporation losses.

II. The Colorado River compact.
  A. Status of III (b) water as reported by the negotiators to the legislatures.
    1. As to whether III (b) water was intended for Arizona's exclusive use.
    2. As to whether the negotiators of the compact intended to classify the III (b) waters as "apportioned."
  B. As to the measure of "beneficial consumptive use" intended by the Colorado River compact.
III. The Boulder Canyon Project Act and the California Limitation Act.
  A. As to the measure of beneficial consumptive use intended by the Boulder Canyon Project Act.
    1. Documents before the Senate.
    2. Definition of "beneficial consumptive use" in the Boulder Canyon Project Act.
  B. Did Congress intend to exclude California from participation in the III (b) water?
IV. The Colorado River Supreme Court cases.
  A. The injunction case.
    1. As to the quantity of consumptive use on the Gila River with which Arizona is chargeable.
    2. As to whether the uses on the Gila are accountable under article III (a) or article III (b) of the compact.
    3. As to whether the waters referred to in article III (b) of the compact are "apportioned" or "surplus."
    4. As to the status of the 75,000,000 acre-feet guaranteed by the upper basin under article III (d) of the compact.
  B. The "Perpetuation of Testimony" case.
  C. The "Equitable Apportionment" case.
    1. As to the quantity of consumptive use on the Gila River with which Arizona is chargeable.
    2. Quantities to which California is entitled, on Arizona's pleadings.
V. The water contracts.
VI. The Mexican water treaty.
VII. Ratification of the Colorado River compact by Arizona.
VIII. The Arizona projects.

My name is Northcutt Ely. I am a member of the bar of California and the District of Columbia, with offices in the Tower Building, Washington 5, D. C. I am special counsel for the Colorado River Board of California, and appear here as one of the attorneys for the State of California.

My testimony is directed primarily to the issue of the availability of water for the central Arizona project. It is directed particularly to Arizona's present claim that all issues between herself and California have been predetermined in Arizona's favor, by the Colorado River compact, the Boulder Canyon Project Act, and related documents.

This claim of Arizona's that all issues have long since been decided in her favor is completely refuted by the reports of Government departments, including such expressions as "four major problems would appear to be in dispute between California and Arizona" (report of Secretary of the Interior on S. J. Res. 145, 80th Cong.); "there is not available for use in the other State sufficient water for all the projects, Federal and local, which are already in existence or authorized" (id.); "these unresolved questions" (id.); "further development of the water resources of the Colorado River Basin, particularly large-scale development, is seriously handicapped, if not barred, by lack of a determination of the rights of the individual States" (H. Doc. 419, 80th Cong., p. 5); "There is agreement among

all agencies concerned as to the urgent need for resolution of the water rights issues involved" (Report of the Director of the Bureau of the Budget, May 17, 1948, hearings, H. J. Res. 225, 80th Cong., House Judiciary Committee, p. 28); "authorization of any of the projects inventoried in the report should not be considered to be in accord with the program of the President until a determination is made of the rights of the individual States to utilize the waters of the Colorado River system" (H. Doc. 419, 80th Cong., p. 1); and, of course, the letter of the Secretary of the Interior transmitting the central Arizona project report to the Senate, September 16, 1948, "Assurance of a water supply is an important element of the plan yet to be resolved. * * * If the contentions of the State of Arizona are correct, there is an ample water supply for this project. If the contentions of California are correct, there will be no dependable water supply available from the Colorado River for this diversion."

This Federal warning of the existence of "unresolved questions" is paralleled and confirmed by a statute of the State of Arizona (act of February 24, 1944; Laws, 1944, pp. 419–427) which contains the full text of a water contract with the Secretary of the Interior, which controls all deliveries from Hoover Dam storage to Arizona projects. By the express terms of H. R. 934, this contract is to control all deliveries of water to the central Arizona project. The contract (and hence the Arizona statute) says:

RESERVATIONS

10. Neither article 7 nor any other provision of this contract, shall impair the right of Arizona and other States and the users of water therein to maintain, prosecute, or defend any action respecting, and is without prejudice to, any of the respective contentions of said States and water users as to (1) the intent, effect, meaning, and interpretation of said compact and said act; (2) what part, if any, of the water used or contracted for by any of them falls within article III (a) of the Colorado River compact; (3) what part, if any, is within article III (b) thereof; (4) what part, if any, is excess or surplus waters unapportioned by said compact; and (5) what limitations on use, rights of use, and relative priorities exist as to the waters of the Colorado River system; provided, however, that by these reservations there is no intent to disturb the apportionment made by article III (a) of the Colorado River compact between the upper basin and the lower basin.

This Arizona statute, which concedes that there has been neither agreement on nor determinaton of the classification of the water to be delivered thereunder, was enacted subsequent to all of the transactions which she now says predetermined the very issues that her statute recites as still existing.

The Secretary of the Interior, in a decision accompanying his execution of that contract (The Hoover Dam Documents, p. A568), said:

* * * Article 10 was purposely designed to prevent Arizona, or any other State, from contending that the proposed contract, or any provision of the proposed contract, resolves any issue on the amounts of waters which are apportioned or unapportioned by the compact and the amounts of apportioned or unapportioned water available to the respective States under the compact and the act. *It expressly reserves for future judicial determination any issue involving the intent, effect, meaning, and interpretation of the compact and act. The language of article 10 is plain and unequivocal and adequately reserves all questions of interpretation of the compact and the act.* [Emphasis is supplied here and throughout this presentation.]

In H. R. 934, if Congress were asked to authorize expenditure of a large sum to build a structure on land whose title was stated to be

in dispute in the very documents on which the claim of title is based, it would demand a court action to clear the title before risking the money. Such is the case before you. You are invited by Arizona to authorize expenditure of a billion dollars to furnish water under a contract which recites on its face that the water rights claimed by Arizona are in dispute.

Nevertheless, Arizona asks the Congress to agree with her that she has a firm water right for this project. To reach that end, she claims, first, that, although all other States must charge their uses which are in existence at the effective date of the Colorado River compact against the apportionment made by article III (a) of the Colorado River compact, Arizona is not so chargeable with the uses on the Gila River, which are the oldest uses she has. She further contends that she alone, among the five States represented in the lower basin, is the beneficiary of article III (b) of the compact, which authorizes the lower basin to increase its uses by 1,000,000 acre-feet, and she proposes to charge her uses on the Gila to that category. She also contends that one system of measuring uses, "diversions less returns to the river" applies to California, as indeed it does, because Congress required California to agree to it, but that a different and much more favorable standard applies to her uses, not only on the Gila, but on the main stream.

She says all these favorable results were guaranteed her by the Colorado River compact in 1922 or confirmed by the Boulder Canyon Project Act in 1928. If this is so, the question at once arises why Arizona did not ratify the compact in 1923 or at latest 1929, and why, to the contrary, she found it necessary for her Senators to filibuster the Boulder Canyon Project Act and to vote against it; why she sued three times in the Supreme Court, first, to declare the act and compact unconstitutional, next to perpetuate the testimony of the negotiators, and, finally, to ask the Court to ignore the compact and act and make an equitable apportionment for her. The answer, of course, lies in the fact that the contemporary (and correct) construction of the compact and the act by her negotiators, her distinguished Supreme Court counsel, who was Mr. Dean Acheson (now Secretary of State), and the whole history of the documents she now relies upon were all diametrically opposed to the interpretations which she now asserts, and on which she asks the United States to gamble a billion dollars.

I. The Issues

What are these issues that have prevented an agreement between Arizona and California for a quarter century, which provoked three Supreme Court suits by Arizona (all dismissed by the Court), issues which Arizona now says have all been decided in her favor? Arizona's argument seems to concede that there are, or at least were, three of them, which the attorneys general of Nevada and California have defined as follows (hearings, S. J. Res. 145, Eightieth Congress, p. 60):

1. Whether by the terms of the California Limitation Act California is entitled to participate in the 1,000,000 acre-feet of water referred to in article III (b) of the Colorado River compact. This issue is one of interpretation of the California Limitation Act and the corresponding language in section 4 (a) of the Boulder Canyon Project Act.

2. Whether the measure of "beneficial consumptive use" of waters of the Gila River in Arizona is the actual beneficial consumptive use of such waters made in

Arizona, or is the amount of the depletion by Arizona of the virgin flow of the Colorado River at its confluence with the Gila. This is a question of interpretation of article III of the Colorado River compact.

3. Whether the 4,400,000 acre-feet of the water apportioned by article III (a) of the Colorado River compact to which California is limited by the Project Act and Limitation Act is a net quantity, or is subject to reduction by reason of evaporation and other reservoir losses, particularly at Lake Mead. This is, again, a question of interpretation of the California Limitation Act and section 4 (a) of the Project Act.

The Secretary of the Interior, in his report on House Joint Resolution 225, Eightieth Congress, translated these issues—and a fourth, relating to the Mexican water treaty, which we have not considered—into terms of acre-feet, as follows:

I have not attempted to examine the merits of the contentions made by the spokesmen for Arizona and California on these questions. Assuming, however, that there is some merit to both sides on all four of the major questions, it is obvious that there are many answers, in terms of the number of acre-feet of water which California may use under section 4 (a) of the Boulder Canyon Project Act that might conceivably be given. Using the long-run average flows shown in this Department's report on the Colorado River Basin as a basis for computations, the answers might range from as much as 6,250,000 acre-feet per year to approximately 4,000,000 acre-feet. Likewise, there is a great range in the amount of water from the Colorado River system which might be found available for use in Arizona. The maximum might be somewhat over 3,500,000 acre-feet, the minimum nearly as little as 2,250,000 acre-feet.

If Arizona is wrong on any one of these issues, there is not an adequate water supply for the central Arizona project.

The documents which present these questions are, in chronological order, the Colorado River compact, the Boulder Canyon Project Act—with the California Limitation Act—the Supreme Court litigation, the California and Arizona water contracts, and the Mexican water treaty. These will be identified in the same order below, together with their bearing on the three issues with which we are concerned.

The question before this committee is not how a lawsuit between Arizona and California ought to be decided, but whether the Supreme Court should be given the opportunity to decide it.

II. The Colorado River Compact

The Colorado River compact ("The Hoover Dam Documents," H. Doc. 717, 80th Cong., p. A17) is an interstate agreement signed by the seven States of the Colorado River Basin in 1922 for the purpose of apportioning the use of the waters of the Colorado River system. The "system" by definition (art. II (a)) "means that portion of the Colorado River and its tributaries within the United States of America." The division is not among the several States, but between two grand sub-basins, upper and lower (art. III (a) and (b)). These sub-basins are the parts of the basin "from which waters naturally drain into" the system above and below Lee Ferry (art. II (f) and (g)). Lee Ferry is a point in the river in northern Arizona, near the Utah line. Parts of five of the seven States are in the upper basin: Colorado, Utah, Wyoming, New Mexico, and Arizona. Parts of five are in the lower basin: Arizona, Nevada, California, Utah, and New Mexico.

The use of only a part of the water supply is divided. Further apportionment of the use of any surplus may be made by a further compact after October 1, 1963, if the States so unanimously agree (art. III (f) and (g)). This provision is permissive, not mandatory.

Article III (a) of the Colorado River Compact reads as follows:

> There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

Paragraph (b) provides that:

> In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

A. STATUS OF III (B) WATER UNDER THE COLORADO RIVER COMPACT

Arizona contends that the negotiators of the compact intended the III (b) water for Arizona, although they did not say so; that this million acre-feet is identical with, and is found flowing in, the Gila River; and that it is "apportioned water." The significance of this last claim becomes apparent when we reach consideration of the Boulder Canyon Project Act.

1. As to whether the framers of the Colorado River Compact intended the III (b) water for Arizona's exclusive use

This is one point, at least, on which the United States Supreme Court has spoken positively against Arizona. In *Arizona* v. *California* (292 U. S. 341 (1934)), Arizona made precisely the claim she makes here as to the intent of the negotiators.

The Court's opinion in *Arizona* v. *California* (292 U. S. 341) stated (p. 348):

> The interference apprehended will, it is alleged, arise out of a refusal of the respondents to accept as correct that construction of Article III (b) of the Compact which Arizona contends is the proper one. It claims that this paragraph, which declares:
>
> "In addition to the apportionment in Paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet annum."
>
> means:
>
> "that the waters apportioned by Article III (b) of said Compact are for the sole and exclusive use and benefit of the State of Arizona."

After quoting Arizona's brief, in almost the same words as her argument here, the Court said (p. 358):

> * * * Arizona is one of the States of the lower basin and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone. It may be that, in apportioning among the States the 8,500,000 acre-feet allotted to the lower basin, Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her; but that is a matter entirely outside the scope of the Compact.

The Court said also:

> * * * There is no allegation that the alleged agreement between the negotiators made in 1922 was called to the attention of Congress in 1928 when enacting the act; nor that it was called to the attention of the Legislatures of the several States.

It is curious why, if this agreement was ever in fact made, Arizona did not take the trouble to tell the other State legislatures or Congress

about it; and even more curious is the claim that Congress intended to adopt and enforce an agreement that it never heard of.

Let us see what the negotiators did report as to article III (b):

The California, Wyoming, and Colorado negotiators all reported to their legislatures that the lower basin was allotted an allowable increase of 1,000,000 acre-feet because of the anticipated rapid development on the lower river to follow the construction of Boulder (now Hoover) Dam, not merely the expected increases of use on the Gila. None reported that the million acre-feet was earmarked for Arizona. They all related it to anticipated increases, not to existing uses. Thus (italics supplied in each case):

California: Extract from the report of W. F. McClure, commissioner for California, January 8, 1923, to the Governor of California:

> In conclusion, permit me to add that the terms of the compact do full justice to the States in interest, and the equitable division and apportionment of the use of the waters of the Colorado River system, whereby the lower basin is allocated 7,500,000 acre-feet per annum, with an allowable increase of 1,000,000 acre-feet per annum by reason of the *probable rapid development upon the lower river*, and fully guarantees to California an ample water supply to adequately care for the enormous future growth of the Imperial Valley and adjacent territory * * *.

Colorado: Extract from the report of Delph Carpenter, commissioner for Colorado on the Colorado River Commission, to the Governor of Colorado, December 15, 1922:

> By reason of *development upon the Gila River and the probable rapid future development incident to the necessary construction of flood works on the lower river*, the lower basin is permitted to increase its development to the extent of an additional 1,000,000 acre-feet annual beneficial consumptive use before being authorized to call for a further apportionment of any surplus waters of the river.

Wyoming: Extract from the report of Frank C. Emerson, commissioner of the State of Wyoming, to the Governor and the Wyoming Legislature, January 18, 1923 (p. 15):

> * * * The lower basin is allowed to increase its use of water 1,000,000 acre-feet per annum in addition to the 7,500,000 acre-feet apportioned for its use by reason of the *possible developments upon the Gila River, and the probable rapid development generally upon the lower river*. This additional development is at the peril of the lower division, as no provision is made for delivery of water at Lee Ferry for this additional amount.

Herbert Hoover, who had presided over the negotiation of the Colorado River compact as representative of the United States, replied to a questionnaire by Congressman Carl Hayden, January 27, 1923 (Congressional Record, January 30, 1923, pp. 2710–2713). This included the following:

> Question 6. Are the 1,000,000 additional acre-feet of water apportioned to the lower basin in paragraph (b) of article III supposed to be obtained from the Colorado River or solely from the tributaries of that stream within the State of Arizona?
>
> The use of the words "such waters" in this paragraph clearly refers to waters from the Colorado River system, and the extra 1,000,000 acre-feet provided for can therefore be taken from the main river or from any of its tributaries.
>
> * * * * * * *
>
> Question 22. Does the Colorado River compact apportion any water to the State of Arizona?
>
> No; nor to any other State individually. The apportionment is to the groups.

No other negotiator is known to have reported to the contrary. Arizona did not publish the reports of her negotiators, if any were

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made. One of them, Mr. Norviel, who signed the compact, apparently addressed the Arizona Legislature, because one legislator explained her vote against ratification of the Colorado River compact by the statement that she had been for it until she heard Mr. Norviel explain that the Gila was included. If he reported a trade of the 1,000,000 acre-feet of III (b) water for inclusion of the Gila, he did not convince the legislature.

The legislature rejected the Colorado River compact in 1923. The lower house approved the compact with a reservation "that the Gila River system, including the waters of said Gila River and streams tributary thereto, be not included, considered or involved in any way with the so-called Colorado River compact" (House Journal, pp. 210–212), but the compact failed of ratification even with that amendment.

In that reservation is expressed the nub of this 25-year controversy:

From the beginning, Arizona's great dissatisfaction with the Colorado River compact was that it charged against the lower basin's rights under article III (a) of the compact, and hence against Arizona, Arizona's uses of water on the Gila River and its tributaries. For 22 years she fought the compact because it accomplished that result. The interpretation she now offers would have substantially the same effect as the exclusion of the Gila River from any charge under article III (a) of the compact. The question is not, as Arizona witnesses indicate from time to time, whether some other State is to be permitted to come in and take the Gila River waters. It is simply whether Arizona must render an accounting for her own uses of the Gila, which are old perfected rights, in the same manner as all other States must account for theirs, under article III (a) of the compact. She wants to avoid that accounting, because, to the extent that uses on the Gila (however measured) are chargeable as uses of III (a) waters, the quantity of III (a) water available to Arizona out of the main stream is reduced.

2. As to whether the negotiators of the compact intended to classify the III (b) waters as "apportioned"

The importance of this point derives from the fact that 6 years after the signature of the Colorado River compact, Congress, in enacting the Boulder Canyon Project Act, required California to enact a reciprocal statute limiting her uses to "4,400,000 acre-feet of the water apportioned to the lower-basin States by paragraph (a) of article III of the Colorado River Compact, plust not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact." Arizona says the III (b) waters were intended by the compact negotiators to be "apportioned," and that Congress and the California Legislature intended to limit California to 4,400,000 acre-feet in all apportioned waters, notwithstanding the fact that the limitation applies on its face only to those apportioned by article III (a).

While, strictly speaking, the question here is what Congress and the California Legislature intended in 1928, not what the negotiators said in 1922, nevertheless, it happens that an explicit report on this point by Delph E. Carpenter, Colorado's compact negotiator, was placed before Congress during the debate on the Project Act.

Mr. Carpenter was Commissioner for the State of Colorado on the Colorado River Commission which framed the compact; in fact, he is

generally credited with being the father of the idea of a compact among the States of the Colorado River Basin. Immediately after the compact was signed by the States' representatives at Santa Fe, Mr. Carpenter, under date of December 15, 1922, reported to the Governor and Legislature of the State of Colorado. His report was made a part of the Congressional Record during the debates in the Senate on the Boulder Canyon Project Act (Congressional Record, Senate, 70th Cong., 2d ses., Dec. 14, 1928, vol. 70, pt. 1, pp. 577–579, 584–585). In his report (p. 578), Mr. Carpenter says:

> The repayment of the cost of the construction of necessary flood-control reservoirs for the protection of the lower river country probably will result in a forced development in the lower basin. *For this reason a permissible additional development in the lower basin to the extent of a beneficial consumptive use of 1,000,000 acre-feet was recognized in order that any further apportionment of surplus waters might be altogether avoided or at least delayed to a very remote period. This right of additional development is not a final apportionment.*

There is nothing in the report of any other negotiator to controvert Mr. Carpenter's explicit statement, which was printed and widely circulated between 1922 and 1928, and specifically brought to the attention of Congress during debate on the Swing-Johnson bill. Indeed, in a subsequent Supreme Court case, Dean Acheson, then Arizona's counsel, and now Secretary of State of the United States, spelled out the same result in even more detail. Mr. Acheson's statement will be referred to later, in chronological order.

B. AS TO THE MEASURE OF "BENEFICIAL CONSUMPTIVE USE" INTENDED BY THE COLORADO RIVER COMPACT

The controversy here, as in other respects, has centered historically over the Gila River. Arizona's end objective now, as in 1922, is to free herself of any accounting under article III (a) of the compact for her uses on the Gila, notwithstanding the fact that article III (a) says, in terms, that the apportionment therein made "shall include all water necessary for the supply of any rights which may now exist," and the Gila rights are the oldest existing rights in Arizona. Arizona's first effort was to construe the compact as excluding the Gila altogether; her second, to identify it with the waters referred to in article III (b) of the Colorado River compact; her third, to find a method of calculating her uses on that stream in such a manner as to minimize them. This last is the "depletion theory," as contrasted with the measurement of consumptive uses as "diversions minus return flow." She would hold California to the latter method while claiming the benefits of the depletion method for herself. The background of this issue is as follows:

The Gila River, in the last 100 miles above the point where it discharges into the Colorado, is wide, sandy, flat, and subject to intense heat. As a result, although an average of about 2,300,000 acre-feet of water per year flows into the Phoenix area in central Arizona from the mountainous watershed of the Gila and its tributaries, it has been estimated by the Bureau of Reclamation that, in a state of nature, before any water was put to use in central Arizona, an average of only approximately 1,300,000 acre-feet per annum flowed from the Gila, at its mouth, into the Colorado. The rest was lost by evaporation, deep seepage, and transpiration. Arizona argues that it is chargeable,

for its use of Gila water, only to the extent that her irrigation "depletes" the flow of the main stream of the Colorado below the quantity which would have flowed in it in a state of nature. California contends that that view is a distortion of the measure of charge specified in the compact; namely, "beneficial consumptive use." By construction of an extensive system of impounding reservoirs in the mountains east of Phoenix and batteries of pumps in the lowlands, Arizona projects have accomplished the capture and utilization of substantially all of the 2,300,000 acre-feet. All of that water supply is actually being beneficially and consumptively used in Arizona and produces crops. Similarly, large amounts are salvaged along the main stream by California. One way of expressing the problem is, therefore: "Is a State or project entitled to salvage, by conversion works, water which in a state of nature was wasted, and not to be charged under the compact for the water so salvaged?" As a corollary, "Is California to be charged with the use of salvaged water and Arizona not?"

Under many conditions the amount of "depletion" of a stream may approximate the amount of "beneficial consumptive use." But in many instances, and to an unusual degree in the case of the Gila, and along the lower reaches of the Colorado River system generally, the depletion, measured at some downstream point, is not equivalent to beneficial consumptive use, measured at the project where the use occurs.

The allocation of water under the Colorado River compact was not made in terms of main-stream depletion. It was made in terms of use of the waters of the entire water system, wherever such uses occur, whether on tributaries or on the main stream. Article III (a) of the compact apportions the exclusive "beneficial consumptive use" of waters of the Colorado River system (which article II (a) defines as including both main stream and tributaries). Article III (a) makes no reference to stream depletion nor, in fact, to conditions existing in a state of nature. What is chargeable to each basin, and logically to each State, is whatever water of the system is actually put to beneficial consumptive use.

No definition of the phrase "beneficial consumptive use" is found in the compact, presumably because the term is a common one and well understood in water law as meaning diversions from a river minus return flow to that river.

There is, fortunately, abundant evidence as to what the compact negotiators meant by "beneficial consumptive use."

Delph E. Carpenter, in a report to the Colorado Legislature, rendered December 15, 1922, 3 weeks after he signed the compact (and which was placed in the Congressional Record during debate on the project act: 70 Congressional Record 577–586, Dec. 14, 1928) said of the expression, "Beneficial consumptive use":

> * * * It means the amount of water consumed and lost to the river during uses of the water diverted. Generally speaking, it is the difference between the aggregate diverted and the aggregate return flow. It is the net loss occurring through beneficial uses.

In a supplemental report dated March 20, 1923 (also placed in the Congressional Record during debate on the project act: 70 Congressional Record 584–585, Dec. 14, 1928), Mr. Carpenter said:

> In my original report (printed in the Senate Journal of January 5, 1923) I discussed and defined the term "beneficial consumptive uses." In addition to

the discussion there contained, I might add there is a vast difference between the term "beneficial use" and the term "beneficial consumptive use." A use may be beneficial and at the same time nonconsumptive or the use may be partly or wholly consumptive. A wholly consumptive use is a use which wholly consumes the water. A nonconsumptive use is a use in which no water is consumed (lost to the stream). "Consume" means to exhaust or destroy. The use of water for irrigation is but partially consumptive for the reason that a great part of the water diverted ultimately finds its way back to the stream. All uses which are beneficial are included within the apportionments (i. e., domestic, agricultural, power, etc.). The measure of the apportionment is the amount of water lost to the river. The "beneficial consumptive use" refers to the amount of water exhausted or lost to the stream in the process of making all beneficial uses. *As recently defined by Director Davis, of the United States Reclamation Service, it is the "diversion minus the return flow."* (Congressional Record, Jan. 31, 1923, p. 2815). Water diverted and carried out of the basin of the Colorado River by the Strawberry, Moffat, or other tunnels or by canal into the Imperial Valley is wholly consumed as regards the Colorado River, because no part of it ever returns to that stream system.

Mr. Carpenter, testifying before the Senate Committee on Irrigation and Reclamation in 1925 (hearings on S. Res. 320, 68th Cong., 2d sess., pp. 691 et seq.) placed in evidence a tabulation prepared by R. I. Meeker, now a witness for Arizona, in which he showed the Gila system as producing 3,120,000 acre-feet, of which 2,677,000 was produced in Arizona and 443,000 in New Mexico. Mr. Carpenter explained this in the following colloquy (p. 691):

Senator ASHURST. That is, according to Mr. Meeker, the mean flow of the Gila River, which empties into the Colorado a little above Yuma, Ariz., is, so Mr. Meeker says, about 3,120,000 acre-feet, of which Arizona furnishes 2,677,000 acre-feet?

Mr. CARPENTER. Yes, sir; would empty if not used in Arizona * * * That is, that amount of water would go in if it were not retained and used for irrigation. This is what they call the reconstructed total.

Mr. Meeker's tables (pp. 692–693) show "total water resources, Colorado River Basin" as 21,595,000 acre-feet, including 17,000,000 acre-feet as "reconstructed Colorado River at Lees Ferry," 1,475,000 as "inflow to Colorado River between Lee's Ferry and above mouth of Gila River," *and 3,120,000 acre-feet as "reconstructed Gila River."*

Judge Richard E. Sloan, of Arizona, legal adviser to the Arizona commissioner (and a member of the drafting committee which wrote the Colorado River compact), in a statement released less than 2 months after the compact was signed, said (Arizona Mining Journal, Jan. 15, 1923, The Hoover Dam Documents, supra, p. A63):

It may be of interest to know why the figures of 7,500,000 acre-feet for the upper basin and 8,500,000 acre-feet for the lower basin were reached. It grew out of the proposition made by the upper basin that there should be a 50–50 division of rights to the use of the water of the river between the upper and lower basin which should include the flow of the Gila, and the insistence of Mr. Norviel, commissioner from Arizona, that no 50–50 basis of division would be equitable unless the measurement should be at Lee's Ferry. As a compromise the known requirements of the two basins were to be taken as the basis of allotment with a definite quantity added as a margin of safety. The known requirements of the upper basin being placed at 6,500,000 acre-feet, a million acre-feet of margin gave the upper basin an allotment of 7,500,000 acre-feet. *The known future requirements of the lower basin from the Colorado River proper were estimated at 5,100,000 acre-feet. To this, when the total possible consumptive use of 2,350,000 acre-feet from the Gila and its tributaries are added, gives a total of 7,450,000 acre-feet. In addition to this, upon the insistence of Mr. Norviel, 1,000,000 acre-feet was added as a margin of safety, bringing the total allotment for the lower basin up to 8,500,000 acre-feet.* This compromise agreement is justified when we consider that the flow of the river will not be affected by any artificial division, but will continue uninterrupted, to be used for any beneficial

purpose recognized, including power, as freely as though no such apportionment had been attempted.

Judge Sloan is clear that the consumptive uses in the Gila are 2,350,000 acre-feet; that is how the figure of 7,450,000 acre-feet which he gives (rounded out to 7,500,000 acre-feet in article III (a) of the compact), was arrived at. He does not hint that the Gila uses were written down to a million acre-feet by application of the depletion theory; he states them as what they are, 2,350,000. Nor does he claim that the million acre-feet of III (b) water was intended for Arizona; he calls it "a margin of safety, bringing the total allotment for the lower basin up to 8,500,000 acre-feet."

The next document in the Law of the River is the Boulder Canyon Project Act, and its reciprocal legislation, the Limitation Act of the California Legislature. Six years intervened between signature of the compact in 1922 and its conditional approval by Congress in 1928 in the Boulder Canyon Project Act.

During this interval, 1922–28, a number of interstate conferences were held. Whenever the States seemed likely to get together on a division of water, they broke apart on issues of money. In 1923, one house of the Arizona Legislature had passed a bill approving the Colorado River compact on condition that Arizona be paid a royalty of $5 per horsepower per year at Boulder Dam, if built. This would have meant about $9,000,000 per year, as things now stand. California, as a public-power State, believed in low-cost power; Arizona wanted all the traffic would bear. On other occasions, Arizona scaled her money demands down, but they were always prohibitive.

In 1927, the Governors of the seven States held protracted meetings which Arizona now says were an arbitration. They were nothing of the kind; the four upper basin Governors offered their good offices, and proposed a compromise formula, but both California and Arizona (and, for that matter, the Congress) rejected it. Further reference to this is made in connection with Senator Pittman's and Senator Hayden's amendments to the Boulder Canyon Project Act, to which I now turn.

III. The Boulder Canyon Project Act and the California Limitation Act

Arizona claims, in effect, that whether or not the Colorado River compact itself allocated the million acre-feet of III (b) water to Arizona, the Boulder Canyon Project Act did so, and that California assented to it; moreover, that the Project Act intended that Arizona's uses, at least on the Gila, were to be measured by depletion, not by diversions minus return flow.

The second of these will be disposed of first.

A. As to the measurement of beneficial consumptive use intended by the Boulder Canyon Project Act

During the debate on the Boulder Canyon Project Act, there was no suggestion that "beneficial consumptive use," under the compact, meant "depletion"; there were repeated references, in the debate and in the official documents considered by Congress, to consumptive use in terms of diversion minus return flow; wherever the uses on the Gila

were referred to, they were stated to be at least 2,350,000 acre-feet; and finally, in the one instance in which the act defined consumptive use, it defined it specifically as "diversions less returns to the river." Arizona says this definitition applies to Calfornia, but not to her. Let us examine the record.

1. Documents before the Senate

Attention has already been called to the report of Mr. Carpenter to the Colorado Legislature, which defined and explained consumptive use as "the difference between the aggregate diverted and the aggregate return flow," and as the "diversion minus the return flow." This was placed in the Congressional Record during the debates on the Project Act (70 Congressional Record 577 et seq., Dec. 14, 1928). He therein refers to Director Davis' reply to Congressman Hayden's questionnaire, in which Director Davis likewise defines consumptive use as "diversion minus return flow."

One of the important documents considered by the Senate during debate on the Boulder Canyon project was Colorado River Development (S. Doc. 186, 70th Cong., 2d sess.) by George W. Malone, State engineer of Nevada. Mr. Malone defined consumptive use as follows (p. 36):

DUTY OF WATER

Gross duty equals total amount diverted from the stream per acre.
Net duty equals total amount delivered to the land per acre.
Consumptive duty equals the amount actually consumed, meaning the difference between the gross amount diverted and the return flow to the stream.

Mr. Malone used exactly the same figure (p. 39) as Mr. Meeker (hearings, S. Res. 320, 68th Cong., 2d sess., p. 693) for the water production of the reconstructed Gila River—3,120,000 acre-feet.

In the hearings on the Swing-Johnson bill (hearings before Senate Committee on Irrigation and Reclamation, 70th Cong., 1st sess., on S. 728, S. 1274), Mr. Thomas Maddock, a member of the Arizona Colorado River Commission, testified (p. 81):

* * * As a matter of fact, there are over 3,000,000 acre-feet in the complete Gila. Perhaps, eventually, there will be 4,000,000, but we can easily see 3,000,000 acre-feet at the present time. This is appropriated and practically being used right now.

And at page 97, Mr. Maddock said:

* * * there is much of Arizona's water that never reaches the Colorado, yet in the Santa Fe compact the consumption within the basin is considered. It must be considered. We have a river, like the Santa Cruz, that comes down in torrents at times, yet never reaches the Gila or Colorado Rivers on the surface.

This was the type of evidence before the Congress when it passed the Swing-Johnson Act. There is ample evidence on the diversion minus return flow basis, and not a word of the depletion theory. Now let us examine the legislative history of the act.

2. Definition of "beneficial consumptive use" in the Boulder Canyon Project Act

Section 4 (a) of the Project Act declares that the act shall not take effect, unless and until—

(1) the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming shall have ratified the Colorado River compact, mentioned in section 13 hereof, and the President by public proclamation shall have so declared, or (2) if

said States fail to ratify the said compact within 6 months from the date of the passage of this Act, then, until six of said States, including the State of California, shall ratify said compact and shall consent to waive the provisions of the first paragrph of article XI of said compact, which makes the same binding and obligatory only when approved by each of the seven States signatory thereto, and shall have approved said compact without conditions, save that of such six-State approval, and the President by public proclamation shall have so declared, and, further, until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an express covenant and in consideration of the passage of this Act, that the *aggregate annual consumptive use (diversions less returns to the river)* of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this act and all water necessary for the supply of any rights which may now exist, shall not exceed four million four hundred thousand acre-feet of the waters apportioned to the lower basin States by paragraph (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact."

This Congress hinged its assent to the compact and the plan of development of th lower basin upon (1) seven-State ratification of the compact, or (2) ratification by six States, including California, plus the enactment by California of a prescribed limitation act.

The second paragraph of section 4 (a) outlined a possible subcompact for the lower basin, which Congress would approve. Such compact has never been executed, hence this paragraph is of interest only because it affords some material for interpretation of the limitation act required by the first paragraph of the section.

The second paragraph of section 4 (a) reads:

The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial *consumptive use* in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial *consumptive use* of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico but if, as provided in paragraph (c) of article III of the Colorado River compact, it shall become necessary to supply water to the United States of Mexico from waters over and above the quantities which are surplus as defined by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply, out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin, and (5) that the State of California shall and will further mutually agree with the States of Arizona and Nevada that none of said three States shall withhold water and none shall require the delivery of water, which cannot reasonably be applied to domestic and agricultural uses, and (6) that all of the provisions of said tri-State agreement shall be subject in all particulars to the provisions of the Colorado River compact, and (7) said agreement to take effect upon the ratification of the Colorado River compact by Arizona, California, and Nevada.

It will be noted that the term "consumptive use" appears three times in section 4 (a) of the Boulder Canyon Project Act, once with respect to California, twice with respect to Arizona. As to California, it is defined as "diversions less returns to the river." As to Arizona, it is not defined, but the references to Arizona appear in the sentence immediately following the sentence containing the definition.

The two sentences are reciprocal, purporting to deal with all the waters available to the lower basin. Arizona says, nevertheless, that the phrase "consumptive use" in her case means "depletion," and hence has a meaning different from, and more favorable than, the meaning of the same phrase used as to California in the same section relating to the same subject matter and specifically defined. This meaning of the same phrase used as to California in the same section extends far beyond Arizona's plea for a special method of accounting on the Gila. It extends to her uses from the main stream, which, like California's, are serviced by Hoover Dam storage; and the central Arizona project is to be served from Hoover Dam storage. It means that she wants two methods of measurement applied to water released from the same reservoir under similar contracts made under the same statute, one method crediting Arizona with all water salvaged on the main stream as well as on the Gila, the other method charging Califorina with her full diversions. This is a rather extraordinary piece of statutory construction. It is no more extraordinary, however, than another claim of Arizona relating to these same two sentences, to which we now turn.

B. DID CONGRESS INTEND TO EXCLUDE CALIFORNIA FROM PARTICIPATION IN THE III (B) WATER?

It will be noted that neither the first paragraph of section 4 (a), which deals with water for California via the proposed California Limitation Act, nor the second paragraph, which deals with water for Arizona via a proposed tri-State compact, makes any mention of the million acre-feet referred to in article III (b).

Arizona argues that silence as to the million acre-feet in the first paragraph is intended to bar California; that silence on the same subject in the second paragraph is intended to have the opposite effect, awarding the million acre-feet to Arizona. The first phase was consummated by action of the State of California in adopting the Limitation Act. The authorization to enter into a three-State compact was never carried out. However, the language used in authorizing the three-State compact is valuable as a guide to the interpretation of the earlier part of the section. It must be presumed that words and phrases were used in the same sense thoughout the section. In fact, the two parts must be read together in order to make sense. Unless this is done, the three-State compact would provide no water at all for California.

In section 4 (a), the Congress was unquestionably attempting to provide a means of settling questions relating to the use of all of the waters available to the lower basin under the Colorado River compact. Nothing appears in the act nor in the debate which indicates any intent to leave the question of III (b) water open. California is limited to 4,400,000 acre-feet of water apportioned by article III (a) of the compact, "plus not more than one-half of any excess or surplus waters unapportioned by" the Colorado River compact. Arizona, under the three-State compact, would have been allotted 2,800,000 acre-feet of water apportioned by article III (a) plus "one-half of the excess or surplus waters unapportioned by the Colorado River compact." These words are identical with the words used with reference to the California limitation. In neither the limitation on Cali-

fornia nor the three-State compact is III (b) water mentioned. Unless we assume that Congress intended to leave the III (b) water out of consideration, that is, free of any restriction on California, the only possible conclusion is that the word "unapportioned," as used in section 4 (a), includes the water referred to in article III (b) of the Colorado River compact, and that such water is part of the excess or surplus, one-half of which is available to California. By the same token, under the three-State compact, one-half of such water would have been available to Arizona. The two allotments, 4,400,000 acre-feet to California and 2,800,000 acre-feet to Arizona, plus 300,000 acre-feet to Nevada, exhaust the 7,500,000 acre-feet apportioned to the lower basin by article III (a). The two allotments of unapportioned water, one-half each to California and Arizona, exhaust the unapportioned water.

The two paragraphs of section 4 (a) of the Project Act, the first dealing with the California limitation and the second with the proposed lower basin compact, must be read together as parts of a whole. The proposed lower basin compact, taken literally, and alone, would provide no water at all for California. The California allocation set out in the first paragraph should, by implication, be read into and form a part of the compact described in the second paragraph. It could not be expected that California would enter into any such compact if it provided California no water. The two paragraphs of section 4 (a) dovetail together in such a way as to demonstrate that they are in pari materia. Identical expressions in the two paragraphs must, therefore, be given identical construction.

The suggested three-State compact (clauses 3 and 4) also contemplated that Arizona should have the exclusive beneficial use of the Gila and that except as to return flow reaching the Colorado River, the Gila should never be subject to diminution by reason of the allowance of water to Mexico under treaty. Arizona argues that this means that under the proposed compact the Gila water was to be in addition to the 2,800,000 acre-feet of III (a) water theretofore mentioned. By compact definition, III (a) water is water of "the Colorado River system," a phrase which includes the Gila. Arizona's argument is thus, that the 2,800,000 acre-feet proposed for Arizona, although described as III (a) water, i. e., system water, was intended to be taken from the main stream only, and the use of the waters of the Gila would constitute a firm right in addition thereto.

That interpretation presents a mathematical impossibility. That the uses on the Gila must be charged to III (a) water is clear, from the language of the compact, which says that that apportionment "shall include all water necessary for the supply of any rights which may now exist." At the time the compact was written, the rights on the Gila were well established and "existed." To consider the Gila as an addition to the 2,800,000 acre-feet would carry the proposed apportionment of III (a) water to Arizona, together with those made to the other States, far beyond the figure of 7,500,000.

The language of clauses 3 and 4 of the proposed three-State compact can be reconciled with clauses 1 and 2 of that compact, and with the Colorado River compact, only by considering the use of the Gila, not as an addition to, but as included within the III (a) water which would have been available to Arizona under the proposal. If the proposed

three-State compact had been adopted, the language of clauses 3 and 4 would have had the effect of protecting the Gila from diversion for uses out of the State of Arizona and as limiting the draft to serve the Mexican burden to the water in the main stream.

In the light of Mr. Carpenter's explanation of the compact, which was before Congress, and the internal evidence of the text of the Project Act, it is plain that the Congress and California intended that California should participate in III (b) water. This is made clear, moreover, by the legislative history of the Project Act.

Section 4 (a) passed through 17 successive stages in the Senate. Not one Senator nor one draft of amendment disclosed any intent to exclude California from participation in the million acre-feet of III (b) water, and every Senator who faced that question expressed the intent that California should participate in that million acre-feet.

The various forms of amendments which were considered, and the explanations given by their authors, all show that the question before the Senate was whether California should have 4,600,000 or 4,200,000 acre-feet of the waters apportioned by article III (a) of the compact; and that they all intended California to have half the remaining waters, whatever those waters comprised.

The essential points of this legislative history are these:

The committee reported out the Swing-Johnson bill in the Seventieth Congress with an amendment (Congressional Record, 70th Cong., 1st sess., p. 5025) which provided that the Government's water contracts should "not provide for an aggregate annual consumptive use in California of more than 4,600,000 acre-feet of the water allocated to the lower basin by the Colorado River compact mentioned in section 12 and one-half of the unallocated excess and/or surplus water," and required California to ratify that limitation.

On May 19, 1928, Chairman Phipps of the committee printed a proposed amendment making the compact inoperative until either seven States ratified it, or failing that, until six States did so and California enacted a limitation act restricting her uses to 4,600,000 acre-feet of the waters apportioned to the lower basin States by the Colorado River compact and/or more than one-half of any excess or surplus waters unapportioned by the compact.

On May 28, 1928, Senator Pittman of Nevada placed in the record (70th Cong., p. 10259) a suggested amendment. It proposed a condition making the Project Act inoperative until all seven States had ratified the compact and California had enacted an act limiting her uses to 4,200,000 acre-feet of III (a) water, 500,000 acre-feet of III (b) water, and one-half of the excess or surplus. It also authorized an agreement among Arizona, California, and Nevada disposing of the remainder of the water available to the lower basin; of the 7,500,000 acre-feet of III (a) water, 300,000 acre-feet to Nevada and 3,000,000 acre-feet to Arizona; of the III (b) water, 500,000 acre-feet to Arizona; and to Arizona one-half of the excess or surplus.

There the matter stood when consideration of the Swing-Johnson bill was halted by an Arizona filibuster at the end of the first session of the Seventieth Congress.

On December 5, 1928, Senator Hayden printed a proposed amendment which was identical with that previously suggested by Senator Pittman. It specifically divided the million acre-feet equally between

Arizona and California. This would appear to dispose of any notion that anyone at the time thought that this million acre-feet was to be found flowing in the Gila. The difference between Senators Phipps' and Hayden's proposals, as several Senators pointed out, aside from the issue of six-State versus seven-State ratification, amounted to 400,000 acre-feet of III (a) water. Both thought that they were dividing everything else equally, including the million acre-feet of III (b) water. Senator Hayden's amendment specifically made that division.

For parliamentary reasons, the Phipps amendment became the working document before the Senate. Senator Hayden withdrew his amendment and proceeded thereafter by offering amendments to the Phipps amendment. As it finally emerged, section 4 (a) included the alternative of six-State ratification, adopted a compromise of 4,400,000 acre-feet as between the Phipps proposal of 4,600,000 and Hayden's of 4,200,000 with respect to the limitation on California's use of III (a) water; permitted California to use one-half of the excess or surplus unapportioned by the compact; authorized, but did not require, a lower basin compact which would apportion, of the III (a) water, 300,000 acre-feet to Nevada and 2,800,000 acre-feet to Arizona; and permitted Arizona, like California, to use one-half of the excess or surplus water unapportioned by the compact. But all reference to the million acre-feet of III (b) water was deleted. What did the Congress intend with respect thereto? To withdraw that million acre-feet from both States? This seems scarcely logical. To leave it free of any limitation, and permit either State to take it all? That is perhaps arguable. To deny all of it to California and give all of it to Arizona? This requires us to assume, first, the remarkable statutory construction that identical phraseology in two sentences on the same subject matter in the same section is to have opposite meanings. There is, to the contrary, evidence that the Senate believed the million acre-feet to be a part of the unapportioned excess or surplus, and intended California to have half of that excess or surplus, whatever it might contain.

Thus, Senator Hayden, in explaining his original amendment (printed December 5, 1928) said (Congressional Record, December 6, 1928, p. 165):

> Mr. HAYDEN. The provision in the amendment is that the State of California shall agree not to use more than 4,200,000 acre-feet of the water apportioned in perpetuity to the lower basin, and not more than 500,000 acre-feet of the additional 1,000,000 acre-feet which the compact authorizes to be apportioned in the lower basin.

At a later point Senator Hayden said (p. 174):

> Mr. HAYDEN. The hour is getting late. If I may, I should like to continue the reading of the amendment that I have offered so that I may explain its terms. I have read the proposal now contained in the bill as reported to the Senate and as recommended by the Senate Committee on Irrigation and Reclamation for the purpose of pointing out that the committee placed in the bill the 4,600,000 acre-feet of water, which, as I have said, was the demand made by California; whereas in the amendment that I have offered is 4,200,000 acre-feet of water, which is the quantity recommended for apportionment to California by the governors of the four upper basin States. Thus far the provisions are the same except for the difference of 400,000 acre-feet. To go on with the amendment, which provides further—

and that the aggregate beneficial consumptive use by that State of waters of the Colorado River shall never exceed 500,000 acre-feet of the water apportioned by the compact to the lower basin by paragraph (b) of said article III—

That refers to the extra million acre-feet apportioned to the lower basin by the Colorado River compact. *So that, adding together the 4,200,000 acre-feet apportioned by paragraph (a) of article III of the Colorado River compact and the 500,000 acre-feet apportioned to the lower basin by paragraph (b) of the same article of the compact the total quantity of water which we ask the State of California to be limited to is 4,700,000 acre-feet out of the main stream of the Colorado River,* which is 100,000 acre-feet more than California demanded at Denver.

I may interpose here to say that Arizona's witnesses now say that California is limited to about 3,800,00 acre-feet.

At page 174 (Congressional Record, December 6, 1928), explaining his proposal for a lower basin compact, Senator Hayden said:

I have read what California is required to do and how that State is limited. Let me now tell the other side of the story, as it appears in the amendment.

When he reached the provision in his amendment relating to III (b) water for Arizona, he said:

* * * of the 1,000,000 acre-feet in addition which the lower basin has the right to use annually by paragraph (b) of said article, there shall be apportioned to the State of Arizona 500,000 acre-feet for beneficial consumptive use—

Again dividing the water equally with California so far as the additional million acre-feet are concerned—

On December 8, 1928, Senator Bratton printed a proposed compromise, which read:

* * * The ratification act of the State of California shall contain a provision agreeing that the aggregate annual consumptive use by that State of waters of the Colorado River shall never exceed 4,400,000 acre-feet of the water apportioned to the lower basin by paragraph (a) of article III of said compact, and that the aggregate beneficial consumptive use by that State of waters of the Colorado River shall never exceed 500,000 acre-feet of the water apportioned by the compact to the lower basin by paragraph (b) of said article III: and that the use by California of the excess or surplus waters unapportioned by the Colorado River compact shall never exceed annually one-half of such excess or surplus waters.

The following colloquy then took place (p. 333):

Mr. KING. I will ask the Senator if it is not a fact that at the time when the governors' conference considered the matter and recommended a settlement upon a basis of 4,200,000 acre-feet to California there had not been fully discussed and fully appreciated the fact that there was probably a million acre-feet subject to capture which, under the compact, was allocated to Arizona and to California, so that if 4,200,000 acre-feet were awarded out of the 7,500,000 there would be an additional 500,000 acre-feet out of this 1,000,000 acre-feet which, under the compact, was to be allocated to the two States, so California in the aggregate would get 4,700,000 acre-feet?

Mr. BRATTON. That is true if the estimated surplus actually exists. At the same time Arizona would get her 3,000,000 acre-feet agreed to by the governors as her just share of the allocated water, *plus 500,000 acre-feet, being one-half of the unallocated surplus,* so that while California would get 4,700,000 acre-feet Arizona would get 3,500,000 acre-feet. *The surplus to which the Senator from Utah refers would be equally divided between Arizona and California.* Neither State would get an advantage by reason of the division of the surplus.

Senator Bratton, whose compromise figure of 4,400,000 acre-feet as to III (a) uses was ultimately accepted, was thus clear that the million acre-feet of III (b) uses was part of the "unallocated surplus."

On December 10, 1928, Chairman Phipps printed an amendment on this point reading:

* * * the aggregate annual consumptive use (diversions less returns to the river) *of water of and from the Colorado River for use in the State of California* * * * *shall not exceed 4,600,000 acre-feet of the waters apportioned to the lower basin States by the Colorado River compact,* plus not more than one-half of any excess or surplus waters unapportioned by said compact * * *.

It will be noted that the Phipps amendment did not read "waters apportioned by article III (a) of the compact," but that the limitation applied to "waters apportioned by the Colorado River compact" plus one-half of excess or surplus, no mention being made of article III (a). This distinction becomes important, as will shortly appear.

Senator Bratton of New Mexico proposed an amendment to the Phipps amendment changing the figure "4,600,000" to "4,400,000." This amendment was agreed to (p. 387).

While the matter was in this stage, Senator Phipps gained the floor and said (p. 459):

Referring to the amendment which is now before the Senate, in order to remove any possible misunderstanding regarding the 4,400,000 acre-feet of water, *I desire to perfect the amendment by inserting,* on page 3, line 4, after the word *"by", the words "paragraph (a) of article 3 of", so that it will show that that allocation of water refers directly to the 7,500,000 acre-feet of water that are mentioned in paragraph 3.*

Arizona now says that this perfecting amendment (which was adopted) has just the reverse of the effect ascribed to it by its author; that the limitation of 4,400,000 acre-feet relates not to the 7,500,000 acre-feet mentioned in article III (a) but to the 8,500,000 total of III (a) and III (b).

Senator Phipps referred to the additional language as a "perfecting" amendment, that is, an amendment to improve language without changing the substance of the provision. The perfecting amendment, adding the reference to paragraph (a) of article III, unquestionably related to an apportionment of 7,500,000 acre-feet.

Senator Hayden offered no objection to the perfecting amendment, saying:

* * * it makes it even more in conformity with the amendment that I now offer.

Senator King of Utah obtained the floor to comment on the Phipps amendment. The following colloquy then occurred between Senator King and Senator Johnson of California (p. 459):

Mr. KING. If I may have the attention of the Senator from California and the Senator from Colorado, I direct attention to line 5, page 3, of the amendment offered by the Senator from Colorado. Let me read back a few words: "plus not more than one-half of any excess or surplus waters unapportioned by said compact." I was wondering if there might not be some uncertainty as to what surplus waters were therein referred to. *I think it was the intention to refer to the surplus waters mentioned in paragraph (b) of article 3 of the compact, being the 1,000,000 acre-feet supposed to be unappropriated.*

Mr. JOHNSON. No; that is not quite my understanding. It is by no means certain that there is any other, and it is by no means certain that there is the one million; but the language referred to any other waters.

Mr. KING. Speaking for myself, I have no objection but I was under the impression that the purpose was to link it with paragraph (b), so as to be sure that California was to receive one-half of the 1,000,000 acre-feet.

Mr. JOHNSON. Not necessarily. This gives one-half of the unapportioned water, and I think it is a better way to leave the matter.

Mr. KING. If it is sufficiently certain to suit the Senators of the lower basin, I have no objection.

Mr. JOHNSON. I think it is.

It was clear to Senator King that the III (b) water was "surplus." The effect of Senator Johnson's comments was to deny any distinction between the 1,000,000 acre-feet of III (b) water and any other excess or surplus. He was not sure that there would be as much water in the surplus as a million acre-feet, any more than Senator Bratton had been, but whatever the surplus amounted to, California was to be entitled to one-half, under the language proposed by either Senator Hayden or Senator Phipps or Senator Bratton.

On December 12, 1928, immediately after the foregoing colloquy, Senator Hayden offered an amendment to authorize a lower-basin compact, in the language which now appears in the act. Unlike Senator Hayden's amendment of December 5, 1928, the new one omitted any proposal for an allocation of one-half of the million acre-feet of III (b) water to Arizona.

In explanation of this amendment, Senator Hayden said, as to this point (p. 460):

> The second proposal in my amendment is that the State of Arizona may annually use one-half of the surplus or unapportioned water, which is likewise a corollary to the proposal made by the Senator from Colorado, which likewise disposes of the total quantity of surplus or unapportioned waters in the lower basin.

Senator King, in a further effort to remove any possible misunderstanding, put this question to Senator Hayden, of Arizona (p. 460):

> *Does the Senator interpret the compact to mean that if there is any unapportioned water in addition to the 1,000,000 acre-feet referred to in the compact, that that is subject to the same disposition or division as the 1,000,000 acre-feet?*

Senator Hayden replied:

> *There is no question about it, in the light of the statement I have just read* * * *.

In reviewing the record of the Senate debates in which the text of the Project Act was hammered out, it is apparent that the Senators who participated in the discussion of section 4 (a) of the act meant to limit California to 4,400,000 acre-feet of the 7,500,000 apportioned to the lower basin in article III (a) of the compact, and one-half of all other water. They did not use "apportion" as a word of art, nor did they intend a trick of words. In adopting the Limitation Act, with this record before it, the California Legislature was entitled to view the matter in the same light. The intent of the parties to the resulting statutory compact is clear and controlling.

On December 14, 1928, the Senate approved the Swing-Johnson Act. Both Arizona Senators voted against the measure, which Arizona now says settled in her own favor all of the issues with California, particularly the disposition of the III (b) water and the measurement of consumptive use.

On December 21, 1928, President Coolidge approved the bill, and it became the Boulder Canyon Project Act.

Following the enactment of the Project Act, a series of efforts were made to negotiate a lower-basin compact. They failed. The records of proposals and counterproposals make clear (1) that both States recognized that under the Limitation Act California was entitled to half the million acre-feet of III (b) water, and (2) that Arizona should be accountable for actual consumptive uses on the Gila, which were assumed by both sides to be about 2,500,000 acre-feet.

For example, "consumptive use" was defined by the Arizona Colorado River Commission as follows in 1929:[1]

"(d) *Consumptive use.*—This term means where water is consumed. An illustration of consumptive use is where a farmer takes through a ditch 4 acre-feet of water a year. He puts it all on his land, but 1 acre-foot runs off through his waste ditch back into the river. Another acre-foot runs down through the land striking a gravel bed and drains back into the river—thus there has been only 2 acre-feet consumed. This 2 acre-feet used up is called consumptive use.

Arizona had never thought of the depletion theory. She construed "consumptive use" as meaning the same in her case as Congress had defined it to mean in California's case—"diversions less returns to the river."

As to the III (b) water, the record is equally clear. A report by Col. William J. Donovan, who represented the United States in these negotiations, as placed in the Congressional Record by Senator Hayden (Congressional Record, June 26, 1930, pp. 12203, 12204) and a table showing Arizona's present position (p. 12200), make it clear that, as to the III (b) water, Arizona's present position was that this should be "Divided equally between California and Arizona."

This, of course, was in accord with the legislative history I have quoted, and Arizona's contention now, in 1949, is just the reverse of it.

California's final proposal in these 1930 negotiations was as follows:

To Col. W. J. DONOVAN,
Chairman, Lower Basin Conference.

California, anxious to make one more effort to bring about an agreement, makes the following proposal for the division of the waters of the lower Colorado River system:

To Nevada, 300,000 acre-feet of water.

Utah and New Mexico to have all water necessary for use on areas of those States lying within the lower basin.

Arizona to have all waters of the Gila system and her other tributaries, excepting such water as reaches the main stream, also her present uses from the main stream.

California to have water now diverted in California, within the State, for agricultural and domestic use in California.

Balance of water in main stream to be divided one-half to Arizona and one-half to California.

Mexican obligation to be met one-half by Arizona and one-half by California, from main-stream water.

All other points to be left to determination of the Secretary of the Interior, under the act.

CALIFORNIA COLORADO RIVER COMMISSION.
JOHN L. BACON.
W. B. MATHEWS.
EARL O. POUND.

This was rejected by Arizona.

IV. THE COLORADO RIVER SUPREME COURT CASES

A. THE "INJUNCTION" CASE

In 1930, in *Arizona* v. *California* (283 U. S. 423), Arizona retained eminent counsel, Hon. Dean Acheson (now Secretary of State) and Hon. Clifton Mathews (now a judge of the Ninth Circuit Court of Appeals), and sued to enjoin construction of Hoover Dam, alleging

[1] Arizona Colorado River Commission, Explanation of Terms in the Colorado River Controversy Between Arizona and California, by Hon. Charles B. Ward, chairman of the Colorado River Commission (August 1, 1929), p. 5.

that the Boulder Canyon Project Act and the Colorado River compact were invalid. This was a curious way to treat documents which Arizona now says settled all issues in her favor. Arizona's pleadings and briefs in this suit were in complete accord with the legislative history I have quoted, and the precise reverse of what she now contends.

1. As to the quantity of consumptive uses on the Gila River with which Arizona is chargeable

Arizona's bill of complaint in *Arizona* v. *California* (283 U. S. 423) (1930), (art. VII), alleged (p. 7):

* * * *Of the appropriated water so diverted, used and consumed in Arizona, 2,900,000 acre-feet are diverted from the Gila River and its tributaries.* * * *.

Arizona's brief said (p. 16):

* * * prior to June 25, 1929, there had been appropriated in Arizona 3,500,000 acre-feet of water from the Colorado River and its tributaries below Lee Ferry, of which 2,900,000 acre-feet had been appropriated from the Gila River.

1. As to whether the uses on the Gila are accountable under article III (a) or article III (b) of the compact

Arizona alleged and argued that the uses on the Gila River, being perfected rights, were accountable under article III (a) and hence reduced by that amount the quantity of III (a) water which Arizona might claim out of the main stream if she ratified the compact. Thus (Bill, art. VII, p. 8):

All of the water of the Gila River and its tributaries was appropriated and put to beneficial use in Arizona and New Mexico prior to June 25, 1929. There was not on said date, nor has there since been, nor is there now, any unappropriated water in the Gila River or any of its tributaries.

Article XIV of the bill of complaint alleged (p. 17):

(3) Said compact defines the term "Colorado River system" so as to include therein the Gila River and its tributaries, of which the total flow, aggregating 3,000,000 acre-feet of water annually, was appropriated and put to beneficial use prior to June 25, 1929. * * * *Since said compact provides that the water apportioned thereby shall include all water necessary to supply existing rights, the effect of including the Gila River and its tributaries as a part of said system would be to reduce by 3,000,000 acre-feet annually the quantity of water now subject to appropriation in Arizona.*

Arizona now repudiates Mr. Acheson's statement, both as to the classification and the quantity of the uses on the Gila.

Article XIX of the bill of complaint, referring to the tri-state compact authorized by section 4 (a) of the Boulder Canyon Project Act, alleged (p. 22):

Said proposed apportionment of 2,800,000 acre-feet of water is less than the quantity of water already appropriated in Arizona, and would provide no water for future appropriation in said State.

Arizona's brief stated (p. 38):

All existing uses must be satisfied from the 7,500,000 acre-feet apportioned by article III (a). Arizona has existing uses totaling 3,500,000 acre-feet.

3. As to whether the waters referred to in article III (b) of the compact are "Apportioned" or "Surplus."

Arizona's bill of complaint (art. XIV) alleged:

(2) Said compact does not apportion or attempt to apportion all of the water of said Colorado River system, but *attempts to apportion only 15,000,000 acre-*

feet thereof, and leaves unapportioned the remaining water of said system, aggregating 3,000,000 acre-feet annually.

Arizona's brief, in 283 U. S. 423, stated (p. 4):

To each basin is apportioned the annual beneficial consumptive use in perpetuity of 7,500,000 acre-feet of water, which must satisfy all existing appropriations as well as all future appropriations. There are existing appropriations totaling 6,500,000 acre-feet annually in the lower basin and 2,500,000 acre-feet annually in the upper basin. The upper-basin States agree not to deplete the flow of the main stream at Lee Ferry below 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series. *The flow of the system in excess of 15,000,000 acre-feet annually is not apportioned.*

Arizona's brief further stated (p. 33):

Under the compact, then, the only water of which the right to exclusive beneficial use in perpetuity may be acquired in the lower basin is the water apportioned to that basin. Such apportionment is limited to 7,500,000 acre-feet of water per annum by article III (a). The Colorado brief, page 40, contends that paragraph (b) of article III operates to increase this apportionment to 8,500,000 for the lower basin. This, we submit, is not the case. *If it had been intended to apportion the larger amount, the compact could easily have said so.* The difference in language between paragraphs (a) and (b) is plain, and the difference in meaning is clear. Paragraph (b) does not *apportion in perpetuity,* as does paragraph (a), any beneficial use of water. It is very careful not to do this. It is to be read with paragraph (c) and relates solely to the method of sharing between the basins any future Mexican burden which this Government might recognize. This burden is to be satisfied first out of "surplus" waters, and surplus waters are defined, not as surplus waters over quantities "apportioned," but as surplus over quantities "*specified* in paragraphs (a) and (b)." Any deficiency remaining is to be borne equally by the two basins. Thus the lower basin, which without paragraph (b) might use water in excess of its apportionment without acquiring any exclusive right in perpetuity thereto, is enabled to retain such uses to the extent of 1,000,000 acre-feet per annum against the first incidence of the Mexican burden. Thereafter it is entitled to require the upper basin to share from its apportionment equally in the satisfaction of any deficiency. *In other words, all that paragraphs (b) and (c) accomplish is to require the upper basin to reduce its apportionment in favor of Mexico before the lower basin is required to do so, the lower basin being entitled to contribute, first, to the extent of 1,000,000 acre-feet, water which it may have used but to which it has no exclusive right in perpetuity—that is, water not apportioned to it.* The water apportioned is that to which exclusive beneficial use in perpetuity is given in paragraph (a), less any deductions which may have to be recognized as provided in paragraphs (b) and (c).

We think Mr. Acheson's analysis is correct. Arizona, reversing the position thus formally stated to the Supreme Court, now rejects Mr. Acheson's interpretation. Her present counsel argue that III (b) water is apportioned, and that it is found flowing in the Gila River, not the main stream. This presents interesting consequences to the old established uses on the Gila if these uses are of III (b) water, and hence, on Mr. Acheson's analysis, are to be sacrificed to Mexico before the III (a) water is yielded by the lower basin. Of course, these Gila uses are not of III (b) water at all, but are perfected rights protected in perpetuity by article III (a), and it is fanciful to say, as Arizona now does, that the III (b) water is to be found flowing in the Gila.

4. As to the status of the 75,000,000 acre-feet guaranteed by the upper basin under article III (d) of the compact.

Arizona's brief (p. 32) stated:

The provision in paragraph (d) of article III that the upper basin States will not cause the flow of the river to be depleted below 75,000,000 acre-feet over 10-year periods, has, as the Colorado brief, page 41, correctly states, no bearing on the amount of the apportionment to the lower basin. This 75,000,000 acre-

feet is not apportioned to the lower basin. It may not be appropriated in the lower basin. Only so much of it may be appropriated as together with existing and future appropriations of water in or from tributaries entering the river below Lee Ferry will total 7,500,000 acre-feet per year. The 75,000,000 acre-feet includes all surplus waters which under paragraph (c) must first bear any Mexican burden, which may not be appropriated, and which are subject to apportionment after 1963. *It is fundamental to an understanding of the compact that the annual beneficial consumptive use in perpetuity of 7,500,000 acre-feet of water apportioned by it to the lower basin includes all beneficial consumptive use in perpetuity which may be made from the whole river system, and is not merely an apportionment of such uses in main stream water flowing at Lee Ferry.* The agreement not to deplete the flow at Lee Ferry below the specified amount does not mean, and cannot under the plain words of the compact be construed to mean, that the guaranteed flow is apportioned to the lower basin or may be appropriated there. As to this, at least, there can be no shadow of doubt.

Here, again, Arizona now repudiates Mr. Acheson. She now says that article III (a) is effective only as to 7,500,000 acre-feet of main stream water, and article III (b) operative only on the Gila.

The statement in the brief of Colorado, New Mexico, and Nevada, referred to by Arizona above, was (p. 41):

The balance of water supply between the two basins is preserved by a guaranty by the upper basin States that they will not cause the flow of the river at Lee Ferry, to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series. This guaranty has no direct relation to the aggregate allocation of 8,500,000 acre-feet per annum to the lower basin which is to be supplied out of that part of the whole Colorado River system within the lower basin.

The court refused the injunction, holding that Congress had constitutional power to authorize the construction of Hoover Dam. The court did not construe the compact, saying that Arizona was not a party to it.

As to all of these questions discussed by Messrs. Acheson and Mathews in 283 U. S. 423, note the close correspondence with the views expressed by Judge Sloan in 1923, and, for that matter, with our own. There was controversy over water, but not over the meaning of the basic documents.

B. THE "PERPETUATION OF TESTIMONY" CASE

In the second Colorado River case, *Arizona* v. *California* (292 U. S. 341), Arizona sought to perpetuate the testimony of the negotiators of the Colorado River compact, because, as the court said:

Arizona claims that this paragraph, which declares: "In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum" means "That the waters apportioned by article III (b) of said compact are for the sole and exclusive use and benefit of the State of Arizona."

The court rejected that construction, after considering what it called the "elaborate argument" presented by her counsel, Mr. Charles A. Carson. The court said:

Arizona is one of the States of the lower basin, and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone.

At a later point the court said:

> Even if the construction to be given paragraph (b) of the compact were relevant to the interpretation of any provision in the Boulder Canyon Project Act, and such provision were ambiguous, the evidence sought to be perpetuated is not of a character which would be competent to prove that Congress intended by section 4 (a) of the 1928 act to exclude California entirely from the waters allotted by article III (b) to the States of the lower basin and to reserve all of those waters to Arizona.

In this case, Arizona did not make the claim which she makes now that the III (b) water is apportioned. She carefully avoided doing that. In 17 places in her brief, she said that this 1,000,000 acre-feet was water which the lower basin was "permitted to use." Apparently she feared that the Supreme Court might say that this water was apportioned, but that the California Limitation Act applied to only 4,400,000 acre-feet of apportioned water, namely, that apportioned by article III (a), leaving the III (b) water unrestricted.

If so, Arizona's fears may have been well grounded. The Court said:

> *The act (the Boulder Canyon Project Act) merely places limits on California's use of waters under article III (a) and of surplus waters*; and it is "such" uses which are "subject to the terms of said compact."
>
> There can be no claim that article III (b) is relevant in defining surplus waters under section 4 (a) of the act; for both Arizona and California apparently consider the waters under article III (b) as apportioned.

In a footnote the Court says:

> The Secretary of the Interior, in his brief, seems to be of the opinion that waters under article III (b) might be surplus waters under section 4 (a) of the act.

The briefs (there was no oral argument) are clear that neither Arizona nor California claimed that the III (b) water was "apportioned," and the language quoted, whether it helps or hurts either State, is dicta.

If the act "merely places limits on California's use of waters under article III (a) and of surplus waters," and if the III (b) waters are apportioned, as Arizona likes to say now, but are not "waters under article III (a)" nor "surplus waters," then it may very well be that Arizona has argued herself into the position that the Court, by these dicta, meant to say that the million acre-feet of III (b) water was in an unrestricted classification, open to appropriation by California without limitation. But whether or not the Court meant to open the whole million acre-feet to California, it is perfectly clear that the Court rejected Arizona's claim that all the III (b) water belonged to her, saying the intent of the compact was "to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone." And, having reached that conclusion, it is fanciful to assume that the Court intended, without saying so, to reverse that result and give Arizona indirectly the million acre-feet by casually calling it "apportioned." If the Court had so intended, it would have said so. It used the word, "apportion," on which Arizona lays such stress, in the very sentence denying Arizona's claim to the exclusive use of that water.

The Court rejected what it called Arizona's "elaborate argument" and dismissed her suit. That "elaborate argument" has nevertheless been resubmitted to Congress in support of this billion dollar project

whose water supply is dependent on assuming, notwithstanding this Supreme Court decision, that the intent of the compact and the project act was to apportion this 1,000,000 acre-feet "specifically to Arizona alone."

C. THE "EQUITABLE APPORTIONMENT" CASE

In the third Colorado River case, *Arizona* v. *California* (298 U. S. 558), Arizona, being dissatisfied with the results of the second case, decided to revert to Mr. Acheson's original position. She retained new counsel, and sued the six States of the basin for an equitable apportionment, on the premise that the project act and the compact meant what they said and she wanted none of them. The depletion theory, and the idea that the limitation act excludes California from III (b) water, were not suggested.

It is interesting to inquire here why, if Arizona is now correct in asserting that the Boulder Canyon Project Act decided all of the issues between California and Arizona in her favor, it was necessary for the State of Arizona to institute this third suit. All of the events upon which she now relies had occurred before the institution of that action.

In this case, Arizona's pleading and briefs make the following assertions:

(1) As to the quantity of consumptive use on the Gila River with which Arizona is chargeable, the bill of complaint and brief were just as candid as Mr. Acheson's. The bill of complaint (art. VI) alleged (p. 12):

"*The average annual virgin flow of the Gila River into the Phoenix, Ariz., area is 2,359,000 acre-feet.* Irrigation development has reduced the escape of such flow to approximately 644,000 acre-feet annually and has reduced the annual average discharge of the Gila into the Colorado River near Yuma to about 350,000 acre-feet. *Further development on the Gila in the neighborhood of Phoenix now under construction will reduce the escape from that area to an average of about 300,000 acre-feet* and the discharge into the Colorado at Yuma to about 100,000 acre-feet annually, which will occur as the peaks of extraordinary floods which cannot practicably be conserved.

Article VII alleged (p. 13):

* * * *Of the virgin flow of the Gila in the Phoenix area, 2,885,000 acre-feet per year have been used and appropriated in Arizona and 15,000 in New Mexico. A large quantity of the waters of the Gila used for irrigation in and above the Phoenix area returns to the stream and is again diverted and used, with the result that the diversions exceed its virgin flow.*

That these figures are excessive may be granted. The difference between them and the figure of 2,300,000 acre-feet hereinabove stated as the inflow into, and the consumptive use in, the Phoenix area is explained by the following allegations in the third case (par. VI, p. 12):

The average annual virgin flow of the Gila River into the Phoenix, Ariz., area is 2,359,000 acre-feet.

and (par. VII, p. 13):

A large quantity of the waters of the Gila used for irrigation in and above the Phoenix area returns to the stream and is again diverted and used, with the result that the diversions exceed its virgin flow.

It must be made crystal clear, that under the California view, there is no double charge by reason of use and reuse of the same water. The

inflow into the Phoenix area is not less than approximately 2,300,000 acre-feet and substantially all of it is consumed. This could not happen by one diversion of that quantity, for some return flow to the Gila is inevitable. No matter how many times the water is rediverted, Arizona is chargeable only with the original inflow, which has been consumed. But of that amount, and not some theoretical virgin flow into the Colorado, Arizona has made "beneficial consumptive use" and with that amount Arizona should be charged.

This third case is interesting also as developing Arizona's theories about the California water contracts, which had been executed by the Secretary of the Interior in 1930–31. These contracts are referred to in more detail later. They aggregate 5,362,000 acre-feet. Bearing that figure in mind, note Arizona's allegations in her bill of complaint (pp. 25–27):

* * * the maximum quantity of Colorado River water which California may legally divert and consumptively use is:

Of water apportioned by par. (a) art. III, compact	4,400,000
One-half waters unapportioned	1,085,500
California's maximum legal rights	5,485,500

The foregoing quantities are in acre-feet per year and are based upon average annual discharges of the Colorado and Gila for the last 37 years for which records are available.

XIX

WATER CONTRACTS BETWEEN SECRETARY OF THE INTERIOR AND CALIFORNIA CORPORATIONS

The Secretary of the Interior, pursuant to the provisions of section 5 of the Boulder Canyon Project Act, during the years 1931 and 1933 entered into contracts with the California corporations named below for the storage in Boulder Reservoir and the delivery of Colorado River water for domestic and irrigation purposes in California, in acre-feet per annum, as follows:

Metropolitan water district	1,100,000
Imperial Valley and others	3,850,000
City of San Diego	112,000
Palo Verde	300,000
Total	5,362,000

Plaintiff alleges that the total of the waters for the storage and delivery of which it was so contracted is *substantially the entire amount which may legally be diverted from said river and consumptively used in the State of California under the terms of said statutory contract between the State of California and the United States, and is far in excess of California's equitable share of said waters.*

In short, Arizona, in this suit, admitted that the project act and the limitation act constituted a "statutory contract" between California and the United States; that under it California had "maximum legal rights" of 5,485,500 acre-feet; and that the aggregate of the California contracts was less than this. She complained, not as she does now, that the California contracts exceed the quantity allowed by the limitation act, but that the limitation act allowed California too much. This suit was filed after the compact, the project act, the limitation act, and two Supreme Court cases had all become accomplished facts, and Arizona wanted the statutes made inoperative. If they meant what Arizona now says they mean, she should have ratified the compact instead of filing this lawsuit.

The Court's opinion, using the figures furnished by the bill of complaint, stated, in *Arizona* v. *California* (298 U. S. 558), page 564:

The Compact was duly ratified by the six defendant States, and the limitation upon the use of the water by California was duly enacted into law by the California Legislature by act of March 4, 1929, supra. By its provisions the use of the water by California is restricted to 5,484,500 acre-feet annually.[5]

Page 571:

Every right which Arizona asserts is so subordinate to and dependent upon the rights and the exercise of an authority asserted by the United States that no final determination of the one can be made without a determination of the extent of the other.

Page 572:

The petition to file the proposed bill of complaint is denied. We leave undecided the question whether an equitable division of the unappropriated water of the river can be decreed in a suit in which the United States and the interested States are parties. Arizona will be free to assert such rights as she may have acquired, whether under the Boulder Canyon Project Act and California's undertaking to restrict her own use of the water or otherwise, and to challenge, in any appropriate judicial proceeding, any act of the Secretary of the Interior or others, either States or individuals, injurious to it and in excess of their lawful authority.

Petition denied.

The foregoing review of the three Colorado River cases in the Supreme Court demonstrates the existence of a deep and serious controversy over the meaning and intent of the documents constituting the "Law of the River." It has been demonstrated by the diametrically opposite positions taken by Arizona herself in these actions.

V. The Water Contracts

As mentioned in the case last cited, the Secretary of the Interior, during the period 1930–34, had entered into contracts with five public bodies of California, which the Court summarized as follows (p. 564):

The Secretary of the Interior, acting under authority of section 5 of the Boulder Canyon Project Act, has entered into contracts with California corporations for the storage in the Boulder Dam Reservoir and the delivery, for use in California,[6] of 5,362,000 acre-feet of water annually, * * *"

Page 570:

"* * * Section 5 provides that "no person shall have or be entitled to have the use for any purpose of the water stored as aforesaid except by contract made as herein stated." Section 5 also provides that the Secretary of the Interior may contract for the storage of water and for delivery thereof upon charges which will provide revenue, and section 5 (c) directs that "Contracts for the use of water * * * shall be made with responsible applicants therefor who will pay the price fixed by the Secretary with a view to meeting the revenue requirements herein provided for." Acting under this authority the Secretary of the Interior has substantially completed the project and has entered into con-

[5] The surplus water of the river in the lower basin, unapportioned by the compact, is 2,171,000 acre-feet, one-half of which, or 1,085,500 acre-feet, California is entitled, under the Boulder Canyon Project Act, and her own statute, to add to the 4,400,000 acre-feet which they specifically allot to her, making a total allotment of 5,485,500 acre-feet annually.

[6] See the following:

	Acre-feet
Metropolitan water district	1,100,000
Imperial Valley and others	3,850,000
City of San Diego	112,000
Palo Verde	300,000
Total	5,362,000

tracts, so the bill of complaint alleges, for the delivery of 5,362,000 acre-feet of stored water to California corporations, and for the financing and construction of Parker and Imperial Dams and the All-American Canal to facilitate the use of this water in California.

All of these California contracts were written subject to availability of water under the Boulder Canyon Project Act and the Colorado River compact, and none purported to interpret those documents. They were all written, however, in terms of beneficial consumptive use, not depletion.

In 1942 and 1946, the Secretary entered into water contracts with the State of Nevada, aggregating 300,000 acre-feet, likewise subject to availability under the compact and the act.

As there has been no compact or Supreme Court determination allocating among the five States of the lower basin, Arizona, California, Nevada, Utah, and New Mexico, the waters available to the the lower basin under the compact, these contracts, like the Arizona contract next discussed, do not specify the classifications under the compact of the waters to be delivered. Utah and New Mexico presumably will not receive their water from Lake Mead, and hence are not within the contract framework. The contracts, as stated by the Court, are made under section 5 of the Boulder Canyon Project Act, and relate to waters stored by Hoover Dam.

On February 9, 1944, Arizona entered into a Hoover Dam water contract with the Secretary (The Hoover Dam Documents, p. A559), and this is one of the documents on which she relies here. California and the other lower basin States are not parties to it, but, as pointed out later, it contains certain commitments for the protection of California, Nevada, and the other lower-basin States. This contract was preceded by negotiations, commencing in 1932, some of which Arizona cites here.

Arizona calls attention to the regulations promulgated by Secretary Wilbur February 7, 1933, which she says were an "administrative determination." The regulations contained the full text of a proffered contract, which Arizona refused. It offered to deliver—

* * * so much available water as may be necessary to enable the beneficial consumptive use in Arizona of not to exceed 2,800,000 acre-feet annually by all diversions affected from the Colorado River and its tributaries below Lee Ferry (but in addition to all uses from waters of the Gila River and its tributaries), *subject to the following provisions*

Arizona omits the language we have italicized.

The "following provisions" included article 10 (c):

(c) *It is recognized by the parties hereto that differences of opinion may exist between the State of Arizona and other contractors as to what part of the water contracted for by each falls within article III (a) of the Colorado River compact, what part within article III (b) thereof, what part is surplus water under said compact,* what part is unaffected by said compact, and what part is affected by various provisions of section 4 (a) of the Boulder Canyon Project Act. Accordingly, while the United States undertakes to supply water from the regulated discharge of Hoover Dam in quantities stated by this contract as well as contracts heretofore or hereafter made pursuant to regulations of April 23, 1930, amended September 28, 1931, *this contract is without prejudice to relative claims of priorities as between the State of Arizona and other contractors with the United States, and shall not otherwise impair any contract heretofore authorized by said regulations.*

This was not an "administrative determination" that the water Arizona was to get under this offer (which she rejected) was 2,800,000

acre-feet of III (a) water; it was a plain warning of a dispute over the classification of that water, and, moreover, stated that the contract offered "shall not impair any contract heretofore authorized" under the previous regulations which authorized the California water contracts.

Arizona rejected that offer, but sought to reinstate it in 1934 in somewhat different form.

In a hearing before the Secretary of the Interior December 17, 1934, on Arizona's proposed water contract, Mr. Carson, counsel for Arizona, read from a prepared statement as follows:

> The contract does not include and there will not be affected by it the use of water from the tributaries in Arizona, estimated at 2,500,000 to 3,000,000 acre-feet (p. 21).

The other States objected to Mr. Carson's draft, and no contract was signed. But here is one more admission, as late as 1934, that the uses on the Gila amounted to "2,500,000 to 3,000,000 acre-feet," as they do, measured by diversions minus return flow. The depletion theory has not yet been invented. This is in entire accord with the allegation of uses which Arizona made in the third Supreme Court case, previously referred to. The third suit was filed about a year after this hearing.

On February 9, 1944, Arizona did execute a water contract with the Secretary. But Secretary Ickes, like Secretary Wilbur, was careful to make no assumption as to the classification of the water Arizona was to get. This contract, for the storage and delivery of water to the State of Arizona, in the maximum amount of 2,800,000 acre-feet, reads (art. 7 (h)):

> Arizona recognizes the right of the United States and agencies of the State of California to contract for storage and delivery of water from Lake Mead for beneficial consumptive use in California, provided that the aggregate of all such deliveries and uses in California from the Colorado River shall not exceed the limitation of such uses in that State required by the provisions of the Boulder Canyon Project Act and agreed to by the State of California by an act of its legislature (ch. 16, Statutes of California of 1929) upon which limitation the State of Arizona expressly relies.

Article 10 reads:

> RESERVATIONS
>
> 10. Neither article 7 nor any other provision of this contract, shall impair the right of Arizona and other States and users of water therein to maintain, prosecute or defend any action respecting, and is without prejudice to, any of the respective contentions of said States and water users as to (1) the intent, effect, meaning, and interpretation of said compact and said act; (2) what part, if any, of the water used or contracted for by any of them falls within article III (a) of the Colorado River Compact; (3) what part, if any, is within article III (b) thereof; (4) what part, if any, is excess or surplus waters unapportioned by said compact; and (5) what limitations on use, right of use, and relative priorities exist as to the waters of the Colorado River system: *Provided, however,* That by these reservations there is no intent to disturb the apportionment made by article III (a) of the Colorado River Compact between the upper basin and the lower basin.

If any more complete disclaimer was needed, it was afforded by the memorandum decision of the Secretary of the Interior in approving the contract:

> I have considered carefully the objections made by California in its printed brief and at the hearing before me on February 2. California is fearful that subdivisions (a) and (b) of article 7 construed together create an inference that

the maximum of 2,800,000 acre-feet which the United States agrees to deliver under subdivision (a) is water apportioned to the lower basin under article III (a) of the compact and that Arizona could contend, to California's prejudice, that this constituted an administrative determination that Arizona was entitled by this contract to 2,800,000 acre-feet of III (a) water. I am convinced that California's fears in this respect are unfounded for at least two reasons. First, I wish to make it clear, and to emphasize, that the delivery of water under both subdivision (a) and subdivision (b) of article 7 is expressly "subject to its availability under the Colorado River Compact and the Boulder Canyon Project Act." The proposed contract does not attempt to obligate the United States. to deliver any water to Arizona which is not available to Arizona under the terms of the compact and act. Secondly, article 10 was purposely designed to prevent Arizona, or any other State, from contending that the proposed contract, or any provision of the proposed contract, resolves any issue on the amounts of waters which are apportioned or unapportioned by the compact and the amounts of apportioned or unapportioned water available to the respective States under the compact and the act. *It expressly reserves for future judicial determination any issue involving the intent, effect, meaning, and interpretation of the compact and act.* The language of article 10 is plain and unequivocal and adequately reserves all questions of interpretation of the compact and the act.

The Arizona water contract resolved no issue in Arizona's favor. It did not assume that the Project Act or the Limitation Act or any of the Supreme Court decisions had resolved any issues in Arizona's favor. If it was an "administrative determination," it was a determination that these issues still existed as of 1944 and would continue to exist until there was a "future judicial determination of any issue involving the intent, effect, meaning, and interpretation of the compact and act." And the contract appears in full text as part of Arizona's statute.

If the central Arizona project is built, the water for it will be delivered under this contract, according to the express provisions of H. R. 934.

The Arizona contract makes no mention of how her uses are to be measured. It seems reasonably obvious that deliveries out of Lake Mead to Arizona, Nevada, and California, made under substantially identical contracts authorized by the same section of the Boulder Canyon Project Act (sec. 5), must be measured identically, and if measured by diversions minus return flow on the California side, they must be measured by diversions minus return flow on the Arizona side. Whatever may be the case as to the Gila River, we are dealing with mainstream water in discussing those contracts, and the central Arizona project is to be served out of main-stream water.

If there is any statutory authority for the Arizona water contract, it is found in section 5 of the Boulder Canyon Project Act. This section authorizes the Secretary of the Interior to contract for the storage and delivery of water "under such general regulations as he may prescribe." Contracts respecting water for irrigation and domestic uses are to be for permanent service "and shall conform to paragraph (a) of section 4 of this act." Section 4 (a) defines consumptive uses as "diversions less returns to the river."

California is entitled to a categorical answer from Arizona as to whether Arizona contends that uses under the Arizona water contract are to be measured by diversion minus return flow, or by depletion; and if by depletion, whether California is entitled to the same measure under her water contracts.

VI. The Mexican Water Treaty

On February 3, 1944, a week before the Arizona water contract was signed, the Mexican water treaty was made public. It allocates to Mexico a guaranteed quantity of 1,500,000 acre-feet annually, measured at the boundary, plus added quantities under specified conditions, but provides:

Article 10 (b):

> In the event of extraordinary drought or serious accident to the irrigation system in the United States, thereby making it difficult for the United States to deliver the guaranteed quantity of 1,500,000 acre-feet (1,850,234,000 cubic meters) a year, the water allotted to Mexico under subparagraph (a) of this article will be reduced in the same proportion as consumptive uses in the United States are reduced.

Article 1 of the treaty defines "consumptive use" as follows:

> (j) "Consumptive use" means the use of water by evaporation, plant transpiration or other manner whereby the water is consumed and does not return to its source of supply. *In general it is measured by the amount of water diverted less the part thereof which returns to the stream.*

The Arizona water contract was signed 6 days after the Mexican water treaty. It was signed with knowledge that this treaty defined consumptive use as "measured by the amount of water diverted less the part thereof which returns to the stream." It would be remarkable if two documents of this importance, dealing with the same subject matter, containing the same phrase, and negotiated concurrently, were intended to apply diametrically opposite meanings to the phrase which the the treaty defined.

VII. Ratification of the Colorado River Compact by Arizona

On February 24, 1944, the Arizona Legislature in two acts, approved the same day, ratified the Arizona water contract (Laws Arizona 1944, pp. 419–427) and ratified the Colorado River compact (Laws Arizona 1944, pp. 427–428). Arizona now says that she ratified the compact "relying on the protection thus afforded her" by the Boulder Canyon Project Act and the California Limitation Act (although 22 years after the compact and 16 years after the Project Act), and relying on the interpretation of the compact she says was placed in effect by the Project Act. The fact is that the Arizona statute which ratified the water contract concurrently with the Colorado River compact contains the full text of the contract, including the reservations in section 10 which we have previously quoted.

Thus Arizona, as recently as 1944, by statute as well as by contract, has recognized the continued existence of the controversies she now says were settled in her favor 16 years earlier by the Project Act. She cannot say that she ratified the compact "reling on the protection thus afforded her"; she ratified it on the same day that her legislature ratified a contract, in full text, proclaiming that these controversies still existed, and with knowledge of a departmental decision stating that the reservation so written into the Arizona contract and Arizona statute:

> * * * was purposely designed to prevent Arizona, or any other State, from contending that the proposed contract, or any provision of the proposed contract, resolves any issue—

and that—

> * * * It expressly reserves for future judicial determination any issue involving the intent, effect, meaning, and interpretation of the compact and the act. The language of article 10 is plain and unequivocal and adequately reserves all questions of interpretation of the compact and the act.

Arizona by so legislating so agreed.

The only later judicial expression throwing light on any of the issues so reserved was the decision of the United States Supreme Court in *Nebraska* v. *Wyoming* (325 U. S. 589, 600), saying:

> Consumptive use represents the difference between water diverted and water which returns to the stream after use for irrigation.

VIII. The Arizona Projects

Arizona says that California asks that:

> The compact must be so interpreted that the Gila River is practically all of the water to which Arizona is entitled.

To the contrary, at least three great Arizona projects on the Colorado River are under active enlargement at this moment: The Yuma project, the Gila project, and the Parker Indian project.

The Yuma project, irrigated by diversions from Laguna Dam, a dam built in 1909, serving Arizona but paid for by California, will use 250,000 acre-feet. In 1935, without objection from California, Congress authorized the Headgate Rock Diversion Dam, to deliver approximately 300,000 acre-feet to the Colorado Indian Reservation in Arizona. Projects on other Arizona tributaries, such as the Bill Williams, account for another 130,000 acre-feet. In 1948, Congress authorized the Gila project in Arizona, to use another 600,000 acre-feet from the main stream. This bill passed both Houses of Congress by unanimous consent, after hearings in each House. These mainstream projects account for over 1,250,000 acre-feet, or more than five times as much as Arizona was using before the construction of Hoover Dam. This is in addition to the use of 2,300,000 acre-feet used on the Gila River. At the time of passage of the Gila bill in the Eightieth Congress, the House Committee on Public Lands, in Report No. 910, July 14, 1947, on H. R. 1597 (reauthorizing the Gila project), referring to the controversy between Arizona and California, said:

> * * * The committee feels the dispute between these two States on the lower Colorado River Basin should be determined and settled by agreement between the two States or by court decision because the dispute between these two States jeopardizes and will delay the possibility of prompt development of any further projects for the diversion of water from the main stream of the Colorado River in the lower Colorado River Basin.
>
> Therefore the committee recommends that immediate settlement of this dispute by compact or arbitration be made, or that the Attorney General of the United States promptly institute an action in the United States Supreme Court against the States of the lower basin, and other necessary parties, requiring them to assert and have determined their claims and rights to use of the waters of the Colorado River system available for use in the lower Colorado River Basin.

Arizona elected to sponsor the Gila project, to use 600,000 acre-feet, on notice that if she did so she was utilizing the last uncontested water available to her, and on notice that if she did so the central Arizona project could not be considered without a lawsuit first.

It is these other Arizona projects, authorized or constructed, to which the Secretary of the Interior referred when, in his report on the

central Arizona project bill (hearings, House Judiciary Committee, H. J. Res. 225, 80th Cong. pp. 22, 26), he said:

> The water which California projects, Federal or other, now in existence or under construction will require when they are in full operation is a great deal more than the amount which that State is entitled to use if all of Arizona's contentions are taken to be true. Similarly, the water which Arizona projects now in existence, under construction, or authorized will require when they are fully developed is much more than the supply available to that State if all of California's contentions are taken to be true.

And that situation exists without taking into account the proposed central Arizona project, which would add a burden of 1,200,000 acre-feet upon a water supply inadequate for the projects already existing or authorized in the two States. Manifestly, in these circumstances, if water is found for a new project it must be taken from an old one.

California says that the projects already constructed or authorized, at an aggregate expense of hundreds of millions of dollars, cannot be deprived of water without a day in court, and that Congress should grant that day in court before giving serious consideration to a new project dependent upon taking that same water. The interests of the United States, whose Treasury is invited to bear a billion-dollar risk in the new project, as well as the rights and equities of the projects already authorized and existing, justify the prompt determination of these issues in the Supreme Court. The consent of Congress is required to make that possible because the United States is a necessary party to such litigation. To that end, we have asked the passage of resolutions now pending (H. J. Res. 3 and others), granting such consent. No action should be taken on any measure to authorize the central Arizona project until the Supreme Court has made its decision.

May I continue:

Now quite aside from the legal questions, if Arizona were right on all of the issues indicated—she is wrong—but if she were right, her case would still collapse if she is mistaken in assuming the quantity of water that Nevada may use, or the water Utah may use, or that New Mexico may use, under the terms of the Colorado River Compact. This is because she arrives at the conclusion that there is water for the central Arizona project by a process of subtraction. There is no compact in the lower basin at all; there is no commitment or agreement or undertaking binding New Mexico or Utah or Nevada or Arizona, as to the quantity each may use. There is a limitation act restricting California's taking. But Arizona assumes, nevertheless, that either by court decree or by agreement, Nevada, Utah, and New Mexico will be limited to an assumed quantity; then, upon subtracting the assumed quantities from the total quantities available for the lower basin's use, and subtracting what she says California is limited to use, there will be water to supply this project. Arizona assumes that Nevada is limited to 300,000 acre-feet, which she is not; that Utah and New Mexico are limited to 130,000 acre-feet combined, for both, which they are not.

It is quite true that the Boulder Canyon Project Act of 1928 authorized the lower basin States to enter into a compact, in terms which were spelled out; and had that invitation been accepted the quantity of 3 (a) water available to Nevada would have been 300,000 acre-feet. There is no binding apportionment to Nevada of 300,000 acre-feet. There is today no apportionment of water binding on Ne-

vada, Utah, or New Mexico limiting them to the quantities assumed by Arizona.

And further, if Arizona is to establish a new standard of feasibility under the reclamation law by this bill, whereby water can be pumped 985 feet——

Mr. ENGLE. Before you leave that point, Mr. Ely, there have been some references here which would seem to indicate that, by virtue of the references in the suggested lower basin compact in the Boulder Canyon Act, that Arizona was entitled to 2.8 million acre-feet. Is that right?

Mr. ELY. That statement has been made but the statement is incorrect.

Mr. ENGLE. And that Nevada was entitled to 300,000 acre-feet?

Mr. ELY. The same comment applies to that.

Mr. ENGLE. The Boulder Canyon Act did not, as I understand it, undertake to allot water. What it did was to suggest the possible formula for the compact in the lower basin, which was never agreed to.

Mr. ELY. That is exactly correct.

Mr. ENGLE. And whatever allocation was intimated in the Boulder Canyon Act would not be any more binding upon Arizona than it was binding upon Nevada. Is that right?

Mr. ELY. You are entirely correct.

Mr. ENGLE. Was New Mexico, or Utah, given any suggested allocation of water of such character under the Boulder Canyon Act?

Mr. ELY. No; they were not, Mr. Engle. And that is one of the basic difficulties in the proposal made in the Boulder Canyon Project Act, which prevented the States from ever carrying it out.

Mr. ENGLE. How does Arizona rely upon the Boulder Canyon Act for establishing the right to 2,000,000 acre-feet, and allocating 300,000 acre-feet to Nevada and then make the assumptions as to the allocation of water to New Mexico and Utah? It seems that something has been said about the allocation of water to New Mexico. Is that predicated upon the Boulder Canyon Act?

Mr. ELY. The so-called allocation of water to New Mexico, only 16,000 acre-feet for some 10,000 acres, is pulled out of thin air. And, the 114,000 acre-feet for Utah is simply an assumption by Arizona, based upon the figures used in the Bureau of Reclamation Comprehensive Report (H. Doc. 419, 80th Cong.), and in its report on the Central Arizona Project.

Now to get back to the principal question you asked, Mr. Engle: The Boulder Canyon Project Act did not and could not allocate water to any State. By the same token the Bureau of Reclamation has no power, by any of its reports, including that now before you, to apportion water to any State. Such allocation could be made only by compact, or by decree of the United States Supreme Court. In the project act the Congress did consent, which was its constitutional function, to the States of the lower basin entering into a compact to allocate the water available, and Congress suggested a formula, which they might follow if they saw fit. And if they did see fit to follow the formula, unchanged in any particular, then section 4 (a) of the project act gave advance consent to the compact, without bringing it back to the Congress for further consideration. But none of them did accept it. Utah and New Mexico were left completely out; there

was no water for them at all in the suggested formula, and neither Nevada, California, nor Arizona accepted it.

Mr. ENGLE. Right at that point: California in the Boulder Canyon Act was required, before that act went into effect, to limit itself to 4.4 million acre-feet of III (a) water. Now in as much as Nevada is not bound by any allocation under the Boulder Canyon Act, and Arizona is not bound by any allocation under the Boulder Canyon Act, and Utah is not bound, and New Mexico is not bound, is not the whole case wide open?

Mr. ELY. The Project Act, in section 4 (a), provided that if the Colorado River compact should be ratified by only six States—Arizona at that time holding out—then the Project Act should become effective upon the ratification of those six States, which should include California, and upon the enactment by California of legislation limiting California to the allocation referred to, 4.4 million acre-feet of water, apportioned by article 3 (a) of the compact, plus not to exceed one-half of the excess, or surplus and so on. California did so enact that prescribed limitation. There is consequently a statutory compact, a statutory contract, between the legislature of the State of California and the Congress, limiting California's use of water, and by the same token recognizing California's right to use water up to that limitation.

Mr. ENGLE. But that Limitations Act by California gave no validity to the suggested allocation of water by the Boulder Canyon Act to any other State.

Mr. ELY. It gave no recognition whatsoever to the proposed allocation of 2.8 million acre-feet to Arizona nor the proposed allocation of 300,000 acre-feet to Nevada.

Mr. MURDOCK. May I ask you, Mr. Ely, to get the answer to the last question clear in my mind: Did you say that California, under the circumstances, is not bound by her act of limitation?

Mr. ELY. No. We regard the act as passed by California as binding. I will put it another way: We regard the agreement established by the Project Act and by the limitation as an agreement binding both California and the United States.

Mr. ENGLE. Is not this true, that the thing which gives validity and effect to the 4.4 million limitation is an act by the California Legislature, as a statute agreeing to a limitation? In other words, the Boulder Canyon Act is not what gives the limitation force, it is the act of the California Legislature which does so?

Mr. ELY. Precisely so.

Mr. ENGLE. It constitutes the acceptance of a contract between itself and the United States Government for the benefit of it and others.

Mr. ELY. Entirely so.

Mr. ENGLE. In other words, from the legal standpoint, is it not a contract for the benefit of third parties, legislative in form? That being the case, how does Arizona make herself a beneficiary of this contract, in the case of accepting the terms of the contract, in such way as to say that she has accepted the benefits?

You and I might get together and make a contract for the benefit of Mr. Redden, and he might say "I do not want to have anything to do with the contract, and I refuse to accept the benefits of it."

I cannot see how our contract, operating for the benefit of Mr. Redden, would be binding as a contract for the benefit of a third party unless and until it was accepted. Now what is wrong with that?

Mr. ELY. Arizona from 1928, when the Project Act was passed, continued to oppose, continued to quarrel with this reciprocal agreement, evidenced by California's Limitation Act, until 1944; for 16 years, declined, refused to ratify the Colorado River compact, and she sued, declaring that it was unconstitutional and invalid.

In 1944 she unilaterally undertook to ratify the Colorado River compact as the seventh State agreeing to it.

You will notice that the proposal by the Congress of the Project Act was that California was invited to enact a limitation act, which would place the compact in operation as a six-State agreement. California did so. Arizona stayed out. One of the contingencies provided by the Project Act was ratification by six States plus an enactment by California of her limitations act, and the other the ratification by the seven States, without any California limitation act.

The enactment by California met one of those contingencies, when it took place, as required by the Project Act, in June, 1929, and the seventh State had not ratified. When California passed the Limitation Act the compact was placed in effect as a six-State agreement by Presidential proclamation.

Now Arizona 16 years later undertook to ratify the Colorado River compact as a seven-State agreement. She came in alone.

It is very much, Mr. Engle, as though seven of us made up a syndicate in a business transaction, and one of the seven decided for financial or other reasons not to have his board of directors ratify it—that is Arizona, in this case—and the other six decided to go ahead upon the condition that one of them assume certain added limitations and obligations. That is California. Then, the six operate for 16 years, whereupon the seventh decides that it was rather a good deal, after all, and comes down to his office one day and signs, or submits it rather to his board of directors for ratification and says "I am in". A very interesting question is posed, as to the result on the California Limitation Act, which was adopted as a condition to six-State ratification, and as to the existence of a seven-State compact.

I am not making any forecast as to what the Supreme Court may have to say as to the limitation and the compact in those circumstances. In any event, when the California Legislature did not by enacting the Limitation Act, provide Arizona with 2.8 million acre-feet. No such figure appears in the California act; and there is no agreement between Arizona and California, no agreement between California and the United States for the benefit of Arizona, for the apportionment of 2.8 million acre-feet of 3 (a) water to Arizona.

Mr. ENGLE. Here is a very interesting question. I asked Mr. Carson when he was on the witness stand what was there to prevent Arizona, if she got an adverse decision in the Supreme Court, on her current contention, from repealing the act and backing out. He said Arizona would not do that. But the legal situation is very interesting, from the standpoint of what has happened after 22 years.

Mr. ELY. Yes.

Mr. ENGLE. The fact is that 16 years after the Limitation Act was enacted Arizona then comes along, having taken the case to the

Supreme Court three times, and claims the benefits of the Boulder Canyon Act, plus the limitation, whatever it is, plus the basic compact.

Mr. ELY. And moreover, Mr. Engle, for a greater part of the time, certainly during the period when the other States were ratifying the compact, the meaning of the compact was well understood and announced by Arizona as the reverse of what she now says it means.

Mr. ENGLE. It is a rather interesting point, because if it is true that Arizona, appealing in her sovereign capacity as a State to the Supreme Court, as she has on three different occasions, and has asserted one contention at that time, can come back some 10 years later and do a complete somersault, and assert another position, then what is there to prevent Arizona from later appearing before this committee, with her constituted authority and turning another complete somersault; and then coming back and turning another somersault again and again? I would like to ask you to outline to the committee, if you will, the history of the litigation. I think you have made it perfectly clear in your statement, and Arizona has made it perfectly clear that she is predicating her right to this water on the basis of the Colorado River documents, namely, the compact of 1922, the Boulder Canyon Act and the California Limitation Act; one of them consummated in 1922, another in 1928, and the Limitation Act in 1929.

Will you please tell the committee just what Arizona was asserting when she went to the Supreme Court?

Mr. ELY. I shall be happy to do so, sir.

Mr. MURDOCK. Before you do that, Mr. Ely, let me say this: I have no desire to prolong these hearings because we must hurry along with this. I am not asking a question; I am simply stating a view. Something was said here about who wants to back out of what.

Now, as I understand the full import of the colloquy which has just taken place between you and Mr. Engle, you stated positively that you want the California statute of limitation observed, and I certainly do, for Arizona relies upon it, but I got the impression that the general effect was that that limitation is not binding.

Now, maybe I did not get the right impression, I will reread this, so I may get a clear understanding, but that is the impression of the chairman.

Mr. ELY. Let me make these two points crystal-clear, Mr. Chairman.

First, in response to Mr. Engle's last question, Arizona in effect invites this committee to agree with her that Arizona was wrong in her interpretation of the Colorado River compact for 22 years. She ratified it upon a complete change of heart as to what it meant, and invites the committee to agree with her that she is correct now and risk this billion dollars on the assumption that Arizona is correct in her present interpretation.

If so, she was wrong for 22 years before, during which time her learned counsel, Mr. Acheson, and others, all reported the compact to mean what we say it means.

Now, in response to Mr. Murdock's observation: California enacted her limitation act in response to a proposal from the Congress of the United States.

It constituted a firm and binding agreement between these two sovereignties, made by California in reliance upon the right therein given to California to utilize specified quantities of water, 4.4 million

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acre-feet of the waters apportioned by article III (a), and one-half of the excess or surplus waters unapportioned by the compact.

California has made investments or incurred firm commitments aggregating over $500,000,000. She regards her contract, her basic statutory agreement evidenced by the Limitation Act and the Boulder Canyon Project Act, as binding upon both sovereignties.

All that we ask is that both sovereignties carry it out in the manner and in the interpretation placed upon it when the two legislatures acted, and that we not be cut back, by some "second guess," to a figure substantially less than that we agreed to.

Now, Arizona has complicated that situation by ratifying the compact herself in 1944. California does not, by virtue of Arizona's ratification, seek to escape the limitation act. To the contrary, we seek to hold the United States to it, but I say that if the United States Supreme Court should decide that Arizona is bound by her 1944 ratification, and that it is a seven-State compact, then someone, the Court presumably, must explain the discrepancy between the six-State compact plus the Limitation Act, and the seven-State agreement.

They are not consistent. Congress designed them to be mutually exclusive, the six-State ratification plan or the seven-State plan.

Now, Mr. Engle has asked that I develop the Supreme Court litigation. That appears as part 4 of my prepared paper, beginning on page 43.

The intevening portion deals with the Colorado River compact and the Boulder Canyon Project Act. I will come back to those if you like, and take up the litigation at the moment.

There are three of these cases. In 1930, Congress made the first appropriation for the construction of Hoover Dam, Arizona having opposed the Boulder Canyon Project Act, having filibustered and voted against it, having opposed this first appropriation for the construction of the dam. Arizona brought a suit in the United States Supreme Court to enjoin construction of Hoover Dam, alleging that the Boulder Canyon Project Act and the Colorado River compact were invalid.

She was represented by Hon. Dean Acheson, now Secretary of State, Hon. Clifton Matthews, now judge of the Ninth Circuit Court of Appeals, and by her attorney general.

This was rather a curious way to treat documents which Arizona now says settled all questions in her favor.

Arizona's pleadings and brief in this suit, which were carefully prepared, were in complete accord with the legislative history that I have referred to earlier, and are the precise reverse of what she now contends.

Bear in mind that throughout these cases will occur two recurring themes—one, the quantity of consumptive use with which Arizona is chargeable, and, secondly, the question of III (b) water—how much California and Arizona may use.

I shall not bother to read all of the quotations which appear here, but would like to read you what Mr. Acheson said in his bill of complaint about the quantity of water used in Arizona.

On page 43 it appears. He alleged:

> Of the appropriated water so diverted, used, and consumed in Arizona, 2.9 million acre-feet are diverted from the Gila River and its tributaries.

Arizona now says she is chargeable with not over 1.3 million. Mr. Acheson used the precise figure we did.

Mr. ENGLE. He used the figure 2.9. I have heard the figure 2.3.

Mr. ELY. 2.9, Arizona said, is the figure diverted and 2.3 is the amount consumptively used. That is discussed later.

On page 44, he alleged in his bill of complaint that—

All of the water of the Gila River and tributaries was appropriated and put to beneficial use in Arizona and in New Mexico prior to June 25, 1929.

Now, the significance of that is that that makes the uses of the Gila fall within the category of waters apportioned by article III (a) of the Colorado River compact.

Mr. ENGLE. Why?

Mr. ELY. Because article III (a) by its terms specifies that it shall include the uses which then existed. Arizona, to the contrary, now says that the water uses on the Gila River, although they are old perfected rights, the oldest Arizona has, are not chargeable under article III (a) as are California's perfected rights, or Utah's, or New Mexico's, but are to be accounted for under article III (b) of the compact.

Article III (a) provides that—

There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

and Arizona's uses on the Gila did exist then.

She solemnly told the Supreme Court they did, and she was right. Mr. Acheson was entirely candid and correct in his pleadings and in his brief.

Article III (b) of the compact provides—

In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

Now, the significance of this issue is this: Arizona contends that the waters referred to in article III (b) are apportioned, just like the waters referred to in article III (a), that California is limited to 4.4 million acre-feet of the waters apportioned. The Limitation Act says apportioned by article III (a), but Arizona says apportioned by the Colorado compact, and since she says III (b) is apportioned, she contends we may take only 4.4 million of that aggregate of 8.5 million.

California says the reference in article III (b) to 1,000,000 acre-feet is not an apportionment in perpetuity at all. It is what it says, a privilege given to the lower basin to acquire a right to an additional 1,000,000 acre-feet when, as, and if they use it; to acquire a right to that million acre-feet by appropriation, in other words, and not by a reservation or apportionment in perpetuity.

The difference is very significant. The upper basin is now using 2½ million acre-feet, but it is apportioned 7½ million.

The upper basin may use that additional 5,000,000 at any time, in perpetuity. It is reserved for the upper basin. The million acre-feet of III (b) water available to the lower basin is not in that category at all. We operate in III (b) water only after we have put to use the 7½ million acre-feet of III (a) water, and we get a vested and permanent right to any portion of that million acre-feet only to the extent we use it.

Now, bearing that in mind, I will read what Mr. Acheson said in his brief. I am reading from page 45 in my paper, at the bottom of the page:

Under the compact, then, the only water of which the right to exclusive beneficial use in perpetuity may be acquired in the lower basin is the water apportioned to that basin. Such apportionment is limited to 7,500,000 acre-feet of water per annum by article III (a). The Colorado brief, page 40, contends that paragraph (b) of article III operates to increase this apportionment to 8,500,000 for the lower basin. This, we submit, is not the case. If it had been intended to apportion the larger amount, the compact could easily have said so. The difference in language between paragraphs (a) and (b) is plain, and the difference in meaning is clear. Paragraph (b) does not apportion in perpetuity, as does paragraph (a), any beneficial use of water. It is very careful not to do this. It is to be read with paragraph (c) and relates solely to the method of sharing between the basins any future Mexican burden which this Government might recognize. This burden is to be satisfied first out of "surplus" waters, and surplus waters are defined, not as surplus over quantities "apportioned," but as surplus over quantities "specified in paragraphs (a) and (b)." Any deficiency remaining is to be borne equally by the two basins. Thus the lower basin, which without paragraph (b) might use water in excess of its apportionment without acquiring any exclusive right in perpetuity thereto, is enabled to retain such uses to the extent of 1,000,000 acre-feet per annum against the first incidence of the Mexican burden. Thereafter it is entitled to require the upper basin to share from its apportionment equally in the satisfaction of any deficiency. In other words, all that paragraphs (b) and (c) accomplish is to require the upper basin to reduce its apportionment in favor of Mexico before the lower basin is required to do so, the lower basin being entitled to contribute first, to the extent of 1,000,000 acre-feet, water which it may have used but to which it has no exclusive right in perpetuity—that is, water not apportioned to it. The water apportioned is that to which exclusive beneficial use in perpetuity is given in paragraph (a), less any deductions which may have to be recognized as provided in paragraphs (b) and (c).

We think Mr. Acheson's analysis is correct. Arizona, reversing the position thus formally stated to the Supreme Court, now rejects Mr. Acheson's interpretation. There is an interesting side light on this point. If Mr. Acheson is right, if the III (b) water is the first to be sacrificed to Mexico if the surplus is not enough, and if Mr. Carson is correct in his present contention that the uses on the Gila are identified as III (b) water, then obviously they are the first to go, if surplus is not enough—a perfectly fantastic result because the uses on the Gila are the oldest Arizona has, their present perfected rights, protected in perpetuity by article III (a), and it is fantastic to say otherwise.

Now, the significance of this argument over the III (b) water is simply this: From the very beginning Arizona's great dissatisfaction with the Colorado River compact was that it charged against the lower basin's rights under article III (a) of the compact, and therefore against Arizona, her uses of water on the Gila River and its tributaries.

For 22 years she fought the compact because that is the precise result it accomplished. The interpretations she now offers with reference to III (b), and with respect to consumptive use, are designed to have the same effect as the exclusion of the Gila River from the effect of the Colorado River compact.

Now, to continue with Mr. Acheson's discussion——

Mr. ENGLE. I wish you would clarify that a little, Mr. Ely. In other words, the bone of contention so far as Arizona is concerned, has always been the fact that the compact includes the uses on the Gila; is that correct?

Mr. ELY. That is correct, sir.

Mr. ENGLE. And that is the reason she did not ratify; is that correct?

Mr. ELY. That is correct.

Mr. ENGLE. Has there ever been any legislative statement by Arizona to that effect?

Mr. ELY. Yes; there are several. I quote her Governor and legislature on several occasions here in the course of the paper.

Article II (a) of the compact defines the term "Colorado River system" as "that portion of the Colorado River and its tributaries within the United States of America," and article III (a) as I have said, apportions the use of water "from the Colorado River system."

The Gila by definition is a part of the Colorado River system. The compact was brought back to the Arizona Legislature in December of 1922. It was taken up in the next session of the Arizona Legislature, sixth legislature, in 1923, and very hotly debated.

The Arizona Legislature refused to approve it. One House passed the compact with a reservation or an amendment, which is quoted in my paper, to the effect that the Gila River should be excluded from the compact. Throughout all the years the effort has been to restore Arizona to the position she would have been in had the Gila been left out.

Now, the reason why Arizona did not want the Colorado River compact with the Gila included was her claim that her uses on the Gila River, which are present perfected rights, were so large, in excess of 2,000,000 acre-feet, that if they were charged against the lower basin and hence by implication to Arizona, there would not be left water in the main stream to satisfy her aspirations. The whole effort of Arizona now, in presenting the present project to you, buttressed by the legal arguments Arizona makes, is to find in the main stream of the Colorado River 2,800,000 acre-feet of water apportioned in perpetuity under article III (a), which will be available for new projects such as this one. To do that Arizona, of course, must characterize her old established uses on the Gila River as something other than III (a). By two processes she hopes to accomplish that result: One, by characterizing her uses on the Gila as III (b) water, and second, by writing down the value of them from their actual consumptive use, the quantity of water burned up by crops, around 2.3 million acre-feet, to 1.3 million acre-feet.

Now, Arizona, to accomplish that result, has to convince the Court, not only that the III (b) water is all in the Gila, but that the 7½ million acre-feet apportioned to the lower basin by article III (a) is identified with the 75,000,000 acre-feet which the upper basin guarantees to deliver at Lee Ferry during each 10-year period, that is, that all the III (a) water is found in the main stream.

Article III (d) of the compact reads:

> The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series beginning with the 1st day of October next succeeding the ratification of this compact.

Arizona says the 7½ million acre-feet referred to in III (a) is identifiable with that 75 million guaranteed by the upper basin every 10 years, that one is simply 10 times the other; and that the III (b)

water is identifiable with the Gila. I shall place in the record her formal statement on that point presented to the Senate last year: "III (b) water is not delivered at Lee Ferry, but must be found in the Gila River." (Hearings, Senate, S. Res. 145, 80th Cong., p. 517).

I will read what Mr. Acheson had to say on that point. This is at the bottom of page 46 of my paper.

Mr. Acheson's brief stated:

> The provision in paragraph (d) of article III that the upper basin States will not cause the flow of the river to be depleted below 75,000,000 acre-feet over 10-year periods, has, as the Colorado brief, page 41, correctly states, no bearing on the amount of the apportionment to the lower basin. This 75,000,000 acre-feet is not apportioned to the lower basin. It may not be appropriated in the lower basin. Only so much of it may be appropriated as together with existing and future appropriations of water in or from tributaries entering the river below Lee Ferry will total 7,500,000 acre-feet per year. The 75,000,000 acre-feet includes all surplus waters which under paragraph (c) must first bear any Mexican burden, which may not be appropriated, and which are subject to apportionment after 1963. It is fundamental to an understanding of the compact that the annual beneficial consumptive use in perpetutity of 7,500,000 acre-feet of water apportioned by it to the lower basin includes all beneficial consumptive use in perpetuity which may be made from the whole river system, and is not merely an apportionment of such uses in main stream water flowing at Lee Ferry. The agreement not to deplete the flow at Lee Ferry below the specified amount does not mean, and cannot under the plain words of the compact be construed to mean, that the guaranteed flow is apportioned to the lower basin or may be appropriated there. As to this, at least, there can be no shadow of doubt.

That ends the quotation. Here again Arizona now repudiates Mr. Acheson. She now says that article III (a) is effective only as to 7,500,000 acre-feet of main-stream water, not the whole system, and article III (b) is operative only on the Gila.

Mr. ENGLE. Mr. Ely, if the allocations under III (a) relate to the to the main-stream water, and more particularly to 75,000,000 acre-feet which is referred to in the compact to be delivered to Lee Ferry as a minimum, and no existing rights are chargeable, if that was applied with equal force to California, all our uses in the Imperial would be excluded, would they not?

Mr. ELY. Arizona's contention meets itself coming back in several respects.

Mr. ENGLE. What I am getting at is, you would oversubscribe the total supply of the river on that basis.

Mr. ELY. Oh, yes, the arithmetic will not balance at all, if the uses on the Gila are not to be charged, or are something aside and apart from the 7,500,000 acre-feet. If the lower basin can claim that whole 75,000,000 as III (a) water, a whole string of very extraordinary consequences come about, some of them very damaging indeed, to the upper basin, if Arizona's theory were adopted .

For example, take the Mexican burden: Under article III (c) of the compact it is to be satisfied first out of surplus, and if the surplus is not enough, then under the compact the upper basin is required to add to the 75,000,000 acre-feet one-half of the quantity required to make good the deficiency in delivery to Mexico.

In a dry decade in which there is only 75,000,000 delivered, and if all of that is III (a) water, there is no surplus in it at all; it is all III (a) water, and if the Gila is written off as equivalent to III (b) water, 1,000,000 acre-feet, then where is there any water for Mexico in that equation? If Arizona's contention were accepted, the whole

75,000,000 acre-feet would be III (a) water, containing no surplus, contrary to what Mr. Acheson said; and the upper basin must at once during that dry decade, when it can spare it least, add to its delivery at Lee Ferry one-half of the 1,500,000 acre-feet required for Mexico per year.

And the guaranty to Mexico is an annual guaranty, not a 10-year revolving average, as the 75,000,000 is.

Moreover, the Mexican treaty requires that that 1,500,000 acre-feet be delivered at the Mexican border. Somebody has to absorb all evaporation losses, all losses in transit, and the required delivery which the upper basin would have to add at Lee Ferry if Arizona's contention about the 75,000,000 were accepted, is a good deal more than 850,000 acre-feet per year, probably over 1,000,000 acre-feet per year.

On California's theory, which is exactly that stated by Mr. Acheson in 1930, the 75,000,000 acre-feet, as he says, includes surplus waters which under paragraph (c) must first bear any Mexican burden, and so on.

And with respect to Mr. Engle's point: If Arizona is to be charged not by what she diverts and consumes (which is the way California supposes that we are charged), but Arizona may salvage water that otherwise goes to waste and may use it without being charged under the compact, then surely the basic compact means the same for all States.

Our limitation act is subject in all respects to the Colorado River compact, and if Arizona may use salvaged water without accounting, California may do likewise. In a state of nature vast quantities of water disappeared on the main stream of the Colorado River, either because of evaportion or seepage or transportation.

Arizona's contention is that California is chargeable with the full quantity she diverts and Arizona is not; that Arizona is chargeable only by the amount she depletes the flow that reaches some downstream point—how much reaches it before and after the irrigation works are in, and that Arizona is chargeable with the difference; but on the California side, Arizona says we are chargeable with the gross quantity we divert minus returns to the river.

I revert now to the Supreme Court cases.

The Court refused the injunction in the first case. It held the project act and compact were valid, that the Secretary had the authority to build Hoover Dam, and he went ahead and built it.

Now, in the second case, 4 years later, *Arizona* v. *California* (292 U. S. 341), Arizona was represented by the distinguished counsel who now represents her, Mr. Charles A. Carson, and he approached the Court on an entirely different theory from Mr. Acheson's. He sued to perpetuate the testimony of the negotiators of the Colorado River compact. Mr. Shaw, Mr. Howard, and I were all in that case on the California side. Mr. Carson's allegation, in effect, was that he proposed to bring at some future time a suit with reference to the waters of the Colorado River and that in such an action it would be pertinent to introduce the testimony of the negotiators of the Colorado River compact as to what they meant. The specific point on which he said he wanted to perpetuate their testimony was their understanding as to this III (b) water. He said that it was understood that the III (b) water was intended for Arizona alone, the whole million-acre feet, and that California should not have any part of it.

The Court rejected Arizona's case. It refused to allow the suit to be filed, but it wrote an opinion.

Mr. MURDOCK. Pardon me but there is a lot of confusion right there. I want to reserve a point on that, as to what the Court meant in that case and as to whether the contention was that the million acre-feet was intended for Arizona alone. Mr. Carson will have something to say on that, but I may want to add a little bit later.

Mr. ELY. I will come directly to that point by reading what the Court said Arizona's complaint contained. The Court said,

Arizona claims that this paragraph, which declares—

In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

Continuing the quotation——

Mr. ENGLE. Are you reading from the statement?

Mr. ELY. Yes, this is page 48 of my statement—

means: "That the waters apportioned by article III (b) of said compact are for the sole and exclusive use and benefit of the State of Arizona."

That was the Court's characterization of what Arizona was trying to establish by perpetuating this testimony. The Court rejected that construction, after considering what it called the "elaborate argument" presented by her counsel, Mr. Carson. The Court said:

Arizona is one of the States of the lower basin, and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof), to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone.

At a later point the Court said:

Even if the construction to be given paragraph (b) of the compact were relevant to the interpretation of any provision in the Boulder Canyon Project Act, and such provision were ambiguous, the evidence sought to be perpetuated is not of a character which would be competent to prove that Congress intended by section 4 (a) of the 1928 act to exclude California entirely from the waters allotted by article III (b) to the States of the lower basin and to reserve all of those waters to Arizona.

That is the very contention Arizona now makes and upon which this whole project now before you depends: That she can establish that it was the intent of the compact framers, and of the Congress in 1928 in enacting the project act, to do that very thing, namely—

to exclude California entirely from the waters allotted by article III (b) to the States of the lower basin and to reserve all of those waters to Arizona.

Now, it is a curious thing to note, in this second Supreme Court case, that Arizona did not make the claim which she makes now, that the III (b) waters were apportioned. She carefully avoided doing that. In 17 places in her brief—one of my exhibits is a quotation of those 17 places in her brief—she said that this million acre-feet was water which the lower basin was "permitted to use."

Apparently, Arizona's counsel feared that the Supreme Court might say that III (b) water was apportioned, but that the California Limitation Act applied to only 4.4 million acre-feet of apportioned water, namely, that apportioned by article III (a), leaving the III (b) water unrestricted, because the limitation act does say "of the waters

apportioned by article III (a)," not "of the waters apportioned by the compact."

Mr. ENGLE. That is rather interesting, Mr. Ely. The point you are making is this, is it not, that California's Limitation Act limits California to 4.4 of III (a) plus one-half of the surplus, but the compact has three classes of water: It has III (a) water, which is specifically apportioned in the compact; III (b) water which is the million acre-feet the lower basin is entitled to increase its use, and then it has the surplus.

Now, is it not very possible to get this construction out of it, that in the limitation act, California's 4.4 comes out of III (a) water and she gets half the surplus, and since there is no mention in the limitation act of the III (b) water, then any part she gets of that is in addition to the 4.4?

Mr. ELY. That is entirely possible, Mr. Engle, and I do not give that point away at all. It may very well be that the Supreme Court will say that the entire million acre-feet is open to appropriation, that whatever State in the lower basin increases the use of the entire basin above 7½ million first is operating in the million acre-feet of III (b) water and may appropriate all of it, whether it is California, Arizona, or Nevada, or Utah, or New Mexico.

Mr. MURDOCK. Of course, California is trying to get all of it. It will be California because she has the facilities now to take it and none of the others—Arizona, Utah, Nevada, or New Mexico have those facilities, so on that basis there is no question about who will get that million acre-feet of water if the intent of the law can be thwarted.

Mr. ELY. I have no doubt that feasible projects will be found in New Mexico and Utah to use their share. I do not think a feasible project can be found in central Arizona to use what Arizona claims.

Mr. MURDOCK. But the idea is who can use it right now. It it open for use right now. All you have to do is turn the key, open the gates and it can be used in California, or through California to Mexico.

Mr. ELY. To come back to Mr. Engle's point, for present purposes we need to go no further than to establish that California is entitled to put to use one-half of that million acre-feet, to collapse Arizona's entire legal case. It may very well be we are entitled to appropriate all of it. For purposes of discussion I take the more moderate view, and without stipulating on it, I think it likely that the Court will say that the million acre-feet is a part of the excess or surplus, and consequently we may use half of that excess or surplus, including whatever may be there, the million acre-feet or whatever.

I shall develop that when I refer to the legislative history of the Boulder Canyon project act. Arizona's fears may have been very well grounded when she avoided, 17 times, using that magic word "apportioned."

The Court said:

> The act [the Boulder Canyon Project Act] merely places limits on California's use of waters under article III (a) and of surplus waters; and it is "such" uses which are subject to the terms of said compact.

Mr. ENGLE. That is the language that intrigued me, Mr. Ely. The Court says that the Boulder Canyon Act, which embodies the terms of the limitation act, limits California's use of waters under article

III (a) and since that is so, it looks to me like III (b) waters are outside of the limitation act.

Mr. ELY. The Court went on to say in a sentence that is frequently quoted by Arizona:

> There can be no claim that article III (b) is relevant in defining surplus waters under section 4 (a) of the act; for both Arizona and California apparently consider the waters under article III (b) as apportioned.

In a footnote, the Court says:

> The Secretary of the Interior in his brief seems to be of the opinion that waters under article III (b) might be surplus waters under section 4 (a) of the act.

Now, the briefs—there was no oral argument—are clear that neither Arizona nor California claimed that the III (b) water was apportioned, and the language quoted from the opinion whether it helps or hurts either State, is dicta; but the Court did not make a determination that the III (b) waters were apportioned. This case is illustrative of many cases that are decided on the pleadings, in which the Court proceeds to set up the contention of the plaintiff as though those were the facts before it, as on demurrer, and to rule against him; in so setting them up it does not necessarily exclude all other hypotheses.

Mr. ENGLE. Was this case decided on the petition of Arizona to file in the Supreme Court?

Mr. ELY. Yes.

Mr. ENGLE. As I understand it, to get into the Supreme Court you have to file a petition for permission to sue, and that answer is in nature of a demurrer; is that correct?

Mr. ELY. That is right. Under the rules governing original actions between States, the plaintiff or complainant first files a petition for leave to file his action.

Mr. ENGLE. He says whet he wants to prove and all that.

Mr. ELY. Yes. That is heard on briefs, in response to a rule to show cause why the petition should not be granted, in two of these three cases the case was disposed of at that stage, and the third was disposed of by motion to dismiss. While I am on that particular point, in which the attorneys on the committee may be interested, the suggestion has been made here several times, "Well, if California feels she has a case, why shouldn't she just file her suit in the United States Supreme Court without waiting for the consent of Congress to join the United States as a party defendant; and if the Attorney General feels the United States should be in that case, he will intervene. You have your result, you do not need legislation."

That suggestion is made in entire ignorance of the rules. Upon our filing of such a petition it would have to either allege on its face that the United States is a necessary party, which it is, the third Supreme Court case said so, in which event we have stated on the face of the complaint that we are not in court. Or the petition would have to contend that the United States is not a necessary party, and neither I, nor any other responsible lawyer in California's case, would make any such contention. This problem comes up on a motion for leave to file our petition. The United States is not before the Court at all at that stage, with any intervention. It cannot intervene until after the Court has decided to take the case, and obviously the Court upon the face of the motion, would deny it, because the United States is a necessary party. This idea that the United States, the Attorney

General, may relieve the Congress of the necessity for deciding whether consent should be given to sue is entirely fallacious.

The third case, to which Mr. Engle has referred, was brought in 1936, *Arizona* v. *California* (98 U. S. 558). Arizona was presented by a different counsel, again—three separate groups of attorneys have been in these three cases, and in view of the wide divergence in their views it is speculative what future counsel for Arizona may take upon these various points unless there is a Supreme Court decision to bind them. In this third case, Arizona's counsel decided to revert to Mr. Acheson's original position, in large part I should say. She sued the six States of the basin for an equitable apportionment.

The United States was not named as a party defendant. Arizona sued on the premise that the Project Act and the compact meant what they said and she wanted none of them. She wanted an equitable apportionment independent of anything said in the Project Act or compact.

The depletion theory and the idea that the Limitation Act excludes California from III (b) water were not suggested.

Mr. ENGLE. Before you go any further, Mr. Ely, when that suit was brought, Arizona disclaimed and repudiated the compact, did she not?

Mr. ELY. She did.

Mr. ENGLE. In other words, here she was sitting outside the compact, the other six had gone into it, and she goes into court—says O. K., I do not belong in that deal—I want an equitable apportionment. Is that right?

Mr. ELY. Exactly. It is interesting to inquire here why, if Arizona is now correct in asserting that the Boulder Canyon Project Act, 8 years earlier, had decided all of the issues between California and Arizona in her favor, it was necessary for the State of Arizona to institute this third suit at all.

All of the events upon which she now relies occurred before the institution of that action. In this case Arizona's pleadings and briefs made some very interesting assertions. I will not attempt to read them all, but you will notice at the bottom of page 51 of my statement her allegation that the average annual virgin flow of the Gila River into the Phoenix area is 2,359,000 acre-feet. That is substantially correct. It is so stated in the Bureau of Reclamation report on the project before you. Then counsel went on to explain that that had all been put to use, and he built up their diversions to a total of 2,885,000 acre-feet, explaining that the difference between the inflow of 2,300,000 and the 2,885,000, is due to successive diversions of return flow. I want to stop at page 52 to emphasize that on California's theory we are not attempting to charge Arizona with the use, and the reuse, and the reuse, of the same water, adding up these successive diversions to reach some figure in excess of the quantity in fact consumed.

Arizon's witnesses frequently say that, and it is not so. There are 2,300,000 acre-feet flowing into the Phoenix, Ariz., area—by that I mean the Gila, Salt, and Verde Rivers and tributaries, on the United States Geological Survey records, and it is all consumed.

Now, in order to consume that, obviously diversion aggregating more than 2,300,000 are required.

The water flows back to the stream and is diverted again, but the aggregate of consumptive use, namely, the aggregate of diversions minus return flows, is what Arizona is properly chargeable with.

In this suit also Arizona spelled out in detail her contention as to how much water California was entitled to get under the Colorado River compact and the Boulder Canyon Project Act and the California Limitation Act.

Without reading all of this (p. 53 of my statement) she says, "California's maximum legal rights were 5,485,500 acre-feet," and she alleged that California had executed water contracts with the Secretary of the Interior calling for an aggregate of 5,362,000 acre-feet. Notice her allegation, two-thirds of the way down, on page 53:

> Plaintiff alleges that the total of the waters for the storage and delivery of which it was so contracted is substantially the entire amount which may legally be diverted from said river and consumptively used in the State of California under the terms of said statutory contract between the State of California and the United States, and is far in excess of California's equitable share of said waters.

In short, Arizona in this suit admitted that the Project Act and the Limitation Act constituted a statutory contract between California and the United States, that under it California had maximum legal rights of 5,485,000 acre-feet, and that the aggregate of the California contracts was less than this.

She complained, not as she does now, that the California contracts exceed the quantity allowed by the Limitation Act, but that the Limitation Act allowed California too much. This suit was filed after the compact, the Project Act, the Limitation Act and the two Supreme Court cases had all become accomplished facts and Arizona wanted the statutes made inoperative. If they meant what Arizona now says they mean she should have ratified the compact instead of filing this third suit.

The court wrote an opinion. It held the United States was a necessary party and declined to entertain the action; but in the course of the opinion it made some interesting observations on the allegation I have just read to you.

The court said the—

> compact was duly ratified by the six defendant States, and the limitation upon the use of the water by California was duly enacted into law by the California Legislature by Act of March 4, 1929, *supra*. By its provisions the use of the water by California is restricted to 5,484,500 acre-feet annually.

On page 564, note 5:

> The surplus water of the river in the lower basin, unapportioned by the compact, is 2,171,000 acre-feet, one half of which, or 1,085,500 acre-feet, California is entitled, under the Boulder Canyon Project Act, and her own statute, to add to the 4,400,000 acre-feet which they specifically allot to her, making a total allotment of 5,485,500 acre-feet annually.

I want to say to the committee that, in line with its usual practice, the Supreme Court in making these statements was simply picking up allegations in Arizona's bill of complaint. It would be easy to read these, out of context, and say this was an adjudication that California was entitled, under the limitation act, to use 5,484,500 acre-feet. In like manner, as Arizona says that the reference by the Supreme Court in the second case to the III (b) waters as "apportioned" was an adjudication. Actually the court in both cases was disposing of the

case on the basis of the allegations contained in the pleadings, the court in effect saying that even if Arizona's allegation is taken at face value she has no cause of action. The point is, that Arizona, as late as 1936 was solemnly alleging to the United States Supreme Court that California was entitled to take under the Limitation Act 5,484,500 acre-feet of water which, is in excess of the aggregate of our contracts, and Arizona did so with knowledge of the existence of all of these contracts.

We had relied upon the specific interpretations of the compact, that her own counsel had previously alleged, when these contracts were made. She came to the Supreme Court and alleged that their quantity was within the quantity we were entitled to under the Limitation Act. She said that she wanted nothing to do with this Limitation Act and Project Act, that they were invalid. Mr. Engle asked me earlier whether Arizona had ever rejected the Limitation Act bargain. She did so in this Supreme Court suit.

Her governor, Governor Stanford, understood perfectly what had happened in these suits. He came on to Washington and testified in 1937. His testimony is reprinted in the hearings of the Senate Committee on Irrigation and Reclamation on Senate Resolution 304, Seventy-eighth Congress, pages 103–104. He expressed his complete dissatisfaction with the result in that case, and said:

> The Colorado River compact to which Arizona is not signatory and by which it is not bound, includes in its purported allocations present perfected water rights and both the main stream and tributaries of the Colorado River System.

Then he went on with his allegations of what that did to Arizona.

This review I have made of these three Supreme Court cases demonstrates the existence of a very deep and serious controversy over the meaning of the documents comprising the law of the river, demonstrated by the diametrically opposite views taken by Arizona herself in these three Supreme Court suits.

Now, Arizona invites you to agree with her present counsel that his predecessors were mistaken, that Arizona does have rights which her Supreme Court briefs and pleadings said she did not have, and that you are entirely safe in risking a billion dollars on the opinion of her present counsel.

Mr. ENGLE. There is one thing further, Mr. Ely. As I get this situation here, as late as 1937 Arizona was admitting that under these basic documents California is entitled to certain amounts of water. In other words, in 1922 we had the compact, in 1928 the Boulder Canyon Act, then in 1929 the Limitation Act and California then proceeded through firm contracts to commit itself off the deep end in the expenditure of some $550,000,000 worth of works; is that correct?

Mr. ELY. That is correct, sir.

Mr. ENGLE. All predicated upon reliance on these agreements and during a large portion of that time when these works were being put into operation, Arizona was making precisely the same contentions which California contends are correct. Relying upon this apparent agreement California spent the money.

Now, what I want to know is, when did Arizona do this "loop" and end up going in the opposite direction, making contentions which place the investment by California of some $550,000,000 in jeopardy?

Mr. ELY. That loop, as you called it, apparently took place about 1944. At the time that Arizona decided she would ratify the Colorado River compact on an interpretation by her counsel differing from all of those of his predecessors, that is, upon the recommendations of Arizona's then counsel, that III (b) water all belonged to Arizona, and that the measure which Arizona was to be charged with was depletion and not diversion minus return flow.

In other words, Arizona, a late comer to this agreement in 1944, coming in unilaterally after California had made $500,000,000 of commitments, now invites expenditure of a new billion on the assumption that the compact means something new and different.

You are quite correct in saying that during all of the time that these great commitments were under study and were made, the Arizona allegations as to the meaning of the compact and the project act were what we now say; not what she now says.

Mr. MURDOCK. Our time is about up this morning. How much longer have you in your prepared statement?

Mr. ELY. I desire to cover the legislative history of the Boulder Canyon Project Act.

Mr. MURDOCK. That will take about how long?

Mr. ELY. I think possibly an hour all together.

Mr. MURDOCK. It is a little hard to see where we have an hour. In that case, then, we will not continue with the further presentation at this moment because we have the consent calendar and there are many bills up for consideration. Is it agreeable with the committee that when we adjourn, we reconvene at 3 o'clock this afternoon?

(Discussion off the record.)

Mr. MURDOCK. When we adjourn we shall meet at 3 o'clock this afternoon unless a meeting of the House prevents.

Mr. ENGLE. I am going to serve notice now that in the absence of a quorum I will raise that point at 3 o'clock. I do not think it is fair to try to jam these last few hours of hearing. We have reserved two of our most important witnesses to the last, who can make a very intelligent, and it seems to me, worth-while presentation on this matter. I have offered the committee chairman the time and I do not see the reason for that kind of business. If Mr. Carson has some people who want to get away I do not object to hearing them out of order.

Mrs. BOSONE. Certainly I do not want to miss a word the present witness has to tell us and I do not want to miss a word of Mr. Carson's. I think they are both good witnesses.

Mr. MURDOCK. They are, indeed.

Mr. CARSON. I was going to say Mr. Wingfield and Mr. Sargent could go here this afternoon and complete their testimony. It does not relate to any of these law matters at all and I would greatly appreciate it if they could be heard and excused.

Mr. MURDOCK. That is a good suggestion. The committee will meet, then, at 3 o'clock, but we are not adjourned yet. I have a few questions to ask this witness before we adjourn. The committee will meet at 3 o'clock this afternoon.

Now, just a few questions, Mr. Ely. This is out of order, of course, because you have not completed quite, but I feel that in 3 or 4 minutes I can get the answers that I want.

You did not identify yourself too fully when you took the stand. You represent the Colorado River Board of California?

Mr. ELY. My statement was, I am special counsel for the Colorado River Board of California and appear here as one of the attorneys for the State of California.

Mr. MURDOCK. That is good. Now, you are a resident representative and a registered lobbyist?

Mr. ELY. Mr. Murdock, I am a resident of the State of California. I have an office in the city of Washington. I represent California and several of her water agencies here. I have, as required by the Lobby Act, registered. I may say that Arizona's counsel have not.

Mr. MURDOCK. Now, Mr. Ely, what was your official position in regard to these water matters in 1933?

Mr. ELY. 1933, sir?

Mr. MURDOCK. Yes.

Mr. ELY. I think you have the wrong year. You mean 1932?

Mr. MURDOCK. Yes, 1932?

Mr. ELY. I served as executive assistant to the Secretary of the Interior from March, 1929 to March, 1933. Is that your question?

Mr. MURDOCK. That is the correct answer. Are you familiar with this document known as the Hoover Dam contracts, by Wilbur and Ely?

Mr. ELY. Yes, sir; I am one of the authors.

Mr. MURDOCK. This copy I hold is the original rather than the final one. A good deal has been said here this morning about somebody doing a loop, and changing positions. It seems you have done something like that. Are you familiar with this language, found on page 374 of this document:

No. 10.—Delivery of water by the United States.—From storage available in the reservoir created by Hoover Dam, the United States will deliver under this contract each year at points of diversion hereinafter referred to on the Colorado River so much available water as may be necessary to enable the beneficial consumptive use in Arizona of not to exceed 2,800,000 acre-feet annually, by all diversions effected from the Colorado River and its tributary below Lee Ferry, but in addition to all uses from waters of the Gila River and its tributaries, subject to the following provisions:

You are familiar with that part?

Mr. ELY. Yes, sir; I shall be happy to comment upon that.

Mr. MURDOCK. What is this document, please sir, from which I have read?

Mr. ELY. I think you are reading from the regulations of Secretary Wilbur dated February 7, 1933, in the formulation of which I had the honor to participate.

That was an offer by Secretary Wilbur of a proposed water contract for the storage and delivery of water from Hoover Dam. The Secretary was unable to get Arizona to the council table, to work out any of the water or power matters involving Arizona. She contended the Boulder Canyon Project Act was unconstitutional. Secretary Wilbur was determined, for Arizona's protection, having in mind the probability that a treaty with Mexico would some time be negotiated, to at least offer to Arizona a contract comparable to those which had been made with California and which would stand there as an offer in the form of regulations. In whatever degree was possible in the absence of Arizona's willingness to negotiate, it would be some protection for her in any future negotiations, at least indicating a block of water which should be available for Arizona if she chose to take it.

Mr. MURDOCK. In other words, that is explained on page 42 in these words—I am reading from the middle of page 42 of this document:

The proposed water contract with Arizona is specifically stated to be without prejudice to the States of the upper basin and relates solely to waters present in the lower basin. Arizona is thus offered an assurance of 2,800,000 acre-feet of main stream water and given an opportunity to look to the United States rather than to any agreement with the other States for delivery of that quantity of water in return for an agreement not to interfere with diversions by her sister States.

That is the point to which you refer?

Mr. ELY. That is correct, Mr. Murdock. You have, however, overlooked, inadvertently, I am sure, the language which ought to be read with that. The regulations proposed, promulgated by Secretary Wilbur in February 7, 1933, contain the following statement. This is at page 57 of my statement, by the way. It was an offer to deliver. [Reading:]

So much available water as may be necessary to enable the beneficial consumptive use in Arizona of not to exceed 2,800,000 acre-feet annually by all diversions effected from the Colorado River and its tributaries below Lee Ferry, but in addition to all uses from waters of the Gila River and its tributaries, subject to the following provisions:

The last language was omitted in the present reading by the chairman, and omitted in the previous readings by Arizona witnesses, if I am not mistaken.

The "following provisions" included article 10 (c):

It is recognized by the parties hereto that differences of opinion may exist between the State of Arizona and other contractors as to what part of the water contracted for by each falls within article III (a) of the Colorado River compact, what part within article III (b) thereof, what part is surplus water under said compact, what part is unaffected by said compact and what part is affected by various provisions of section 4 (a) of the Boulder Canyon Project Act. Accordingly, while the United States undertakes to supply water from the regulated discharge of Hoover Dam, in quantities stated by this contract, as well as contracts heretofore or hereafter made pursuant to regulations of April 23, 1930, amended September 28, 1931—

those are the California contract regulations—

This contract is without prejudice to relative claims of priorities as between the State of Arizona and other contractors with the United States, and shall not otherwise impair any contracts heretofore authorized by said regulations.

the California contracts.

I might as well continue with the reading of the comment in my paper on that, on page 57.

This was not an "administrative determination" that the water which Arizona was to get under this offer—which she rejected—was 2,800,000 acre-feet of III (a) water; it was a plain warning of a dispute over the classification of that water, and moreover stated that the contract offered "shall not impair any contract heretofore authorized" under the previous regulations which authorized the California water contracts.

Arizona rejected that offer, but sought to reinstate it in 1934 in somewhat different form.

In a hearing before the Secretary of the Interior December 17, 1934, on Arizona's proposed water contract, Mr. Carson, counsel for Arizona, read from a prepared statement as follows:

The contract does not include and there will not be affected by it the use of water from the tributaries in Arizona, estimated at 2,500,000 to 3,000,000 acre-feet.

Mr. MURDOCK. We will have to discontinue this statement until we meet again. I simply wanted to ask whether you officially recognized this document, although I regret that I did not read the entire document as you thought needed.

Mr. ELY. Yes.

Mr. MURDOCK. It is an official document contained in the compilation which you yourself had much to do in compiling. It was an offer made to Arizona. You have said it was rejected. I wanted to be sure of your position at that time and of the offer made.

Mr. ELY. Let us be very certain, Mr. Murdock, that we all understand that this was not an offer of 2,800,000 acre-feet of III (a) water, which is what Arizona now contends, but was an offer of wet water of all categories which included surplus.

Mr. MURDOCK. It was an offer of 2,800,000 acre-feet out of storage at Hoover Dam. The committee stands adjourned until 3 o'clock.

(Whereupon, at 12:05 p. m., the committee recessed, to reconvene at 3 p. m., same day.)

(CLERK'S NOTE.—By order of the committee the rebuttal testimony of June 6, 1949, afternoon session, follows the testimony of June 7, 1949.)

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THE CENTRAL ARIZONA PROJECT

TUESDAY, JUNE 7, 1949

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION OF THE
COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

The subcommittee met at 10 a. m., Hon. John R. Murdock, (chairman of the subcommittee) presiding.

Mr. MURDOCK. The committee will come to order, and we will proceed with the hearings on H. R. 934, according to schedule. Mr. Ely was on the stand, being questioned, although he had not yet completed his statement. Are you ready to proceed, Mr. Ely?

STATEMENT OF NORTHCUTT ELY—Resumed

Mr. ELY. Yes, Mr. Chairman.

Mr. MURDOCK. While Mr. Ely is preparing, I might say that we have this morning 1 hour for our session, and I am rather anxious that we can wind up the entire matter. We have a half hour of rebuttal after the present witness and the other witness. We may have an afternoon session today. Judge Bosone has very kindly suggested an evening session. I think that is very kind of you, Judge. As she says, these men who have wives to do their work ought to be able to have an evening session, as she is quite willing to do.

So, we will see how matters run along and it may or may not be that we will need to have an evening session.

Mr. Ely, you may proceed.

Mr. ELY. Mr. Chairman, I shall take up in summary the parts of my statement dealing with the Colorado River compact, starting on page 8, and the legislative history of the Boulder Canyon Project Act, beginning on page 23.

Yesterday I endeavored to develop the fact that the primary question between Arizona and California, involving some 2,000,000 acre-feet of water, hinges upon the question of whether, under the Colorado River compact, the uses with which these several basins are charged, and hence with which Arizona is charged, are measured by the actual consumptive use, or by the amount of the depletion, measured at some downstream point; and second, whether under the terms of the Boulder Canyon Project Act and the California Limitations Act California is entitled to participate in the 1,000,00 acre-feet of water referred to in article III (b) of the Colorado River compact.

Bearing those points in mind I shall refer briefly to the reports of the negotiators of the Colorado River compact.

I want to make this point at the outset, that the United States Supreme Court, in the second suit which I shall refer to, made it very

clear that it was only such reports of the negotiators as were communicated to their respective legislators and communicated to the Congress that could be properly considered in any judicial proceedings.

We are not concerned, therefore, with what negotiators may have said to each other or written to each other and we are not concerned with a photograph on which Arizona placed so much stress. We are concerned only with the reports made by the negotiators to their respective legislatures.

The compact is an agreement among sovereigns, that is, among legislatures and not among individuals. And to the extent that the Congress and the State legislatures were not informed of conversations, none of these legislatures were bound by such conversations, whether in our favor or in Arizona's favor.

Now it so happens that there were submitted directly to the Congress the very comprehensive reports made by Delph Carpenter to the Colorado Legislature. He was one of the primary architects of the compact. You will recall that the Supreme Court's decision, in *Arizona* v. *California* (292 U. S. 341), said:

> * * * There is no allegation that the alleged agreement between the negotiators made in 1922 was called to the attention of Congress in 1928 when enacting the act; nor that it was called to the attention of the legislatues of the several States.

Mr. ENGLE. On what page are you reading?

Mr. ELY. On page 10 of my statement.

I make the point that it is curious why, if this agreement was ever in fact made, Arizona did not take the trouble to tell the other State legislatures or the Congress about it; and even more curious is the claim that Congress intended to adopt and enforce an agreement that it never heard of.

Now this is what the negotiators did report. You will note on pages 10 through 12 statements from the negotiators for California, Wyoming, and Colorado. With reference——

Mr. ENGLE. What is the alleged agreement you refer to on page 10 of your statement?

Mr. ELY. Arizona claims that the negotiators of the Colorado River compact had an understanding as to article III (b), which entitles the lower basin to increase its use by 1,000,000 acre-feet, that this 1,000,000 acre-feet was to go to Arizona, and that the three States would subsequently enter into an agreement among themselves to that effect.

Mr. ENGLE. And even so it was just a gentlemen's agreement. Is that the purpose of the reference to the point you are talking about?

Mr. ELY. That is correct.

Mr. ENGLE. And what the Court is talking about where it said that the alleged agreement was not called to the attention of the respective legislatures.

Mr. ELY. That is correct. The Court said that Arizona was trying to prove that the language in paragraph (b) of article III meant that that water apportioned to the whole lower basin by article III (b) was for the sole and exclusive use of the State of Arizona.

On that question the three available reports of California, Colorado, and Wyoming negotiators are quoted in my statement. These reports

appear in the second edition of the Hoover Dam documents, House Document 717, which I had the honor to compile last year and which I think the members of the committee have. You will find them indexed. Here is what the negotiators said about article III (b). First, from the Colorado report, quoted at the bottom of page 11 of my statement, in which Delph Carpenter said:

By reason of development upon the Gila River and the probable rapid future development incident to the necessary construction of flood works on the lower river, the lower basin is permitted to increase its development—

and the lower river refers to the main stream—

the lower basin is permitted to increase its development to the extent of an additional 1,000,000 acre-feet annual beneficial consumptive use before being authorized to call for a further apportionment of any surplus waters of the river.

Now, the Wyoming negotiator, Mr. Emerson, in his report to the Governor of the State and to the legislature—and this is found on page 12 of my statement—stated:

* * * The lower basin is allowed to increase its use of water 1,000,000 acre-feet per annum in addition to the 7,500,000 acre-feet apportioned for its use by reason of the possible developments upon the Gila River, and the probable rapid development generally upon the lower river.

Note, again his statement:

This additional development is at the peril of the lower division as no provision is made for delivery of water at Lee Ferry for this additional amount.

The California negotiator's report uses exactly the same phrase—and this is found on page 11:

Probable rapid development upon the lower river.

Here are three negotiators reporting entirely independently of each other, to their respective legislatures, and using the same phrase, "probable rapid development upon the lower river," occasioned by the construction of Hoover Dam and the flood-control works down below. That is to say, the III (b) water was added as a margin of safety, using a phrase of Judge Sloan, of Arizona, a margin of safety for the whole lower basin, to take care of the rapid development anticipated upon the lower river and following the construction of Hoover Dam, as well as for the development of the Gila. It was not earmarked or identified with the Gila River in any respect.

Judge Richard E. Sloan, of Arizona, to whom I referred, was legal adviser to the Arizona Commissioner, and was a member of the drafting committee which wrote the Colorado River compact. I shall come back to that in a moment.

Now, to make this even clearer: Herbert Hoover, who presided over the compact negotiations for the United States, replied to a questionnaire from Congressman Carl Hayden, of Arizona, January 27, 1923—that is cited on page 12 of my statement, and it also appears in full text in the Hoover Dam documents, House Document 717.

Mr. Hayden asked Mr. Hoover this question:

Question 6. Are the 1,000,000 additional acre-feet of water apportioned to the lower basin in paragraph (b) of article III supposed to be obtained from the Colorado River or solely from the tributaries of that stream within the State of Arizona?

Mr. Hoover replied:

The use of the words "such waters" in this paragraph clearly refers to waters from the Colorado River system, and the extra 1,000,000 acre-feet provided for can therefore be taken from the main river or from any of its tributaries.

Mrs. BOSONE. What are you reading?

Mr. ELY. I am reading from page 12 of my statement. I quoted question 6 which reads:

Question 6. Are the 1,000,000 additional acre-feet of water apportioned to the lower basin in paragraph (b) of article III supposed to be obtained from the Colorado River or solely from the tributaries of that stream within the State of Arizona?

Answer. The use of the words "such waters" in this paragraph clearly refers to waters from the Colorado River system, and the extra 1,000,000 acre-feet provided for can therefore be taken from the main river or from any of its tributaries.

Then, question 22:

Does the Colorado River compact apportion any water to the State of Arizona?

Answer. No; nor to any other State individually. The apportionment is to the groups.

Arizona's claim now before you is that the 1,000,000 acre-feet is found only in the Gila River; that it is available to Arizona exclusively.

Mr. MURDOCK. Pardon me, Mr. Ely, did Mr. Hoover at that time in speaking of III (b) use the word "apportion"? My recollection is that he did.

Mr. ELY. Yes. I am glad to meet that point now, Mr. Murdock. You will find throughout the literature upon this subject confusion in using the terms "apportionment," "appropriation," and "allocation." This word was not a word of art in 1922 or 1923 when these men were speaking; none of them foresaw that in 1928 Congress would, in the Boulder Canyon Project Act, require an enactment by California of the Limitation Act, and use this word "apportion." You will find it loosely used by many gentlemen in numerous places—"apportion," "allocate," "divide"—they did not have very much difference in use. And there was no reason why they should have. But in the report of Delph Carpenter, the distinction clearly appears. He was the one man in this whole group of negotiators who made it crystal clear to his legislature and to the Congress the distinction between apportionment, as used in article III (a), and all other allocations used throughout the compact, particularly of III (b), which he specifically says is not apportioned.

You are right that Mr. Hoover uses the word "apportionment" in his answer.

Mr. MURDOCK. I wondered if he had made a distinction in the III (b) water apportionment?

Mr. ELY. I respectfully suggest that Mr. Hoover, like many others who referred to it back prior to the enactment of the Colorado Project Act, was not attempting to use a word of art. As a matter of fact, throughout these hearings, even in recent years, you will find the same confusion. I have heard witnesses use the word "appropriate" instead of "apportion," and that is one of the reasons you have great difficulty in following the record sometimes.

Mr. MURDOCK. Is there any specific significance in the use of the word "apportionment" or any specific significance to the word "sur-

plus," which you say are used rather loosely by the people who formed this compact and the legislation? That is rather confusing.

Mr. ELY. It was not used loosely by Mr. Carpenter, as I will later point out, in his report to his legislature, and which report was placed in the Congressional Record during the debates on the Boulder Canyon project. I will come to that point now.

On page 14 of my statement, you will find, a discussion of the question as to whether the negotiators of the compact intended to classify the III (b) waters as "apportioned."

Strictly speaking, the question here is what Congress and the California Legislature intended in 1928—in the project act and California Limitation Act—not what the negotiators said in 1922.

Mr. ENGLE. I would like to stop you there for a question.

Mr. ELY. Yes.

Mr. ENGLE. So as to clear that up if we can. Why is the word "apportion" important, or why are you devoting a part of your brief to the proposition of whether or not the negotiators considered the III (b) water as apportioned? I woud like to state the purpose, and will you please correct me if I am in error?

The compact refers to three types of water—the water apportioned in perpetuity, that is, the III (a) water; the III (b) water, under which the lower basin was entitled to increase its take by 1,000,000 acre-feet; and the balance of the water which is referred to as surplus.

Now as I understand the situation there is an effort on the part of Arizona, by using the word apportion, to make the III (b) water a part of the III (a) water. Is that correct?

Mr. ELY. That is correct, insofar as the operation of the California Limitation Act is concerned.

Mr. ENGLE. In other words, the California Limitation Act uses what language? Does it use the word "apportion of III (a)," or does it not?

Mr. ELY. Let me read the provisions of article III (a) and III (b) of the Colorado River compact and the related language in the Boulder Canyon Project Act.

Mr. ENGLE. I wanted to make clear to the committee, if I could, why the word "apportionment" is being rolled around so much.

Mr. ELY. Yes.

Mrs. BOSONE. Is "apportionment" used in the III (b) text?

Mr. ELY. No.

Mr. ENGLE. The word "apportionment" is not used in III (b)?

Mr. MURDOCK. Pardon me, but you will find that it is used there.

Mr. ENGLE. The balance of the water is surplus?

Mr. ELY. That is correct; all above III (a).

Mr. ENGLE. Certain construction is sought to be put on the word "apportionment" of which would make the III (b) water apportioned, and that is why you are taking so much time in discussing it.

Mr. MURDOCK. May I suggest that if the lady will note the fifth word in the sentence III (b) it will be of interest, for the word "apportionment" is there—it is not "surplus." Also I would like to make this point, that I think Mr. Engle has thrown in an extra classification when he speaks of three types of water in talking about apportioned and surplus water.

Now, I wonder if the Supreme Court used the word "apportioned"?

Mr. ENGLE. That is the exact point I want to get, Mr. Chairman, and that is the reason I wanted to make it clear just what is happening. First of all, there are three classes of water mentioned—one is the III (a); water that is apportioned in perpetuity; the other is III (b), water which the lower basin can use, the 1,000,000 acre-feet; and the other is surplus water, which would be divided equally. That is the point I am stressing here, so the committee can see what we are talking about, whether the III (b) apportions water in order to bring water within the limitations of the California Limitation Act. That is the point I wanted to get clear.

Mr. MURDOCK. No; in spite of that confusion, I insist that III (b) is apportioned water. Go ahead, Mr. Ely.

Mr. ELY. You say III (b) water is?

Mrs. BOSONE. This is the crux of the whole question of whether the 1,000,000 acre-feet of available water, the 1,000,000 acre-feet and water from the Gila River is to be charged against Arizona.

Mr. ELY. As Judge Bosone said, this is the crux of the question and I want to refer to article III (a) and III (b) of the compact. Article III (a) of the Colorado River compact reads:

There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

Article III (b) reads:

In addition to the apportionment in paragraph (a) the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

That is the language used in the Colorado River compact in 1922.

Now I come up to the related language in the Boulder Canyon Project Act of 1928, section 4 (a), which required California as a condition to making the compact effective as a six-State compact, to enact the limitation act.

Mr. MURDOCK. Does the language of III (b) and III (a) appear in your statement?

Mr. ELY. Yes, Mr. Murdock; at page 9. I am taking them up somewhat differently from the order in which they appear in my statement, because of the order of the questions.

Mr. MURDOCK. If you find them, I want to suggest that you note the fifth word in the sentence in III (b). It is an additional apportionment.

Mr. ENGLE. You are referring to the Colorado River compact?

Mr. MURDOCK. Yes. The III (b) water is an additional apportionment.

Mr. ELY. The language of III (b) is quoted also at page 10 as part of the Court's opinion in *Arizona* v. *California* (292 U. S., p. 341), near the top of the page.

The language from the Boulder Canyon Project Act, section 4 (a), is quoted on page 25 of my statement. If you will turn to page 25, and follow me down to about two-thirds down in the single-space material, you will find this language—

further, until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an express

covenant and in consideration of the passage of this Act, that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this Act and all water necessary for the supply of any rights which may now exist, shall not exceed four million four hundred thousand acre-feet of the waters apportioned to the lower basin States by paragraph (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

As you will see, article III (b) is not used in that language. The question is whether California, by that language, is excluded from participating in III (b) water, or whether California can use III (b) water free of any restrictions, so that she may appropriate all of it, or whether the III (b) water is to be classified as a part of the excess or surplus water unapportioned by the compact, of which California may take one-half.

I will come to the legislative history of this language, after I have disposed of the reports of the negotiators of the compact in 1922.

I refer to page 13 of my statement. Arizona's negotiator did not report anything definite to his own legislature, so far as we know, about the intention with respect to III (b) water, because nothing appears in the published journals of the Arizona Legislature for 1923, although there was a great deal of debate on the compact itself. One legislator explained her vote against ratification of the Colorado River compact by the statement that she had been for it until she heard Mr. Norviel explain that the Gila was included, and she would not vote for it. If Mr. Norviel reported to the legislature any conversations about III (b) water being intended for Arizona, the record does not show it. Obviously he did not convince his legislature, because the legislature rejected the Colorado River compact. The lower house approved the compact with a reservation—

That the Gila River system, including the waters of said Gila River and streams tributary thereto, be not included, considered or involved in any way with the so-called Colorado River compact.

So if Mr. Norviel reported anything off the record to the Arizona Legislature he did not convince the legislature.

Before hearing the reports of the negotiators, may I revert to the issue of "consumptive use"? Beginning on page 19, I cited the report of Mr. Carpenter to the Colorado Legislature, which report was placed before the Congress during the consideration of the Project Act. On the question as to what the negotiators of the compact meant by the expression "beneficial consumptive use," Mr. Carpenter in reporting to the legislature said:

* * * It means the amount of water consumed and lost to the river during uses of the water diverted. Generally speaking, it is the difference between the aggregate diverted and the aggregate return flow. It is the net loss occurring through beneficial uses.

In a supplemental report, quoted at the bottom of page 19 of my statement, Mr. Carpenter quoted Director Davis of the United States Reclamation Service as defining the term as "diversion minus the return flow." Mr. Carpenter's supplemental report continued:

Water diverted and carried out of the basin of the Colorado River by the Strawberry, Moffat, or other tunnels or by canal into the Imperial Valley is wholly consumed as regards the Colorado River, because no part of it ever returns to that stream system.

Mr. Carpenter, testifying before the Senate Committee on Irrigation and Reclamation in 1925, placed in evidence a tabulation prepared by Mr. R. I. Meeker, now a witness for Arizona, in which he described the flow of the Gila as approximately 3,000,000 acre-feet.

I come now to the very interesting statement of Judge Sloan, of Arizona, found at the bottom of page 20 of my statement. Judge Sloan was legal adviser to the Arizona negotiators, and he was a member of the drafting committee which wrote the Colorado River compact. He had been Territorial Governor of Arizona, and was one of the State's most distinguished lawyers. His statement rather appears in full in the Hoover Dam documents on A–63. This statement was published January 15, 1923, less than 2 months after the compact was signed. In it he stated:

> It may be of interest to know why the figures of 7,500,000 acre-feet for the upper basin and 8,500,000 acre-feet for the lower basin were reached. It grew out of the proposition made by the upper basin that there should be a 50–50 division of rights to the use of the water of the river between the upper and lower basin which should include the flow of the Gila, and the insistence of Mr. Norviel, commissioner from Arizona, that no 50–50 basis of division would be equitable unless the measurement should be at Lees Ferry. As a compromise the known requirements of the two basins were to be taken as the basis of allotment with a definite quantity added as a margin of safety. The known requirements of the upper basin being placed at 6,500,000 acre-feet, a million acre-feet of margin gave the upper basin an allotment of 7,500,000 acre-feet. The known future requirements of the lower basin from the Colorado River proper were estimated at 5,100,000 acre-feet. To this, when the total possible consumptive use of 2,350,000 acre-feet from the Gila and its tribuaries are added, gives a total of 7,450,000 acre-feet. In addition to this, upon the insistence of Mr. Norviel, 1,000,000 acre-feet was added as a margin of safety, bringing the total allotment for the lower basin up to 8,500,000 acre-feet. This compromise agreement is justified when we consider that the flow of the river will not be affected by any artificial division but will continue uninterrupted, to be used for any beneficial purpose recognized, including power, as freely as though no such apportionment had been attempted.

Judge Sloan is clear that the consumptive uses in the Gila are 2,350,000 acre-feet; that is how the figure of 7,450,000 acre-feet which he gives (rounded out to 7,500,000 acre-feet in article III (a) of the compact) was arrived at. He does not hint that the Gila uses were written down to a million acre-feet by application of the depletion theory; he states them as what they are, 2,350,000. Nor does he claim that the million acre-feet of III (b) water was intended for Arizona; he calls it "a margin of safety, bringing the total allotment for the lower basin up to 8,500,000 acre-feet."

Now, the matter rested until 1928. Six States ratified the Colorado River compact; Arizona rejected it. A number of conferences were held during this period trying to get Arizona in the compact. Whenever the States seemed likely to get together on a division of water, they broke apart on issues of money. In 1923, one house of the Arizona Legislature had passed a bill approving the Colorado River compact on condition that Arizona be paid a royalty of $5 per horsepower per year at Boulder Dam, if built. This would have meant about $9,000,000 per year, as things now stand. California, as a public-power State, believed in low-cost power; Arizona wanted all the traffic would bear. On other occasions, Arizona scaled her money demands down, but they were always prohibitive.

In 1927, the Governors of the seven States held protracted meetings which Arizona now says were an "arbitration." They were nothing

of the kind; the four upper-basin Governors offered their good offices and proposed a compromise formula, but both California and Arizona (and, for that matter, the Congress) rejected it. Further reference to this is made in connection with Senator Pittman's and Senator Hayden's amendments to the Boulder Canyon Project Act, to which I now turn.

I have already read to you the language from the Boulder Canyon Project Act, section 4 (a), which was finally enacted. I shall now take up the legislative history of the language, and may I ask you to turn to page 26 of my statement. I have read section 4 (a), the first paragraph, which required California to enact the Limitation Act as a condition to making the compact effective as a six-State document. That was a condition precedent to the effectiveness of the project act. That condition was met, which brought the compact into effect 6 months thereafter, on proclamation of the President.

There was also in section 4 (a) another paragraph authorizing a compact among the States of California, Arizona, and Nevada. That, however, was no condition precedent; it was a simple authorization, and the three States there involved never adopted the compact therein proposed. I am reading from page 26 of my statement; that second paragraph reads as follows:

> The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that, of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River Compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico—

and so on.

The full text is set out, but I shall not read it because of the limited time.

It will be noted that the term "consumptive use" appears three times in section 4 (a) of the Boulder Canyon Project Act, once with respect to California, twice with respect to Arizona. As to California, it is defined as "diversions less returns to the river." As to Arizona, it is not defined, but the references to Arizona appear in the sentence immediately following the sentence containing the definition.

The two sentences are reciprocal, purporting to deal with all the waters available to the lower basin. Arizona says, nevertheless, that the phrase "consumptive use" in her case means "depletion," and hence has a meaning different from and more favorable than, the meaning of the same phrase used as to California in the same section relating to the same subject matter and specifically defined. This extends far beyond Arizona's plea for a special method of accounting on the Gila. It extends to her uses from the main stream, which, like California's, are serviced by Hoover Dam storage; and the central Arizona project is to be served from Hoover Dam storage. It means that she wants two methods of measurement applied to water released from the same reservoir under similar contracts made under the same statute,

one method crediting Arizona with all water salvaged on the main stream as well as on the Gila, the other method charging California with her full diversions. This is a rather extraordinary piece of statutory construction. It is no more extraordinary, however, than another claim of Arizona relating to these same two sentences, to which we now turn.

Did Congress intend to exclude California from participation in the III (b) water? And here, Judge Bosone, as you indicated, we get to the nub of this whole question.

It will be noted that neither the first paragraph of section 4 (a), which deals with water for California via the proposed California Limitation Act, nor the second paragraph, which deals with water for Arizona via a proposed tri-State compact, makes any mention of the million acre-feet referred to in article III (b).

Arizona argues that silence as to the million acre-feet in the first paragraph is intended to bar California; that silence on the same subject in the second paragraph is intended to have the opposite effect, awarding the million acre-feet to Arizona.

Now let us take up the legislative history of that section, and see if it purports to produce that extraordinary result.

In May of 1928, during the first session of the Seventieth Congress, which ended in a filibuster by the Arizona Senators against the Boulder project bill, Senator Pittman proposed an amendment to the Boulder Canyon Project Act, explaining that there was no time to act, but that he was making the offer as the basis of a compromise for later consideration.

On December 5, 1928, when the Congress had reconvened and the Project Act was made the first order of business, Senator Hayden picked up Senator Pittman's amendment, had it printed, and made an explanation of it.

I have photostatic copies of Senator Hayden's amendment, printed in parallel columns on the same piece of paper with the Boulder Canyon Project Act, section 4 (a). I have marked on this photostat, in different-colored pencils, four significant pieces of language in the Hayden proposal, and the corresponding places in the bill as finally enacted.

(This photostat appears as exhibit III–D herein.)

This proposal was discussed at various times between December 5 and December 18, 1928. Several Senators tackled the question of a proposed compromise.

Before taking up this language of Senator Hayden and tracing what happened during the discussions, I want to emphasize the categorical statement which appears on page 31 of my prepared statement: that not one Senator nor one draft of amendment disclosed any intent to exclude California from participating in the million acre-feet of III (b) water, and every Senator who faced that question expressed the intent that California should participate in that million acre-feet.

In the left-hand column of the photostat is the amendment proposed by Senator Hayden. It is identical with the amendment printed in the Congressional Record proceedings of May 28 by Senator Pittman.

The first lines that I have underscored appear on page 1, lines 5 to 9 of the Hayden amendment. They appear in the text which specifies

the language of the Limitation Act which California shall adopt, and they state:

> And that the aggregate beneficial consumptive use by that State of waters of the Colorado River shall never exceed 500,000 acre-feet of the water apportioned by the compact to the lower basin by paragraph (b) of said article III.

Senator Hayden was specifically proposing that California might participate to the extent of 500,000 acre-feet of article III (b) water. That apparently should dispose forever of the contention that III (b) water is found only in the Gila. Was Hayden expecting California to get 500,000 acre-feet from the Gila River? You will find a line drawn on this photostat from the language underscored in red in the Hayden amendment down to the corresponding line in the act. There you will find that the language I have just read is completely omitted from the act as enacted. No reference to the 500,000 acre-feet for California is found. Now, let us see what became of the 500,000 acre-feet he proposed for Arizona.

The next language I wish to quote from Senator Hayden's amendment appears on page 2, line 20, and reads as follows:

> The said ratifying act shall further provide that, if by tri-State agreement hereafter entered into by the States of California, Nevada, and Arizona the foregoing limitations are accepted and approved as fixing the apportionment of water to California, then California shall and will therein agree—

whereas in the act itself the language states:

> The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide—

and there is nothing mandatory in the act with respect to an allotment to Arizona. Senator Pittman secured that change by specific amendment on the Senate Floor. He made it very clear he was doing so designedly, to take out of the bill anything which called upon California to agree to any specific apportionment to Arizona.

Mr. MURDOCK. May I interrupt you, Mr. Ely, for an observation?

Mr. ELY. Yes, Mr. Murdock.

Mr. MURDOCK. You have shown that Senator Hayden offered, in the course of that legislation in the Senate, an amendment providing that 500,000 acre-feet should go to California, and that the amendment was defeated.

Mr. ELY. Pardon, Mr. Murdock, it appears that he withdrew that amendment, and subsequently offered another specific amendment, but this amendment was not defeated.

Mr. MURDOCK. Very well, but it was only one of many moves. This occurred during the heat of debate which took place on the floor of the Senate, and I want to call attention to the fact that under such circumstances often moves are made which appear to be in the opposite direction.

You are familiar, I am sure, with the game called football, where a team trying to carry the ball to the north goal actually permits the ball for the time being to go in the opposition direction. All have seen plays where the player ran back taking the ball toward the south end of the field in order to eventually reach the north goal posts. That is apt to occur in making a forward pass. There is such a thing as going in the wrong direction very wisely on the football field, and I just wanted to call your attention to the fact that sometimes in other

games we have to make moves in the opposite direction in order to have a chance to move in the direction we ultimately are going.

Mr. ELY. Mr. Murdock, knowing Senator Hayden as I do, I am sure he would never run the wrong way with the ball.

Mr. MURDOCK. No; not in football nor in legislation, unless it be a shrewd move for advantage. His offers must be taken collectively.

Mr. ELY. Now may I continue, to show what Senator Hayden's position was as to the 1,000,000 acre-feet, and this appears in the next lines which I have underlined in Senator Hayden's amendment, on page 3, line 5, which reads:

Of the 1,000,000 acre-feet in addition which the lower basin has the right to use annually by (b) of said article, there shall be apportioned to the State of Arizona 500,000 acre-feet for beneficial consumptive use.

I have traced on the photostat, from the Hayden amendment to the parallel language of the act as it was finally enacted, which appears on page 3, line 5. There you will note that the language he proposed, allocating 500,000 acre-feet to Arizona, completely disappears in the act as it was enacted. There is no reference to it; no reference to the 500,000 acre-feet for Arizona; no reference to 500,000 acre-feet for California, and no reference to III (b) water at all.

Now, the next language I have underscored appears at page 3, line 11, of the Hayden amendment:

That the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State.

That language stayed in the act as passed.

What did Congress intend by dropping out the reference to the 1,000,000 acre-feet? Did it intend to exclude California from that 1,000,000 acre-feet and give it all to Arizona? It is rather remarkable to note that the omission of the equal division in both paragraphs should produce opposite results, as though it had been amended to read "to California none, to Arizona all."

Now, then, let us take up the explanation given by Senator Hayden on the floor, and the explanation given by Senator Pittman, Senator King, Senator Bratton, and Senator Johnson. Not one Senator who addressed himself to the subject expressed any intent to exclude California, and each of them recognized that California was intended to participate in the 1,000,000 acre-feet.

Here is what Senator Pittman said at the time he printed his proposed amendment, which was identical with this Hayden amendment in the preceding May. Senator Pittman made an explanation in the Congressional Record which appears in the Record for May 28, 1928, page 10259, wherein he said that in examining the recommendations of the Governors—

we discovered that there were 1,000,000 acre-feet of water more to divide than we had discussed at Denver.

Then he said:

Divide that 1,000,000 acre-feet between California and Arizona.

He said, at a later point:

This extra 1,000,000 acre-feet was not discovered until after the Swing-Johnson bill was reported.

I shall be happy to put this language in as an exhibit to my testimony, if you wish.

On December 5, when Senator Hayden picked up and printed the Pittman amendment as his own, he was frank to say where it came from, and made quite an explanation of it. He said, at page 162 of the Congressional Record for December 6, 1928:

The Senator from Nevada (Pittman) then stated that, based upon the recommendations made by the upper basin governors, plus an equal division of the additional 1,000,000 acre-feet, Mr. Francis B. Wilson, interstate river commissioner of the State of New Mexico, had prepared an amendment which the Senator asked to have printed in the Record.

And then he went on to say:

I now offer that amendment to the bill.

Here is what Senator Hayden said about what was intended. I am reading from page 34 of my statement. He said:

The provision in the amendment is that the State of California shall agree not to use more than 4,200,000 acre-feet of the water apportioned in perpetuity to the lower basin, and not more than 500,000 acre-feet of the additional 1,000,000 acre-feet which the compact authorizes to be appropriated in the lower basin.

That is strictly accurate language.

Various Senators commented, but I shall read only the pertinent provisions.

When Senator Hayden explained the portion of his amendment which would authorize a lower basin compact, he said, at page 174:

The hour is getting late. If I may, I should like to continue the reading of the amendment that I have offered so that I may explain its terms. I have read the proposal now contained in the bill as reported to the Senate and as recommended by the Senate Committee on Irrigation and Reclamation for the purpose of pointing out that the committee placed in the bill the 4,600,000 acre-feet of water, which, as I have said, was the demand made by California; whereas in the amendment that I have offered it is 4,200,000 acre-feet of water, which is the quantity recommended for apportionment to California by the Governors of the four upper basin States. Thus far the provisions are the same except for the difference of 400,000 acre-feet. To go on with the amendment, which provides further—and that the aggregate beneficial consumptive use by that State of waters of the Colorado River shall never exceed 500,000 acre-feet of the water apportioned by the compact to the lower basin by paragraph (b) of said article III—

"That refers to the extra million acre-feet apportioned to the lower basin by the Colorado River compact. So that, adding together the 4,200,000 acre-feet apportioned by paragraph (a) of article II of the Colorado River compact and the 500,000 acre-feet apportioned to the lower basin by paragraph (b) of the same article of the compact, the total quanitity of water which we ask the State of California to be limited to is 4,700,000 acre-feet out of the main stream of the Colorado River, which is 100,000 acre-feet more than California demanded at Denver."

I may interpose here to say that Arizona's witnesses now say that California is limited to about 3,800,000 acre-feet.

Chairman MURDOCK. I think that shows that Senator Hayden was pretty liberal, as he has been from that time to this. In the reenactment that came about the Senate and the Congress itself cut down on that amount to which California was limited.

Mr. ELY. I am coming to that.

If the matter had been handled with the statesmanship of Senator Hayden over the many years that have intervened, I think we would have long since come to a solution of this unhappy matter.

Now, then, he said, at page 174 of the Record, explaining his proposal for a lower-basin compact (page 35 of my statement):

I have read what California is required to do and how that State is limited. Let me tell now the other side of the story, as it appears in the amendment.

When he reached the provision in his amendment relating to III (b) water for Arizona, he said:

of the 1,000,000 acre-feet in addition which the lower basin has the right to use annually by paragraph (b) of said article, there shall be apportioned to the State of Arizona 500,000 acre-feet for beneficial consumptive use—

Then he added:

again dividing the water equally with California so far as the additional million acre-feet are concerned.

On the succeeding pages of my statement, you will find comments by other Senators, all to the same effect, that it was intended that that 1,000,000 acre-feet be divided equally.

As a parliamentary matter, when the Swing bill, H. R. 573, reached the Senate it had been substituted for the Johnson bill, S. 728, as an amendment. This created confusion as to whether subsequent amendments were in the second or third degree. Chairman Phipps, in a committee amendment—see page 36 of my statement—on December 10, 1828, proposed:

* * * the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California shall not exceed 4,600,000 acre-feet of the waters apportioned to the lower basin States by the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact * * *.

Senator Hayden sought a separate vote on the figure of 4,600,000 acre-feet. To do so he withdrew his amendment of December 5 and proceeded thereafter by amendments to the Phipps amendment. But not once did Senator Hayden, nor anyone else, tell the Senate that the change in parliamentary procedure of language was suggesting any results different in the slightest degree from that amendment of December 5, which he had previously explained.

Mr. ENGLE. You said that the original Hayden amendment of December 5, which was identical to the Pittman amendment of May 28, was withdrawn because of the parliamentary situation?

Mr. ELY. Yes, sir.

Mr. ENGLE. In other words, when the Swing bill was substituted for the Johnson bill the question arose whether or not amendments could be offered in the second and third degree.

Mr. ELY. That is right.

Mr. ENGLE. As I understand this amendment fell within some parliamentary prohibition and therefore the Phipps amendment was accepted as the vehicle for getting the other amendments considered.

Mr. ELY. That is substantially right. Hayden's amendment said 4,200,000 acre-feet and Phipps' said 4,600,000 acre-feet, and it developed there was no way to get a separate vote on that figure except by Senator Hayden withdrawing his amendment of December 5 and offering to amend the Phipps' amendment by reducing the figure from 4,600,000 to 4,200,000.

Hayden's amendment to reduce to 4,200,000 was defeated by a roll-call vote of the Senate. Therefore, Senator Bratton of New Mexico

came forward to propose 4,400,000, and that figure was approved by the Senate and remains in the act as enacted.

The language of the first paragraph dealing with the Limitation Act took form as amendments to the Phipps amendment, which was what I have described. That having been adopted with a figure of 4,400,000 acre-feet, Senator Hayden, on December 12, offered a further amendment to the Phipps amendment, authorizing a lower basin compact. It was like his amendment of December 5 which I have handed you except that when he got to that point in the Phipps amendment, which omitted any reference to the III (b) water in the proposal for a California Limitation Act, Senator Hayden dropped out the reference to III (b) water from his amendment authorizing the lower basin compact.

This was the explanation that he gave—but first let me read Senator Phipps' explanation of a perfecting amendment he had offered to his own amendment.

He said, on page 459 of the Congressional Record:

Referring to the amendment which is now before the Senate, in order to remove any possible misunderstanding regarding the 4,400,000 acre-feet of water, I desire to perfect the amendment by inserting on page 3, line 4, after the word "by" the words "paragraph (a) of article 3 of," so that it will show that that allocation of water refers directly to the 7,500,000 acre-feet of water that are mentioned in paragraph 3.

After the Phipps perfecting amendment had been adopted, Senator Hayden said he had no objection to it. He said:

* * * it makes it even more in conformity with the amendment that I now offer.

Senator King, of Utah, obtained the floor to comment on the Phipps amendment—Congressional Record, page 459—and then he indulged in the following colloquy: Senator King said:

I think it was the intention to refer to the surplus waters mentioned in paragraph (b) of article 3 of the compact, being the 1,000,000 acre-feet supposed to be unappropriated.

Now, there is the difficulty of the words "unapportioned" and "unappropriated," to which I have referred before. I don't know which he intended.

Senator Johnson said:

No; that is not quite my understanding. It is by no means certain that there is any other, and it is by no means certain that there is the 1,000,000; but the language referred to any other waters.

Senator King responded by saying:

Speaking for myself, I have no objection, but I was under the impression that the purpose was to link it with paragraph (b), so as to be sure that California was to receive one-half of the 1,000,000 acre-feet.

Senator Johnson replied:

Not necessarily. This gives one-half of the unapportioned water, and I think it is a better way to leave the matter.

Then Mr. King said:

If it is sufficiently certain to suit the Senators of the lower basin, I have no objection.

And Mr. Johnson said:

I think it is.

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There the matter rested.

On December 12, 1928, immediately after the foregoing colloquy, Senator Hayden offered an amendment to the Phipps amendment to authorize a lower basin compact. It is in the same language which now appears in the project act except, and this is important, it required the proposed three-State compact to appear in the California Limitation Act.

In explanation of this amendment, Senator Hayden said, as to this point, at page 460 of the Congressional Record—page 39 of my statement:

> The second proposal in my amendment is that the State of Arizona may annually use one-half of the surplus or unapportioned water, which is likewise a corollary to the proposal made by the Senator from Colorado, which likewise disposes of the total quantity of surplus or unapportioned waters in the lower basin.

Senator King, in a further effort to remove any possible misunderstanding, put this question to Senator Hayden of Arizona, page 460:

> Does the Senator interpret the compact to mean that if there is any unappropriated water in addition to the 1,000,000 acre-feet referred to in the compact, that that is subject to the same disposition or division as the 1,000,000 acre-feet?

Senator Hayden replied:

> There is no question about it, in the light of the statement I have just read.
> * * *

He had just finished reading a question and answer by Mr. Hoover. There is no suggestion in this debate that the Senate was reversing itself as to the intent previously explained by Senator Hayden with respect to the 1,000,000 acre-feet. Quite to the contrary. Senator Hayden is a man of candor and directness, and had he intended, by keeping silent as to the 1,000,000 acre-feet in both paragraphs of section 4 (a) as he finally offered them to reverse his previous explanation that he intended to divide the 1,000,000 acre-feet between Arizona and California, he would have told the Senate so.

On December 14, 1928, the Senate approved the Swing-Johnson Act. Both Arizona Senators voted against the measure which Arizona now says settle in her own favor all of the issues with California, particularly the disposition of the III (b) water and the measurement of consumptive use.

Bear in mind there was before the Senate at this time the report of Mr. Delph Carpenter of Colorado saying that III (b) water is not apportioned.

On December 21, 1928, President Coolidge approved the Swing-Johnson bill, and it became the Boulder Canyon Project Act.

It was brought to the attention of the Arizona Legislature by Gov. G. W. P. Hunt in a special message to a joint session on January 15, 1929, in which he said, speaking of the Swing-Johnson bill:

> It does not allow to our State the water of all of the tributaries of the Colorado River within our borders which California has frequently indicated a willingness to concede to us, and I believe it is not sufficiently clear and specific to assure us of the waters of the Gila River and to protect us against claims for water that may be made by Mexico.

As you may well imagine, there were numerous conferences thereafter in an effort to bring Arizona and California together. They all failed. But, in these conferences, both States recognized that under

the Limitations Act California was entitled to at least one-half of the million acre-feet of III (b) water, and that Arizona should be accountable for actual consumptive uses on the Gila, which were assumed by both sides to be about 2,500,000 acre-feet.

For example, "consumptive use" was defined by the Arizona-Colorado River Commission as follows, in 1929—page 41 of my statement:

> This term means where water is consumed. An illustration of consumptive use is where a farmer takes through a ditch 4 acre-feet of water a year. He puts it all on his land, but 1 acre-foot runs off through his waste ditch back into the river. Another acre-foot runs down through the land striking a gravel bed and drains back into the river—thus there has been only 2 acre-feet consumed. This 2 acre-feet used up is called consumptive use.

Arizona had never thought of the depletion theory. She construed "consumptive use" as meaning the same in her case as Congress had defined it to mean in California's case—"diversions less returns to the river."

As to the III (b) water, the record is equally clear.

The hour is growing late and I am trespassing up Mr. Howard's time, but I will show you, if I may, photostats of the proposal made by Arizona in the 1930 negotiations which preceded Arizona's suit to enjoin construction of the Hoover Dam. This is a proposal printed in the report by Colonel Donnovan who represented the United States in these negotiations, as placed in the Congressional Record on June 26, 1930, at page 11203. It specifically divides the million acre-feet of III (b) water equally with California.

(Photostat of proposal made by Arizona appears as exhibit III–K herein.)

Mr. ELY. Of course, the trouble is that there wasn't that much water, and certainly there was not that much III (a) water available in the main stream.

But this proposal does illustrate in 1930 the intent of the Limitation Act as to the III (b) water: It was to be equally divided between Arizona and California and it was considered as present in the main stream. The States fell apart on other issues.

May I ask that this be included in the record?

Chairman MURDOCK. Yes.

Mr. ELY. Thank you.

Also, in 1930 Arizona submitted, and Senator Hayden printed in the Congressional Record of June 26, 1930, a tabulation purporting to show, at page 12200, the proposals made at the Denver Conference of Governors of 1927, the findings of the Governors, the provisions of the Boulder Canyon Project Act, and a final column captioned "Arizona's present position."

With respect to the III (b) water, "Arizona's present position" was that this million acre-feet should be "divided equally between California and Arizona." These were placed in the record by Senator Hayden during the debate in 1930 on the first appropriation for Hoover Dam.

I referred yesterday to the Supreme Court decision in the third case, volume 292 United States Reports, and would like for you to have for ready reference the extracts from which I read. I am handing it to you herewith. It will appear as an exhibit to my statement. The pertinent apportion appears in my prepared statement on page 53.

You will notice, in that extract, that 6 years after the enactment of the Boulder Canyon Project Act, Arizona was asserting to the Supreme Court that under the Limitation Act California's maximum legal rights aggregate 5,485,500 acre-feet, which is in excess of the quantity we have contracted for, aggregating 5,362,000 acre-feet.

I have previously discussed, Mr. Chairman, those portions of my statement dealing with the water contracts and with the Mexican Water Treaty, and shall now bring my presentation to a close.

Arizona has made the statement that California asks that—

> The compact must be so interpreted that the Gila River is practically all of the water to which Arizona is entitled.

To the contrary, at least three great Arizona projects on the Colorado River are under active enlargement at this moment: The Yuma project, the Gila project, and the Parker Indian project.

The Yuma project, irrigated by diversions from Laguna Dam, a dam built in 1909, serving Arizona but paid for by California, will use 250,000 acre-feet. In 1935, without objection from California, Congress authorized the Headgate Rock Diversion Dam to deliver approximately 300,000 acre-feet to the Colorado Indian Reservation in Arizona. Projects on other Arizona tributaries, such as the Bill Williams, account for another 130,000 acre-feet.

In 1948 Congress authorized the Gila project in Arizona, to use another 600,000 acre-feet from the main stream. This bill passed both Houses of Congress by unanimous consent, after hearings in each House. These main-stream projects account for over 1,250,000 acre-feet, or more than five times as much as Arizona was using before the construction of Hoover Dam. This is in addition to the use of 2,300,000 acre-feet on the Gila River. At the time of passage of the Gila bill in the Eightieth Congress, the House Committee on Public Lands, in Report No. 910, July 14, 1947, on H. R. 1597 (reauthorizing the Gila project), referring to the controversy between Arizona and California, said:

> * * * The committee feels the dispute between these two States on the lower Colorado River basin should be determined and settled by agreement between the two States or by court decision because the dispute between these two States jeopardizes and will delay the possibility of prompt development of any further projects for the diversion of water from the main stream of the Colorado River in the lower Colorado River basin.
>
> Therefore the committee recommends that immediate settlement of this dispute by compact or arbitration be made, or that the Attorney General of the United States promptly institute an action in the United States Supreme Court against the States of the lower basin, and other necessary parties, requiring them to assert and have determined their claims and rights to the use of the waters of the Colorado River system available for use in the lower Colorado River basin.

Arizona elected to sponsor the Gila project, to use 600,000 acre-feet, on notice that if she did so she was utilizing the last uncontested water available to her, and on notice that if she did so the central Arizona project could not be considered without a lawsuit first.

It is these other Arizona projects, authorized or constructed, to which the Secretary of the Interior referred when, in his report on the central Arizona project bill (hearings, House Judiciary Committee, House Joint Resolution 225, 80th Cong., pp. 22, 26) he said:

> The water which California projects, Federal or other, now in existence or under construction will require when they are in full operation is a great deal more than the amount which that State is entitled to use if all of Arizona's

contention's are taken to be true. Similarly, the water which Arizona projects now in existence, under construction, or authorized will require when they are fully developed is much more than the supply available to that State if all of California's contentions are taken to be true.

And that situation exists without taking into account the proposed central Arizona project, which would add a burden of 1,200,000 acre-feet upon a water supply inadequate for the projects already existing or authorized in the two States. Manifestly, in these circumstances, if water is found for a new project it must be taken from an old one.

California says that the projects already constructed or authorized, at an aggregate expense of hundreds of millions of dollars, cannot be deprived of water without a day in court, and that Congress should grant that day in court before giving serious consideration to a new project dependent upon taking that same water.

The interests of the United States, whose Treasury is invited to bear a billion-dollar risk in the new project, as well as the rights and equities of the projects already authorized and existing, justify the prompt determination of these issues in the Supreme Court. The consent of Congress is required to make that possible because the United States is a necessary party to such litigation. To that end, we have asked the passage of resolutions now pending, House Joint Resolution 3 and others, granting such consent. No action should be taken on any measure to authorize the central Arizona project until the Supreme Court has made its decision.

Mr. Chairman, I thank you.

Chairman MURDOCK. Well, we thank you for your presentation, Mr. Ely.

I wonder if there are questions that you would like to ask of Mr. Ely at this time?

If there are none, we were glad to have had your presentation. I want to compliment you on it. Sometimes I wonder why I didn't study English when I was a boy and I wish I had had the same quality of instruction in it you had.

Mr. ELY. That is very kind of you, Mr. Chairman. For my part, I only wish I had your command of English.

Mrs. BOSONE. Maybe you will wish you had studied law, Mr. Chairman.

Chairman MURDOCK. Maybe I should have done that.

Senator MCFARLAND. The fact that we haven't asked any questions doesn't mean we agree with the statements made.

Mr. ELY. I was hoping we might have reached a contrary stipulation.

Mr. Chairman, I want to make one comment, perhaps of a personal character.

Sometime ago there was a reference in one of the Arizona papers attributed to you, I think erroneously, that the second edition of the Hoover Dam documents had omitted the California Limitation Act, and I desire it to be plainly understood that that statement is not correct, as I wrote to you at the time. The Limitation Act appears in the volume at page A–231 and is clearly indexed at page A–930 and appears also in the table of contents at page XIX. It is printed therein not only as the California statute, but the operative portions appear also in section 4 (a) of the Boulder Canyon Propect Act printed at page A–215. I would not omit a document of that character.

Chairman MURDOCK. Yes, I found it, but the 4,400,000 limitation was not emphasized. That is one thing we cannot afford to overlook because that 4,400,000 limitation was a condition precedent to the taking effect of the Boulder Canyon Project Act.

Mr. REGAN. While the questions were asked by the members, I, as one member, do not agree entirely with the arithmetic presented in this report.

Governor MILES. I wish it could be always so, that only one part of a case was presented. The other testimony is confusing.

Chairman MURDOCK. Again we thank you, and I believe Mr. Howard is our next witness.

Mr. ELY. I shall annex exhibits to the transcript when I correct it.

Chairman MURDOCK. Yes.

(The material referred to is as follows:)

EXHIBITS ACCOMPANYING TESTIMONY OF NORTHCUTT ELY

I. The issues:
- A. Report of the Secretary of the Interior on Senate Joint Resolution 145, Eightieth Congress, May 13, 1948.
- B. Letter of the Director of the Bureau of the Budget to Senator Millikin, May 20, 1948.
- C. Letter of the Director of the Bureau of the Budget to the Secretary of the Interior, May 7, 1948.
- D. Letter of the Director of the Bureau of the Budget to the Attorney General, May 7, 1948.
- E. Report of the Attorney General on Senate Joint Resolution 145, Eightieth Congress, May 7, 1948.
- F. Letter of the Director of the Bureau of the Budget to the Secretary of the Interior, February 4, 1949.
- G. Letter of the Director of the Bureau of the Budget to Senator O'Mahoney, February 11, 1949. (See exhibit I–J.)
- H. Report of the Secretary of the Interior on Senate Joint Resolution 4, Eighty-first Congress, March 18, 1949, accompanied by—
  - (1) Annexed letter of the Bureau of the Budget to the Secretary of the Interior, March 17, 1949, clearing draft of report dated February 19, 1949.
  - (2) Letter of the Director of the Bureau of the Budget to the Attorney General, clearing draft of report dated March 4, 1949.
- I. Report of the Attorney General on Senate Joint Resolution 4, Eighty-first Congress, March 17, 1949, with annexed letter from the Director of the Bureau of the Budget to the Attorney General clearing draft of report dated February 19, 1949.
- J. Report of the Secretary of the Interior on S. 75, Eighty-first Congress, dated March 18, 1949, accompanied by—
  - (1) Letter of the Director of the Bureau of the Budget to Senator O'Mahoney, February 11, 1949.
  - (2) Letter of the Director of the Bureau of the Budget to the Secretary of the Interior, March 17, 1949, clearing draft of report dated February 19, 1949.

II. The Colorado River compact:
- A. Text of the compact.
- B. Comparison of compact suggested by Carpenter with the compact as executed.
- C. Extracts from reports of negotiators.
- D. Governor's recommendations of August 30, 1927.
- E. Rejection of the Governor's recommendations by Arizona.
- F. Statement approved by the House Public Lands Committee March 17, 1949, and included in the report on H. R. 2325, Eighty-first Congress, granting the consent of Congress to the upper basin compact.
- G. Effect of the Colorado River compact on the upper Basin States (Tipton).

III. The Boulder Canyon Project Act:
- A. Text of section 4 (a).
- B. Text of section 5.
- C. Legislative history of section 4 (a).
- D. The Hayden amendment to section 4 (a).
- E. The California Limitation Act.
- F. Proclamation of the President, June 25, 1929.
- G. Proposal by Arizona, 1930 negotiations.
- H. Counter offer by California, 1930 negotiations.
- I. "Arizona's present position," 1930.
- J. Letter, Secretary Wilbur to Governor Phillips of Arizona, May 9, 1930.
- K. Arizona's proposal for a three-State compact, 1939.

IV. The Colorado River Supreme Court cases:
- A. References in Colorado River cases to the interests of the United States in Colorado River litigation.
- B. References in Colorado River cases to the elements of a justiciable controversy.
- C. References in Colorado River cases to the quantity of water which California may take under her Limitation Act.
- D. References in Colorado River cases to the quantity of water claimed by Arizona.
- E. References in Colorado River litigation to—
  - (1) The quantity of consumptive uses in Arizona.
  - (2) The classification of uses on the Gila River under article III (a) of the Colorado River compact.
- F. References in Colorado River cases to the question of whether the waters referred to in article III (b) of the Colorado River compact are "apportioned" within the meaning of section 4 (a) of the Boulder Canyon Project Act.
- G. References in Colorado River cases as to whether the Colorado River compact intended to award exclusively to Arizona the waters referred to in article III (b).
- H. References in Colorado River litigation to the question of whether there is any relationship between the 75,000,000 acre-feet referred to in article III (d) of the Colorado River compact and the 7,500,000 apportioned to the lower basin in article III (a) of the compact.
- I. References in Colorado River cases to the modifications, if any, of the Colorado River compact made by Congress, in granting its consent thereto.
- J. References to the California water contracts in Supreme Court litigation.

V. The water contracts:
- A. Contract for delivery of water between the United States and the Metropolitan water district of southern California (April 24, 1930, as amended September 28, 1931).
- B. Contract for delivery of water between the United States and Arizona (February 9, 1944).
- C. Decision of the Secretary of the Interior re the Arizona Water contract (February 10, 1944).

VI. The Mexican Water Treaty:
- A. Unanimous memorial of Governors of seven Colorado Basin States, 1927.
- B. Unanimous recommendations of American negotiators, 1930.
- C. Unanimous resolution of Committee of Sixteen, June 20, 1942.
- D. Unanimous Resolution of Committee of Fourteen, November 18, 1942.
- E. Water supply below Hoover Dam; extract from Senate Document 39, Seventy-ninth Congress.
- F. Letter from Herbert Hoover to Senator Hawkes, Senate Document 32, Seventy-ninth Congress.

VII. Ratification of the Colorado River compact by Arizona:
- A. Arizona's contention, before her ratification of the compact, as to the amount California may take under the Limitation Act.
- B. Arizona's contention, after her ratification of the compact, as to the amount California may take under the Limitation Act.
- C. Consequences to the other States of Arizona's reversals of position.
- D. Arizona's theories re the Gila River under the Colorado River compact.

VIII. The Arizona projects:
- A. Statement by Northcutt Ely before the American Public Power Association, May 1949.
  (Exhibit VIII (A)–Part 1 appears in the appendix of these hearings.)
- B. Extracts from testimony of California witnesses on legislation authorizing the Gila project.
- C. Upper Basin, present and potential developments.

EXHIBIT I (A)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,

Washington 25, D. C., May 13, 1948.

Hon. HUGH BUTLER,
Chairman, Committee on Interior and Insular Affairs,
United States Senate

MY DEAR SENATOR BUTLER: The views of this Department have been requested on Senate Joint Resolution 145, a joint resolution "To authorize commencement of an action by the United States to determine interstate water rights in the Colorado River."

After reciting that "the development of projects for the use of water in the lower Colorado River Basin is being hampered by reason of long-standing controversies among the States in said basin as to the meaning and effect of the Colorado River compact, the Boulder Canyon Project Act, the Boulder Canyon Adjustment Act, the California Limitation Act (Stats. Cal. 1929, ch. 16), various contracts executed by the Secretary of the Interior with States, public agencies, and others in the lower basin of the Colorado River, and other documents, and as to various engineering, economic, and other facts." Senate Joint Resolution 145 provides that the Attorney General shall commence "a suit or action in the nature of interpleader" against the States of the lower Colorado River Basin "and such other parties as may be necessary or proper" and "require the parties to assert and have determined their claims and rights to the use of waters of the Colorado River system available for use in the lower Colorado River Basin."

Since the basic facts bearing on the lower Colorado River Basin's water supply are already well known to your committee and are readily available in House Document 419, Eightieth Congress—this Department's report on the status of its Colorado River investigations—I shall not burden this letter with a repetition of them. Neither shall I attempt anything more than the very summary statement, which appears later in this letter, of some of the questions that are agitating the lower Basin States. It was in part to these unresolved questions that the Commissioner of Reclamation referred when he concluded (see his letter to me dated July 17, 1947, printed in H. Doc. 419, p. 5) "That a comprehensive plan of development for the Colorado River Basin cannot be formulated at this time" and "That further development of the water resources of the Colorado River Basin, particularly large-scale development, is seriously handicapped, if not barred, by a lack of a determination of the rights of the individual States to utilize the waters of the Colorado River system."

It is indeed desirable that these controversies be settled. This Department has urged more than once that this be done. Its latest expression on this subject is contained in the letter of the Commissioner of Reclamation to which I referred in the preceding paragraph. The Commissioner there concluded "That the * * * States of the lower Colorado River Basin should be encouraged to proceed expeditiously to determine their respective rights to the waters of the Colorado River consistent with the Colorado River compact." I approved that conclusion at the time it was written and I am convinced that it is altogether sound.

These statements were made in the hope that the States would be able to compose their differences without resort to litigation. It may well be that interstate negotiations have not yet been carried as far as they could profitably be carried. Certainly I wish to urge that your committee give serious consideration to the possibilities which this method—or that of interstate arbitration—offer for the solution of the lower basin's problems before it decides upon a course of action with respect to Senate Joint Resolution 145.

The committee may also wish to consider the authority of the Congress to determine for itself where and how the waters of the lower Colorado shall be used and whether this authority, whatever it may be, has been exhausted by the Congress' approval of the Colorado River compact subject to the condition, which has been complied with, of California's enacting a self-limitation act or by the exercise of the authority given the Secretary of the Interior by section 5 of the Boulder Canyon Project Act to enter into contracts for the storage of water in, and its delivery from, Lake Mead.

Additional factors that should, in my judgment, be given serious consideration before action is taken on this joint resolution are the probability that the litigation that would follow its enactment will involve not only the lower basin States (although they are the States primarily interested in it) but the upper basin States as well; the near certainty that, unless all parties to the litigation are willing to enter into a stipulation covering basic water supply data, the litigation will be quite protracted; and the possibility that the pendency of this litigation will be seized upon by those who are unfriendly to further development of the Nation's water resources generally, or to such development in the Colorado River Basin specifically, to delay authorization of badly needed works in that basin.

Previous instances of interstate water litigation have not been marked by speedy adjudications. I am fearful that many years, perhaps decades, will elapse before the suit which Senate Joint Resolution 145 contemplates could be concluded. Such a delay would work a real hardship on communities in the southwest and, perhaps throughout the basin unless means were provided to carry forward the development of noncontroversial projects in the meantime.

I could not say, therefore, in any event that there would be no objection to the enactment of Senate Joint Resolution 145 unless I could also be assured that progress in the development of the Colorado River Basin and in the use of its waters would not be halted by such litigation. Such assurances would, I believe, be best evidenced by the enactment of a bill, prior to or concurrently with the enactment of Senate Joint Resolution 145, authorizing the construction by the Secretary of the Interior, through the Bureau of Reclamation or the Office of Indian Affairs, of those projects, wherever they may be located in the Colorado River Basin—

1. Which have engineering feasibility, economic justification, and financial feasibility (allowance being made under the last factor for the nonreimbursability of that portion of the cost of these projects which is properly chargeable to navigation, flood control, silt control, recreation, salinity control, and the preservation and progagation of fish and wildlife);

2. For which there will be an adequate water supply regardless of the outcome of the litigation;

3. Which (*a*) are consistent with full economical development of the water resources of the Colorado River system and of the particular basin, whether upper or lower, in which the proposed works are located, (*b*) will permit the States of the two basins to fulfill their obligations under and achieve the benefits of the Colorado River compact, and (*c*) will allow the United States to carry out its obligations with respect to the delivery of water under the Mexican Water Treaty; and

4. Which fit in with a plan, which should be embodied in the legislation, for the pooling of revenues from new hydroelectric plants developed in the Colorado River basin to aid irrigation developments in that basin.

Beyond the problems that I have just mentioned there are various questions that need to be considered carefully in connection with the language of Senate Joint Resolution 145 itself, should it be the opinion of your committee that litigation is the only appropriate remedy remaining available for the settlement of the controversies that now exist among the States of the lower Colorado River Basin. If the present preamble to this joint resolution, for instance, is intended to set out the substance of the United States' cause of action in the proposed suit, or if it is likely so to be construed, it seems quite certain that the contemplated suit would be dismissed by the Supreme Court, for it can hardly be said that an

action predicated upon a fear that developments which have not yet been authorized would be frustrated, if they were authorized, by a holding that the necessary water was not available for them constitutes a "case" or a "controversy" within the meaning of article III of the Constitution. It is entirely probable that the court would hold that such a suit called for an advisory opinion rather than for a judicial determination.

To say this, however, is not to say that there is no adequate basis for an action through which all or most of the controversies that now exist among the States of the lower Colorado River basin could be determined, if it is the belief of the Congress that resort should be had to litigation for that purpose.

It is a fair assumption, I believe, that in the event such a suit as Senate Joint Resolution 145 contemplates were to be brought in the Supreme Court, the principal parties to that suit among the States would be California and Arizona. A review of statements made by the spokesman for these two States at hearings before the House Committee on Irrigation and Reclamation on House Resolution 5434, Seventy-ninth Congress, before the Senate Committee on Public Lands on S. 1175, Eightieth Congress, and before the House Committee on Public Lands on S. 483, Eightieth Congress, and of the comments by the two States on this Department's report on a plan for the development of the Colorado River indicates that the core of the legal aspect of this controversy between Arizona and California lies in certain provisions of section 4 (a) of the Boulder Canyon Project Act. This section, in permitting the Colorado River compact to become effective upon its ratification by six States of the basin, including California, did so only upon the condition that California agree "irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an express covenant and in consideration of the passage of this act, that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California * * * shall not exceed 4,400,000 acre-feet of the waters apportioned to the lower basin States by paragraph (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact." Legislation evidencing such an agreement was enacted by California in the statute cited in the preamble to Senate Joint Resolution 145.

Confining my attention to this section of the Boulder Canyon Project Act—it being impossible to predict all of the issues that may be raised by the various parties to the proposed suit—four major problems would appear to be in dispute between California and Arizona. I may summarize them in question form thus:

(1) Are the 1,000,000 acre-feet of water for which provision is made in article III (b) of the Colorado River compact "surplus" or "apportioned" within the meaning of section 4 (a) of the Boulder Canyon Project Act? That is, is or is not California entitled to share in the use of III (b) water?

(2) Is the flow of the Gila River, for purposes of determining the water supply of the Colorado River Basin, to be measured at the mouth of the stream or elsewhere? And, as another aspect of the same problem: Is beneficial consumptive use by Arizona of the waters of the Gila to be measured, in terms of diversions from the Gila River less returns to that river, or in terms of the depletion of the virgin flow of that river at its mouth?

(3) Is the water required for delivery to Mexico under the treaty with that Nation to be deducted from "surplus" water prior to determination of the amount available for use in California under section 4 (a) of the Boulder Canyon Project Act, or is California entitled to use a full one-half of the "surplus" diminished only by so much of the Mexican requirements as cannot be supplied from the other half?

(4) Is the burden of evaporation losses at such reservoirs as Lake Mead to be borne by California and Arizona in proportion to the waters stored there for each of them, or is the burden of these losses to be fixed in some other fashion?

The bare statement of these questions, the knowledge that there is disagreement between Arizona and California about the answers to be given them, and the fact that, if the contentions of either State are accepted in full and if full development of the upper basin within the limits fixed by the Colorado River compact is assumed, there is not available for use in the other State sufficient water for all the projects, Federal and local, which are already in existence or authorized would seem to indicate that there exists a justiciable controversy between the States. Should the Congress, however, entertain doubt about the existence of such a controversy, it could dispel that doubt by authorizing the con-

struction of the central Arizona project, a report which has been prepared by this Department and has been sent, pursuant to the provisions of section 1 of the Flood Control Act of 1944, to the States of the Colorado River Basin and to the Secretary of the Army for consideration and comment.

It is probably true that, in view of the existing physical water supply in the lower basin—a supply which is as ample as it is chiefly because the upper basin States are using far less than the 7,500,000 acre-feet apportioned to them by the compact—the situation is not such that the Court would be warranted in granting an injunction against either California or Arizona if it were found to be using more water than it is entitled to use. The controversy, nevertheless appears to be of the sort that would justify the Court's determining the rights of the parties and definitely adjudicating their respective interests in the waters available to the lower basin. It matches in every particular the requirements for a case or a controversy in the constitutional sense of these words as those requirements were spelled out by the Supreme Court in *Aetna Life Insurance Company* v. *Haworth* (300 U. S. 227, 240 (1937)). "A 'controversy' in this sense," the Court said, "must be one that is appropriate for judicial determination * * * The controversy must be definite and concrete, touching the legal relations of parties having adverse legal interests * * * It must be a real and substantial controversy admitting of specific relief through a decree of a conclusive character, as distinguished from an opinion advising what the law would be upon a hypothetical state of facts * * * Where there is such a concrete case admitting of an immediate and definitive determination of the legal rights of the parties in an adversary proceeding upon the facts alleged, the judicial function may be appropriately exercised although the adjudication of the rights of the litigants may not require the award of process or the payment of damages * * * And as it is not essential to the exercise of the judicial power that an injunction be sought, allegations that irreparable injury is threatened are not required."

I have spoken thus far as if this controversy were of concern only to the States. Let me state briefly the interest of the United States. The United States has invested heavily in developments for the benefit of both sides of the river. These works include the Hoover, Davis, Parker, and Imperial Dams, the All-American Canal, the San Diego adqueduct, and the Yuma, Gila, and Salt River reclamation projects. They also include the Colorado River and San Carlos Indian irrigation projects, and the Headgate Rock, Coolidge, and Ashurst-Hayden Dams serving those projects. All of these developements are tangible evidence of the Federal and Indian interests in a development of the area that is not yet complete. But they are more than this. They are also the means by which thousands of families live and by which the Nation benefits from a region which is rich with water and poor without it. In these people and in a continuation and expansion of the benefits which the area can yield, even more than in its financial investment, the United States has an interest to protect.

Among these people, the United States has an especial interest in the protection of the Indians. That their stake in the Colorado River Basin is a very large one is made plain in the pages of House Document No. 419 devoted to the present and prospective development of Indian lands. That their rights to the use of the waters of the Colorado River system for the irrigation of these lands will be an important element in any settlement of the lower basin's problems, whether that settlement is accomplished by litigation or otherwise, is made plain by many legal procedents. Notable among these is the decision of the Supreme Court in *Winters* v. *United States* (207 U. S. 564 (1908), that a reservation for Indian use of lands within the area of an Indian cession carries with it a reservation of such waters, within the ceded area, as may be needed to make the reserved lands valuable for agricultural pursuits or otherwise adequate for beneficial use, and that such a reservation of waters has priority from the date, at least, when the lands involved were reserved for Indian use. The obligation of the United States to maintain the prior water rights of the Indians of the Colorado River Basin, and to enforce the immunity of these rights against displacement by action inconsistent with their status as interests protected by Federal law, is one that has been recognized by all seven States of the basin in the provisions of the Colorado River compact itself.

The vital concern of the United States in the waters of the Colorado River also stems from its traditional guardianship over navigable streams, the particular responsibility which it has taken on itself with respect to the Colorado by having entered into a treaty with Mexico, and its authority (asserted in sec. 5 of the Boulder Canyon Project Act) to control the use and disposition of the waters im-

pounded behind Hoover Dam—all of which clearly make it an indispensable party to any general litigation involving water rights in the Colorado. But, quite apart from these broad policy considerations, the specific Federal developments, existing and potential, on both sides of the river are, as I have pointed out, so extensive and so important that, if those on either side are threatened by claims asserted on the other, the United States has a clear interest in seeing those assertions defeated.

It likewise has an interest in knowing what its obligations are under the various water-storage and delivery agreements that the Secretary of the Interior has entered into with Arizona, Nevada, and several California agencies under the authority given him by section 5 of the Boulder Canyon Project Act. The validity, meaning, and effect of those agreements depend upon their conformity to the relevant provisions of the Boulder Canyon Project Act and the documents related to it and, therefore, depend in part at least upon the answers to such questions as those previously outlined in this letter.

I have not attempted to examine the merits of the contentions made by the spokesmen for Arizona and California on these questions. Assuming, however, that there is some merit to both sides on all four of the major questions, it is obvious that there are many answers, in terms of the number of acre-feet of water which California may use under section 4 (a) of the Boulder Canyon Project Act, that might conceivably be given. Using the long-run average flows shown in this Department's report on the Colorado River Basin as a basis for computations, the answers might range from as much as 6,250,000 acre-feet per year to approximately 4,000,000 acre-feet. Likewise, there is a great range in the amount of water from the Colorado River system which might be found available for use in Arizona. The maximum might be somewhat over 3,500,000 acre-feet, the minimum nearly as little as 2,250,000 acre-feet.

The water which California projects, Federal or other, now in existence or under construction will require when they are in full operation is a great deal more than the amount which that State is entitled to use if all of Arizona's contentions are taken to be true. Similarly, the water which Arizona projects now in existence, under construction, or authorized will require when they are fully developed is much more than the supply available to that State if all of California's contentions are taken to be true.

It may be, of course, that the Supreme Court would not agree with all of the contentions of either of the States. For the present, however, the purpose of this discussion is to emphasize the fact that the United States has an interest of its own in the proposed litigation; that if Senate Joint Resolution 145 becomes law the United States may have to take a position before the Court independent of that taken by either of the States; that it is highly desirable that this likelihood be anticipated and recognized in the proposed legislation, which is before your committee, and that the constitutional bases for the Federal developments in the lower basin ought, therefore, to be clearly asserted in this legislation if it is to be enacted.

While I am thus convinced that the United States would have a large stake in the outcome of this proposed litigation, I am not prepared to say that the onus of instituting the suit should be cast, as the present language of Senate Joint Resolution 145 proposes, on the Attorney General. It would, I believe, be better for the United States merely to allow itself to be joined as a party defendant in the litigations.

If the Congress determines that a joint resolution along the lines of Senate Joint Resolution 145 ought to be enacted, then, in addition to the incorporation therein (or in other legislation enacted prior thereto) of provisions authorizing those developments in the basin that can be appropriately undertaken pending conclusion of the litigation, the joint resolution should, in my opinion, be amended by substituting for its present text language substantially as follows:

"Whereas there are controversies of long standing, particularly among the States of the Lower Colorado River Basin, over the meaning and effect of certain provisions of the Colorado River compact, the Boulder Canyon Project Act, the Boulder Canyon Project Adjustment Act, the California Limitation Act (Stats. Cal. 1929, ch. 16) and other documents related thereto; and

"Whereas those controversies affect the various projects in that basin for impounding, regulating, and using the waters of the Colorado River and its tributaries, a commercially valuable interstate stream system, the construction of which the Congress has heretofore authorized, or may hereafter authorize, in the exercise of its Constitutional powers to provide for the general welfare of the United States, to regulate commerce by promoting the comprehensive develop-

ment of the Nation's water resources, to implement and carry out the obligations of the United States to Indian tribes and to foreign nations, to make needful rules and regulations respecting the territory or other property of the United States, to protect the rights of the Indians to priority in the use of the waters reserved or otherwise available for them, and to provide for the national defense; and

"Whereas the Secretary of the Interior, on behalf of the United States, has entered into various agreements with States, public agencies, and other parties in the Lower Colorado River Basin relating to the storage and delivery of Colorado River water, and the validity, meaning, and effect of these agreements depend upon their conformity to the provisions of the statutes and other documents hereinbefore referred to; and

"Whereas the Supreme Court of the United States in *Arizona* v. *California* (298 U. S. 558), held in effect that there can be no final adjudication of rights to the use of the waters of the Colorado River system without the presence, as a party, of the United States: Now, therefore, be it

"*Resolved by the Senate and House of Representatives of the United States of America in Congress assembled*, That consent is hereby given to the joinder of the United States of America as a party in any action or actions commenced within two years from the effective date of this Act in the Supreme Court of the United States by any State of the Lower Basin of the Colorado River, as that basin is defined in the Colorado River compact, for the adjudication of claims of right asserted by such State, by any other State, or by the United States, with respect to the waters of the Colorado River system available for use in that basin."

The Bureau of the Budget has advised me that the enactment of Senate Joint Resolution 145 would not be in accord with the program of the President unless amended in such a way as—

(*a*) to waive the immunity of the United States to suit and permit the States to bring such actions as they may desire if the Congress feels that it is necessary to take such action in order to compose differences among the States with reference to the waters of the Colorado River;

(*b*) to place a reasonable limit on the time for the bringing of such actions; and

(*c*) to insure that in any such action the United States would have the right to defend and also to assert any affirmative claim which it may have or wish to assert in connection with the subject matter of any action filed pursuant to the legislation.

Sincerely yours,

J. A. KRUG,
Secretary of the Interior.

EXHIBIT I (B)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., May 20, 1948.

Hon. EUGENE D. MILLIKIN,
United States Senate, Washington 25, D. C.

MY DEAR SENATOR MILLIKIN: It has been called to my attention that the language of the report submitted by the Secretary of the Interior with respect to Senate Joint Resolution 145 is susceptible of misinterpretation by reason of the fact that, while a clear statement is made of the relationship to the program of the President of the resolution itself, no statement is made of the relationship to the President's program of the proposals advanced by the Secretary for the enactment of legislation authorizing construction in and further development of the Colorado River Basin.

In order to correct any misunderstanding which has arisen and to prevent further misconstruction of the Secretary's report, there is attached a copy of my letter to the Secretary of the Interior dated May 7, together with my letter of the same date to the Attorney General. Representatives of the Secretary of the Interior agree that it would be desirable to clarify the record of the hearings before your subcommittee by the insertion of this letter and the attachments at the appropriate place, if you concur in such action.

This situation is also being called to the attention of the House Committee on the Judiciary and a copy of my letter to the chairman is attached for your information.

Sincerely yours,

JAMES E. WEBB, *Director.*

EXHIBIT I (C)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., May 7, 1948.

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: Thank you very much for affording me the opportunity to comment upon the draft reports recently forwarded to you and proposed for submission to the Senate Committee on Interior and Insular Affairs with respect to Senate Joint Resolution 145 and to the House Committee on the Judiciary with respect to House Joint Resolutions 225, 226, 227, and 236, and H. R. 4097. All of the foregoing resolutions are designed to authorize commencement of an action by the United States to determine interstate water rights in the Colorado River.

The time set for the Senate hearings made it necessary for you to send a draft which had not received your final approval. However, congressional interest and queries and the result of consultation by members of the staff of the Bureau of the Budget with your representatives and those of the Department of Justice convince me that you should have at hand as definite a statement as I can give you of the relationship of the several proposed resolutions to the program of the President. To this end I am enclosing a copy of my formal clearance letter addressed to the Attorney General respecting his report on Senate Joint Resolution 145. His comments have equal applicability to the several House resolutions referred to above. I shall appreciate it, therefore, if in submitting your report to the committee, you will indicate that enactment of Senate Joint Resolution 145 would not be in accord with the program of the President unless so amended as to take into account the points listed in my letter to the Attorney General, upon which I am informed there is substantial agreement between the Department of the Interior and the Department of Justice.

It seems to me that at this time relationship to the President's program of the other matters discussed in your proposed report should be left open. No proposed legislation respecting them, so far as I am aware, is far enough along to be considered at the forthcoming hearing. Accordingly, while there is no objection to the presentation by the Department of the Interior of views respecting such subjects as it believes are pertinent to the consideration of the resolution pending before the Senate committee, such views should not be considered as indicating any commitment, at least at this time, as to the relationship to the program of the President of proposals for legislation to authorize construction in, and the further development of, the Colorado River Basin by agencies of the Department of the Interior.

There is agreement among all agencies concerned as to the urgent need for resolution of the water rights issues involved. I do not believe, however, that resolution of such issues through litigation inevitably would bar further development of water resources of the Colorado River Basin during the period of such litigation. It also is problematical as to whether all agencies would agree on the need for the general authorizing legislation that you suggest. When agreement is reached on any particular project, I feel that the usual legislative method for authorizing it would be preferable to a general authorization, no matter how carefully circumscribed with the kinds of criteria you suggest on page 3 of the reports before you.

Sincerely,

JAMES E. WEBB, *Director.*

EXHIBIT I (D)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., May 7, 1948.

The honorable the ATTORNEY GENERAL.

DEAR MR. ATTORNEY GENERAL: Receipt is acknowledged of Mr. Ford's letter of May 6 enclosing a report proposed by the Department of Justice for submittal to the Senate Committee on Interior and Insular Affairs relative to Senate Joint Resolution 145, upon which hearings have been scheduled for Monday, May 10, 1948.

There is no objection on the part of the Bureau of the Budget to the submission of the proposed report to the committee. The proposed legislation would be in accord with the program of the President if amended, as suggested by you in the second paragraph of page 2 of your letter, in such a way as: (*a*) to waive the immunity of the United States to suit and permit the States to bring such actions as they may desire if the Congress feels that it is necessary to take such action in order to compose differences among the States with reference to the waters of the Colorado River; (*b*) to place a reasonable limit on the time for the bringing of such action; and (*c*) to insure that in any such action the United States would have the right to defend and also to assert any affirmative claim which it may have or wish to assert in connection with the subject matter of any action filed pursuant to the legislation. In this connection, it is suggested that you may wish to consult with the Secretary of the Interior concerning proposed amendments which have been developed by his office to accomplish the foregoing purposes.

A copy of this letter and of your report are being sent to the Secretary of the Interior for his information.

Sincerely,

JAMES E. WEBB, *Director.*

EXHIBIT I (E)

DEPARTMENT OF JUSTICE,
OFFICE OF THE ASSISTANT TO THE ATTORNEY GENERAL,
Washington, May 7, 1948.

Hon. HUGH BUTLER,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

MY DEAR SENATOR: This is in response to your request for the views of this Department concerning the joint resolution (S. J. Res. 145) "To authorize commencement of an action by the United States to determine interstate water rights in the Colorado River."

The resolution would direct the Attorney General to commence a suit or action in the nature of interpleader, in the Supreme Court of the United States, against the States of Arizona, California, Nevada, New Mexico, and Utah, to require the parties to assert and have determined therein their rights to the use of the waters of the Colorado River system available for the lower Colorado River basin.

An investigation of the situation discloses that at the present time there seem to be conflicting interests or claims, at least between the States of California and Arizona, with respect to rights to the use of the waters of the Colorado River in the lower basin of that stream. That conflict, among other things, would involve interpretation of the Colorado River compact, the Boulder Canyon Project Act, and related statutory enactments. What conflicts there may be among the other States mentioned in the joint resolution are obscure. It appears, however, that there are no present conflicts in need of judicial determination between the United States and the States in the Colorado River Basin. Here it may be noted that there has been no request by any agency of the Federal Government to this Department for the institution of an action for the purpose of determining the rights of the United States in the lower basin of the Colorado River. In the absence of such a request with adequate supporting data, it would not be in accord with the policy of the Department to institute such an action on its own initiative on the basis of the facts at hand.

Since it appears that, at the present time at least, there are no conflicts between the United States and the several States involved in the proposed legislation which are in need of adjudication, it is fair to assume that the legislation has been proposed for the purpose of affording at least some of the States an opportunity to present their differences and conflicting claims to the Supreme Court for settlement. *Arizona* v. *California* (298 U. S. 558 (1935)), was instituted by Arizona to have adjudicated certain rights to the unappropriated waters of the Colorado River. In that action six other basin States were named as parties defendant. The Supreme Court dismissed that action on the grounds that since the United States was an indispensable party and had not consented to be sued the suit could not be maintained.

The decision of the Supreme Court in *Arizona* v. *California* made it clear that the type of relief desired by the States in a suit between them cannot be had in the absence of legislation giving the required consent. It is to be noted that Senate Joint Resolution 145 would provide for the appearance of the United States as a party plaintiff in such litigation. However, since the principal and perhaps the only controversy exists among the States, it is suggested that Senate Joint Resolution 145 should be amended so as to waive the immunity of the United States to suit and permit the States to bring such actions as they may desire if the Congress feels that it is necessary that their differences with reference to the waters of the Colorado River in the lower basin thereof be composed. It is further suggested that such amendment require the bringing of such an action by any or all of the States involved within 1 year from the effective date of the legislation, and that in any such action the United States should have the right to defend and also to assert any affirmative claim which it may have or wish to assert in connection with the subject matter of any action which may be filed pursuant to the legislation.

It is noted that the bill, as presently drafted, contemplates the bringing of a suit or action "in the nature of interpleader." It is suggested that, regardless of the form in which the legislation may pass, any limitation on the discretion of the plaintiff, as to the character of the action or suit to be filed, should be eliminated. It is believed that the plaintiff, in litigation of this importance, should have complete discretion as to the nature of the action to be filed.

It has been suggested that there is some question as to the existence of a justiciable controversy. That question itself can be determined authoritatively only by the Supreme Court. Cogent arguments can be made in support of, and also against, the existence of a justiciable controversy. Presumably, all aspects of this question will be thoroughly presented and vigorously maintained by different States in case the question is presented to the Supreme Court.

In view of the foregoing considerations, the Department of Justice is unable to recommend enactment of the measure in its present form.

The Director of the Bureau of the Budget advises that there is no objection to the submission of the report.

Yours sincerely,

PEYTON FORD,
The Assistant to the Attorney General.

EXHIBIT I (F)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., February 4, 1949.

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: In Director Webb's letter of September 16, 1948, concerning your report on the central Arizona project, he pointed out that the Bureau of the Budget had not completed its review and analysis but agreed with your suggestion that the report should be forwarded to the Congress. I am now able to advise you that the Bureau of the Budget has completed its study of the report and a determination has been made of the relationship of the proposed project to the program of the President.

The report proposes the construction of the Bridge Canyon Dam and power plant, a pumping plant at Lake Havasu, and an aqueduct from there to Granite Reef Dam in central Arizona, together with other appurtenant works for the purpose of providing supplemental water to irrigation areas in central Arizona and hydroelectric power in the Arizona-southern California area. The total estimated cost of the project as of January 1948 is $738,408,000, of which (based on existing law) $420,000,000 would be allocated to irrigation, $291,000,000 to electric power, $18,000,000 to municipal water supply, $6,000,000 to flood control, and about $3,000,000 to fish and wildlife. It is proposed to install 750,000 kilowatt capacity of power generation at Bridge Canyon Dam, with about 2 percent additional generation at smaller dams on the project.

The report calls for an ultimate annual diversion of 1,200,000 acre-feet of water from the Colorado River at Lake Havasu (Parker Dam) with a pump lift of 985 feet to the Granite Reef aqueduct through which it would be conveyed for a distance of 241 miles to the Phoenix area of Arizona as a supplemental supply of irri-

gation water. The use of such supplemental water would be "(1) to replace the overdraft on the ground-water basins, (2) to permit the drainage of excess salts out of the area and maintain a salt balance, (3) to provide a supplemental supply to lands now in production but not adequately irrigated, (4) to increase the water supply for the city of Tucson, and (5) to maintain irrigation of 73,500 acres of land formerly irrigated but now idle for lack of water." It is proposed to charge the district $4.50 per acre-foot of water. The duty of water varies between projects and between surface and pumped water. However, diversion demand of surface water at district headgate is given as an average of something about 5 acre-feet per acre. The rate for power would be (under existing law) 6.22 mills.

It is the opinion of the regional director of the Bureau of Reclamation that the "project has engineering feasibility in the sense that there are no physical obstacles * * * that could not be overcome." He states, however, that "financial feasibility of the project is more difficult to determine" and further in his report to the Commissioner of Reclamation, he raises the question of adequacy of the water supply for this project.

It is pointed out in the report that the project as proposed is economically infeasible under existing reclamation laws and that it is essentially a "rescue" project designed to eliminate the threat of a serious disruption of the area's economy. Modifications in these laws are therefore proposed in the report to extend the repayment period for the entire project, including power, to 78 years and to use one-fifth of the interest component on the commercial power investment to aid in the repayment of irrigation features.

The State of Arizona says that under the Colorado River compact, other agreements, and California's Self-Limitation Act, Arizona has allocated to its use 3,670,000 acre-feet of water per year. It states that it is now using from the main stream of the Colorado and its tributaries in Arizona a grand total of 1,408,000 acre-feet of water per year, thus leaving 2,262,000 acre-feet for additional consumption which cannot be lawfully used elsewhere than in Arizona. It estimates the (consumptive) use for the central Arizona project at 1,077,000 acre-feet, which together with the other planned uses will still leave in the main stream, according to the State's estimate, a balance of 619,000 acre-feet apportioned to Arizona for future use and for reservoir losses. Arizona bases its case for diversion of water from the Colorado River upon these figures and proposes to use such water as a supplemental supply for lands now inadequately irrigated. It states further that the irrigation of lands in central Arizona has been expanded beyond the water supply of central Arizona and that this is resulting in an exhaustion of their underground supply with insufficient surface stream flow to maintain production in the lands now irrigated. To avoid the danger to the entire economy of the State, it considers it essential that the central Arizona project be expedited.

The Commissioner of Reclamation states that assurance of a water supply is an extremely important element of the plan yet to be resolved; that the showing in the report of there being a substantial quantity of Colorado River water for diversion to central Arizona for irrigation and other purposes is based upon the assumption that claims of the State of Arizona to this water are valid. He states that the State of California challenges the validity of Arizona's claim and that if the contentions of the State of California are correct, there will be no dependable water supply from the Colorado River for this diversion. He further states that the Bureau of Reclamation and the Department of the Interior cannot authoritatively resolve this conflict between States and that it can be resolved only by agreement among the States, by court action, or by an agency having proper jurisdiction.

The comments of the several affected State governments and interested Federal agencies with respect to his report contain a number of objections and reservations with respect to the proposed project. Specifically, the Department of Agriculture questions whether the benefits actually exceed costs. It questions, as "* * * it has on numerous other occasions in commenting on proposed reclamation projects, the use of the gross rather than the net crop return method of computing benefits. The Department further says, "The actual relation of benefits to costs is still further obscured by what appears to be a failure to use the market value of power in estimating for evaluation purposes the costs of pumping the water supply. Market value must be used in economic evaluation because the power has alternative uses." Commenting further on benefits, the Secretary of Agriculture states, "* * * while it is necessary that benefits exceed cost if a

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project is to be considered economically justified, this alone is not sufficient. Sound economics and common sense require, first, the consideration of possible alternatives, and, second, the choice of that alternative yielding the largest return on the investment." The comments of the Department of Agriculture go even further and state, "At least in the respects mentioned above, the benefits used in testing the economic soundness of the project are in error. We would recommend, therefore, that further and more careful consideration be given to the economic evaluation of the proposed project."

The Federal Power Commission points out that there is no essential physical relationship between the Bridge Canyon power project and the central Arizona diversion project but that the two are linked together in the report because of the need for subsidies from electric-power income to help finance the irrigation improvement. It also indicates that the burden of the irrigation costs are considerable and that the proposed charges for electric power consequently approach a level where such power cannot be classed as "low cost" in this region. The Federal Power Commission also suggests that further studies are required before the proper installed capacity at Bridge Canyon power plant can be finally determined and that it could probably be considerably more than the 750,000 kilowatts proposed.

The State of Nevada says, "There is a grave question regarding the availability of water to Arizona to supply the project. * * * Studies have been made by California and Nevada engineers which show there will be little or no water for the central Arizona project. * * * Investigations and reports should be held up or be only preliminary in character where there is a question as to availability of water." The State of Nevada further says that some engineers have expressed an opinion that the Bridge Canyon Dam and Reservoir cannot be utilized properly and to its full extent as a power project because of the limited storage behind the dam which in a few years would fill with silt and power service would depend on natural fluctuating river flow. They raise questions as to whether it would not be desirable to construct Glen Canyon, which would provide much additional storage capacity, at the same time as Bridge Canyon.

The State of Nevada, in commenting on the economic justification of the project, computes the net irrigation construction costs on the acreage which will be salvaged by the project at $1,469 per acre and questions the justification of such costs in the face of an estimated farm-land value with irrigation of $390 per acre.

The State of California says that a controversy has existed between California and Arizona for many years as to their respective claims to Colorado River water and that conferences held on this subject throughout have not brought a solution. The State further says that until there is a final settlement of the water rights, the aggregate of Arizona and California claims to Colorado River water will exceed the amount of water available to the lower basin States under the Colorado River compact and relevant statutes and decisions. It states that as long as the present unsettled situation exists, each State in the lower basin must, of necessity, interest itself in the others' projects which would overlap its claims. Accordingly, the State of California submits the following conclusions: (*a*) The plan for construction, operation, and maintenance of the proposed project is not financially feasible under existing Federal reclamation law and the modifications thereof considered in the report; (*b*) consideration of an authorization for the central Arizona project should be withheld until a determination has been made of the respective rights of the lower basin States to the waters of the Colorado River system; and (*c*) extensive and detailed studies and investigations should be made by the Bureau of Reclamation of local water supply and use in order to determine accurately the amount of supplemental water needed for existing irrigated lands in the Salt River and Middle Gila River Valleys and to formulate plans for additional conservation of local water supplies.

With reference to the controversy that exists between the claims of the States of the lower basin, it is concluded that the situation has not changed since your interim report of July 14, 1947, on the status of your investigations of potential water-resource developments in the Colorado River Basin. In the report of the Commissioner of Reclamation, approved by you, it is stated "that further development of the water resources of the Colorado River Basin, particularly large-scale development, is seriously handicapped, if not barred, by lack of a determination of the rights of the individual States to utilize the waters of the Colorado River system."

On July 23, 1947, Director Webb replied to your letter of July 19, 1947, as follows:

" * * * Acting under authority of the President's directive of July 2, 1946, I am able to advise you that there would be no objection to submission of the proposed interim report to the Congress, but that the authorization of any of the projects inventories in your report should not be considered to be in accord with the program of the President until a determination is made of the rights of the individual State to utilize the waters of the Colorado River system."

From an examination of the report, of the comments of the affected States, and of the remarks of other interested Federal agencies, it is apparent that there are a number of important questions and unresolved issues connected with the proposed central Arizona project. The provision of adequate water supply, if found to be available, is admittedly a high-cost venture which is justified in the report essentially on the basis of an urgent need to eliminate the threat of a serious disruption of the area's economy. Even so, the life of certain major parts of the project is appreciably less than the recommended 78-year pay-out period. The work could be authorized only with a modification of existing law or as an exception thereto. Furthermore, there is no assurance that there will exist the "extremely important element" of a substantial quantity of Colorado River water available for diversion to central Arizona for irrigation and other purposes.

The foregoing summary and the project report have been reviewed by the President. He has instructed me to advise you that authorization of the improvement is not in accord with his program at this time and that he again recommends that measures be taken to bring about prompt settlement of the water-rights controversy.

Sincerely yours,

FRANK PACE, JR., *Director.*

EXHIBIT I (G)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
February 11, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington 25, D. C.

MY DEAR SENATOR O'MAHONEY: Members of the Congress have raised a question as to the interpretation to be placed upon the last clause of the last sentence of my letter of February 4, 1949, addressed to the Secretary of the Interior advising him of the relationship to the program of the President of the central Arizona project. The clause referred to reads as follows: "* * * and that he [the President] again recommends that measures be taken to bring about prompt settlement of the water-rights controversy."

During the last Congress in connection with consideration of Senate Joint Resolution 145 and House Joint Resolution 227, this office advised the Attorney General that it would be in accord with the program of the President to resolve the water-rights controversy by waiving immunity of the United States to suit and by granting permission to the States to bring such actions as they might desire, if the Congress felt it to be necessary to take such action. This advice was transmitted to the Congress by the Attorney General. Similar advice was also transmitted by the Secretary of the Interior, together with specific suggestions as to a form of a resolution which the Congress might consider.

In order that there may be no misunderstanding of the President's position, I shall be grateful if you will advise the members of your committee that the President has not at any time indicated that suit in the Supreme Court is the only method of resolving the water-rights controversy which is acceptable to him. On the contrary, the letters addressed to the Congress last year, as indicated above, stated specifically that enactment of the resolution authorizing suit would be acceptable to the President "* * * if the Congress feels that it is necessary to take such action in order to compose differences among the States with reference to the waters of the Colorado River * * *."

The project report and materials relating to the positions of the several States affected are now before your committee for consideration. If the Congress, as a matter of national policy, makes a determination that there is a water supply

available for the central Arizona project, the President will consider all factors involved in any legislation to authorize the project and will inform the Congress of his views respecting the specific provisions of this legislation.

Sincerely yours,

FRANK PACE, JR., *Director.*

EXHIBIT I (H)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, March 18 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate.

MY DEAR SENATOR O'MAHONEY: An expression of the views of this Department on Senate Joint Resolution 4 has been requested. This resolution, which is similar to a number of joint resolutions which are now pending in the House of Representatives, would, if enacted, grant the consent of the United States to its joinder "as a party in any suit or suits, commenced within two years from the effective date of this resolution in the Supreme Court of the United States by any State of the lower basin of the Colorado River * * * for the adjudication of claims of right asserted by such State, by any other State, or by the United States, with respect to the waters of the Colorado River system * * * available for use in that basin."

The resolutions now before your committee are similar in purpose to, though different in language from, a number of resolutions which were introduced in the Eightieth Congress. A report of this Department upon those resolutions was presented to your committee in a letter dated May 13, 1948. In that letter it was pointed out that the United States is an indispensable party to any litigation that may be brought to decide the dispute which now exists among the States of the lower basin of the Colorado River and that that dispute appears to have the elements of a justiciable controversy. There is, therefore, no need for me to elaborate on these matters here. Our hope that the dispute will be settled—by amicable means if possible, by the Congress if an amicable settlement is impossible and if it be the judgment of the Congress that the dispute can be effectively disposed of by it, and by litigation only as a last resort—was also made clear in that report. The importance that the Supreme Court attaches to settlement of disputes of this character by negotiation rather than litigation is evident from its opinion in *Colorado* v. *Kansas* (320 U. S. 383, 392 (1943)):

"The reason for judicial caution in adjudicating the relative rights of States in such cases is that, while we have jurisdiction of such disputes, they involve the interests of quasi-sovereigns, present complicated and delicate questions, and, due to the possibility of future change of conditions, necessitate expert administration rather than judicial imposition of a hard and fast rule. Such controversies may appropriately be composed by negotiation and agreement, pursuant to the compact clause of the Federal Constitution. We say of this case, as the court has said of interstate differences of like nature, that such mutual accommodation and agreement should, if possible, be the medium of settlement, instead of invocation of our adjudicatory power."

Both the executive and legislative branches of our Government might well consider to what extent they can contribute toward lending new impetus to negotiations among the States. In a letter addressed to you on February 11, Budget Director Pace has made it clear that "the President has not at any time indicated that suit in the Supreme Court is the only method of resolving the water-rights controversy which is acceptable to him."

This Department is convinced that the proposal that the lower basin controversy be settled by litigation is but part of a larger picture. Of immediate importance is the question whether the institution of such litgation would hinder or expedite the development of the resources of the Colorado River Basin. Although it is not certain that lower basin litigation would inevitably have the effect of delaying progress in the authorization and construction of badly needed works in the upper basin, we are so convinced that it might well have that effect that I cannot say, to repeat a comment made by this Department on the Eightieth Congress resolutions, that there would be no objection o the enactment of legislation along the lines of these resolutions that are now before your committee un-

less we were fully assured that progress in the development of the basin and in the use of its waters would not be halted or seriously impeded by the litigation More specific recommendations as to the means by which this assurance could best be evidenced are contained in the report of May 13, 1948, to which I have already referred. I may add that, in view of the fact that a compact apportioning the use of the waters of the upper basin has now been negotiated and ratified by all of the States of that basin, there is less reason now than it may have been thought there was last year for hesitating to give this assurance with respect to at least, works in the upper basin States.

The Congress will, no doubt, wish to consider the relation which exists between the proposed legislation upon which this report is written and the proposals for authorization of the central Arizona project, which are now pending before the Congress. The central Arizona project, nearly the last great new work that can be undertaken in the lower basin, is a very important element in the over-all picture of Colorado River development. This Department's views with respect to that project have been made available. In his comments on this Department's report of February 5, 1948, on the central Arizona project, the Governor of California, in a letter to this office, dated December 29, 1948, wrote:

"Until there is a final settlement of the water rights by some method, the aggregate of Arizona and California claims to Colorado River water will exceed the amount of water available to the lower basin States under the Colorado River compact and relevant statutes and decisions. It is only because a determination of the respective rights of the lower basin States to the waters of the Colorado River system has not been made, that California submits any criticism of your proposed report. Whenever it is finally determined what water belongs legally to Arizona, it should be permitted to use that water in any manner or by any method considered best by Arizona, so long as that use does not conflict with the right of California to the use of its water from the Colorado River system. However, as long as the present unsettled situation exists, it is my opinion that each State in the lower basin must of necessity interest itself in the others' projects which would overlap its claims."

This being the bone of contention between Arizona and California, it would seem that the States concerned should not be encouraged, and the United States should be very hesitant, to incur the heavy expense necessarily attendant upon litigation of this magnitude, at least unless it is reasonably clear that upon its outcome, and upon its outcome alone, depends the construction of the project which gives it meaning.

The Bureau of the Budget has advised that there is no objection to the presentation of this report to your committee. A copy of Director Pace's letter of March 17 transmitting this advice is enclosed for your information.

Sincerely yours,

OSCAR L. CHAPMAN,
Acting Secretary of the Interior.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., March 17, 1949.

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: On February 19, you transmitted to me the report which the Department of the Interior proposes to make to the chairman of the Senate Committee on Interior and Insular Affairs on Senate Joint Resolution 4, a joint resolution granting the consent of Congress to joinder of the United States in suit in the United States Supreme Court for adjudication of claims to waters of the Colorado River system.

The President has authorized me to advise you that while there is no objection to the presentation of your report as submitted to me, he has also authorized me to advise the Attorney General that there is no objection to his report on House Joint Resolution 3 and similar measures pending before the House Committee on the Judiciary. This report of the Attorney General, which I understand was developed in collaboration with your representatives, suggests certain amendatory language for the consideration of the committee if the Congress proceeds to take up the proposed measure.

I attach a copy of my letter to the Attorney General. You will note that I have requested him also to send a copy of his report on House Joint Resolution 3 to Senator O'Mahoney in view of the fact that House Joint Resolution 3 is the counterpart of Senate Joint Resolution 4.

It will be appreciated if you will attach a copy of this letter when you forward your report to the committee.

Sincerely yours,

FRANK PACE, Jr., *Director.*

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., March 17, 1949.

The honorable the ATTORNEY GENERAL.

MY DEAR MR. ATTORNEY GENERAL: On March 4, you transmitted to me the report which the Department of Justice proposes to make to the House Committee on the Judiciary relative to House Joint Resolution 3, and other similar resolutions, granting the consent of Congress to joinder of the United States in a suit or suits in the United States Supreme Court for adjudication of claims to waters of the Colorado River system.

The President has authorized me to inform you that there is no objection to the transmittal of this report to the House Committee on the Judiciary.

In view of the fact that your report is equally pertinent with respect to Senate Joint Resolution 4, the counterpart resolution in the Senate, upon which a hearing is to be held by the Senate Committee on Interior and Insular Affairs on Monday, March 21, it will be appreciated if you will also send a copy of your report on the House resolution to Senator O'Mahoney. It will be appreciated if you will send a copy of this letter to both Representative Celler and Senator O'Mahoney when you transmit your report. A copy of my letter to the Secretary of the Interior with respect to his report on Senate Joint Resolution 4 is attached.

Sincerely yours,

FRANK PACE, Jr., *Director.*

EXHIBIT I (I)

DEPARTMENT OF JUSTICE,
OFFICE OF THE ASSISTANT TO THE ATTORNEY GENERAL,
Washington, March 17, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Interior and Insular Affairs Committee,
United States Senate, Washington, D. C.

MY DEAR SENATOR: This is in response to your request for the views of the Department of Justice concerning Senate Joint Resolution 4 which would grant the consent of Congress to joinder of the United States in a suit or suits in the United States Supreme Court for adjudication of claims to waters of the Colorado River system.

The proposed measure would give the consent of the United States to joinder as party in any suit or suits commenced in the Supreme Court of the United States by any State of the lower basin of the Colorado River, as that basin is defined in the Colorado River compact, namely, California, Arizona, Nevada, Utah, or New Mexico, for adjudication of claims of right asserted by such State, by any other State, or by the United States with respect to the waters of the Colorado River system available for use in the lower basin as defined in the Colorado River compact. The resolution would also provide that such suit or suits must be commenced within 2 years from the date of enactment.

It is fair to assume that the legislation has been proposed for the purpose of removing the cause of dismissal in the case of *Arizona* v. *California* (298 U. S. 558 (1935)), and of affording at least some of the States an opportunity to present their differences and conflicting claims to the Supreme Court for settlement. *Arizona* v. *California* was instituted by Arizona to have adjudicated certain rights to the unappropriated waters of the Colorado River. In that suit five other basin States were named as parties defendant. The Supreme Court dismissed that action on the grounds that since the United States, which was not named as a defendant, was an indispensable party and had not consented to be sued, the suit could not be maintained. The Court made it clear that the type of relief desired by the States in a suit between them cannot be had in the absence of legislation such as here proposed.

In the Eightieth Congress measures were introduced which had for their purpose the institution of a suit in the Supreme Court for the adjudication of the rights of the State of the lower basin of the Colorado River. These measures

would have directed the Attorney General of the United States to commence the suit or action in the nature of interpleader in the Supreme Court of the United States against the States of Arizona, California, Nevada, New Mexico, and Utah. In the report of this Department on measures pending in the House, the Department was unable to recommend their enactment and suggested that, in the event Congress felt it was necessary that differences with reference to the waters of the Colorado River in the lower basin thereof be composed through litigation, the resolution should be amended so as to waive the immunity of the United States to be sued and to permit the States to bring such actions as they might desire. It was further suggested that the time limitation for commencing the action be reduced to 1 year.

The first above-mentioned suggestion is incorporated in the present measure. However, as presently proposed, it would contemplate an adjudication of the rights in the lower basin only. Representatives of the Department of the Interior and this Department have recently conferred with regard to this proposed legislation and a proposed draft of substitute wording has been prepared which, among other things, would permit of a complete adjudication of all rights on the Colorado River, including the rights of the United States. In the absence of such provision in the act, a complete adjudication of the rights of all interested parties could not be had.

While enactment of the proposed legislation is a matter of legislative policy concerning which this Department has no recommendation, if the Congress gives the proposed measure favorable consideration it is suggested that after the enacting clause the following language be substituted:

"That consent is hereby given to the joinder of the United States of America as a party in any suit or suits commenced in the Supreme Court of the United States within 1 year from the effective date of this joint resolution by any State or States of the Colorado River Basin, as that basin is defined in the Colorado River compact, for an adjudication of claims of right asserted against any other State or States of the Colorado River Basin or against the United States with respect to the waters of the Colorado River system available under the Colorado River compact, the Boulder Canyon Project Act, the California Self-Limitation Act, and the Boulder Canyon Project Adjustment Act to any State or States of the lower basin of the Colorado River, as that basin is defined in the Colorado River compact, and of any claims of right affecting such availability which are asserted by the defendant States or by the United States. Any State of the Colorado River Basin may intervene in said suit or suits or may be impleaded by any defendant State or by the United States."

The Director of the Bureau of the Budget has advised that there is no objection to the submission of this report. As requested by him in his letter of this date, I enclose a copy of that letter together with a copy of my report to the House Judiciary Committee on the counterpart resolutions being considered by that Committee.

Yours sincerely,

PEYTON FORD,
The Assistant to the Attorney General.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., March 17, 1949.

The honorable the ATTORNEY GENERAL.

MY DEAR MR. ATTORNEY GENERAL: On March 4, you transmitted to me the report which the Department of Justice proposes to make to the House Committee on the Judiciary relative to House Joint Resolution 3, and other similar resolutions, granting the consent of Congress to joinder of the United States in a suit or suits in the United States Supreme Court for adjudication of claims to waters of the Colorado River system.

The President has authorized me to inform you that there is no objection to the transmittal of this report to the House Committee on the Judiciary.

In view of the fact that your report is equally pertinent with respect to Senate Joint Resolution 4, the counterpart resolution in the Senate, upon which a hearing is to be held by the Senate Committee on Interior and Insular Affairs on Monday, March 21, it will be appreciated if you will also send a copy of your report on the House Resolution to Senator O'Mahoney. It will be appreciated if you will send a copy of this letter to both Representative Celler and Senator O'Mahoney when you transmit your report. A copy of my letter to the Secretary

of the Interior with respect to his report on Senate Joint Resolution 4 is attached.

Sincerely yours,

FRANK PACE, Jr., *Director.*

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., March 17, 1949.

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: On February 19, you transmitted to me the report which the Department of the Interior proposes to make to the Chairman of the Senate Committee on Interior and Insular Affairs on Senate Joint Resolution 4, a joint resolution "Granting the consent of Congress to joinder of the United States in suit in the United States Supreme Court for adjudication of claims to waters of the Colorado River system."

The President has authorized me to advise you that while there is no objection to the presentation of your report as submitted to me, he has also authorized me to advise the Attorney General that there is no objection to his report on House Joint Resolution 3 and similar measures pending before the House Committee on the Judiciary. This report of the Attorney General, which I understand was developed in collaboration with your representatives, suggests certain amendatory language for the consideration of the committee if the Congress proceeds to take up the proposed measure.

I attach a copy of my letter to the Attorney General. You will note that I have requested him also to send a copy of his report on House Joint Resolution 3 to Senator O'Mahoney in view of the fact that House Joint Resolution 3 is the counterpart of Senate Joint Resolution 4.

It will be appreciated if you will attach a copy of this letter when you forward your report to the committee.

Sincerely yours,

FRANK PACE, Jr., *Director.*

EXHIBIT I (J)

UNITED STATES DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., March 18, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate.

MY DEAR SENATOR O'MAHONEY: This Department has been requested by the Senate Committee on Interior and Insular Affairs to report on S. 75, a bill "Authorizing the construction, operation, and maintenance of a dam and incidental works in the main stream of the Colorado River at Bridge Canyon, together with certain appurtenant dams and canals, and for other purposes."

Some time ago this Department submitted to the President and the Congress its report on the central Arizona project. That report was, subject to certain conditions precedent therein enumerated, favorable. By letter dated February 4, the Director of the Bureau of the Budget advised me that he had been instructed by the President "to advise you * * * that he again recommends that measures be taken to bring about prompt settlement of the water-rights controversy." In a subsequent letter to you, dated February 11, Mr. Pace explained that this advice was not to be taken as meaning that "the President * * * at any time indicated that suit in the Supreme Court is the only method of resolving the water-rights controversy which is acceptable to him" and that "If the Congress, as a matter of national policy, makes a determination that there is a water supply available for the central Arizona project, the President will consider all factors involved in any legislation to authorize the project and will inform the Congress of his views respecting the specific provisions of this legislation." Mr Pace's letter of February 4 was published in the Congressional Record for February 7 at page A595. A copy of this letter of February 11 is attached.

Should the Congress, in the light of the very real need that exists in certain areas of Arizona for supplemental water for irrigation and of the urgent need for more power in the Southwest, determine upon the enactment of legislation along the lines of S. 75, then your committee may wish to consider the recommendations contained in paragraph 49 (8) of the report dated December 19, 1947, by the Bureau of Reclamation's Regional Director, region III. I urge your

committee to consider also including, at an appropriate point in the bill, a provision affecting the Indians and reading along the following lines:

"(a) In aid of the construction, operation, and maintenance of the works authorized by this act, there is hereby granted to the United States, subject to the provisions of this section, (i) all the right, title, and interest of the Indians in and to such tribal and allotted lands, including sites of agency and school buildings and related structures, as may be designated from time to time by the Secretary in order to provide for the construction, operation, or maintenance of said works and any facilities incidental thereto, or for the relocation or reconstruction of highways, railroads, and other properties affected by said works; and (ii) such easements, rights-of-way, or other interests in and to tribal and allotted Indian lands as may be designated from time to time by the Secretary in order to provide for the construction, operation, maintenance, relocation, or reconstruction of said works, facilities, and properties.

"(b) As lands or interests in lands are designated from time to time under this section, the Secretary shall determine the just and equitable compensation to be made therefor. Such compensation may be in money, property, or other assets, including rights to electric energy developed at any of the generating plants herein authorized. In fixing such rights to electric energy, including the rates and other incidents thereof, the Secretary shall not be bound by section 4 of this act. The amounts of money determined as compensation hereunder for tribal lands shall be transferred in the Treasury of the United States from funds made available for the purposes of this act to the credit of the appropriate tribe pursuant to the provisions of the act of May 17, 1926 (44 Stat. 560). The amounts due individual allottees or their heirs or devisees shall be paid from funds made available for the purposes of this act to the superintendent of the appropriate Indian agency, or such other officer as shall be designated by the Secretary, for credit on the books of such agency to the accounts of the individuals concerned.

"(c) Funds deposited to the credit of allottees, their heirs or devisees, may be used, in the discretion of the Secretary, for the acquisition of other lands and improvements, or the relocation of existing improvements or the construction of new improvements on the lands so acquired for the individuals whose lands and improvements are acquired under the provisions of this section. Lands so acquired shall be held in the same status as those from which the funds were derived, and shall be nontaxable until otherwise provided by Congress.

"(d) Whenever any Indian cemetery lands are required for the purposes of this act, the Secretary is authorized, in his discretion, in lieu of requiring payment therefor, to establish cemeteries on other lands that he may select and acquire for the purpose, and to remove bodies, markers and appurtenances to the new sites. All costs incurred in connection with any such relocation shall be paid from moneys appropriated for the purposes of this act. All right, title, and interest of the Indians in the lands within any cemetery so relocated shall terminate and the grant of title under this section take effect as of the date the Secretary authorizes the relocation. Sites of the relocated cemeteries shall be held in trust by the United States for the appropriate tribe, or family, as the case may be, and shall be nontaxable.

"(e) The Secretary is hereby authorized to perform any and all acts and to prescribe such regulations as he may deem appropriate to carry out the provisions of this section.

"(f) Nothing in this Act shall be construed as, or have the effect of, subjecting Indian water rights to the laws of any State."

The Bureau of the Budget has advised that there is no objection to the presentation of this report to your committee. A copy of Director Pace's letter of March 17 transmitting this advice is enclosed for your information.

Sincerely yours,

OSCAR L. CHAPMAN,
Acting Secretary of the Interior.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
February 11, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington 25, D. C.

MY DEAR SENATOR O'MAHONEY: Members of the Congress have raised a question as to the interpretation to be placed upon the last clause of the last sentence of my letter of February 4, 1949, addressed to the Secretary of the In-

terior advising him of the relationship to the program of the President of the central Arizona project. The clause referred to reads as follows: "* * * and that he (the President) again recommends that measures be taken to bring about prompt settlement of the water-rights controversy."

During the last Congress in connection with consideration of Senate Joint Resolution 145 and House Joint Resolution 227, this office advised the Attorney General that it would be in accord with the program of the President to resolve the water-rights controversy by waiving immunity of the United States to suit and by granting permission to the States to bring such actions as they might desire, if the Congress felt it to be necessary to take such action. This advice was transmitted to the Congress by the Attorney General. Similar advice was also transmitted by the Secretary of the Interior, together with specific suggestions as to a form of a resolution which the Congress might consider.

In order that there may be no misunderstanding of the President's position, I shall be grateful if you will advise the members of your committee that the President has not at any time indicated that suit in the Supreme Court is the only method of resolving the water-rights controversy which is acceptable to him. On the contrary, the letters addressed to the Congress last year, as indicated above, stated specifically that enactment of the resolution authorizing suit would be acceptable to the President "* * * if the Congress feels that is is necessary to take such action in order to compose differences among the States with reference to the water of the Colorado River * * *".

The project report and materials relating to the positions of the several States affected are now before your committee for consideration. If the Congress, as a matter of national policy, makes a determination that there is a water supply available for the central Arizona project, the President will consider all factors involved in any legislation to authorize the project and will inform the Congress of his views respecting the specific provisions of this legislation.

Sncerely yours,

FRANK PACE, Jr., *Director.*

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., March 17, 1949.

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: On February 19, 1949, you transmitted to me the report which the Department of the Interior proposes to make to the Chairman of the Senate Committee on Interior and Insular Affiairs on S. 75, a bill "Authorizing the construction, operation, and maintenance of a dam and incidental works in the main stream of the Colorado River at Bridge Canyon, together with certain appurtenant dams and canals, and for other purposes."

The President has authorized me to inform you that there is no objection to the presentation of this report to Senator O'Mahoney. It will be appreciated if you will attach a copy of this letter when you forward your report to the Committee.

Sincerely yours,

FRANK PACE, Jr., *Director.*

EXHIBIT II (A)

COLORADO RIVER COMPACT

(Signed at Santa Fe, New Mexico, November 24, 1922)

The States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming, having resolved to enter into a compact under the act of the Congress of the United States of America approved August 19, 1921 (42 Stat. L., p. 171), and the acts of the legislatures of the said States, have through their governors appointed as their commissioners: W. S. Norviel for the State of Arizona, W. F. McClure for the State of California, Delph E. Carpenter for the State of Colorado, J. G. Scrugham for the State of Nevada, Stephen B. Davis, Jr., for the State of New Mexico, R. E. Caldwell for the State of Utah, Frank C. Emerson for the State of Wyoming, who, after negotiations participated in by Herbert Hoover, appointed by the President as the representative of the United States of America, have agreed upon the following articles.

ARTICLE I

The major purposes of this compact are to provide for the equitable division and apportionment of the use of the waters of the Colorado River system; to establish the relative importance of different beneficial uses of water; to promote interstate comity; to remove causes of present and future controversies and to secure the expeditious agricultural and industrial development of the Colorado River Basin, the storage of its waters, and the protection of life and property from floods. To these ends the Colorado River Basin is divided into two basins, and an apportionment of the use of part of the water of the Colorado River system is made to each of them with the provision that further equitable apportionment may be made.

ARTICLE II

As used in this compact:

(a) The term "Colorado River system" means that portion of the Colorado River and its tributaries within the United States of America.

(b) The term "Colorado River Basin" means all of the drainage area of the Colorado River system and all other territory within the United States of America to which the waters of the Colorado River system shall be beneficially applied.

(c) The term "States of the upper division" means the States of Colorado, New Mexico, Utah, and Wyoming.

(d) The term "States of the lower division" means the States of Arizona, California, and Nevada.

(e) The term "Lee Ferry" means a point in the main stream of the Colorado River 1 mile below the mouth of the Paria River.

(f) The term "Upper Basin" means those parts of the States of Arizona, Colorado, New Mexico, Utah, and Wyoming within and from which waters naturally drain into the Colorado River system above Lee Ferry, and also all parts of said States located without the drainage area of the Colorado River system which are now or shall hereafter be beneficially served by waters diverted from the system above Lee Ferry.

(g) The term "Lower Basin" means those parts of the States of Arizona, California, Nevada, New Mexico, and Utah within and from which waters naturally drain into the Colorado River system below Lee Ferry, and also all parts of said States located without the drainage area of the Colorado River system which are now or shall hereafter be beneficially served by waters diverted from the system below Lee Ferry.

(h) The term "domestic use" shall include the use of water for household stock, municipal, mining, milling, industrial, and other like purposes, but shall exclude the generation of electrical power.

ARTICLE III

(a) There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

(b) In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.

(c) If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River system, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be equally borne by the upper basin and the lower basin, and whenever necessary the States of the upper division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

(d) The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series beginning with the 1st day of October next succeeding the ratification of this compact.

(e) The States of the upper division shall not withhold water, and the States of the lower division shall not require the delivery of water, which cannot reasonably be applied to domestic and agricultural uses.

(f) Further equitable apportionment of the beneficial uses of the waters of the Colorado River system unapportioned by paragraphs (a), (b), and (c) may be made in the manner provided in paragraph (g) at any time after October 1, 1963, if and when either basin shall have reached its total beneficial consumptive use as set out in paragraphs (a) and (b).

(g) In the event of a desire for further apportionment as provided in paragraph (f) any two signatory States, acting through their governors, may give joint notice of such desire to the governors of the other signatory States and to the President of the United States of America, and it shall be the duty of the governors of the signatory States and of the President of the United States of America forthwith to appoint representatives, whose duty it shall be to divide and apportion equitably between the upper basin and lower basin the beneficial use of the unapportioned water of the Colorado River system as mentioned in paragraph (f), subject to the legislative ratification of the signatory States and the Congress of the United States of America.

ARTICLE IV

(a) Inasmuch as the Colorado River has ceased to be navigable for commerce and the reservation of its waters for navigation would seriously limit the development of its basin, the use of its waters for purposes of navigation shall be subservient to the uses of such waters for domestic, agricultural, and power purposes. If the Congress shall not consent to this paragraph, the other provisions of this compact shall nevertheless remain binding.

(b) Subject to the provisions of this compact, water of the Colorado River system may be impounded and used for the generation of electrical power, but such impounding and use shall be subservient to the use and consumption of such water for agricultural and domestic purposes and shall not interfere with or prevent use for such dominant purposes.

(c) The provisions of this article shall not apply to or interfere with the regulation and control by any State within its boundaries of the appropriation, use, and distribution of water.

ARTICLE V

The chief official of each signatory State charged with the administration of water rights, together with the Director of the United States Reclamation Service and the Director of the United States Geological Survey, shall cooperate, ex officio—

(a) To promote the systematic determination and coordination of the facts as to flow, appropriation, consumption, and use of water in the Colorado River Basin, and the interchange of available information in such matters.

(b) To secure the ascertainment and publication of the annual flow of the Colorado River at Lee Ferry.

(c) To perform such other duties as may be assigned by mutual consent of the signatories from time to time.

ARTICLE VI

Should any claim or controversy arise between any two or more of the signatory States: (a) With respect to the waters of the Colorado River system not covered by the terms of this compact; (b) over the meaning or performance of any of the terms of this compact; (c) as to the allocation of the burdens incident to the performance of any article of this compact or the delivery of waters as herein provided; (d) as to the construction or operation of works within the Colorado River Basin to be situated in two or more States, or to be constructed in one State for the benefit of another State; or (e) as to the diversion of water in one State for the benefit of another State, the governors of the States affected upon the request of one of them, shall forthwith appoint commissioners with power to consider and adjust such claim or controversy, subject to ratification by the legislatures of the States so affected.

Nothing herein contained shall prevent the adjustment of any such claim or controversy by any present method or by direct future legislative action of the interested States.

ARTICLE VII

Nothing in this compact shall be construed as affecting the obligations of the United States of America to Indian tribes.

ARTICLE VIII

Present perfected rights to the beneficial use of waters of the Colorado River system are unimpaired by this contract. Whenever storage capacity of 5,000,000 acre-feet shall have been provided on the main Colorado River within or for the benefit of the lower basin, then claims of such rights, if any, by appropriators or users of water in the lower basin against appropriators or users of water in the upper basin shall attach to and be satisfied from water that may be stored not in conflict with Article III.

All other rights to beneficial use of waters of the Colorado River system shall be satisfied solely from the water apportioned to that basin in which they are situate.

ARTICLE IX

Nothing in this compact shall be construed to limit or prevent any State from instituting or maintaining any action or proceedings, legal or equitable, for the protection of any right under this compact or the enforcement of any of its provisions.

ARTICLE X

This compact may be terminated at any time by the unanimous agreement of the signatory States. In the event of such termination, all rights established under it shall continue unimpaired.

ARTICLE XI

This compact shall become binding and obligatory when it shall have been approved by the legislatures of each of the signatory States and by the Congress of the United States. Notice of approval by the legislatures shall be given by the governor of each signatory State to the governors of the other signatory States and to the President of the United States, and the President of the United States is requested to give notice to the governors of the signatory States of approval by the Congress of the United States.

In witness whereof the commissioners have signed this compact in a single orginal, which shall be deposited in the archives of the Department of State of the United States of America and of which a duly certified copy shall be forwarded to the governor of each of the signatory States.

Done at the city of Santa Fe, N. Mex., this 24th day of November, A. D. 1922.

W. S. NORVIEL,
W. F. MCCLURE,
DELPH E. CARPENTER,
J. G. SCRUGHAM,
STEPHEN B. DAVIS, JR.,
R. E. CALDWELL,
FRANK C. EMERSON.

Approved:
HERBERT HOOVER.

EXHIBIT II (B)

COMPARISON OF COMPACT SUGGESTED BY CARPENTER AT THE ELEVENTH MEETING OF COMMISSION WITH THE COMPACT AS FINALLY APPROVED AT SANTA FE

CARPENTER DRAFT OF NOVEMBER 11, 1922 (ELEVENTH MEETING IN SANTA FE)	COMPACT AS APPROVED
Purposes (article I) "The territory included within the drainage area of the *Colorado River* and its tributaries and all lands now and hereafter watered from said stream, within the United States of America, *for the purposes* of the equitable apportionment and distribution of the *uses and benefits of the waters of said river* * * *"	*Purposes (article I)* "*The major purposes* of this compact are to provide for the equitable division and apportionment of the *use of the waters of the Colorado River system;* * * *" *(Definitions) article II* "(a) The term *'Colorado River system'* means that portion of the *Colorado River and its tributaries* within the United States of America."

(NOTE.—Division of basin into upper and lower basins and dividing point at Lee Ferry are approximately the same in both drafts.)

Division of water (article II)

"The *waters* of the *Colorado River and all of the streams contributing thereto* within the United States of America, shall be equitably divided and apportioned among the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming and between those portions of the territory of each of said States included within the upper and lower divisions of said river, as defined in article I, hereof, in the following manner:

"1. *The flow of the Colorado River shall be divided* between the territory included within the two divisions of said river *upon the basis of an equal division of the mean or average annual established natural flow of said river* as heretofore ascertained and recorded *at Yuma, Arizona,* * * * (There follows a stipulated amount of 17,400,000 acre-feet made up of 14,964,000 acre-feet passing Lee Ferry and 2,436,000 acre-feet entering the river 'through streams contributing to the flow of said river between Lee's Ferry and Yuma, Arizona.')

"2. *The States of Colorado, New Mexico, Utah, and Wyoming* jointly and severally agree with the remainder of the High Contracting Parties that the diversions from the Colorado River and its tributaries and *the uses and consumption of water within the upper division shall never reduce the mean or average annual flow of the Colorado River at Lee's Ferry over any period of ten (10) consecutive years*, below a flow equivalent to thirty-six percent (36 %) of the agreed established average annual flow of the river at Yuma, Arizona, as defined in paragraph one (1) of this article, to wit, below a flow of six million two hundred and sixty-four thousand (6,264,000) acre-feet, and that not less than said minimum mean or *average annual flow shall hereafter pass Lee's Ferry for the use and benefit of the territory included within the lower division of said river;* * * *"

Supplying Mexican water (articles II and III)

Article II, paragraph 2:

"* * *; and the aforementioned States (upper division) do further jointly and severally agree that they *will cause to flow annually in said river past Lee's Ferry*, in addition to the aforesaid minimum average annual flow, an amount of water equivalent to one-half the annual requirement for delivery to the Republic of Mexico as provided in article III of this compact."

Division of water (article III)

"(a) There is hereby apportioned *from the Colorado River system* in perpetuity to the Upper Basin and to the lower basin, respectively, *the exclusive beneficial consumptive use* of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.

"(b) In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its *beneficial consumptive use of such waters* by one million acre-feet per annum.

"(d) *The States of the upper division will not cause the flow of the river at Lee Ferry to be depleteed below* an aggregate of 75,000,000 acre-feet *for any period of ten consecutive years* reckoned in continuing progressive series beginning with the first day of October next succeeding the ratification of this compact."

Supplying Mexican water (article III (c))

"(c) If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the *use of any waters of the Colorado River system*, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then the

Article III:

"The High Contracting Parties agree that the duty and burden of supplying any waters *from the flow of the Colorado River* * * * to the Republic of Mexico * * * in fulfillment of any obligation * * * which may be determined to exist * * *, by treaty between the two Nations, *shall be equally apportioned between and equally borne by the upper division and the lower division* * * *; and that the annual delivery at Lee's Ferry, by the States of the upper division, of a quantity of water equivalent to one-half the annual amount required to satisfy any such international obligations shall be a complete fulfillment of the provisions of this article by said States; and that the *States of the lower division* shall contribute annually a like amount of water *from those* waters of the river annually to pass Lee's Ferry for the lower division, * * *, *and* from the *flow of tributaries entering the river below Lee's Ferry*, * * *."

burden of such deficiency *shall be equally borne by the upper basin and the lower basin*, and whenever necessary the States of the upper division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d)."

(All emphasis added.)

EXHIBIT II (c)

EXTRACTS FROM REPORTS OF NEGOTIATORS OF THE COLORADO RIVER COMPACT BEARING ON (1) "CONSUMPTIVE USES" AND (2) THE QUESTION OF WHETHER THE WATERS REFERRED TO IN ARTICLE III (b) ARE "APPORTIONED"

ARIZONA

Extract from the statement of Richard E. Sloan, legal adviser to the Arizona commissioner (and chairman of the drafting committee of the Colorado River Commission), printed in the Arizona Mining Journal January 15, 1923:

"* * * It will be observed that the compact does not divide the waters of the river. What is apportioned is the right to the beneficial consumptive use of the water for agriculture and domestic uses. In other words, it gives to each basin the right to acquire title as against the other basin to rights of appropriation up to a maximum sufficiently large to cover all known probable uses, leaving the disposition of title to the remainder to be made after a period or 40 years.

"In paragraphs A and B of article III there is apportioned to the upper basin the exclusive consumptive use of 7,500,000 acre-feet of water per annum and to the lower basin the exclusive beneficial consumptive use of 8,500,000 acre-feet per annum. The legal effect of this apportionment is that the lower basin may not complain of the diversion and use of water in the upper basin for agriculture and domestic uses provided the annual limit of 7,500,000 acre-feet is not exceeded, but may complain if that limitation is exceeded so as to prevent the full use of 8,500,000 acre-feet annually in the lower basin * * *. There is nothing in the compact that restricts or limits the use of water in the lower basin, and the full flow of the stream may be diverted and used without any interference from the upper basin, or without any limitation created by the compact. The effect of the compact is merely to place the two basins of use within the limitations upon a parity of right of 7,500,000 acre-feet for the upper basin and 8,500,000 acre-feet for the lower basin. Any use in either basin above these limits will acquire merely a secondary right of appropriation with respect to appropriations made within the definite allotments and title to which it is deferred to a later date.

"It may be of interest to know why the figures of 7,500,000 acre-feet for the upper basin and 8,500,000 acre-feet for the lower basin were reached. It grew

out of the proposition made by the upper basing that there should be a 50-50 division of rights to the use of the water of the river between the upper and lower basin which should include the flow of the Gila, and the insistence of Mr. Norviel, commissioner from Arizona, that no 50–50 basis of division would be equitable unless the measurement should be at Lees Ferry. As a compromise the known requirements of the two basins were to be taken as the basis of allotment with a definite quantity added as a margin of safety. The known requirements of the upper basin being placed at 6,500,000 acre-feet, a million acre-feet of margin gave the upper basin an allotment of 7,500,000 acre-feet. The known future requirements of the lower basin from the Colorado River proper were estimated at 5,100,000 acre-feet. To this, when the total possible consumptive use of 2,350,000 acre-feet from the Gila and its tributaries are added, gives a total of 7,450,000 acre-feet. In addition to this, upon the insistence of Mr. Norviel, 1,000,000 acre-feet was added as a margin of safety, bringing the total allotment for the lower basin up to 8,500,000 acre-feet. This compromise agreement is justified when we consider that the flow of the river will not be affected by any artificial division, but will continue uninterrupted, to be used for any beneficial purpose recognized, including power, as freely as though no such apportionment had been attempted.

"In clause D of article III of the compact there is a provision which in effect guarantees that the States of the upper division will not cause the flow of the river at Lee's Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years, reckoned in continuing progressive series. Manifestly, the only purpose of this provision is to safeguard the lower basin during periods of prolonged drought. The period of 10 years is not one definite block of 10 years, but is a continuing progressive series, so that it is impossible to group any definite number of wet years in any one series, and the upper basin must each year guard against the possibility of future shortage and against having to make up an unknown deficit in the future."

CALIFORNIA

Extract from the report of W. F. McClure, commissioner for California, January 8, 1923, to the Governor of California:

"In conclusion permit me to add that the terms of the compact do full justice to the States in interest, and the equitable division and apportionment of the use of the waters of the Colorado River system whereby the lower basin is allocated 7,500,000 acre-feet per annum, with an allowable increase of 1,000,000 acre-feet per annum by reason of the probable rapid development upon the lower river, and fully guarantees to California an ample water supply to adequately care for the enormous future growth of the Imperial Valley and adjacent territory. * * *"

COLORADO

Extract from the report of Delph Carpenter, commissioner for Colorado on the Colorado River Commission, to the Governor of Colorado, December 15, 1922:

"Seven million five hundred thousand acre-feet exclusive annual beneficial consumptive use is set apart and apportioned in perpetuity to the upper basin and a like amount to the lower basin.

* * * * * * *

"By reason of development upon the Gila River and the probable rapid future development incident to the necessary construction of flood works on the lower river, the lower basin is permitted to increase its development to the extent of an additional 1,000,000 acre-feet annual beneficial consumptive use before being authorized to call for a further apportionment of any surplus waters of the river.

"No further apportionment of surplus waters of the river shall occur within the next 40 years. At any time after 40 years, if the development in the upper basin has reached 7,500,000 acre-feet annual beneficial consumptive use or that of the lower basin has reached 8,500,000 acre-feet, any two States may call for a further apportionment of any surplus waters of the river, but such supplemental apportionment shall not affect the perpetual apportionment of 7,500,000 acre-feet made to each basin by this compact.

* * * * * * *

"The repayment of the cost of the construction of necessary flood-control reservoirs for the protection of the lower river country, probably will result in a

forced development in the lower basin. For this reason a permissible additional development in the lower basin to the extent of a beneficial consumptive use of 1,000,000 acre-feet, was recognized in order that any further apportionment of surplus waters might be altogether avoided or at least delayed to a very remote period. This right of additional development is not a final apportionment. This clause does not interfere with the apportionment to the upper basin or with the right of the States of the upper basin to ask for further apportionment by a subsequent commission."

Extract from the supplemental report of Delph E. Carpenter, commissioner of Colorado to the Colorado Legislature, March 20, 1923, page 37:

"In my original report (printed in the Senate Journal of January 5, 1923) I discussed and defined the term 'beneficial consumptive use'. In addition to the discussion there contained, I might add there is a vast difference between the term 'beneficial use' and the term 'beneficial consumptive use'. A use may be beneficial and at the same time nonconsumptive or the use may be partly or wholly consumptive. A wholly consumptive use is a use which wholly consumes the water. A nonconsumptive use is a use in which no water is consumed (lost to the stream). 'Consume' means to exhaust or destroy. The use of water for irrigation is but partially consumptive for the reason that a great part of the water diverted ultimately finds its way back to the stream. All uses which are beneficial are included within the apportionments (i. e. domestic, agricultural, power, etc.). The measure of the apportionment is the amount of water lost to the river. The 'beneficial consumptive use' refers to the amount of water exhausted or lost to the stream in the process of making all beneficial uses. As recently defined by Director Davis of the United States Reclamation Service, it is the 'diversion minus the return flow' (Congressional Record, January 31, 1923, p. 2815.)"

NOTE.—Mr. Carpenter's report was introduced in the Congressional Record (Senate, 70th Cong., 2d sess., Dec. 14, 1928, vol. 70, pt. 1, pp. 557–579, 584–585) and was before the Senate during the consideration of section 4 (a) of the project act.

WYOMING

Extract from the report of Frank C. Emerson, commissioner of the State of Wyoming, to the Governor and the Wyoming Legislature, January 18, 1923 (p. 15):

"* * * The lower basin is allowed to increase its use of water 1,000,000 acre-feet per annum in addition to the 7,500,000 acre-feet apportioned for its use by reason of the possible developments upon the Gila River, and the probable rapid development generally upon the lower river. This additional development is at the peril of the lower division as no provision is made for delivery of water at Lee Ferry for this additional amount."

EXHIBIT II (D)

THE GOVERNORS' RECOMMENDATIONS OF 1927

On August 30, 1927, the governors of the upper basin States after a conference with representatives of Arizona and California, proposed the following settlement:

SUGGESTED BASIS OF DIVISION OF WATER BETWEEN THE STATES OF THE LOWER DIVISION OF THE COLORADO RIVER SYSTEM SUBMITTED BY THE GOVERNORS OF THE STATES OF THE UPPER DIVISION AT DENVER CONFERENCE, AUGUST 30, 1927

"The governors of the States of the upper division of the Colorado River system suggest the following as a fair apportionment of water between the States of the lower division subject and subordinate to the provisions of the Colorado River compact insofar as such provisions affect the rights of the upper basin States:

"1. Of the average annual delivery of water to be provided by the States of the upper division at Lees Ferry, under the terms of the Colorado River compact—

"(*a*) to the State of Nevada, 300,000 acre-feet;

"(*b*) to the State of Arizona, 3,000,000 acre-feet;

"(*c*) to the Senate of California, 4,200,000 acre-feet.

"You will note that is a reduction in Arizona's contention that she was entitled to half the water, from 3,600,000 acre-feet to 3,000,000 acre-feet.

"2. To Arizona, in addition to water apportioned in subdivision (b), 1,000,000 acre-feet of water to be supplied from the tributaries of the Colorado River flowing in said State, and to be diverted from said tributaries before the same empty into the main stream; said 1,000,000 acre-feet shall not be subject to diminution by reason of any treaty with the United States of Mexico, except in such proportion as the said 1,000,000 acre-feet shall bear to the entire apportionment in 1 and 2 of 8,500,000 acre-feet.

"3. As to all waters of the tributaries of the Colorado River emptying into the river below Lees Ferry, not apportioned in paragraph 2, each of the States of the lower basin shall have the exclusive beneficial consumptive use of such tributaries within its boundaries before the same empty into the main stream, provided the apportionment of the waters of such tributaries flowing in more than one State shall be left to adjudication or apportionment between said States in such manner as may be determined upon by the States affected thereby.

"4. The several foregoing apportionments to include all waters necessary for the supply of any rights that now exist, including water from Indian lands for each of said States.

"5. Arizona and California each may divert and use one-half of the unapportioned water of the main Colorado River flowing below Lees Ferry, subject to further equitable apportionment between the said States after the year 1963, and on this specific condition, that the use of said waters between the States of the lower basin shall be without prejudice to the rights of the States of the upper basin to further apportionment of water, as provided by the Colorado River compact."

EXHIBIT II (E)

REJECTION OF THE GOVERNORS' PROPOSAL

The proposal of the upper basin governors was submitted to the Senate Committee on Irrigation and Reclamation during the course of hearings on the Boulder Canyon Project Act. In the meantime, it had been rejected both by California and by Arizona. In view of later claims that Arizona accepted the governors' proposal, attention is called to the Congressional Record, December 7, 1928, page 233, as follows (Senator Johnson speaking):

"Commissioner Wilson on January 19, 1928, testified on the same subject before the Senate Committee on Irrigation and Reclamation, as follows:

" 'At the Denver conference Arizona accepted the proposals of the governors of the upper basin States on the allocation of water, but attached a condition to the effect that the tributaries of Arizona must be released and relieved from the burden which might be hereafter impressed upon them by virtue of any treaty between the United States of America and the Republic of Mexico.

* * * * * * *

" 'The upper basin governors gave the matter considerable consideration and rejected Arizona's condition in this connection * * *.'

"That is quoted from page 193 of the printed and bound record of the hearings on Senate bill 728.

"The Arizona Colorado River Commission, in reply to the proposal of the upper States, submitted in writing a document entitled "Response of Arizona to Proposal of the Governors of the Upper Division, Colorado River Basin States, Which Was Submitted to the Lower Division States Under Date of August 30, 1927,' copy of which is found on page 349 of the printed and bound record of hearings on Senate bill 728.

"In such response the Arizona Colorado River Commission, referring to conditions attached to Arizona's acceptance of the proposal submitted by the four upper basin States, including the condition for the exemption of Arizona's tributaries from any charge in meeting Mexican water demands. It is stated in reference to these conditions:

" 'It must clearly be understood that it is only upon condition that they are resolved affirmatively that we will accept the first item of the proposal relating to the allocation of water.'

"The condition attached by Arizona to its acceptance of the proposal of the four upper basin States, as to the division of water was rejected by those States, and therefore Arizona's so-called acceptance neither occurred nor could occur under the circumstances."

EXHIBIT II (F)

STATEMENT INCLUDED IN THE REPORT OF THE HOUSE COMMITTEE ON PUBLIC LANDS ON H. R. 2325 (S. 790), GRANTING THE CONSENT OF CONGRESS TO THE UPPER COLORADO RIVER BASIN COMPACT

The upper Colorado River Basin compact is an interstate compact between the States of Arizona, Colorado, New Mexico, Utah, and Wyoming. Article I, section 10, of the Constitution of the United States requires that before a compact or agreement between States is effective the Congress of the United States must consent thereto. The purpose of S. 790 (H. R. 2325) is to give such congressional consent to the upper Colorado River Basin compact. S. 790 (H. R. 2325) does not, nor does the upper Colorado River Basin compact, alter, amend, modify, or repeal the Boulder Canyon Project Act (45 Stat. 1057) or the Colorado River compact signed at Santa Fe, N. Mex., on November 24, 1922. It is recognized that the upper Colorado River Basin compact is binding only upon the States which are signatory thereto and does not impair any rights of any State not signatory thereto, and that the upper Colorado River Basin compact is subject, in all respects, to the provisions and limitations contained in the Colorado River compact. It is further recognized that Congress, by giving its consent to the upper Colorado River Basin compact, does not commit the United States to any interpretation of the Colorado River compact, expressed in, or implied from the upper Colorado River Basin compact, and expresses neither agreement nor disagreement with any such interpretation.

EXHIBIT II (G)

EFFECT OF THE COLORADO RIVER COMPACT ON THE UPPER BASIN STATES

(Extract from Report on Water Supply of Colorado River and Allied Matters, by R. J. Tipton, to the Upper Colorado River Basin Committee, July 1938)

(P. 25): It might be argued that in extreme low water periods both basins should share in the water shortage. The compact makes no such provision. However, the upper basin has a decided advantage over the lower basin in the use of the water allocated to it, under the terms of the compact. In an average year there is available for diversion in the upper basin some 16,000,000 acre-feet, and the upper basin has a right to consume 7,500,000 acre-feet of that water. In order to consume the 7,500,000 acre-feet it will be necessary to divert at least once the total supply of 16,000,000 acre-feet. Substantial reuse also will be made of water in some areas.

On the other hand, after full development in the upper basin, the average original supply available for use by the lower basin below Boulder Dam, excluding the Gila, will be about 9,000,000 acre-feet. This amount of water will not exceed to any considerable extent the amount of water allotted to the lower basin for consumption.

EXHIBIT III (A)

EXCERPT FROM BOULDER CANYON PROJECT ACT

(Approved December 21, 1928, ch. 42, 45 Stat. 1057)

SECTION 4 (A)

SEC. 4. (a) This act shall not take effect and no authority shall be exercised hereunder and no work shall be begun and no moneys expended on or in connection with the works or structures provided for in this act, and no water rights shall be claimed or initiated hereunder, and no steps shall be taken by the United States or by others to initiate or perfect any claims to the use of water pertinent to such works or structures unless and until (1) the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming shall have ratified the Colorado River compact, mentioned in section 13 hereof, and the President by public proclamation shall have so declared, or (2) if said States fail to ratify the said compact within 6 months from the date of the passage of this act

then, until six of said States, including the State of California, shall ratify said compact and shall consent to waive the provisions of the first paragraph of article XI of said compact, which makes the same binding and obligatory only when approved by each of the seven States signatory thereto, and shall have approved said compact without conditions, save that of such six-State approval, and the President by public proclamation shall have so declared, and, further, until the State of California, by act of its legislature, shall agree irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as an express covenant and in consideration of the passage of this act, that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California, including all uses under contracts made under the provisions of this act and all water necessary for the supply of any rights which may now exist, shall not exceed four million four hundred thousand acre-feet of the waters apportioned to the lower basin States by paragraph (a) of article III of the Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (*a*) of article III of the Colorado River compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,00 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico but if, as provided in paragraph (c) of article III of the Colorado River compact, it shall become necessary to supply water to the United States of Mexico from waters over and above the quantities which are surplus as defined by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply, out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin, and (5) that the State of California shall and will further mutually agree with the States of Arizona and Nevada that none of said three States shall withhold water and none shall require the delivery of water, which cannot reasonably be applied to domestic and agricultural uses, and (6) that all of the provisions of said tri-State agreement shall be subject in all particulars to the provisions of the Colorado River compact, and (7) said agreement to take effect upon the ratifications of the Colorado River compact by Arizona, California, and Nevada.

EXHIBIT III (B)

EXCERPT FROM BOULDER CANYON PROJECT ACT

(Approved December 21, 1928, ch. 42, 45 Stat. 1057)

SECTION 5

(Federal Reclamation Laws, Annotated (1943), p. 350)

SEC. 5. That the Secretary of the Interior is hereby authorized, under such general regulations as he may prescribe, to contract for the storage of water in said reservoir and for the delivery thereof at such points on the river and on said canal as may be agreed upon, for irrigation and domestic uses, and generation of electrical energy and delivery at the switchboard to States, municipal corporations, political subdivisions, and private corporations of electrical energy generated at said dam, upon charges that will provide revenue which, in addition to other revenue accruing under the reclamation law and under this act, will in his judgment cover all expenses of operation and maintenance incurred by the United States on account of works constructed under this act and the payments to the United States under subdivision (*b*) of section 4. Contracts respecting water for irrigation and domestic uses shall be for permanent service and shall

conform to paragraph (*a*) of section 4 of this act. No person shall have or be entitled to have the use for any purpose of the water stored as aforesaid except by contract made as herein stated.

After the repayments to the United States of all money advanced with interest, charges shall be on such basis and the revenues derived therefrom shall be kept in a separate fund to be expended within the Colorado River Basin as may hereafter be prescribed by the Congress.

General and uniform regulations shall be prescribed by the said Secretary for the awarding of contracts for the sale and delivery of electrical energy, and for renewals under subdivision (*b*) of this section, and in making such contracts the following shall govern:

EXHIBIT III (C)

REFERENCES TO THE CALIFORNIA LIMITATION ACT AND THE LOWER BASIN COMPACT AUTHORIZATION IN THE BOULDER CANYON PROJECT ACT

Section 4 (a) of the Boulder Canyon Project Act consists of two paragraphs, the first containing language similar to that in the California Limitation Act and the second paragraph providing for a lower basin compact. The first paragraph in 4 (a), however, was the result of amendments offered both in committee and on the floor during the debates. The limitation language was not contained in S. 728 or H. R. 5773 as introduced. The suggestion of a lower basin compact is found, however, in section 8 (c) of both S. 728 and H. R. 5773, as introduced.

The limitation section, in simple form, was first introduced in the Senate Committee on Irrigation and Reclamation as a part of the first paragraph of section 5 of S. 728 (final committee print, March 17, 1928). It was never a part of the House bill. The committee amendment limited California to 4,600,000 acre-feet, plus one-half of the "unallocated, excess, and/or surplus water."

Senator Waterman offered an amendment to section 5 on March 27, 1928 (Congressional Record, 70th Cong., 1st sess., p. 5415), which would have required California to guarantee that any water used by Arizona in excess of 2,900,000 acre-feet (plus one-half of the unallocated water) would be supplied her out of California's 4,600,000 acre-feet (plus one-half of the unallocated water) so that no water in excess of that apportioned to Arizona, California, and Nevada by article III of the compact would be delivered to those States. The Waterman amendment was never brought to vote.

Senator Ashurst proposed an amendment to section 5 on May 29, 1928 (Congressional Record, 70th Cong., 1st sess., p. 10466, amendment No. 19), which would have given the Secretary of the Interior the power, after deducting 300,000 acre-feet for use in Nevada, to see that neither Arizona nor California would use more than one-half of the water available in the lower basin out of the main Colorado River. This proposition was also not voted upon.

The limitation idea was first put into section 4 (a), where it is presently found, in an amendment to that section proposed by Senator Bratton on April 24, 1928 (Congressional Record, 70th Cong., 1st sess., p. 7047). An amendment to this section by Senator Phipps, ordered printed on May 19, 1928 (Congressional Record, 70th Cong., 1st sess., p. 9144), also contained the limitation provision.

On May 28, 1928, Senator Pittman had printed in the Record a suggested amendment which contained the limitation section and also the lower basin compact authorization, the first measure to combine the two ideas into section 4 (a) (Congressional Record, 70th Cong., 1st sess., pp. 10259, 10260).

As to the history of the lower basin compact authorization in the House during the first session of the Seventieth Congress, it will be recalled that this was contained in a simplified form in section 8 (c) of both S. 728 and H. R. 5773, as introduced. The House discussed this section only slightly on May 25, 1928 (Congressional Record, 70th Cong., 1st sess., p. 9984) and amended it so as to permit any two of the lower basin States to compact and extended the time in which they might arrive at a compact. The section as it then stood was passed.

The course of the lower basin compact authorization in the Senate during the first session of the Seventieth Congress was as follows:

(1) Authorization for the three lower basin States to compact is found in simplified form in S. 728 as introduced on December 9, 1927, section 8 (c).

(2) S. 728 as reported out of the Committee on Irrigation and Reclamation on March 17, 1928, transferred the lower basin compact authorization from section 8 (c) to section 8 (b), permitted any two of the States to compact and extended the time in which to compact from June 1, 1928, to January 1, 1929.

(3) Senator Ashurst offered an amendment to the now section 8 (b) on May 29, 1928 (Congressional Record, 70th Cong., 1st sess., p. 10467, amendment No. 31) which would have deleted it from the bill entirely.

(4) An amendment offered by Senator Ashurst to section 4 (a) on May 29, 1928, marked the second effort to place the lower basin compact authorization within section 4 (a) (Congressional Record, 70th Cong., 1st sess., p. 10466, amendment No. 14).

None of this material was ever brought to vote in the first session.

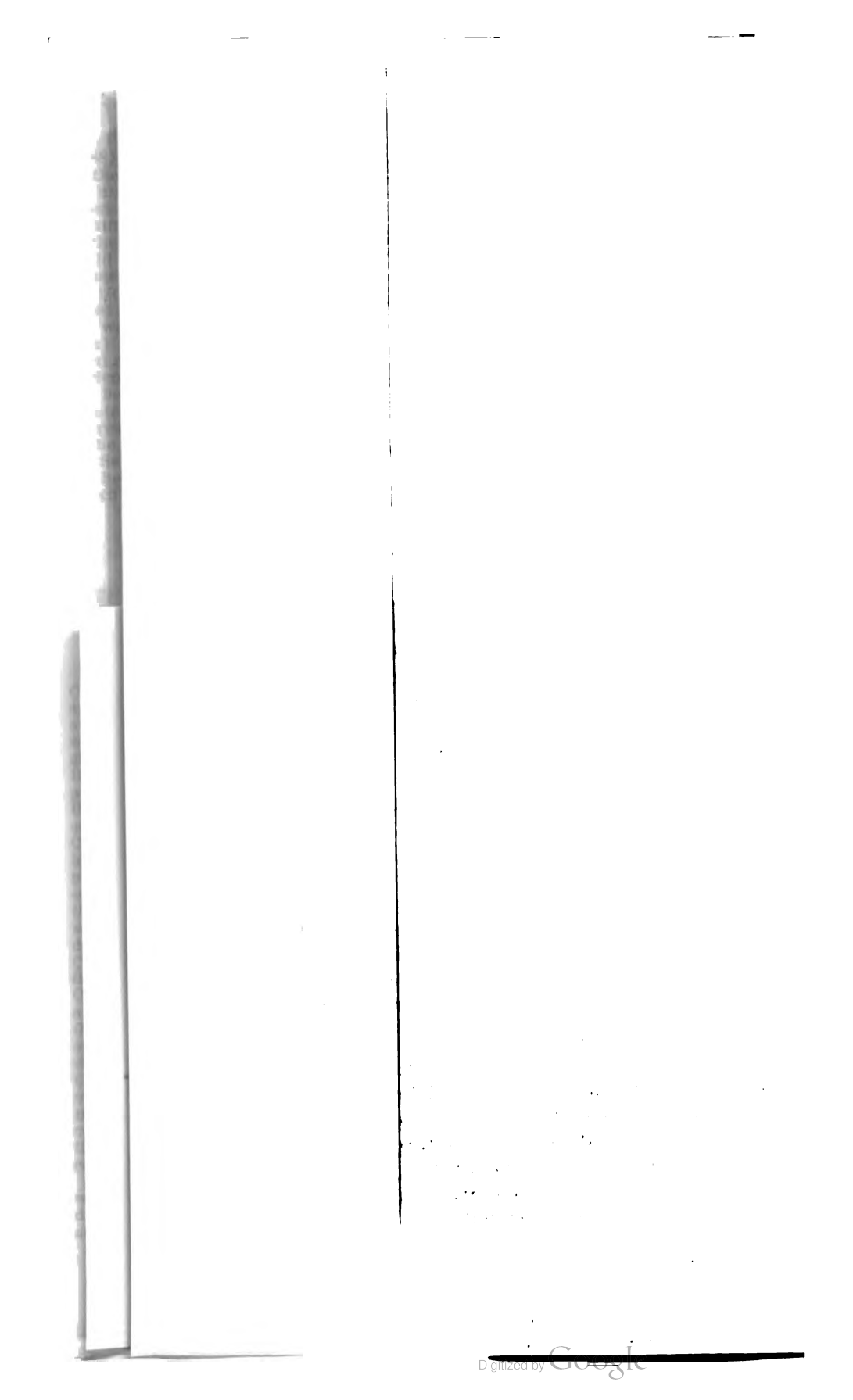
In the second session, S. 728 was substituted in its entirety for H. R. 5773. On December 6, 1928, Senator Hayden offered an amendment to section 4 (a) (Congressional Record, 70th Cong., 2d sess., p. 162) which he said was identical with the suggestion made by Senator Pittman during the first session on May 28. It will be recalled that this amendment combined for the first time in one section the principle of the Limitation Act, and authorization for a lower basin compact. An amendment to section 4 (a) printed by Senator Phipps on December 5, 1928 (Congressional Record, 70th Cong., 2d sess., p. 56), made no reference to a lower basin compact, but dealt only with the limitation idea. His amendment accordingly provided that the reference in section 5 of the act to the limitation idea should be stricken. Following the parliamentary maneuver of having H. R. 5773 read in the Senate and then the body of S. 728 being substituted after the enacting clause, Senator Phipps had his amendment of December 5, 1928, reprinted. This was done on December 8, 1928, the amendment of that date, now to H. R. 5773, being identical with the amendment offered on December 5 to S. 728. Senator Bratton also had an amendment to section 4 (a) printed on December 8 (Congressional Record, 70th Cong., 2d sess., p. 277) which dealt wholly with the limitation idea to the exclusion of a lower basin compact authorization.

To recapitulate, the parliamentary situation on December 11 was as follows: On December 5 the Senator from California [Johnson] moved to substitute the House bill for the Senate bill, which was done, and thereafter offered as a substitute amendment the Senate bill (S. 728) as printed. To that amendment the Senator from Arizona [Hayden] offered an amendment to section 4 (a), and on December 10 Senator Phipps offered an amendment to the amendment of Senator Hayden, which in turn was an amendment to the substitute offered by Senator Johnson.

It was at this stage of the debate that Senator Hayden desired to have a separate vote taken on the limitation provision and on the lower basin compact authorization. It was therefore necessary for him to withdraw his amendment which stood in the first degree so that Senator Phipps could reoffer his amendment ot section 4 (a) relating only to the limitation provision (Congressional Record, 70th Cong., 2d sess., p. 382). When this was accomplished and as the Phipps limitation provision of 4,600,000 acre-feet was ready for vote, Senator Hayden offered an amendment to reduce the amount to 4,200,000 acre-feet. The Hayden proposition was defeated by a vote of 48 to 29 (Congressional Record, 70th Cong., 2d sess., p. 384). Senator Bratton then offered an amendment to the Phipps amendment which would reduce the limitation from 4,600,000 to 4,400,000. This proposition was agreed to by a vote of 48 to 29 (Congresssional Record, 70th Cong., 2d sess., p. 387).

At this point Senator Hayden offered another amendment to the basic Phipps amendment which would simply have added a second paragraph to the Phipps amendment, this second paragraph embodying the lower basin compact authorization. The Hayden amendment was ordered to lie on the table and be printed (Congressional Record, 70th Cong., 2d sess., p. 388). Continuing on December 11, Senator Hayden then proposed an amendment which would strike out the six-State compact approval provision in the first paragraph of 4 (a). This proposition was defeated by a vote of 53 to 17 (Congressional Record, 70th Cong., 2d sess., p. 394). This ended activity with respect to the "Limitation Act" or the first paragraph of section 4 (a) of the Boulder Canyon Project Act as it is today.

On December 12 the Senate returned to debate on the second paragraph of 4 (a) or the lower basin compact provision. Argument opened with consideration of the amendment proposed by Senator Hayden to the Phipps amendment which he first introduced on December 11 (Congressional Record, 70th Cong., 2d sess.,



p. 388). After some discussion, Senator Pittman made his suggestion for amending the first six lines of the Hayden proposition which Senator Hayden agreed to. His amendment was perfected with the Pittman suggestion, accordingly (Congressional Record, 70th Cong., 2d sess., p. 469). After some further discussion, Senator Johnson said that he would agree to the Hayden amendment as modified by the Pittman suggestion as long as it was understood that the paragraph would not be considered as the expression of the will or the demand or the request of the Congress. Senator Pittman gave him this assurance. Upon the question being put, the amendment was agreed to without a record vote (Congressional Record, 70th Cong., 2d sess., p. 472).

It was in this manner, that is, by consideration of the two paragraphs of section 4 (a) as separate pieces of legislation, that section 4 (a) was finally passed. Final action on section 4 (a) occurred as follows:

"Senator PHIPPS. Mr. President, as I understand, the pending amendment has now been completed by alterations and additions. Therefore I hope we may have a vote on it without any delay. I think it is thoroughly understood by all interested."

The presiding officer then stated that the question was on the amendment of the Senator from Colorado (Phipps), as amended, to the substitute bill which had been offered by Senator Johnson. The amendment was agreed to without a roll-call vote (Congressional Record, 70th Cong., 2d sess., p. 473).

EXHIBIT III-(E)

CALIFORNIA LIMITATION ACT

(Act 1492. Limitation of use of water of Colorado River. (Stats. 1929, ch. 16, p. 38.))

SEC. 1. Agreement as to use of water of Colorado River: In the event the Colorado River compact signed at Santa Fe, N. Mex., November 24, 1922, and approved by and set out at length in that certain act entitled "An act to ratify and approve the Colorado River compact, signed at Santa Fe, N. Mex., November 24, 1922, to repeal conflicting acts and resolutions and directing that notice be given by the Governor of such ratifications and approval," approved January 10, 1929 (Statutes 1929, ch. 1), is not approved within 6 months from the date of the passage of that certain act of the Congress of the United States known as the Boulder Canyon Project Act," appproved December 21, 1928, by the legislatures of each of the 7 States signatory thereto, as provided by article 11 of the said Colorado River compact, then when 6 of said States, including California, shall have ratified and approved said compact, and shall have consented to waive the provisions of the first paragraph of article 11 of said compact which makes the same binding and obligatory when approved by each of the States signatory thereto, and shall have approved said compact without conditions save that of such 6 States approval and the President by public proclamation shall have so declared, as provided by the said "Boulder Canyon Project Act," the State of California as of the date of such proclamation agrees irrevocably and unconditionally with the United States and for the benefit of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming as an express covenant and in consideration of the passage of the said "Boulder Canyon Project Act" that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California including all uses under contracts made under the provisions of said "Boulder Canyon Project Act," and all water necessary for the supply of any rights which may now exist, shall not exceed 4,400,000 acre-feet of the waters apportioned to the lower-basin States by paragraph "a" of article 3 of the said Colorado River compact, plus not more than one-half of any excess or surplus waters unapportioned by said compact, such uses always to be subject to the terms of said compact.

SEC. 2. Construction: By this act the State of California intends to comply with the conditions respecting limitation on the use of water as specified in subdivision 2 of section 4 (a) of the said "Boulder Canyon Project Act" and this act shall be so construed.

EXHIBIT III (F)

[No. 1882]

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA—PUBLIC PROCLAMATION

Pursuant to the provisions of section 4 (a) of the Boulder Canyon Project Act approved December 21, 1928 (45 Stat. 1057), it is hereby declared by public proclamation:

(a) That the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming have not ratified the Colorado River compact mentioned in section 13 (a) of said act of December 21, 1928, within 6 months from the date of the passage and approval of said act.

(b) That the States of California, Colorado, Nevada, New Mexico, Utah, and Wyoming have ratified said compact and have consented to waive the provisions of the first paragraph of article XI of said compact, which makes the same binding and obligatory only when approved by each of the seven States signatory thereto, and that each of the States last named has approved said compact without condition, evcept that of six-State approval as prescribed in section 13 (a) of said act of December 21, 1928.

(c) That the State of California has in all things met the requirements set out in the first paragraph of section 4 (a) of said act of December 21, 1928, necessary to render said act effective on six-State approval of said compact.

(d) All prescribed conditions having been fulfilled, the said Boulder Canyon Project Act, approved December 21, 1928, is hereby declared to be effective this date.

In testimony whereof I have hereunto set my hand and caused the seal of the United States of America to be affixed.

Done at the city of Washington this 25th day of June, in the year of our Lord one thousand nine hundred and twenty-nine, and of the independence of the United States of America, the one hundred and fifty-third.

HERBERT HOOVER.

By the President:

[SEAL]

HENRY L. STIMSON,
Secretary of State.

EXHIBIT III (G)

INTERSTATE NEGOTIATIONS OF 1930

PROPOSAL SUBMITTED BY ARIZONA THROUGH COLONEL DONOVAN, FEDERAL REPRESENTATIVE, AT OPENING OF CONFERENCE, RENO, FEBRUARY 1930

(Extract from Report of Colonel Donovan, Congressional Record, June 26, 1930, p. 12204)

Then there was submitted the following proposal:

1. Gila and all Arizona tributaries out, except return flow.
2. From the main-stream water following divisions to be made:

3A:	
A. California	4,400,000
B. Arizona	2,800,000
C. Nevada	300,000
3B: 1,000,000	50–50

Fifty-fifty main-stream surplus.
Fifty-fifty Mexican burden—main stream.
Any shortage in main stream without preference or priority.
Reduction from Santa Fe and Washington, 200,000.

Arizona urged the adoption of this suggestion. It was pointed out that it followed the theory of compromise indicated in the Swing-Johnson bill, that all

discussions brought us back to such a compromise, and that its embodiment in the bill was the result of many weeks of discussion by the congressional representatives of the States concerned.

In order to reduce this proposal to figures a table was prepared and submitted to Arizona and California. This table was based on the assumption of engineers that 10,500,000 acre-feet of water would pass through Boulder Canyon per annum. If that assumption were correct, then, it was said that there would be below the dam 9,400,000 acre-feet of water for diversion by all other interests except the metropolitan water district, which it was estimated would need 1,100,000 acre-feet at the dam.

The following schedule of diversions for the 10,500,000 acre-feet was suggested:

	3-A	3-B	Surplus	Total
California	4,400,000	500,000	1,000,000	5,900,000
Arizona	2,800,000	500,000	1,000,000	4,300,000
Nevada	300,000			300,000
Total	7,500,000	1,000,000	2,000,000	10,500,000

Assumed Mexican burden of 800-000 acre-feet divided 50-50 between Arizona and California.

On this set-up, this would leave diversions out of physical water present in the main stream, as follows:

	Acre-feet
California	5,500,000
Arizona	3,900,000
Nevada	300,000
Mexico	800,000
	10,500,000

Exhibit III (H)

Interstate Negotiations, 1930

Final counterproposal by California February 8, 1930

(Extract from report of Col. William J. Donovan, Congressional Record, June 26, 1930, p. 12205)

On Saturday, February 8, at California's suggestion, a conference was held between the States of Arizona and California. At this conference California submitted the following proposal:

"California, anxious to make one more effort to bring about an agreement, makes the following proposal for the division of the waters of the lower Colorado River system:

"To Nevada, 300,000 acre-feet of water.

"Utah and New Mexico to have all water necessary for use on areas of those States lying within the lower basin.

"Arizona to have all waters of the Gila system and her other tributaries, excepting such water as reaches the main stream, also her present uses from the main stream, within the State.

"California to have water now diverted in California for agricultural and domestic use in California.

"Balance of water in main stream to be divided one-half to Arizona and one-half to California.

"Mexican obligations to be met one-half by Arizona and one-half by California from main-stream water.

"All other points to be left to determination of the Secretary of the Interior, under the act."

EXHIBIT III–(I)

INTERSTATE NEGOTIATIONS OF 1930

(Tabulation by Arizona, submitted to the Interior Department, February 1930, printed in the Congressional Record at request of Senator Hayden, June 26, 1930, p. 12200)

Proposal and findings of governors

Governor Young's proposals to Denver conference (August 1927)	Findings of the upper basin governors (August 1927)	The Boulder Canyon Project Act (December 1928)	Arizona's present position
1. To Arizona her tributaries except such waters reaching the main stream.	Same	1. To Arizona the Gila River except such waters reaching the main stream.	To Arizona her tributaries including the Gila, except such waters reaching the main stream.
2. To Nevada 300,000 acre-feet of 3a water.	Same	Same	Same.
3. The balance of 3a water; to Arizona 233,800 acre-feet perfected rights; to California 2,159,000 acre-feet perfected rights; balance divided equally between States, or Arizona, 2,637,400; California, 4,562,600.	Arizona, 3,000,000; California, 4,200,000.	Arizona, 2,800,000; California, 4,400,000.	Arizona, 2,800,000; California, 4,400,000.
4. 3b water in main stream divided equally between California and Arizona.	Given to Arizona to be supplied from tributaries.	Not mentioned	Divided equally between California and Arizona.
5. Surplus water in main stream divided equally between California and Arizona.	Same	Same	Same.
6. Mexican burden not mentioned.	Same	One-half burden of lower basin to be borne by Arizona and one-half by California.	Same.
7. Limitation on Arizona's time time to use water, 20 years.	No limitation	No limitation	No limitation.

NOTE.—The documents referred to are part of the record of the Denver proceedings, the Boulder Canyon Project Act, and the minimum Arizona requirements.

EXHIBIT III (J)

NEGOTIATIONS BETWEEN THE INTERIOR DEPARTMENT AND ARIZONA, 1929–30

LETTER OF SECRETARY WILBUR TO GOVERNOR PHILLIPS OF ARIZONA, MAY 9, 1930

I have read the statement by your Colorado River Commission of May 2 and a supplemental statement published May 3, which has just reached me.

The burden of these statements seems to be an objection that the Boulder Dam contracts, which carry out the outline forwarded you on October 23, modified as the result of the hearing here November 12, which Arizona declined to attend, have been concluded by the Secretary prior to the conclusion of negotiations between California and Arizona, which negotiations your commission thinks might have resulted in a compact covering power questions as well as water. At any rate, I assume that that is why section 8 (b) of the project Act is quoted.

But your commission has neglected to quote the full language of section 8 (b) which includes the important phrase quoted below, but omitted from your commission's statement. It provides as follows, in case the 3-State compact is not made before January 1, 1929:

"*Provided*, That in the latter case such compact shall be subject to all contracts, if any, made by the Secretary of the Interior under section 5 hereof prior to the date of such approval and consent by Congress."

And the complaint of "haste" cannot be meant seriously. The construction of this great work, authorized by an act approved in December of 1928, is necessarily at a standstill until the Secretary signs the required power contracts, for, under the act, no appropriations could be made before that time. I have

now signed such contracts and made it possible for this work to proceed. But before doing so, not only did this department wait until the States had had an opportunity under section 8 (b) to compact on or before January 1, 1929, as the law allows, but I delayed my action until April 28, 1930, or 13 months after taking office, in the earnest hope that the States would be able to work out their problems. Last June, as in the preceding March, under the auspices of this department, a conference between the States was called for that purpose and every assistance given them by the department and its bureaus to that end. It was fruitless. Nevertheless, I did not accept that failure of the States to come together as being final, nor did I, by proceeding immediately with the power contracts, as I might have done, foreclose them from agreeing on the power question. Instead, 4 months later, I, on October 19, 1929, announced a tentative allocation of power and a price for power and a price for the storage of water, and set November 12 as a hearing date for any protest. Every attempt was made to bring Arizona to the conference table and give her an opportunity to be heard on the points mentioned above. Not only was a formal notification extended to your State on October 23, which you acknowledged on October 30, but, in addition, I telegraphed you on November 4, and wrote you on that date, and wrote you again on November 7. In the latter letter I said, "As I wish to make no final allocation until after this hearing (November 12) and desire to give all parties an opportunity to be heard at that time, I wish to again formally advise you of the date and of the invitation to Arizona to be heard." Nevertheless, no one was present to represent Arizona. Nor was any application for power presented by your State. Yet, on November 14, after the hearing, I telegraphed you, saying that "there will be a period of some days before final determination will be made. Personally I cannot help but hope that the great significance of this project to the whole Southwest will bring everyone in the territory together." Arizona's refusal to assist in working out these problems, when asked three times, is difficult to reconcile with the present complaint that they have been worked out without her. In the meantime, I had sent you the engineering study upon which the power price was based and I had the pleasure of receiving your very courteous letter of November 16, stating that inasmuch as Arizona denies the validity of the Boulder Canyon Project Act, she "cannot consistently take any action which might assume the validity of it," and stating, further, "that since matters are now apparently progressing towards the early consummation of definite contracts covering these matters, Arizona's right to compact in relation thereto would be made valueless, and in that situation her only available recourse is to the courts." That was nearly 6 months ago. But to make plain to you that I had no intention of foreclosing Arizona, I forwarded to you on December 2 a transcript of the record of the November 12 hearing, which closed with my following statement to the representatives present: "I propose not to complete these contracts before the second week in December, in the hope that we can bring Arizona into the picture, and I assign each of you and all of those who represent you as agents to make this, if possible, a 7-State compact." I carried out that pledge. I waited not only until the second week in December but until the last week in February before initiating the contract negotiations, and even that step was not taken until the department had taken the initiative in attempting to give the States an opportnuity to settle this question by compact, by arranging an interstate conference in January and February (my suggestions of earlier dates having proved inconvenient for the States), which convened at Reno and adjourned to Phoenix. I specifically advised you that the field for agreement on power as well as water was wide open. That conference, like its predecessors, was fruitless. I do not wish you to feel that I attach any blame to Arizona for the outcome of this conference, nor of any others which have been held; I only want you to quite clearly understand that I have been patient and have borne the responsibility for delay for many months in order to give your State a chance to work out its problems.

Negotiations of the power contracts in Los Angeles consumed 2 months, a minimum time for contracts of this magnitude, as I think you will agree. Nevertheless, because of the delay in initiating these negotiations, occasioned by the keeping of my promise to the States at the November hearing that I would give them a chance to meet, the closing of the Los Angeles negotiations could not be effected until dangerously near the end of the present session of Congress. The contracts were concluded, as you were notified on October 23 that they would be; I signed them on April 28; and Congress has been requested for an appropriation. I have acted; but not until 16 months after the last

date upon which the States, under section 8 (b), could have foreclosed the Secretary from acting. The success of this whole project means too much to the whole Southwest, including very particularly your own State, to justify postponing this flood-control and irrigation measure another year to give opportunity for more interstate conferences.

I have spoken before of the fact that Arizona, although invited, has never come to the conference table to help me in working out these power problems, and has never made an application for power. Yet a large part of the time consumed at Los Angeles was required by the insistence of this department on inclusion in the contracts of clauses protecting the future of Arizona and Nevada. Although your State has never asked for any power, you were allocated 18 percent of the firm energy, or in excess of 100,000 horsepower, and, unlike all the other contractors, Arizona and Nevada are each given an allocation which does not require their firm obligation for 50 years, but gives them a 50-year option in the form of a right to contract on certain notice for blocks of power, as power is needed, and to relinquish it on like notice when the need ceases, without prejudice to the right to again take the power when wanted; and this process can be repeated indefinitely. But this is not the only contract provision in your favor. You will recall that section 5 (c) of this act permits the States of Arizona, California, and Nevada to contract for energy for use within the State on a preferential status within 6 months after notice from the Secretary. I might have started that period of limitation running against your State by promulgating notice at any time. Instead, I did not do so until the contracts were actually signed, after I had required incorporation in them of a specific recognition of this 6-month privilege.

Before closing, I think it is desirable that you have a clear picture of the revenue situation as it affects your State. There is no mandate in the act that I exact any sums from the power purchasers for the benefit of Arizona and Nevada. I refer you to the opinion of the Attorney General of the United States, rendered December 26, 1929, stating as follows:

"Manifestly, it was not the intention of Congress that section 4 (b) should require the Secretary of the Interior to make provision by his contracts to insure any payments to those States during the 50-year period. This was recognized in the debates on the bill."

Nevertheless, I have succeeded in negotiating contracts under which firm energy is sold at a price in excess of that for which the power can now be generated by the contracting parties by steam, and succeeded in selling secondary energy at a favorable price. In consequence, the revenues accruing to your State, if these prices are maintained when the readjustment periods required by the act are reached (and, of course, I can make no guaranty that such prices will be maintained, as the act requires that they must be readjusted upward or downward at that time to accord with the competitive prices at distributing points or competitive centers), during the 50-year period of amortization, will range from $22,000,000 to $31,000,000, depending on the amount of secondary energy utilized. In addition, an amount ranging between $29,000,000 and $66,000,000, depending on the same factors, will have been paid into the Colorado River Dam fund for other developments on the river, in which your State will have a share. In other words, your State, without guaranteeing a penny toward the success of this project, is handed, a sum ranging from $350,000 to upward of $600,000 per year and give a free option on over 100,000 horsepower. The share of the firm power given Arizona and Nevada together is 36 percent. Compare your position, as stated above, with that of the Metropolitan Water District, which pays for an exactly equivalent amount (36 percent) about $118,000,000 over the period of its contract, under a firm obligation which must be fulfilled whether the power is needed or not. These privileges in favor of your State mean a corresponding assumption of burdens by the California purchasers of power; and it would have been impossible to finance this project as a power project, pure and simple, under such burdens. It is a water problem in its various phases— flood control, the necessity for domestic water on the southern California plain, and the necessity for irrigation—that has made it possible for these purchasers to assume this burden. Remember that we are transmitting power 250 miles and selling it over an oil and gas field; remember also that the quantity of fuel required per kilowatt-hour has gone down from the equivalent of 3.2 pounds of coal in 1919 to 1.76 pounds in 1928, and that even today the over-all efficiency of stream-electrical units is only about 27 percent. Recollection of these facts may help your people to recall that this

is a water project and not a power project. Power is being sold to build the dam; the dam is not being built to sell power.

Finally, one word about the price being charged to the Metropolitan Water District for storage of water. That price is 25 cents per acre-foot, plus the value of power lost if the water is taken out above the dam. From past communications from your commission, I gather that you want the price fixed at a higher rate so that the excess revenues coming to Arizona will be increased. I doubt whether your people have a proper vision of what they are doing when they make that request. The act provides that no charge shall be made for water furnished to Imperial and Coachella Valleys. But the act gives your State no such protection. It is in exactly the same status as the Metropolitan Water District. It is left to the discretion of the Secretary to determine the charge against you, as also against that district. As I understand it, you are asking upward of 3,000,000 acre-feet of main-stream water. Your State will some day come to the Secretary of the Interior for a contract for delivery of your water, just as the Metropolitan Water District has done. If you receive 3,000,000 acre-feet and are charged what we are charging the district for water delivered below the dam, 25 cents per acre-foot, the charge will be $750,000 per year. If we charge you what you have asked us to charge the district, that is, from $1 up, the charge against you will be upward of $3,000,000 per year. Which of these two precedents do you wish established? Which shall pay the way: Power, which you do not want, or water, which you do? I think that consideration of these questions may help you in coming to the conclusion that I have given some thought to the future of your State.

In closing this somewhat direct statement to you, I wish to reiterate my appreciation of your personal grasp of the entire situation and of the capacity shown by the members of your commission. There are, however, a number of facts which it is about time that the people of your State should know, in view of your commission's closing statement that it hopes that "when the facts of the controversy are brought to the attention of Congress, the request for this appropriation will be denied."

Very truly yours,

RAY LYMAN WILBUR,
Secretary.

EXHIBIT IV (A)

REFERENCES IN COLORADO RIVER CASES TO THE INTERESTS OF THE UNITED STATES IN COLORADO RIVER LITIGATION

In *Arizona* v. *California* (298 U. S. 558), the Court, in denying Arizona's petition to file a bill of complaint seeking an equitable apportionment, said:

"Without more detailed statement of the facts disclosed, it is evident that the United States, by congressional legislation and by acts of its officers which that legislation authorizes, has undertaken, in the asserted exercise of its authority to control navigation, to impound, and control the disposition of, the surplus water in the river not already appropriated."

(P. 571.)

"Every right which Arizona asserts is so subordinate to and dependent upon the rights and the exercise of an authority asserted by the United States that no final determination of the one can be made without a determination of the extent of the other."

(P. 572:)

"The petition to file the proposed bill of complaint is denied. We leave undecided the question whether an equitable division of the unappropriated water of the river can be decreed in a suit in which the United States and the interested States are parties. Arizona will be free to assert such rights as she may have acquired, whether under the Boulder Canyon Project Act and California's undertaking to restrict her own use of the water or otherwise, and to challenge, in any appropriate judicial proceeding, any act of the Secretary of the Interior or others, either States or individuals, injurious to it and in excess of their lawful authority.

"Petition denied."

EXHIBIT IV (B)

REFERENCES IN COLORADO RIVER CASES TO THE ELEMENTS OF A JUSTICIABLE CONTROVERSY

I

In *Arizona* v. *California* (283 U. S. 423, 464), the Court said:

"The bill is dismissed without prejudice to an application for relief in case the stored water is used in such a way as to interfere with the enjoyment by Arizona, or those claiming under it, of any rights already perfected or with the right of Arizona to make additional legal appropriations and to enjoy the same."

II

In *Arizona* v. *California* (298 U. S. 558), the Court said (p. 567):

"A justiciable controversy is presented only if Arizona, as a sovereign State, or her citizens, whom she represents, have present rights in the unappropriated water of the river, or if the privilege to appropriate the water is capable of division and when partitioned may be judicially protected from appropriations by others pending its exercise."

(At p. 572:)

"The petition to file the proposed bill of complaint is denied. We leave undecided the question whether an equitable division of the unappropriated water of the river can be decreed in a suit in which the United States and the interested States are parties. Arizona will be free to assert such rights as she may have acquired, whether under the Boulder Canyon Project Act and California's undertaking to restrict her own use of the water or otherwise, and to challenge, in any appropriate judicial proceeding, any act of the Secretary of the Interior or others, either States or individuals, injurious to it and in excess of their lawful authority.

"Petition denied."

EXHIBIT IV (C)

REFERENCES IN COLORADO RIVER CASES TO THE QUANTITY OF WATER WHICH CALIFORNIA MAY TAKE UNDER HER LIMITATION ACT

I

In *Arizona* v. *California* (298 U. S. 558), Arizona's bill of complaint (art. XVIII) alleged (p. 25):

"The net virgin flow of the Colorado River and its tributaries is the sum of the undepleted flows of said river at Imperial Dam and of the Gila at its confluence with the main stream at Yuma. By deducting from the net flow so obtained the waters apportioned by the Colorado River Compact we obtain the 'excess or surplus waters unapportioned by said compact' within the meaning of section 4 (a) of the Boulder Canyon Project Act and the act of the Legislature of California, approved March 4, 1929. The unapportioned water is computed in the following manner:

Virgin flow Colorado River at Imperial Dam	16,840,000
Virgin flow Gila at confluence with the Colorado River	1,331,000
Net virgin flow Colorado River	18,171,000
Less water apportioned by compact	16,000,000
Surplus waters unapportioned	2,171,000

"Therefore the maximum quantity of Colorado River water which California may legally divert and consumptively use is:

Of water apportioned by par. (a), art. III, compact	4,400,000
One-half waters unapportioned	1,085,500
California's maximum legal rights	5,485,000

"The foregoing quantities are in acre-feet per year and are based upon average annual discharges of the Colorado and Gila for the last 37 years for which records are available."

In *Arizona* v. *California* (298 U. S. 558), Arizona's supplemental brief stated (p. 8):

"The surplus waters unapportioned average 2,171,000 acre-feet per year."

In *Arizona* v. *California* (298 U. S. 558), the opinion of the Court stated:

"The Compact was duly ratified by the six defendant States, and the limitation upon the use of the water by California was duly enacted into law by the California Legislature by act of March 4, 1929, supra. By its provisions, the use of the water by California is restricted to 5,484,500 acre-feet annually."

(P. 564, note 5):

"The surplus water of the river in the lower basin, unapportioned by the compact, is 2,171,000 acre-feet, one-half of which, or 1,085,500 acre-feet, California is entitled, under the Boulder Canyon Project Act, and her own statute, to add to the 4,400,000 acre-feet which they specifically allot to her, making a total allotment of 5,485,500 acre-feet annually."

EXHIBIT IV (D)

REFERENCES IN COLORADO RIVER CASES TO THE QUANTITY OF WATER CLAIMED BY ARIZONA

In *Arizona* v. *California* (298 U. S. 558), Arizona's bill of complaint (art. XXXIV) alleged (p. 43):

"Arizona alleges that her equitable share of the waters flowing in the Colorado River and its tributaries, exclusive of the Gila, and subject to appropriation and use under her jurisdiction, is not less than 7,500,000 acre-feet per year and that, in addition, she is equitably entitled to use all the waters flowing in the Gila River, less such equitable share thereof as the State of New Mexico may be entitled to appropriate and use."

EXHIBIT IV (E)

CONSUMPTIVE USE—REFERENCES IN COLORADO RIVER LITIGATION TO (*a*) THE QUANTITY OF CONSUMPTIVE USES IN ARIZONA, (*b*) THE CLASSIFICATION OF USES ON THE GILA RIVER UNDER ARTICLE III (A) OF THE COLORADO RIVER COMPACT

A. AS TO THE QUANTITY OF CONSUMPTIVE USES IN ARIZONA

I

In *Arizona* v. *California* (283 U. S. 423), Arizona's bill of complaint (art. VII) alleged (p. 7):

"The total average flow of the Colorado River and its tributaries in the United States is 18,000,000 acre-feet of water annually. Of said total flow, 9,000,000 acre-feet were appropriated and put to beneficial use in the United States prior to June 25, 1929, and said appropriated water has ever since been and is now being used and consumed. Of said appropriated water, 2,500,000 acre-feet are diverted annually from the Colorado River above Lee Ferry and from tributaries entering said river above Lee Ferry, and are used and consumed in Utah, New Mexico, Colorado, and Wyoming, and 6,500,000 acre-feet are diverted annually from said river below Lee Ferry and from tributaries entering said river below Lee Ferry, and are used and consumed in Arizona, California, Nevada, and New Mexico. Of the appropriated water so diverted below Lee Ferry, 3,500,000 acre-feet are annually diverted, used and consumed in Arizona. *Of the appropriated water so diverted, used and consumed in Arizona, 2,900,000 acre-feet are diverted from the Gila River and its tributaries.*" [Emphasis supplied.]

In *Arizona* v. *California* (283 U. S. 423), the Court's opinion said (p. 460):

"It is conceded that the continued use of the 3,500,000 acre-feet of water already appropriated in Arizona is not now threatened. And there is no allegation that at the present time the enjoyment of these rights is being interfered with in any way."

Arizona v. *California* (298 U. S. 558), the opinion of the Court stated (p. 570):

"The defendant States contend, and Arizona does not deny, that the natural dependable flow of the river is already overappropriated, and it does not appear that without the storage of the impounded water any substantial amount of water would be available for appropriation."

II

In *Arizona* v. *California* (292 U. S. 341), Arizona's brief said (p. 11):

"* * * the framers of the compact intended that the 1,000,000 acre-feet per annum *permitted* to the lower basin by article III (b) was not in the main stream at all, but was in the tributaries existing in the lower basin * * *"

B. AS TO WHETHER THE USES ON THE GILA RIVER, BEING "PERFECTED RIGHTS," ARE ACCOUNTABLE UNDER ARTICLE III (a) OF THE COLORADO RIVER COMPACT

I

In *Arizona* v. *California* (283 U. S. 423) Arizona's bill of complaint (art. VII) alleged (p. 7):

"Of the total flow of the Colorado River and its tributaries in the United States, 9,000,000 acre-feet were, on June 25, 1929, ever since have been, and are now, wholly unappropriated. All of said unappropriated water flows in Arizona and on the boundary thereof; all of it is needed and can be put to beneficial use in Arizona; and all of it is subject to appropriation under the laws of Arizona. Of said unappropriated water, 8,000,000 acre-feet are flowing in the main stream of the Colorado River, and 1,000,000 acre-feet in tributaries entering said river between Lee Ferry and Laguna Dam. *All of the water of the Gila River and its tributaries was appropriated and put to beneficial use in Arizona and New Mexico prior to June 25, 1929.* There was not on said date, nor has there since been, nor is there now, any unappropriated water in the Gila River or any of its tributaries." [Emphasis supplied.]

Article XIV of the bill of complaint alleged (p. 17):

"(3) Said compact defines the term 'Colorado River system' so as to include therein the Gila River and its tributaries, of which the total flow, aggregating 3,000,000 acre-feet of water annually, was appropriated and put to the beneficial use prior to June 25, 1929. The State of New Mexico has but a slight interest, and the States of California, Nevada, Utah, Colorado, and Wyoming have no interest whatever in said water. Since said compact provides that the water apportioned thereby shall include all water necessary to supply existing rights, the effect of including the Gila River and its tributaries as a part of said system would be to reduce by 3,000,000 acre-feet annually the quantity of water now subject to appropriation in Arizona."

Arizona's brief stated (p. 16):

"In order that there might be no confusion as to the meaning of the term 'to appropriate water,' as used in the bill of complaint, it was defined therein as follows (bill, 8):

" 'To "appropriate" water means to take and divert a specified quantity thereof and put it to beneficial use in accordance with the laws of the State where such water is found, and, by so doing, to acquire, under said laws, a vested right to take and divert from the same source, and to use and consume, the same quantity of water annually forever, subject only to the rights of prior appropriators.'

"Used in this sense, the bill alleges (bill, 7–8) that prior to June 25, 1929, there had been appropriated in Arizona 3,500,000 acre-feet of water from the Colorado River and its tributaries below Lee Ferry, of which 2,900,000 acre-feet had been appropriated from the Gila River."

The Court's opinion said (283 U. S. 423, 463, note 15):

"The allegation that the inclusion in the compact of the waters of the Gila River (all of which are said to have been appropriated in Arizona) operates to reduce the amount of water which may be taken by that State, can likewise be disregarded. Not being bound by the compact, Arizona has not assented to this inclusion of the Gila appropriations in the allotment to the lower basin; and there is no allegation that Wilbur or any of the defendant States are interfering with perfected rights to the waters of that river, which enters the Colorado 286 miles below Black Canyon."

EXHIBIT IV (F)

REFERENCES IN COLORADO RIVER CASES TO THE QUESTION OF WHETHER THE WATERS REFERRED TO IN ARTICLE III (B) OF THE COLORADO RIVER COMPACT ARE "APPORTIONED" WITHIN THE MEANING OF SECTION 4 (A) OF THE BOULDER CANYON PROJECT ACT

I

In *Arizona* v. *California* (283 U. S. 423) Arizona's bill of complaint (art. XIV) alleged:

"(2) Said compact does not apportion or attempt to apportion all of the water of said Colorado River system, but attempts to apportion only 15,000,000 acre-feet thereof, and leaves unapportioned the remaining water of said system, aggregating 3,000,000 acre-feet annually. Said unapportioned water is a part of the unappropriated water of said Colorado River system. Said compact attempts to withdraw said unapportioned water from appropriation and to prohibit the appropriation thereof. This said compact attempts to do by providing that Mexican rights shall be supplied from said unapportioned water, and that said unapportioned water shall be subject to apportionment after October 1, 1963. Thus said compact attempts to deprive the State of Arizona, its citizens, inhabitants, and property owners, of their right to appropriate said 3,000,000 acre-feet of unappropriated water, all of which is now subject to appropriation in Arizona."

Arizona's brief, in 283 U. S. 423, stated (p. 4):

"To each basin is apportioned the annual beneficial consumptive use in perpetuity of 7,500,000 acre-feet of water, which must satisfy all existing appropriations as well as all future appropriations. There are existing appropriations totaling 6,500,000 acre-feet annually in the lower basin and 2,500,000 acre-feet annually in the upper basin. The upper basin States agree not to deplete the flow of the main stream at Lee Ferry below 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series The flow of the system in excess of 15,000,000 acre-feet annually is not apportioned. So far as the lower basin States are concerned, they may use, but not appropriate, this unapportioned water, if and when it is available for use, subject to any rights which may be recognized in Mexico, and subject to its apportionment after October 1, 1963. If the satisfaction of recognized Mexican rights reduces the unapportioned water below 1,000,000 acre-feet annually, the lower basin may require the upper basin to deliver from its apportionment one-half such amount."

Arizona's brief, in 283 U. S. 423, further stated (p. 33):

"Under the compact, then, the only water of which the right to exclusive beneficial use in perpetuity may be acquired in the lower basin is the water apportioned to that basin. Such apportionment is limited to 7,500,000 acre-feet of water per annum by article III (a). The Colorado brief, page 40, contends that paragraph (b) of article III operates to increase this apportionment to 8,500,000 for the lower basin. This, we submit, is not the case. If it had been intended to apportion the larger amount, the compact could easily have said so. The difference in language between paragraphs (a) and (b) is plain, and the difference in meaning is clear. Paragraph (b) does not *apportion in perpetuity*, as does paragraph (a), any beneficial use of water. It is very careful not to do this. It is to be read with paragraph (c) and relates solely to the method of sharing between the basins any future Mexican burden which this Government might recognize. This burden is to be satisfied first out of 'surplus' waters, and surplus waters are defined, not as surplus over quantities 'apportioned,' but as surplus over quantities '*specified* in paragraphs (a) and (b).' Any deficiency remaining is to be borne equally by the two basins. Thus the lower basin, which without paragraph (b) might use water in excess of its apportionment without acquiring any exclusive right in perpetuity thereto, is enabled to retain such uses to the extent of 1,000,000 acre-feet per annum against the first incidence of the Mexican burden. Thereafter it is entitled to require the upper basin to share from its apportionment equally in the satisfaction of any deficiency. In other words, all that paragraphs (b) and (c) accomplish is to require the upper basin to reduce its apportionment in favor of Mexico before the lower basin is required to do so, the lower basin being entitled to contribute first to the extent of 1,000,000 acre-feet, water which it may have used but to which it has no exclusive right in perpetuity; that is, water not apportioned to it. The water apportioned is that to which exclusive beneficial use in perpetuity is given in paragraph (a), less any deductions which may have to be recognized as provided in paragraphs (b) and (c)."

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Arizona's brief, in 283 U. S. 423, further stated (p. 62):

"As to water not yet appropriated, the compact (which the act approves and attempts to enforce) provides, in effect, that each basin may increase its present consumptive use of water in perpetuity until each has reached a total of 7,500,000 acre-feet (bill, 52). This means that the upper basin may add 5,000,000 acre-feet and the lower basin 1,000,000 acre-feet annually to present consumptive uses in perpetuity (bill, 7). The compact also provides that the lower basin may further increase its consumptive use of water (but not in perpetuity) by an additional 1,000,000 acre-feet annually (bill, 53). Deducting these amounts from the total annual flow of 18,000,000 acre-feet (bill, 7), there remains 2,000,000 acre-feet of unapportioned water from which any rights accorded Mexico are to be satisfied (bill, 53). By the terms of the compact, any part of this 2,000,000 acre-feet not required by Mexico shall (together with the 1,000,000 acre-feet temporarily awarded to the lower basin) be subject to apportionment between the two basins in 1963, or at any time thereafter."

II

Arizona's brief in *Arizona* v. *California* (292 U. S. 341) nowhere claimed that the waters referred to in article III (b) of the compact were "apportioned" waters. Instead, the brief repeatedly and carefully used the word "*permitted*" instead of "*apportioned*" (p. 9):

"* * * the 1,000,000 acre-feet of water *permitted* to the lower basin by article III (b) of the Colorado River compact * * *."

(P. 9):

"* * * In reality they propose to use in California, from the main stream of the Colorado River, 4,400,000 acre-feet of the water *apportioned* to the lower basin by article III (a) of the Colorado River Compact (bill, p. 17), the entire 1,000,000 acre-feet *permitted* to the lower basin by article III (b) (bill, p. 18) and one-half of the very small surplus remaining in the river * * *."

(P. 11:)

"If the 1,000,000 acre-feet *permitted* to the lower basin by article III (b) of the compact had been considered to be in the main stream of the Colorado River, then the provision of article III (d) should have been that the States of the upper division will not cause the flow at Lee Ferry to be depleted below an aggregate of 85,000,000 acre-feet for any period of 10 consecutive years, * * *."

(At p. 11:)

"* * * otherwise the *permission* contained in article III (b) becomes meaningless and valueless for the reason that the upper basin might, without violating any terms of the compact, prevent its use by withholding the water * * *."

(P. 11:)

"* * * the framers of the compact intended that the 1,000,000 acre-feet per annum *permitted* to the lower basin by article III (b) was not in the main stream at all, but was in the tributaries existing in the lower basin * * *."

(P. 13:)

"Under the construction of that document (the Limitation Act) as contended for by defendant Harold L. Ickes, and the California defendants herein, California could use from the main stream of the Colorado River (1) 4,400,000 acre-feet of the 7,500,000 acre-feet *apportioned* to the lower basin by article III (a) of the compact, and (2) 1,000,000 acre-feet *permitted* to the lower basin by the terms of article III (b) of the Colorado River compact, and (3) one-half of the excess or surplus waters, if any, unapportioned by the Colorado River compact * * *."

(P. 14:)

"* * * Thus California would seek to get not only the 1,000,000 acre-feet *permitted* by article III (b) of the compact * * *."

(P. 14:)

"Further, it must be pointed out that the Boulder Canyon Project Act nowhere seeks to deal with the water *permitted* to the lower basin by article III (b) of the compact and in the limitation imposed by that act upon the State of California, makes no mention of the water *permitted* by article III (b) of the compact * * *."

(P. 15:)

"* * * it was never intended either by Congress or the California Legislature that any person in California would ever claim the right to use any

portion of the 1,000,000 acre-feet *permitted* to the lower basin by article III (b) of the compact, else *permission* to do so would have been incorporated in the Boulder Canyon Project Act and in the act of the Legislature of the State of California."

(P. 16:)

"* * * the reason no mention is made in the Boulder Canyon Project Act of the 1,000,000 acre-feet *permitted* to the lower basin by article III (b) of the compact, is because Congress considered the 1,000,000 acre-feet *permitted* by article III (b) to be in Arizona tributaries for the sole and exclusive benefit of the State of Arizona * * *."

(P. 17:)

"* * * the 1,000,000 acre-feet per annum *permitted* to the lower basin by article III (b) of the Colorado River compact * * *."

(P. 17:)

"* * * The complainant State of Arizona hopes to be able to show in the case hereafter to be brought by it, by competent, relevant, and material evidence of the hearings and reports of the congressional committees and statements made in Congress and the legislative history of the act, that it was the intent of Congress to impose a limitation on California by the terms of the Boulder Canyon Project Act of 4,400,000 acre-feet of the water *apportioned* by article III (a) of the compact, plus one-half of the surplus or unapportioned waters of the main stream of the Colorado River, thereby saving to Arizona its tributaries and the 1,000,000 acre-feet per annum therefrom *permitted* by the understanding, of which testimony is sought to be perpetuated and *assuring to Arizona and those claiming under it the right to appropriate one-half of the surplus or unapportioned waters* of the main stream present in the lower basin for use, *in excess of the 7,500,000 acre-feet apportioned* to the lower basin by article III (a) of the Colorado River compact."

(P. 19:)

"The act of the Legislature of the State of California follows exactly, as to the limitation imposed upon use of waters of the Colorado River system within the State of California, the language of the Boulder Canyon Project Act and makes no reference whatsoever to article III (b) of the Colorado River compact.

"The omissions, ambiguities, and conflicting provisions of the Colorado River compact, the Boulder Canyon Project Act and the act of the Legislature of the State of California, as hereinabove pointed out, can be explained, resolved, and reconciled in no other way, except that they were drawn in accordance with and in order to give effect to the understanding, agreement, purpose, and intent of the framers of the Colorado River compact, of which Arizona desires the testimony to be perpetuated in this proceeding * * *."

(P. 25:)

"* * * defendant Harold L. Ickes and the California defendants assert that the 962,000 acre-feet relate to and include the water *permitted* to the lower basin by article III (b) * * *."

(P. 26:)

"* * * Arizona insists that it [the 962,000 acre-feet] can include no part of the water *permitted to it* by article III (b) of the compact, none of which is present in the main stream of the Colorado River at all, and all of which is in the tributaries of the State of Arizona for use within the State of Arizona."

EXHIBIT IV (G)

REFERENCES IN COLORADO RIVER CASES AS TO WHETHER THE COLORADO RIVER COMPACT INTENDED TO AWARD EXCLUSIVELY TO ARIZONA THE WATERS REFERRED TO IN ARTICLE III (*b*)

I

In *Arizona* v. *California* (292 U. S. 341), Arizona's bill of complaint (art. IV) alleged (p. 13):

"It was agreed between all of the representatives of the various States and the representative of the United States, negotiating said compact, that said 1,000,000 acre-feet apportioned by subdivision (b) of article III of said compact was intended for and should go to the State of Arizona to compensate for the waters of the Gila River and its tributaries being included within the definition of the Colorado River system and the allocations of said compact, and that said 1,000,-

000 acre-feet was to be used exclusively by and for the State of Arizona, that being the approximate amount of water then in use within the State of Arizona from the Gila River and its tributaries, and it was agreed that in view of the fact that no appropriation or allocation of water had otherwise been made by said compact directly to any State, the 1,000,000 acre-feet for the State of Arizona should be included in said compact by an allocation for the lower basin. And it was further agreed that a supplemental compact between the States, California, Nevada, and Arizona, should be adopted and that such supplemental compact should so provide."

Arizona's brief made the following explanation:

"The testimony herein sought to be perpetuated concerns an agreement from which arises all of the ambiguities and misunderstandings of the Colorado River compact, the Boulder Canyon Project Act, and the act of the Legislature of the State of California. Certainly it is material to show the initiation and the reason for the apparent ambiguities and uncertainties of these various documents and complainant, State of Arizona, hopes and believes that it will be able to thus show that the reason no mention is made in the Boulder Canyon Project Act of the 1,000,000 acre-feet permitted to the lower basin by article III (b) of the compact, is because Congress considered the 1,000,000 acre-feet permitted by article III (b) to be in Arizona tributaries for the sole and exclusive benefit of the State of Arizona, in accordance with the understanding, agreement, intent and purpose of the framers of the Colorado River compact, as set forth in the bill to perpetuate testimony herein."

The Court's opinion, in *Arizona* v. *California* (292 U. S. 341), stated (p. 348):

"The interference apprehended will, it is alleged, arise out of a refusal of the respondents to accept as correct that construction of article III (b) of the compact which Arizona contends is the proper one. It claims that this paragraph, which declares:

"'In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum,' means 'that the waters apportioned by article III (b) of said compact are for the sole and exclusive use and benefit of the State of Arizona.'"

(P. 358:)

"Arizona is one of the States of the lower basin and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone. It may be that, in apportioning among the States the 8,500,000 acre-feet allotted to the lower basin, Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her; but that is a matter entirely outside the scope of the compact."

EXHIBIT IV (H)

REFERENCES IN COLORADO RIVER LITIGATION TO THE QUESTION OF WHETHER THERE IS ANY RELATIONSHIP BETWEEN THE 75,000,000 ACRE-FEET REFERRED TO IN ARTICLE III (D) OF THE COLORADO RIVER COMPACT AND THE 7,500,000 APPORTIONED TO THE LOWER BASIN IN ARTICLE III (A) OF THE COMPACT

I

In *Arizona* v. *California* (283 U. S. 423), Arizona's brief (p. 32) stated:

"The provision in paragraph (d) of article III that the upper basin States will not cause the flow of the river to be depleted below 75,000,000 acre-feet over 10-year periods, has, as the Colorado brief, page 41, correctly states, no bearing on the amount of the apportionment to the lower basin. This 75,000,000 acre-feet is not apportioned to the lower basin. It may not be appropriated in the lower basin. Only so much of it may be appropriated as together with existing and future appropriations of water in or from tributaries entering the river below Lee Ferry will total 7,500,000 acre-feet per year. The 75,000,000 acre-feet includes all surplus waters which under paragraph (c) must first bear any Mexican burden, which may not be appropriated, and which are subject to ap-

portionment after 1963. It is fundamental to an understanding of the compact that the annual beneficial consumptive use in perpetuity of 7,500,000 acre-feet of water apportioned by it to the lower basin includes all beneficial consumptive use in perpetuity which may be made from the whole river system, and is not merely an apportionment of such uses in main-stream water flowing at Lee Ferry. The agreement not to deplete the flow at Lee Ferry below the specified amount does not mean, and cannot under the plain words of the compact be construed to mean, that the guaranteed flow is apportioned to the lower basin or may be appropriated there. As to this, at least, there can be no shadow of doubt."

The statement referred to by Arizona, in the brief of Colorado, New Mexico, and Nevada, was (p. 41):

"The balance of water supply between the two basins is preserved by a guaranty by the upper basin States that they will not cause the flow of the river at Lee Ferry, to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series. This guaranty has no direct relation to the aggregate allocation of 8,500,000 acre-feet per annum to the lower basin which is to be supplied out of that part of the whole Colorado River system within the lower basin."

II

In *Arizona* v. *California* (292 U. S. 341), Arizona's brief said (p. 10):

"The compact, therefore, in article III (a) apportions 7,500,000 acre-feet per annum to the upper basin and 7,500,000 acre-feet per annum to the lower basin in perpetuity and in order to assure delivery to the lower basin of the 7,500,000 acre-feet per annum, apportioned to it, provided further in article III (d) as follows:

"'(d) The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series beginning with the 1st day of October next succeeding the ratification of this compact.'

"It is very apparent that the foregoing provision was arrived at by multiplying the 7,500,000 acre-feet per annum apportioned to the lower basin, by article III (a), by 10, thus dividing between the upper and lower basins the benefit of floodwaters.

"If the 1,000,000 acre-feet permitted to the lower basin by article III (b) of the compact had been considered to be in the main stream of the Colorado River, then the provision of article III (d) should have been that the States of the upper division will not cause the flow at Lee Ferry to be depleted below an aggregate of 85,000,000 acre-feet for any period of 10 consecutive years, reckoned in continuing progressive series beginning with the 1st day of October next succeeding the ratification of the compact, otherwise the permission contained in article III (b) becomes meaningless and valueless for the reason that the upper basin might, without violating any terms of the compact, prevent its use by withholding the water."

The Court's opinion in *Arizona* v. *California* (292 U. S. 341), said (p. 356):

"5. In support of the contention that article III (b) is ambiguous, Arizona points out that, whereas the compact awards to the lower basin, in the aggregate, 8,500,000 acre-feet of water, article III (d) of the compact shows that only 7,500,000 of this is to come from the main stream of the Colorado River, since that section provides:

"'The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series beginning with the 1st day of October next succeeding the ratification of this compact.'

"It argues that the 75,000,000 was doubtless arrived at through multiplying by 10 the 7,500,000 acre-feet per annum apportioned to the lower basin under article III (a); that though the lower basin is entitled to 8,500,000 acre-feet, it can only call on the upper basin to release 7,500,000 acre-feet from the main stream; that the only other waters below Lee Ferry which are available to the lower basin come from tributaries entirely in Arizona; that these waters enter the Colorado River at a point so far south that they could not be used in the United States after they enter the Colorado; and they have in fact been appropriated for use in Arizona; that, therefore, what has in terms been awarded to the lower basin is in practical effect available only to that part of the lower basin constituted by Arizona."

(And at p. 358:)

"*Sixth.*—The considerations to which Arizona calls attention do not show that there is any ambiguity in article III (b) of the compact. Doubtless, the anticipated physical sources of the waters which combine to make the total of 8,500,000 acre-feet are as Arizona contends, but neither article III (a) nor (b) deal with the waters on the basis of their source. Paragraph (a) apportions waters 'from the Colorado River system,' i. e., the Colorado and its tributaries and (b) permits an additional use 'of such waters.' The compact makes an apportionment only between the upper and lower basin; the apportionment among the States in each basin being left to later agreement. Arizona is one of the States of the lower basin and any waters useful to her are by that fact useful to the lower basin. But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph (b) (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone. It may be that, in apportioning among the States the 8,500,000 acre-feet allotted to the lower basin, Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her; but that is a matter entirely outside the scope of the compact.

"The provision of article III (b), like that of article III (a) is entirely referable to the main intent of the compact which was to apportion the waters as between the upper and lower basins. The effect of article III (b) (at least in the event that the lower basin puts the 8,500,000 acre-feet of water to beneficial uses) is to preclude any claim by the upper basin that any part of the 7,500,000 acre-feet released at Lee Ferry to the lower basin may be considered as 'surplus' because of Arizona waters which are available to the lower basin alone. Congress apparently expected that a complete apportionment of the waters among the States of the lower basin would be made by the subcompact which it authorized Arizona, California, and Nevada to make. If Arizona's rights are in doubt it is, in large part, because she has not entered into the Colorado River compact or into the suggested subcompact."

EXHIBIT IV (I)

REFERENCES IN COLORADO RIVER CASES TO THE MODIFICATIONS, IF ANY, OF THE COLORADO RIVER COMPACT MADE BY CONGRESS IN GRANTING ITS CONSENT THERETO

I

In *Arizona* v. *California* (283 U. S. 423), the reply brief of Colorado, Wyoming, Utah, New Mexico, and Nevada stated (p. 84):

"It is apparent from the above language that the conditions precedent contained therein, upon which the taking effect of the act was made to depend, constituted nothing less than a counterproposal or offer on the part of the United States Government to authorize the States to enter into the compact, or in the absence of the ability of all of them to agree, to authorize six of said States, including California, to enter into the said compact, provided they should conform to and comply with the conditions specified in said act.

"Furthermore, as distinct inducements for the States to accept its counterproposal, the Congress, not only consented that the Boulder Canyon Project Act should be subject to the terms of and controlled by the Colorado River compact, 'in the construction, management, and operation of said reservoir, canals, and other works, and the storage, diversion, delivery, and use of water for the generation of power, irrigation, and other purposes, anything in this act to the contrary notwithstanding, and all permits, licenses, and contracts shall so provide,' (bill, pp. 58, 70); but in section 13 (b) thereof it expressly provided that:

" 'The rights of the United States in or to waters of the Colorado River and its tributaries whosoever claimed or acquired, as well as the rights of those claiming under the United States, shall be subject to and controlled by said Colorado River compact.' "

(P. 85:)

"* * * In accepting the counterproposal of Congress, they did so with full knowledge of, and consent to, the fact that they were accepting the definite counterproposal upon which Congress had made its consent to the Colorado River com-

pact depend, to wit, that they could agree to the taking effect of said compact, only by complying with the conditions stated in said act, and not otherwise. Consequently new rights became vested in each of said signatory States upon the ratification of the compact and the declaration of that fact by the President of the United States, by reason of which the Boulder Canyon Project Act automatically became effective; * * *."

II

In *Arizona* v. *California* (292 U. S. 341), the Court's opinion said (p. 51):

"*Third.*—In this suit Arizona asserts rights under the Boulder Canyon Project Act of 1928, not under the Colorado River compact, which she has refused to ratify. That act approved the Colorado River compact subject to certain limitations and conditions, the approval to become effective upon the ratification of the compact, as to modified, by the legislatures of California and at least five of the six other States. It was so ratified."

EXHIBIT IV (J)

REFERENCES TO THE CALIFORNIA WATER CONTRACTS IN SUPREME COURT LITIGATION

I

In *Arizona* v. *California* (283 U. S. 423), Arizona's bill of complaint (art. XXXII) alleged, with respect to the contract of the Metropolitan Water District of Southern California (p. 35):

"Said 1,050,000 acre-feet of water, together with the 6,500,000 acre-feet of water heretofore appropriated and now being used in said lower basin, will exceed the full amount of 7,500,000 acre-feet of water which said compact attempts to apportion to said lower basin. The delivery of said 1,050,000 acre-feet of water to said district, as in said pretended contract provided, would exhaust said apportionment, and, by the terms of said compact and of said Boulder Canyon Project Act, no water would then be available for or subject to appropriation in said lower basin, although there would still remain in said Colorado River System 7,950,000 acre-feet of unappropriated water per year * * *."

In 283 U. S. 423, Arizona's brief said (p. 17):

"For the purposes of the present case it makes little difference whether the apportionment to the lower basin is 7,500,000 or 8,500,000 acre-feet per annum. The present appropriations of 6,500,000 acre-feet and the threatened delivery of 1,050,000 acre-feet to Los Angeles will exhaust the former, and out of the latter leave only 950,000 acre-feet for the three lower basin States * * *."

II

In *Arizona* v. *California* (292 U. S. 341), Arizona's bill of complaint (art. IV (K)) alleged (p. 64):

"(k) That your complainant is reliably informed and believes and, therefore, alleges that certain of the defendant public corporations of the State of California and Hon. Harold L. Ickes, Secretary of the Interior of the United States, are now claiming and asserting that the true meaning and intent of subdivision (b) of article III of the Colorado River compact, hereinabove set out, is that the waters referred to in said subdivision (b) of article III of said compact have no reference to the Gila River and its tributaries in Arizona and that the said water was not intended by the framers of said compact, nor by said compact, for the benefit of the State of Arizona and that the contracts made by the Secretary of the Interior of the United States for the use of waters of the Colorado River within the State of California to the amount of 5,362,000 acre-feet per annum thereof relate to and include 4,400,000 acre-feet of water allocated by subdivision (a) of article III of said compact and 962,000 acre-feet per annum of water allocated by subdivision (b) of article III of said compact and that said defendants are thereby undertaking to give a meaning to subdivision (b) of article III of said compact different from that intended by the framers and signers thereof and agreed to by them, and attempting to assert a right to appropriate said 1,000,000 acre-feet of water per annum from the waters of the Colorado River outside of the State of Arizona so as to interfere with the enjoyment by Arizona, and those claiming under it, of rights already

perfected and with the right to make additional legal appropriations and enjoy the same. And the State of California refuses to agree to the exclusion of the Gila River from the limitation imposed on the lower basin by the terms of the Colorado River compact as suggested by the Boulder Canyon Project Act and asserts that in addition to the waters contracted, it is entitled to appropriate from the Colorado River one-half of the surplus or unappropriated waters thereof, and further asserts contrary to and in violation of the true intent of said compact, Boulder Canyon Project Act, and act of the legislature of said State, as hereinabove alleged, that in computing the amount of such surplus or unappropriated waters the entire flow of the Gila River shall be added to the flow of the Colorado River."

In 292 U. S. 341, Arizona's brief stated:

"As set out in the bill, page 63, defendant Harold L. Ickes has contracted with California users for delivery of 5,362,000 acre-feet of water per annum from the main stream of the Colorado River for use in the State of California and as stated in the bill, page 65, defendant Harold L. Ickes and California defendants now assert that all waters heretofore or hereafter contracted to be delivered for use in the State of California in excess of 4,400,000 acre-feet, relate to and comprise (1) the 1,000,000 acre-feet of water permitted to the lower basin by article III (b) of the Colorado River compact, and (2) one-half of the surplus water unapportioned by the Colorado River compact. In this way the California defendants and the defendant Harold L. Ickes propose to avoid and violate the limitations imposed upon the State of California for the benefit of the complainant State of Arizona by the Boulder Canyon Project Act and the act of the Legislature of the State of California, hereinabove referred to. In reality they propose to use in California, from the main stream of the Colorado River, 4,400,000 acre-feet of the water apportioned to the lower basin by article III (a) of the Colorado River compact (bill, p. 17), the entire 1,000,000 acre-feet permitted to the lower basin by article III (b) (bill, p. 18), and one-half of the very small surplus remaining in the river."

The Court's opinion in *Arizona* v. *California* (292 U. S. 341, 355) states:

"4. In support of the contention that article III (b) of the compact has a bearing on the interpretation of the limitation of section 4 (a) of the act, Arizona points to the fact that while the Boulder Canyon Project Act makes no mention of the 1,000,000 acre-feet assigned to the lower basin by article III (b) of the compact, section 4 (a) of the act limits California, in terms, to 4,400,000 acre-feet of the waters apportioned to the lower basin under article III (a) of the compact plus one-half of the 'surplus waters unapportioned by said compact;' that section 4 (a) declares that such uses by California are 'always to be subject to the terms of said compact;' that California claims that, in addition to the waters already mentioned, she is entitled, as one of the parties to the compact, to draw upon the article III (b) waters; and that, acting upon this assumption, the Secretary of the Interior has already contracted with California users for delivery of 5,362,000 acre-feet of water per annum from the main stream of the Colorado River, though this water is not yet being delivered; whereas Arizona contends that by a proper interpretation of article III (b) California is excluded from all the waters thereunder in favor of Arizona."

III

In *Arizona* v. *California* (298 U. S. 558) Arizona's bill of complaint (art. XIX) alleged (p. 26):

"XIX

"WATER CONTRACTS BETWEEN SECRETARY OF INTERIOR AND CALIFORNIA CORPORATIONS

"The Secretary of the Interior pursuant to the provisions of section 5 of the Boulder Canyon Project Act, during the years 1931 and 1933 entered into contracts with the California corporations named below for the storage in Boulder Reservoir and the delivery of Colorado River water for domestic and irrigation purposes in California, in acre-feet per year, as follows:

Metropolitan Water District	1,100,000
Imperial Valley and others	3,850,000
City of San Diego	112,000
Palo Verde	300,000
Total	5,362,000

"Plaintiff alleges that the total of the waters for the storage and delivery of which it was so contracted is substantially the entire amount which may legally be diverted from said river and consumptively used in the State of California under the terms of said statutory contract between the State of California and the United States, and is far in excess of California's equitable share of said waters."

In *Arizona* v. *California* (298 U. S. 558) the opinion of the Court stated (p. 564):

"The Secretary of the Interior, acting under authority of section 5 of the Boulder Canyon Project Act, has entered into contracts with California corporations for the storage in the Boulder Dam Reservoir and the delivery, for use in California,* of 5,362,000 acre-feet of water annually, * * *."

(P. 566:)

"The right of the California corporations to withdraw from the river a total of 5,362,000 acre-feet annually under the contracts with the Secretary of the Interior, is challenged only insofar as the prayer for relief asks that the unappropriated water of the river be equitably apportioned among Arizona and the defendant States, and that any increased amount to which the Republic of Mexico may be entitled be directed to be supplied from the amount to which California may otherwise be found to be equitably entitled."

(P. 570:)

"* * * Section 5 provides that 'no person shall have or be entitled to have the use for any purpose of the water stored as aforesaid except by contract made as herein stated.' Section 5 also provides that the Secretary of the Interior may contract for the storage of water and for delivery thereof upon charges which will provide revenue, and section 5 (c) directs that 'contracts for the use of water * * * shall be made with responsible applicants therefor who will pay the price fixed by the Secretary with a view to meeting the revenue requirements herein provided for.' Acting under this authority the Secretary of the Interior has substantially completed the project and has entered into contracts, so the bill of complaint alleges, for the delivery of 5,362,000 acre-feet of stored water to California corporations, and for the financing and construction of Parker and Imperial Dams and the All-American canal to facilitate the use of this water in California."

(P. 570:)

"The 'equitable share' of Arizona in the unappropriated water impounded above Boulder Dam could not be determined without ascertaining the rights of the United States to dispose of that water in aid and support of its project to control navigation, and without challenging the dispositions already agreed to by the Secretary's contracts with the California corporations, and the provision as well of section 5 of the Boulder Canyon Project Act that no person shall be entitled to the stored water except by contract with the Secretary."

EXHIBIT V (A)

EXHIBIT V (B)

ARIZONA WATER CONTRACT

(State of Arizona, House of Representatives, Sixteenth Legislature, First Special Session)

CHAPTER 4—HOUSE BILL NO. 2

AN ACT Ratifying the contract between the United States and the State of Arizona for storage and delivery of water from Lake Mead, and declaring an emergency

Be it enacted by the Legislature of the State of Arizona:

SECTION 1. Ratification: There is hereby unconditionally ratified, approved, and confirmed that certain contract for the storage and delivery of water from

* See the following:

	Acre-feet
Metropolitan Water District	1,100,000
Imperial Valley and others	3,850,000
City of San Diego	112,000
Palo Verde	300,000
Total	5,362,000

Lake Mead executed on behalf of the United States by the Honorable Harold L. Ickes, Secretary of the Interior, and on behalf of the State of Arizona by its Colorado River commission, bearing date the 9th day of February 1944, as follows:

UNITED STATES DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION.

BOULDER CANYON PROJECT, ARIZONA-CALIFORNIA-NEVADA—CONTRACT FOR DELIVERY OF WATER

THIS CONTRACT made this 9th day of February 1944, pursuant to the act of Congress approved June 17, 1902 (32 Stat. 388), and acts amendatory thereof or supplemental thereto, all of which acts are commonly known and referred to as the reclamation law, and particularly pursuant to the act of Congress approved December 21, 1928 (45 Stat. 1057), designated the Boulder Canyon Project Act, and acts amendatory thereof or supplementary thereto, between THE UNITED STATES OF AMERICA, hereinafter referred to as "United States," acting for this purpose by Harold L. Ickes, Secretary of the Interior, hereinafter referred to as the "Secretary," and the STATE OF ARIZONA, hereinafter referred to as "Arizona," acting for this purpose by the Colorado River Commission of Arizona, pursuant to chapter 46 of the 1939 session laws of Arizona,

WITNESSETH THAT:

EXPLANATORY RECITALS

2. WHEREAS for the purpose of controlling floods, improving navigation, regulating the flow of the Colorado River, providing for storage and for the delivery of stored waters for the reclamation of public lands and other beneficial uses exclusively wihin the United States, the Secretary acting under and in pursuance of the provisions of the Colorado River compact and Boulder Canyon Project Act, and acts amendatory thereof or supplementary thereto, has constructed and is now operating and maintaining in the main stream of the Colorado River at Black Canyon that certain structure known as and designated Boulder Dam and incidental works, creating thereby a reservoir designated Lake Mead of a capacity of about 32,000,000 acre-feet, and

3. WHEREAS said Boulder Canyon Project Act provides that the Secretary under such general rules and regulations, as he may prescribe, may contract for the storage of water in the reservoir created by Boulder Dam, and for the delivery of such water at such points on the river as may be agreed upon, for irrigation and domestic uses, and provides further that no person shall have or be entitled to have the use for any purpose of the water stored, as aforesaid, except by contract made as stated in said act, and

4. WHEREAS it is the desire of the parties to this contract to contract for the storage of water and the delivery thereof for irrigation of lands and domestic uses within Arizona, and

5. WHEREAS nothing in this contract shall be construed as affecting the obligations of the United States to Indian tribes,

6. NOW THEREFORE in consideration of the mutual covenants herein contained, the parties hereto agree as follows, to wit:

DELIVERY OF WATER

7. (a) Subject to the availability thereof for use in Arizona under the provisions of the Colorado River Compact and the Boulder Canyon Project Act, the United States shall deliver and Arizona, or agencies or water users therein, will accept under this contract each calendar year from storage in Lake Mead, at a point or points of diversion on the Colorado River approved by the Secretary, so much water as may be necessary for the beneficial consumptive use for irrigation and domestic uses in Arizona of a maximum of 2,800,000 acre-feet.

(b) The United States also shall deliver from storage in Lake Mead for use in Arizona, at a point or points of diversion on the Colorado River approved by the Secretary, for the uses set forth in subdivision (a) of this Article, one-half of any excess or surplus waters unapportioned by the Colorado River Compact to the extent such water is available for use in Arizona under said compact and said act, less such excess or surplus water unapportioned by said compact as may be used in Nevada, New Mexico, and Utah in accordance with the rights of said states as stated in subdivisions (f) and (g) of this Article.

(c) This contract is subject to the condition that Boulder Dam and Lake Mead shall be used: First, for river regulation, improvement of navigation, and

flood control; second, for irrigation and domestic uses and satisfaction of perfected rights in pursuance of Article VIII of the Colorado River Compact; and third, for power. This contract is made upon the express condition and with the express covenant that the United States and Arizona, and agencies and water users therein, shall observe and be subject to and controlled by said Colorado River Compact and the Boulder Canyon Project Act in the construction, management, and operation of Boulder Dam, Lake Mead, canals and other works, and the storage, diversion, delivery, and use of water for the generation of power, irrigation, and other uses.

(d) The obligation to deliver water at or below Boulder Dam shall be diminished to the extent that consumptive uses now or hereafter existing in Arizona above Lake Mead diminish the flow into Lake Mead, and such obligation shall be subject to such reduction on account of evaporation, reservoir, and river losses, as may be required to render this contract in conformity with said compact and said act.

(e) This contract is for permanent service, subject to the conditions stated in subdivision (c) of this Article, but as to the one-half of the waters of the Colorado River system unapportioned by paragraphs (a), (b), and (c) of Article III of the Colorado River Compact, such water is subject to further equitable apportionment at any time after October 1, 1963, as provided in Article III (f) and Article III (g) of the Colorado River Compact.

(f) Arizona recognizes the right of the United States and the State of Nevada to contract for the delivery from storage in Lake Mead for annual beneficial consumptive use within Nevada for agricultural and domestic uses of 300,000 acre-feet of the water apportioned to the Lower Basin by the Colorado River Compact, and in addition thereto to make contract for like use of $\frac{1}{25}$ (one-twenty-fifth) of any excess or surplus waters available in the Lower Basin and unapportioned by the Colorado River Compact, which waters are subject to further equitable apportionment after October 1, 1963, as provided in Article III (f) and Article III (g) of the Colorado River Compact.

(g) Arizona recognizes the rights of New Mexico and Utah to equitable shares of the water apportioned by the Colorado River Compact to the Lower Basin and also water unapportioned by such compact, and nothing contained in this contract shall prejudice such rights.

(h) Arizona recognizes the right of the United States and agencies of the State of California to contract for storage and delivery of water from Lake Mead for beneficial consumptive use in California, provided that the aggregate of all such deliveries and uses in California from the Colorado River shall not exceed the limitation of such uses in that State required by the provisions of the Boulder Canyon Project Act and agreed to by the State of California by an act of its Legislature (Chapter 16, Statutes of California of 1929) upon which limitation the State of Arizona expressly relies.

(i) Nothing in this contract shall preclude the parties hereto from contracting for storage and delivery above Lake Mead of water herein contracted for, when and if authorized by law.

(j) As far as reasonable diligence will permit, the water provided for in this contract shall be delivered as ordered and as reasonably required for domestic and irrigation uses within Arizona. The United States reserves the right to discontinue or temporarily reduce the amount of water to be delivered, for the purpose of investigation and inspection, maintenance, repairs, replacements, or installation of equipment or machinery at Boulder Dam, or other dams heretofore or hereafter to be constructed, but so far as feasible will give reasonable notice in advance of such temporary discontinuance or reduction.

(k) The United States, its officers, agents, and employees shall not be liable for damages when for any reason whatsoever suspensions or reductions in the delivery of water occur.

(l) Deliveries of water hereunder shall be made for use within Arizona to such individuals, irrigation districts, corporations, or political subdivisions therein of Arizona as may contract therefor with the Secretary, and as may qualify under the reclamation law or other Federal statutes or to lands of the United States within Arizona. All consumptive uses of water by users in Arizona, of water diverted from Lake Mead or from the main stream of the Colorado River below Boulder Dam, whether made under this contract or not, shall be deemed, when made, a discharge pro tanto of the obligation of this contract. Present perfected rights to the beneficial use of waters of the Colorado River system are unimpaired by this contract.

(m) Rights-of-way across public lands necessary or convenient for canals to facilitate the full utilization in Arizona of the water herein agreed to be delivered will be granted by the Secretary subject to applicable Federal statutes.

POINTS OF DIVERSION; MEASUREMENTS OF WATER

8. The water to be delivered under this contract shall be measured at the points of diversion, or elsewhere as the Secretary may designate (with suitable adjustment for losses between said points of diversion and measurement), by measuring and controlling devices or automatic gauges approved by the Secretary, which devices, however, shall be furnished, installed, and maintained by Arizona, or the users of water therein in a manner satisfactory to the Secretary; said measuring and controlling devices or automatic gauges shall be subject to the inspection of the United States, whose authorized representatives may at all times have access to them, and any deficiencies found shall be promptly corrected by the users thereof. The United States shall be under obligation to deliver water only at diversion points where measuring and controlling devices or automatic gauges are maintained, in accordance with this contract, but in the event diversions are made at points where such devices are not maintained, the Secretary shall estimate the quantity of such diversions and his determination thereof shall be final.

CHARGES FOR STORAGE AND DELIVERY OF WATER

9. No charge shall be made for the storage or delivery of water at diversion points as herein provided necessary to supply present perfected rights in Arizona. A charge of 50¢ per acre-foot shall be made for all water actually diverted directly from Lake Mead during the Boulder Dam cost repayment period, which said charge shall be paid by the users of such water, subject to reduction by the Secretary in the amount of the charge if it is concluded by him at any time during said cost-repayment period that such charge is too high. After expiration of the cost-repayment period, charges shall be on such basis as may hereafter be prescribed by Congress. Charges for the storage or delivery of water diverted at a point or points below Boulder Dam, for users, other than those specified above, shall be agreed upon between the Secretary and such users at the time of execution of contracts therefor, and shall be paid by such users; provided such charges shall, in no event, exceed 25¢ per acre-foot.

RESERVATIONS

10. Neither Article 7 nor any other provision of this contract, shall impair the right of Arizona and other States and the users of water therein to maintain, prosecute, or defend any action respecting, and is without prejudice to, any of the respective contentions of said States and water users as to (1) the intent, effect, meaning, and interpretation of said compact and said act; (2) what part, if any, of the water used or contracted for by any of them falls within Article III (a) of the Colorado River Compact; (3) what part, if any, is within Article III (b) thereof; (4) what part, if any, is excess or surplus waters unapportioned by said Compact; and (5) what limitations on use, right of use, and relative priorities exist as to the waters of the Colorado River system; provided, however, that by these reservations there is no intent to disturb the apportionment made by Article III (a) of the Colorado River Compact between the Upper Basin and the Lower Basin.

DISPUTES AND DISAGREEMENTS

11. Whenever a controversy arises out of this contract,, and if the parties hereto then agree to submit the matter to arbitration, Arizona shall name one arbitrator and the Secretary shall name one arbitrator and the two arbitrators thus chosen shall meet within ten days after their selection and shall elect one other arbitrator within fifteen days after their first meeting, but in the event of their failure to name the third arbitrator within thirty days after their first meeting, such arbitrator not so selected shall be named by the Senior Judge of the United States Circuit Court of Appeals for the Tenth Circuit. The decision of any two of the three arbitrators thus chosen shall be a valid and binding award.

RULES AND REGULATIONS

12. The Secretary may prescribe and enforce rules and regulations governing the delivery and diversion of waters hereunder, but such rules and regulations shall be promulgated, modified, revised, or extended from time to time only after notice to the State of Arizona and opportunity is given to it to be heard. Arizona agrees for itself, its agencies and water users that in the operation and maintenance of the works for diversion and use of the water to be delivered hereunder, all such rules and regulations will be fully adhered to.

AGREEMENT SUBJECT TO COLORADO RIVER COMPACT

13. This contract is made upon the express condition and with the express covenant that all rights of Arizona, its agencies and water users, to waters of the Colorado River and its tributaries, and the use of the same, shall be subject to and controlled by the Colorado River Compact signed at Santa Fe, New Mexico, November 24, 1922, pursuant to the Act of Congress approved August 19, 1921 (42 Stat. 171), as approved by the Boulder Canyon Project Act.

EFFECTIVE DATE OF CONTRACT

14. This contract shall be of no effect unless it is unconditionally ratified by an Act of the Legislature of Arizona, within three years from the date hereof, and further, unless within three years from the date hereof the Colorado River Compact is unconditionally ratified by Arizona. When both ratifications are effective, this contract shall be effective.

INTEREST IN CONTRACT NOT TRANSFERABLE

15. No interest in or under this contract, except as provided by Article 7 (1), shall be transferable by either party without the written consent of the other.

APPROPRIATION CLAUSE

16. The performance of his contract by the United States is contingent upon Congress making the necessary appropriations for expenditures for the completion and the operation and maintenance of any dams, power plants or other works necessary to the carrying out of this contract, or upon the necessary allotments being made therefor by any authorized Federal agency. No liability shall accrue against the United States, its officers, agents or employees by reason of the failure of Congress to make any such appropriations or of any Federal agency to make such allotments.

MEMBER OF CONGRESS CLAUSE

17. No member of or Delegate to Congress or Resident Commissioner shall be admitted to any share or part of this contract or to any benefit that may arise herefrom, but this restriction shall not be construed to extend to this contract if made with a corporation or company for its general benefit.

DEFINITIONS

18. Wherever terms used herein are defined in Article II of the Colorado River Compact or in Section 12 of the Boulder Canyon Project Act, such definitions shall apply in construing this contract.

19. IN WITNESS WHEREOF, the parties hereto have caused this contract to be executed the day and year first above written.

THE UNITED STATES OF AMERICA,
By HAROLD L. ICKES,
Secretary of the Interior.
STATE OF ARIZONA, ACTING BY AND THROUGH ITS COLORADO RIVER COMMISSION,
By HENRY S. WRIGHT, *Chairman.*
By NELLIE T. BUSH, *Secretary.*

Approved this 11th day of February, 1944.

SIDNEY P. OSBORN,
Governor of the State of Arizona.

SEC. 2. *Emergency.* To preserve the public peace, health and safety it is necessary that this Act become immediately operative. It is therefore declared to be an emergency measure, to take effect as provided by law.

Approved by the Governor, February 24, 1944
Filed in the Office of the Secretary of State, February 24, 1944

EXHIBIT V (C)

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION INFORMATION SERVICE

(For Immediate Release: Thursday, February 10, 1944.)

Secretary of the Interior Harold L. Ickes announced today he had signed, on behalf of the United States, a contract to deliver to the State of Arizona annually 2,800,000 acre-feet of Colorado River water from storage in the Bureau of Reclamation's Boulder Dam reservoir, subject to its availability for use in Arizona under the provisions of the Colorado River compact and the Boulder Canyon Project Act.

Commissioner of Reclamation Harry W. Bashore said the contract would become effective when ratified by the Arizona Legislature and when this body unconditionally ratifies the Colorado River compact. The legislature on March 25, 1943, voted to ratify the compact, provided a compact for the delivery of water from Lake Mead was executed between the United States and Arizona.

The Secretary signed the contract after considering fully the objections presented by the State of California in a hearing on February 2 and representations made by the State of Arizona in reply. The contract had previously been approved by the Committee of Fourteen, which is composed of two representatives from each of the seven Colorado River Basin States. All members of the committee except those from California approved the agreement which the Secretary has now signed.

In announcing his decision, Secretary Ickes issued the following memorandum:

"MEMORANDUM RE HEARING FEBRUARY 2 ON CALIFORNIA'S OBJECTIONS TO THE PROPOSED CONTRACT BETWEEN THE UNITED STATES AND ARIZONA FOR THE DELIVERY OF WATER FROM LAKE MEAD.

"There has been submitted to me for approval and execution a proposed contract between the United States and the State of Arizona for the delivery of water from Lake Mead for use in Arizona. Section 5 of the Boulder Canyon Project Act authorizes me to contract for the storage and delivery of water impounded by Boulder Dam. Under subdivision (a) of article 7 of the proposed contract the United States agrees to deliver annually from storage in Lake Mead for use in Arizona a maximum of 2,800,000 acre-feet of water, subject to its availability for use in Arizona under the provisions of the Colorado River compact and the Boulder Canyon Project Act, and under subdivision (b) of article 7 the United States agrees to deliver one-half of any excess or surplus water unapportioned by the compact to the extent such water is available for use in Arizona under the compact and act. The contract is conditioned upon the unconditional ratification of the compact by Arizona.

"The proposed contract was drafted by the Committee of Fourteen after the Arizona Legislature last Spring passed an act contingently ratifying the compact—the contingency being the execution and ratification by the legislature of a contract for the delivery of water from Lake Mead. Representatives of the Bureau of Reclamation worked closely with the committee and made a number of modifications which were accepted by the committee and Arizona. Bureau representatives under my instructions have taken the position throughout the negotiations that any contract proposed should not commit the Department as to any controversial issue regarding the amounts of water available to Arizona, or to any compact State, under the compact and the act. The proposed contract has been approved by the representatives of each of the Colorado River States, except California.

"I have considered carefully the objections made by California in its printed brief and at the hearing before me on February 2. California is fearful that subdivisions (a) and (b) of article 7 construed together create an inference

that the maximum of 2,800,000 acre-feet which the United States agrees to deliver under subdivision (a) is water apportioned to the lower basin under article III (a) of the compact and that Arizona could contend, to California's prejudice, that this constituted an administrative determination that Arizona was entitled by this contract to 2,800,000 acre-feet of III (a) water. I am convinced that California's fears in this respect are unfounded for at least two reasons. First, I wish to make it clear, and to emphasize, that the delivery of water under both subdivision (a) and subdivision (b) of article 7 is expressly "subject to its availability under the Colorado River compact and the Boulder Canyon Project Act." The proposed contract does not attempt to obligate the United States to deliver any water to Arizona which is not available to Arizona under the terms of the compact and act. Secondly, article 10 was purposely designed to prevent Arizona, or any other State, from contending that the proposed contract, or any provision of the proposed contract, resolves any issue on the amounts of waters which are apportioned or unapportioned by the compact and the amounts of apportioned or unapportioned water available to the respective States under the compact and the act. It expressly reserves for future judicial determination any issue involving the intent, effect, meaning, and interpretation of the compact and act. The language of article 10 is plain and unequivocal and adequately reserves all questions of interpretation of the compact and the act.

"It is my opinion that I have authority under section 5 of the act to execute such a contract as is proposed to be made with Arizona. The Department has made contracts with California and Nevada for the delivery of waters from Lake Mead subject to its availability under the compact and act. Now that Arizona has agreed to ratify the compact, it is my opinion that Arizona is entitled to be accorded the same consideration that the Department has accorded to California and Nevada. Accordingly, I have decided to approve and execute the proposed contract with Arizona.

HAROLD L. ICKES,
Secretary of the Interior.

"FEBRUARY 9, 1944."

California and Arizona have been at odds for more than 20 years over the division of the waters of the Colorado River system. The fundamental controversy between the two States concerns the amount of water to which each State is entitled under the compact and the Boulder Canyon Project Act.

The dispute dates back to 1922 when six of the seven States in the Colorado River Basin agreed to the Colorado River compact which apportioned the waters from the main river and its tributaries to the upper and lower basins. Arizona was the lone objector. Subsequently the legislatures of all States, except Arizona, ratified the compact.

In 1928 the Congress passed the Boulder Canyon Project Act which provided that the act would not become effective until the California Legislature agreed to limit its use to 4,400,000 acre-feet of water apportioned in article III (a) of the compact, plus one-half of the excess or surplus unapportioned water. California passed such a limitation act in 1929.

EXHIBIT VI

RE WATER FOR MEXICO

Arizona witnesses have stated that California refused to join Arizona in requesting the State Department to warn Mexico with respect to use of the waters of the Colorado River.

Submitted herewith is documentary proof to the contrary:

A. Unanimous resolution of the seven Governors of the Colorado Basin States, August 26, 1927.

B. Unanimous recommendation of the American Section of the International Water Commission, 1930.

C. Unanimous resolution of the Committee of Fourteen, representing the seven Basin States, June 20, 1942.

D. Unanimous resolution of the Committee of Sixteen, representing the Seven Basin States and the Hoover Dam power allottees, November 18, 1942.

EXHIBIT VI (A)

POSITION OF THE SEVEN COLORADO RIVER STATES RE WATER FOR MEXICO, AUGUST 26, 1927

(Extract from Hearings, House Committee on Irrigation and Reclamation on H. R. 5773, 70th Cong., 1st Sess. (Swing-Johnson bill))

(P. 202:)

MEMORIAL CONCERNING INTERNATIONAL RELATIONS RESPECTING THE COLORADO RIVER

To the Honorable CALVIN COOLIDGE,
President of the United States of America,

AND

The Honorable FRANK B. KELLOGG,
Secretary of State:

Whereas the prosperity and growth of the Colorado River States, namely, Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming, are dependent upon present and increasing use of waters of the Colorado River for domestic, agricultural, industrial, and other beneficial purposes, and the need of many regions in those States for additional water from that source, already is extremely acute and will become increasingly so; and

Whereas said river is an international stream between the United States of America, and the United States of Mexico with all of the water supplying the same coming from the United States of America, and the United States of Mexico is rapidly extending the irrigated area supplied from said river within her own boundaries, and great storage projects within the United States of America are in existence and in contemplation; and

Whereas said United States of Mexico, although having no strictly legal right to a continuance of the river flow for beneficial purposes, nevertheless, may hereafter make some claim thereto; and

Whereas under acts of Congress of May 13, 1924, and March 3, 1927, a commission of three has been appointed by the President to cooperate with representatives of the United States of Mexico in a study regarding the equitable use of the waters of the Colorado River and other international waters for the purpose of securing information on which to have a treaty relative to international uses;

Now, therefore, and to the end that no unfortunate misunderstanding may arise between the United States of America and the United States of Mexico, and that no false encouragement may be given to the present or future developments along the Colorado River in the United States of Mexico, we, the governors of all seven of the Colorado River States, with our interstate river commissions and advisers in conference assembled in the city of Denver on this 26th day of August 1927, do hereby in great earnestness and concern make common petition that a note be dispatched to the Government of the United States of Mexico calling attention of that Government to the fact hat, neither it nor its citizens or alien investors, have any legal right as against the United States of America or its citizens to a continuance of the flow of the Colorado River for beneficial purposes and that the United States of Mexico can expect no such continuance except to the extent that as a matter of comity the two Governments may declare hereafter by treaty and that especially under no circumstances can the United States of Mexico hope to use water made available through storage works constructed or to be constructed within the United States of America, or hope to found any right upon any use thereof. We believe, too, so great are the water necessities of our States, that any adjustment made with the United States of Mexico concerning the Colorado River, should be based upon that River alone. We further earnestly suggest that a special commission be created by act of Congress for the Colorado River alone, a majority of the commission to be appointed from citizens of the Colorado River States, or that by act of Congress the present commission already referred to be enlarged to contain two additional members to come from the Colorado River States.

It is only by such precautionary measures, promptly taken, that our seven States with their millions of people can be given a basis of economic certainty, adequate

protection, and a feeling of security pending the negotiations of an early treaty between the two Governments.

And your memorialists will forever pray.

GEORGE W. P. HUNT,
Governor of Arizona.
C. C. YOUNG,
Governor of California.
WILLIAM H. ADAMS,
Governor of Colorado.
F. B. BALZAR,
Governor of Nevada.
RICHARD C. DILLON,
Governor of New Mexico.
GEORGE H. DERN,
Governor of Utah.
FRANK C. EMERSON,
Governor of Wyoming.

EXHIBIT VI (B)

RE WATER FOR MEXICO

PROPOSAL OF THE AMERICAN SECTION OF THE INTERNATIONAL WATER COMMISSION (DR. ELWOOD MEAD, COMMISSIONER OF RECLAMATION, CHAIRMAN; GEN. LANSING H. BEACH, OF CALIFORNIA; W. E. ANDERSON, OF TEXAS)

(Extract from Report of the American Section, H. Doc. 359, 71st Cong., 2d sess.)

(P. 5:)

* * * It therefore proposed, as an equitable division of the waters of the Colorado, to deliver to Mexico the greatest amount which had been delivered to irrigators in that country from the stream in any 1 year. That year was 1928, during which time Mexican irrigators received 750,000 acre-feet of water. The certainty of delivery of this water by the United States was conditioned on the construction by the United States of Boulder Dam within its territory, until which time the existing unregulated flow of the river must continue.

(P. 23:)

In the absence of any agreement as to principle governing the division of water across the international boundary, it is believed that the position which the United States holds with regard to such division, and the recognition of rights in either country to water across the boundary, should be officially stated and notice given to Mexico through the appropriate channel.

EXHIBIT VI (C)

POSITION OF THE SEVEN COLORADO RIVER STATES RE WATER FOR MEXICO, JUNE 20, 1942

(Extract from proceedings of the Committee of Fourteen of the Seven States of the Colorado River Basin, El Paso, Tex., June 17–20, 1942)

(P. 97:)

Judge O'ROURKE. The committee to draft this resolution is ready to report, and we ask Mr. Shaw to present the suggestions as redrafted. (Mr. Shaw reads the final draft of the resolution.)

It was moved by Mr. Davis, seconded by Mr. Bishop, that the resolution as presented by the drafting committee be adopted without change.

Judge STONE. The motion has been made and seconded that the resolution which is now offered be adopted.

(The roll was called by States, and the resolution was unanimously adopted.)

The following is the text of the resolution:

"RESOLUTION ADOPTED BY THE COMMITTEE OF FOURTEEN ON JUNE 14, 1942, AT EL PASO, TEX., RESPECTING NEGOTIATIONS WITH THE REPUBLIC OF MEXICO CONCERNING THE COLORADO RIVER

"The Committee of Fourteen, representing the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming, in meeting assembled in

the city of El Paso, Tex., on June 17, 18, 19, and 20, 1942, after having considered the reports of the subcommittees, legal and engineering, and after having considered the letter from Hon. Cordell Hull, Secretary of State, presented by Hon. Herbert Bursley on June 17, 1942; and

"Whereas said letter suggested that this committee, representing the seven Colorado River Basin States, submit to the State Department a plan for the allocation of waters of the Colorado River between the United States and Mexico;

"Whereas this committee has given full and careful consideration of the matters presented to it and has concluded that it approves the continuance of conversations with the Republic of Mexico upon the considerations hereinafter recited;

"*Resolved*, It is the sense of this committee, representing all seven States of the United States in the Colorado River Basin, acting unanimously,

"A. We submit herewith the following plan which we believe to be equitable, fair and just as a basis for the apportionment of the waters of the Colorado River between the two nations:

"1. Mexico shall not demand, nor shall the United States be required to make available, any water which Mexico cannot reasonably apply to beneficial use for irrigation and domestic purposes.

"2. The United States will make available in the river at the upper boundary (California-Mexico) 800,000 acre-feet of water of the Colorado River system each calendar year that the releases from Lake Mead, as estimated by the Secretary of the Interior, total 10,000,000 acre-feet.

"3. For annual estimated releases from Lake Mead above or below 10,000,000 acre-feet, the United States will make available at the upper boundary a total which will vary from 800,000 acre-feet in an amount which is 15 percent of the difference between the estimated releases and 10,000,000 acre-feet, such amount to be deducted from the 800,000 acre-feet when the estimated releases are less than 10,000,000 acre-feet, and added when the estimated releases are greater than 10,000,000 acre-feet.

"4. Any amount of water delivered to Mexico at any point or points other than in the river at the upper boundary shall be equated to and charged against the amount herein specified to be made available at the upper boundary, considering any losses that may be occasioned by delivery at such other points.

"5. The water to be made available to Mexico shall be in such amounts and at such times as may be requested by Mexico, provided that flows ordered by Mexico in excess of 4,000 second-feet shall be subject to the decision of the Secretary of the Interior, or whoever may be charged with the control of power production at Boulder Dam and other dams below that point on the Colorado River, as to the availability of such excess flow without adversely affecting the use of water for power production in accordance with contracts for such power, made under the Boulder Canyon Project Adjustment Act.

"6. Mexico may use any water available in the river between the upper and lower boundaries, but with no obligation on the part of the United States to make available any of such water.

"7. Mexico must waive all rights and claims to the use of water of the Colorado River system not provided for herein.

"We recommend:

"1. That the United States cooperate with Mexico in the making of studies to determine the amount and rate of flow of water from surface and subsurface sources which may be available below the upper boundary for use in Mexico.

"2. That the United States cooperate with Mexico in studies and in construction of improvements to the river channel below the upper boundary.

"3. That the United States provide flood control on the lower Gila River for the protection of lands in the United States and Mexico.

"We ask:

"1. That in negotiating the treaty the Department of State recognize that within the United States the Colorado River compact and the Boulder Canyon Project Act as amended by the Boulder Canyon Adjustment Act are the law governing the Colorado River and that it recognize the allocations and contracts for water and power made thereunder.

"2. That the Department use in negotiating the treaty such services and advice of qualified experts upon the subject as the interested States of the basin may offer.

"3. That the interested States be advised of the terms of any proposed treaty and be permitted to comment thereon, before any firm commitment has been made.

"We express our gratitude for the opportunities for information and consultation which have been afforded us by the Department of State and for the separate handling of the negotiations upon the Colorado River and the Rio Grande, and will most respectfully appreciate the continuance of these policies."

EXHIBIT VI (D)

UNANIMOUS RESOLUTION OF THE COMMITTEE OF SIXTEEN OF THE SEVEN STATES OF THE COLORADO RIVER BASIN (AND THE BOULDER CANYON POWER ALLOTTEES) RE WATER FOR MEXICO, LOS ANGELES, NOVEMBER 18, 1942

(Extract from hearings of the Senate Committee on Foreign Relations on the Mexican Water Treaty, p. 737)

The Committee of Sixteen of the Colorado River Basin States offers no objection to the United States making arrangements for and consenting to temporary delivery to Mexico of water of the Colorado River which from time to time may not be consumed in the United States, and which is conserved and made usable by Boulder Dam and other facilities in the United States and is in excess of the amount used in Mexico prior to the construction of Boulder Dam, subject, however, to the following conditions:

1. That the delivery of water to Mexico shall be consistent with the operation of Boulder Dam and other works in the United States for the several purposes for which they were constructed.

2. That the use in Mexico of water conserved and made usable by works in the United States which may not for the time being be used in the United States and therefore may be available for use in Mexico, and delivered pursuant to the notice mentioned in paragraph 5 hereof, shall not create a claim of right on the part of Mexico; and no recognition of such temporary delivery of water and the use of it in Mexico shall be given by either country as constituting a right or a basis of claim in negotiating a permanent treaty on the subject of allocation of water of the Colorado River to Mexico.

3. That any delivery of water, and the use of facilities as contemplated herein, shall be subject to applicable provisions of the Colorado River compact and the Boulder Canyon Project Act, as amended, and contracts made by the Secretary of the Interior thereunder.

4. That, in furtherance of the early consummation of a treaty with Mexico respecting the Colorado River, the arrangements herein mentioned shall not extend beyond the period ending December 31, 1943.

5. That the Department of State shall promptly give to Mexico appropriate notice of the conditions herein set out, upon which temporary delivery of water shall be made.

6. That the Department of State is requested to ask, and to advise Mexico that it has asked, the agencies, both public and private, which operate control facilities on the Colorado River to be guided by the conditions and principles set forth, in their operations and agreements with respect to water made available for or delivered to Mexico.

In the opinion of the committee it would be preferable that the express assent to Mexico to the principles and conditions above set forth be procured as a condition precedent to the temporary delivery of water to Mexico, and the committee requests that the Department of State give earnest consideration to the desirability of securing such assent. The committee, however, submits this opinion and request subject to the discretion of the Department of State.

EXHIBIT VI (E)

WATER SUPPLY BELOW HOOVER DAM

(Extract from S. Doc. 39, 79th Cong., letter from Commissioner of Reclamation Harry W. Bashore to Senator McCarran, of Nevada)

I. ANNUAL SUPPLY

	Acre-feet
1. Average flow at Lee Ferry	7,500,000
2 and 3. Net inflow from springs and tributaries in excess of natural losses, Lee Ferry to Lake Mead	800,000
4. Less reservoir losses on Lake Mead, Bridge Canyon, and Marble Gorge between Lee Ferry and Boulder Dam	731,000
5. Net amount available for release from Boulder Dam without drawing down storage	7,569,000
6 and 7. River losses below Boulder Dam in excess of inflow between Boulder Dam and Gila	600,000
8. Total net amount physically available for delivery without drawing down Lake Mead storage	6,969,000

II. ANNUAL REQUIREMENTS

(Reservoir losses deducted)

9. Nevada contract (face amount, 300,000 acre-feet)	274,000
10. California contracts (face amount, 5,362,000 acre-feet)	4,987,000
11. Arizona contract (face amount, 2,800,000 acre-feet)	2,470,000
12. Proposed Mexican treaty (face amount, 1,500,000 acre-feet)	1,500,000
13. Total requirements	9,231,000

III. ANNUAL DEFICIT

14. Deficit (difference between item 8, "Total net amount physically available for delivery," and item 13, "Total requirements")	2,262,000
15. Portion of deficit to be made good by draw-down on Lake Mead storage	[1] 1,500,000
16. Remaining deficit, i. e., overdraft, or shortage on deliveries	762,000

[1] In explanation of Lake Mead draw-down of 1,500,000 in 1931–40 period; this is annual storage release required to make supply in low period equal long-time average supply. Plans contemplate sufficient storage on river to accomplish this.

EXHIBIT VI (F)

[S. Doc. 32, 79th Cong., 1st sess.]

LETTER FROM HON. HERBERT HOOVER, FORMER PRESIDENT OF THE UNITED STATES, TO HON. ALBERT W. HAWKES, A SENATOR FROM THE STATE OF NEW JERSEY, RELATIVE TO THE PENDING TREATY WITH MEXICO ALLOCATING THE WATERS OF THE COLORADO RIVER AND ITS RELATION TO THE COLORADO RIVER COMPACT

NEW YORK, N. Y., *March 17, 1945.*

The Honorable ALBERT W. HAWKES,
United States Senate, Washington, D. C.

MY DEAR SENATOR: I have your letter asking my views about the pending treaty with Mexico allocating the waters of the Colorado River and its relation to the Colorado River compact. I have gone back over the records, I have studied the treaty, and I visited the locality again a year ago to bring myself up to date.

Certainly we should deal with Mexico as a friend and not at arm's length. But when we make a treaty about water, we are dealing with the lifeblood of the West and shaping its whole destiny.

As you know, I had the honor to be Chairman of the Colorado River Commission which settled the Colorado River compact in 1922 and other matters relating to the development of the river. And during the following years I had many duties involving these questions.

I. THE WATER SUPPLY AND THE COLORADO RIVER COMPACT

The allocations of water made by the Colorado River compact in 1922 were necessarily based on so short a period of stream-flow records that we were compelled to keep the allocations to the different areas within safe limits. Many delegates were convinced that the demands for water, particularly in the lower basin, could not be satisfied within the allocations as made. But it was thought better to proceed for a period of years until a more accurate determination could be made, both of the water supply and the requirements of the several States, before attempting a final allocation of the complete supply.

Further experience has shown great changes in the whole problem of supply:

1. *Reduction in water-supply estimates.*—The longer the period of stream-flow records, the less becomes the safe yield of the river in extended low-flow periods. As a result of the records of run-off for the period of 1931 to 1940, inclusive, it has been necessary to reduce the figure of safe water supply by at least 1,000,000 acre-feet.

2. *Excess of demand over supply in the upper basin.*—In 1922 there was general agreement that the allocation of 7,500,000 acre-feet per annum to the upper basin would be more than ample to meet its ultimate requirements.

At that time diversions of water outside the basin were estimated at not over 750,000 acre-feet. Today there are under construction and investigation transmountain diversion projects considered feasible, which will divert over 2,000,000 acre-feet per annum from the upper basin, and others are being discussed requiring another 1,000,000 acre-feet. As a result, it is now realized that the allocation will fall far short of ultimate needs of the upper basin.

3. *The upper basin's guaranty to the lower basin.*—In 1922 the compact requirement, that the upper States never deplete the flow of the river to less than 75,000,000 acre-feet in any 10-year period, was not considered burdensome.

Studies now available show that to meet this obligation the upper States will have to provide at least 20,000,000 acre-feet of hold-over storage to be used during low-flow periods, comparable to 1931–40, or, lacking storage, will have to limit their use to about 64 percent of their allocation, in order to make available the 75,000,000 acre-feet at Lee Ferry.

4. *Unanticipated uses in the lower basin.*—In 1922 no one conceived of an aqueduct taking 1,000,000 acre-feet per annum out of the basin to the coastal plain of southern California. This aqueduct has now been built and is in operation.

In 1922 the possibility of a project over several hundred miles long, involving continuous tunnels 80 miles or more in length for the carrying of main-stream water to central Arizona for irrigation purposes, was thought fantastic. Today such a project is under detailed study.

5. *Conclusion as to the water supply.*—From the foregoing and other facts, there can be only one conclusion: That as time passes, the safe water supply of the Colorado River is found to grow less, while the requirements for, and value of, that water increase manyfold. The Colorado River as a natural resource of the United States becomes of greater and greater importance and value each year; it should be guarded and preserved for the use and benefit of our people.

6. *The compact's references to a treaty.*—At the time the compact was negotiated, the possibility that a treaty might be made with Mexico some day was recognized, and that under it Mexico might become entitled to the use of some water. In that event, the compact divides the burden between the upper and lower basins, but it cannot be said that the compact "foreshadows" such a treaty as that now proposed.

I am sure none of the Commissioners who negotiated the compact had any idea that our Government would offer to guarantee Mexico any such amount as the 1,500,000 acre-feet stated in the proposed treaty. At that time Mexico was using about 500,000 to 600,000 acre-feet per year. Her lands were subject to a serious flood menace every year, and the silt in the river water was clogging her irrigation canals and ditches and thus threatened her whole development. It was a serious question as to how Mexico could prevent disaster to the lands she was then cultivating, much less increase that use.

Now, by means of American works, we have controlled the floodwater and silt, which is of tremendous value to Mexico. No one would want to deny these benefits to Mexico. But had it been suggested in 1922 that the United States was to be penalized in the future by having to furnish free to Mexico a volume of water, made available by works constructed in the United States, to supply lands made possible of development only because of those works, I know it would have met with the opposition of the compact framers. Moreover, had the compact negotiators considered such a treaty possible as the present one, I am not sure that agreement on a compact could have been reached. Certainly, the compact that was concluded would have been different.

II. THE PRESENT TREATY

There are three serious objections to the treaty in its present form, all of which seem capable of remedy before the treaty is ratified but will cause endless trouble if not. These relate to (1) the allocation of water, (2) the construction of works, and (3) administrative provisions.

1. *As to the allocation of water.*—(*a*) *Quantity.*—The treaty guarantees at least 1,500,000 acre-feet per year to Mexico but contains no specific allocation or reservation of water to the United States. This guaranty takes precedence over older American users who are paying for the storage works which alone will make possible Mexico's increase of use above the quantity of approximately 750,000 acre-feet which she used before construction of the Boulder Canyon project. Each country ought to be allocated a pro rata of the flow of the river so that Mexico will share the hazards of the American water supply if she is to share the benefits of the American storage. The so-called "escape clause" entitling the United States to diminish deliveries only if her own consumptive use is curtailed by extraordinary drought is so uncertain in operation as to invite acrimonious dispute.

(*b*) *The impairment of existing American rights.*—The Boulder Canyon Project Act stipulated that the waters stored by that project should be used exclusively within the United States. Congress appropriated $165,000,000 on that representation to the taxpayer. Communities in the lower basin entered into contracts with the United States reciting that pledge, and in reliance upon it have incurred over $500,000,000 of debt to repay the Government's whole investment and to construct aqueducts, canals, transmission lines, etc., to use the water so stored and paid for. Figures used by the Reclamation Bureau show that in a decade like 1931–40, if 1,500,000 acre-feet were guaranteed to Mexico each year, some 15,000,000 acre-feet of Boulder Canyon storage would have to be drawn down for that purpose, exhausting substantially the whole active storage of the reservoir, after making deductions for flood control and dead storage. Our pledge ought to be kept. If it is to be broken, Mexico ought to be admitted no further than to a basis of parity with, not precedence over, the American users who assumed the obligation to pay for these works on the promise that the benefit would be theirs.

(*c*) *Quality.*—The treaty's evasion as to quality of water to be furnished to Mexico should be clarified one way or the other: Either by adding a reservation requiring Mexico to take all water regardless of quality, and even though it is unusable, which is what the State Department says this treaty means, but which must be a profound shock to Mexico; or, in the alternative, providing for the delivery of waters through the All-American Canal only, assuring Mexico substantially the same quality as that delivered to American projects through the same canal, and disclaiming specifically the quality of any water delivered to Mexico in the bed of the stream through works which she may herself build.

2. *Diversion works.*—These are the key to the treaty. Until the upper basin is fully developed, several million acre-feet per year will flow to the sea, as has always been the case. The Boulder Canyon project power operations convert this into a smooth flow, instead of spring floods, but the greater part of the water discharged for power generation will nevertheless reach Mexico during the winter season when she does not want it for irrigation. Mexico lacks sites for diversion works; these are located on American soil. The treaty (i) obligates the United States to build Davis Dam to make the Boulder Canyon winter power discharges available for Mexican summer irrigation, (ii) requires Mexico to build a diversion dam, which may be partly on American soil, within 5 years, (iii) authorizes her to use American power for pumping, (iv) gives her part of the power proceeds from Pilot Knob power plant, built at American expense, to

help Mexico pay for some of these investments, and (v) offers her the use of the All-American Canal. The combined effect is to make possible the use of several million acre-feet per year, not merely 1,500,000 acre-feet, of the waters conserved by the Boulder Canyon project. That is to say, the treaty alone makes possible the increased Mexican use of the temporary American surplus, the fear of which is the impelling reason for making any treaty at all.

The treaty obligation laid on Mexico to construct a diversion dam wholly or partly on American soil within 5 years should be exactly reversed, by a prohibition against construction of any such works. No dam should be built so long as the Mexican allocation can be delivered through the All-American Canal. Adequate capacity was built into these works for this very purpose, and 1,500,000 acre-feet can be delivered through the All-American Canal to Mexico for many years without damaging any American interest in that canal. When, as, and if the diversion dam becomes necessary to capture return flow from American projects and thereby supplement the deliveries through the All-American Canal, the dam should be built wholly on American soil and owned, operated, and controlled by the United States. Its outlet works, in conjunction with those of the All-American Canal, should be so limited as to be capable of delivering to Mexico no more than 1,500,000 acre-feet in all in any year, if that is to be the treaty allocation. The treaty's present defect is that it places no limitation whatever on Mexican use. A large new civilization will be pyramided on this temporary use. The treaty's limitation on the legal right acquired by that use can be swept away by one device or another when the alternative is the abandonment of that civilization. We should not build works to aid Mexico to take more water than we are willing to allocate to her in perpetuity.

No diversion dam either on American or Mexican soil should be permitted until the floods of the Gila River are fully controlled. If Mexico elects to try to build a diversion dam on her own soil, she should stipulate against flooding or damaging American lands. A limitation should be placed upon the permissible return flow from Mexico which floods into the Salton Sea, lying below sea level.

3. *Administrative provisions.*—This treaty foreshadows the more important postwar treaties to come and is an ominous precedent. It delegates excessive power to a Commission of two individuals, one American and one Mexican. Such delegation, in the case of American domestic statutes, has seriously weakened the power of Congress and has troubled every student of the American form of government. But in the field of our own laws, Congress at least has the power to reclaim the power it has extravagantly conferred upon the Executive. The significant innovation of this treaty is that the power delegated here, even as to domestic functions of the Commission or its officers, cannot be reclaimed without the consent of Mexico. The treaty endures until Mexico agrees to another one. If the Senate fails to retain, by reservation, the power of Congress over the Commissioners created by this treaty, and the large funds they will control, it will be setting a precedent for the all-important post-war settlements.

4. *Conclusions as to the treaty.*—A treaty with Mexico on the Colorado River is desirable, as a matter of principle, but is by no means indispensable. The present treaty contains many good features, particularly as to the Rio Grande, but its three cardinal defects as to the Colorado ought to be remedied by Senate reservations. Otherwise, the treaty will cause, not cure, endless discord with Mexico and contention among the seven States of the Colorado River Basin.

If Mexico declines to accept such reservations, it would be better to have no treaty at all than to perpetuate the interpretations which would be disclosed by such refusal.

Without a treaty, the bogey of arbitration need not frighten us. We should not operate the Boulder Canyon project in any event so as to deliver Mexico less water than she was using before we built that project, but we cannot be compelled by arbitration to so operate it as to increase the flow available to her in the summer nor to build or furnish the diversion works without which she cannot increase her use. It is only the treaty, and the works which it promises, which make that increase possible.

With a treaty, we are bound to arbitrate every dispute arising under it, including our use of our own works, and the text of this treaty is replete with uncertainties enough to fill the arbitration courts for many years.

With kindest regards,

Yours faithfully,

HERBERT HOOVER.

EXHIBIT VII (A)

ARIZONA'S CONTENTION, BEFORE RATIFICATION OF THE COMPACT BY ARIZONA, AS TO THE QUANTITY OF WATER WHICH CALIFORNIA MAY TAKE UNDER HER LIMITATION ACT

I

In *Arizona* v. *California* (298 U. S. 558), Arizona's bill of complaint (art. XVIII) alleged (p. 25):

"The net virgin flow of the Colorado River and its tributaries is the sum of the undepleted flows of said river at Imperial Dam and of the Gila at its confluence with the main stream at Yuma. By deducting from the net flow so obtained the waters apportioned by the Colorado River compact we obtain the 'excess or surplus waters unapportioned by said compact' within the meaning of section 4 (a) of the Boulder Canyon Project Act and the act of the legislature of California, approved March 4, 1929. The unapportioned water is computed in the following manner:

Virgin flow Colorado River at Imperial Dam	16,840,000
Virgin flow Gila at confluence with the Colorado River	1,3331,000
Net virgin flow Colorado River	18,171,000
Less water apportioned by compact	16,000,000
Surplus waters unapportioned	2,171,000

"Therefore the maximum quantity of Colorado River water which California may legally divert and consumptively use is:

Of water apportioned by par. (a), art. III, compact	4,400,000
One-half waters unapportioned	1,085,500
California's maximum legal rights	5,485,500

"The foregoing quantities are in acre-feet per year and are based upon average annual discharges of the Colorado and Gila for the last 37 years for which records are available.

In *Arizona* v. *California* (298 U. S. 558), Arizona's supplemental brief stated (p. 8):

"The surplus waters unapportioned average 2,171,000 acre-feet per year."

In *Arizona* v. *California* (298 U. S. 558), the opinion of the Court stated:

"The compact was duly ratified by the six defendant States, and the limitation upon the use of the water by California was duly enacted into law by the California Legislature by act of March 4, 1929, supra. By its provisions the use of the water by California is restricted to 5,484,500 acre-feet annually."

(P. 564, note 5:)

"The surplus water of the river in the lower basin, unapportioned by the compact, is 2,171,000 acre-feet, one-half of which, or 1,085,500 acre-feet, California is entitled, under the Boulder Canyon Project Act, and her own statute, to add to the 4,400,000 acre-feet which they specifically allot to her, making a total allotment of 5,485,500 acre-feet annually."

EXHIBIT VII (B)

ARIZONA'S CONTENTION AFTER HER RATIFICATION OF THE COMPACT AS TO THE AMOUNT CALIFORNIA MAY TAKE UNDER THE LIMITATION ACT

TESTIMONY OF R. GAIL BAKER, RECLAMATION ENGINEER, STATE OF ARIZONA, ON H. R. 5434 REAUTHORIZING GILA PROJECT

(Pp. 479–480, House hearings)

Mr. PHILLIPS. My other question was this. Mr. Baker, on the page of these figures you have here, please take a piece of paper and figure out how much water is left for California.

Mr. BAKER. 4,400,000 plus half the surplus, which is 111,000 acre-feet, which makes a total of 4,511,000 acre-feet.

Mr. PHILLIPS. How about the reservoir losses? You have a higher reservoir loss than Mr. Dowd gives.

Mr. BAKER. Slightly less.

Mr. PHILLIPS. How much are you taking off for California?

Mr. BAKER. For reservoir losses. I have not figured it, but it would be in the neighborhood of 500,000 acre-feet.

Mr. PHILLIPS. How much does that leave for California?

Mr. BAKER. 4,000,000 acre-feet.

Mr. PHILLIPS. 4,000,000 acre-feet, which is 400,000 acre-feet less than Mr. Carson guaranteed us, the last time he was on the stand.

Mr. BAKER. I do not think he guaranteed it.

Mr. PHILLIPS. He was very definite about it. Were you not, Mr. Carson?

Mr. CARSON. Yes, as I see it, our 2.8 and your 4.4. are on a parity. If we are short, you are short. If you are not, we are not.

EXHIBIT VII (c)

CONSEQUENCES TO THE OTHER STATES OF ARIZONA'S REVERSALS OF POSITION

1. REVERSALS

Arizona has now diametrically reversed her earlier position on four vital interpretations of the Colorado River compact and the Boulder Canyon Project Act:

(a) The quantity of consumptive uses chargeable on the Gila River;

(b) Whether million acre-feet of III (b) water is apportioned or surplus;

(c) As to whether the uses on the Gila are chargeable under article III (a), or under article III (b) of the compact;

(d) The status of the 75,000,000 acre-feet guaranteed by the upper basin under article III (d) of the compact.

(a) *Consumptive uses on the Gila.*—With respect to the question of whether the uses on the Gila River, as elsewhere under the compact, should be measured by actual consumption, that is, diversions minus returns to the river, or by depletion measured at the mouth of the Gila: The consumptive use theory is supported by reports of the negotiators of the compact, the legislative history of the Boulder Canyon Project Act, the formal and explicit representations made by Arizona's counsel in the first Supreme Court case, the water contracts, including Arizona's, and the legislative history of the Mexican Water Treaty. Nowhere, either in these documents or the remaining two Supreme Court cases, was the depletion theory advanced. Arizona has now reversed herself on that issue.

(b) *As to whether the million acre-feet of III (b) water is apportioned or surplus.*—Arizona's present position, that the III (b) water is apportioned, is a complete reversal of her categorical position in the first Colorado River case and is at variance with the legislative history of the Boulder Canyon Project Act.

(c) *As to whether the uses on the Gila are chargeable under article III (a) or III (b) of the compact.*—Arizona's present position that the III (b) waters are "in the Gila and not in the main stream," is a reversal of the construction reported by her negotiator, Judge Sloan, and of Arizona's position in the first Colorado River case.

(d) *With respect to the status of the 75,000,000 acre-feet which the upper basin guarantees to deliver during each 10-year period at Lee Ferry under the provisions of article III (d) of the compact.*—Arizona's position, stated in the second Supreme Court case, and apparently still adhered to, is that this water is identical with the 7,500,000 acre-feet apportioned annually to the lower basin by article III (a), the one figure being simply 10 times the other. This is diametrically opposite to the position she took in the first case.

2. CONSEQUENCES TO THE UPPER BASIN STATES OF ARIZONA'S CHANGE OF POSITION

Arizona now says that the 75,000,000 acre-feet delivered by the upper basin under article III (d) at Lee Ferry is identical with the water apportioned to the lower basin by article III (a), that the added 1,000,000 acre-feet referred to in article III (b) is apportioned water and is all found in the Gila, and that under her depletion theory Arizona is only chargeable with about 1,000,000 acre-feet on the Gila anyhow. This accounts for all the water flowing in the lower basin, unless the upper basin sends us more. Where, then, is there any surplus during a decade of shortage such as we have twice witnessed? And where is the 1,500,000 acre-feet for Mexico? Article III (c) of the compact says the water for Mexico is to come out of surplus, but on Arizona's depletion theory there is no

surplus in such a decade. In such case, the upper basin, to comply with the last sentence of article III (c) of the compact, must add enough water to meet half the deficiency, amounting to at least 750,000 acre-feet per year, or 7,500,000 acre-feet during the dry decade.

The results are even worse than that, because the guaranty to Mexico is measured at the border, while the guaranty of the upper basin is measured at Lee Ferry. Obviously, more than 750,000 acre-feet would have to be furnished at Lee Ferry to enable a residue in that amount to reach the boundary.

Such are the consequences of relieving Arizona of charge for her true consumptive uses on the Gila.

Can the upper basin afford to increase its guaranty in a decade of drought by 10 percent, that is, to 82,500,000 acre-feet? A preliminary report of the Reclamation Bureau, November 1944, gave this warning of the effect, during a dry decade, of the guaranty of only 75,000,000 acre-feet:

"* * * If a dry decade like that of 1931–40 should occur, the average annual stream depletion above Lee Ferry would be 2,440,000 acre-feet, provided that all projects now under construction and authorized were completed and in operation. Depletions from potential projects amounting to 1,845,000 acre-feet for irrigation within the upper basin, 1, 792,000 acre-feet for export diversions to areas within the States of the upper basin, and 831,000 acre-feet for evaporation from power and hold-over reservoirs, would bring the ultimate stream depletion to 6,908,000 acre-feet. Although this is less than the 7,500,000 acre-feet allocated to the upper basin by the Colorado River compact, actually it is more than would have been available. The average annual flow at Lee Ferry, in the 1931–40 period, had no upstream diversions been made, would have been 12,234,000 acre-feet. After deducting from this the 7,500,000 acre-feet allocated to the lower basin, only 4,734,000 acre-feet would have remained for the upper basin. Full upper basin depletion of 6,908,000 acre-feet could have been made therefore, only if at the beginning of the decade, the upper basin had hold-over storage sufficient to permit releases of 2,174,000 acre-feet annually throughout the 10-year period."

The crisis could be met only by assuming the existence of greater storage reservoirs, all of them fortunately full, at the beginning of each drought. The impact of adding 10 percent to the upper basin guaranty, necessitated by Arizona's theory, is obvious.

3. CONSEQUENCES TO CALIFORNIA OF ARIZONA'S CHANGE OF POSITION

As to the effect on California of Arizona's reversal of position, Arizona is quite candid.

California would not, of course, get the 5,802,000 acre-feet which the Secretary of the Interior's comprehensive report on the Colorado River (H. Doc. 419, 80th Cong., p. 14) says California can physically use by feasible projects, but California does not claim that quantity in any event.

California would not receive the 5,613,000 acre-feet which the State engineer of Nevada, Mr. George W. Malone, reported to the Senate in 1928 (S. Doc. 186, 70th Cong., 2d sess.) was included in feasible projects in California, and which was before the Senate when it considered the Project Act (Congressional Record, December 7, 1928, p. 238).

California would not get the 5,485,000 acre-feet conceded to California by Arizona's pleadings in the third Supreme Court case (298 U. S. 558), and referred to in the Court's opinion; but California does not claim that large a figure.

California would not get the 5,362,000 acre-feet provided for in the contracts that California's public agencies have made with the United States, and in reliance upon which over $500,000,000 has been invested in construction of projects or is represented by firm obligations in the form of outstanding bonds or Government repayment contracts.

California would not even get the 4,400,000 acre-feet which Arizona says she concedes to California.

To the contrary, under Arizona's latest claims, California would receive 3,869,000 acre-feet of water (House hearings on H. R. 5434, Reauthorizing the Gila Project, 79th Con., p. 479, et seq.). This is less than the total of vested appropriative rights which California had in the natural flow of the stream before the construction of Hoover Dam. The salvage of floodwaters effected by that structure would be substantially denied to California. The metropolitan water district aqueduct, built at a cost of $200,000,000, to transport 1,212,000 acre-feet, and whose rights are junior to some 3,850,000 acre-feet of old agricultural priorities, would be without any assured water supply at all.

EXHIBIT VII (D)

ARIZONA THEORIES RE THE GILA RIVER UNDER THE COLORADO RIVER COMPACT

In the attempt to avoid the effect of the Colorado River compact in charging the lower basin, and hence Arizona, with Arizona's full consumptive use on the Gila River, Arizona has made the following inconsistent contentions:

1. That the compact was unfair and unconstitutional because it intended this very result. (Bill of complaint, art. XXVIII and brief, p. 26, et seq., in the first Colorado River case, 283 U. S. 423.)
2. That the compact intended to divide only main-stream water, and to leave the Gila out of consideration. (Brief of Arizona, p. 10, in *Arizona* v. *California*, 292 U. S. 341.)
3. That the negotiators of the compact agreed that because the Gila was included, all the extra million acre-feet for the lower basin referred to in article III (b) of the compact should go to Arizona. (Bill of complaint, p. 8, in the perpetuation of testimony case, 292 U. S. 341.)
4. That the Boulder Canyon Project Act and the California Limitation Act intended to exclude California from participation in the extra million acre-feet of water referred to in article III (b) because these waters are "apportioned" and California limited her use of "apportioned" waters; therefore there was no place for this million acre-feet to be used except in Arizona. (Testimony of Arizona witnesses on H. R. 5434, 79th Cong.)
5. That California is excluded from using the extra million acre-feet because the Project Act and the Limitation Act are silent on the subject. (Arizona opening brief, p. 14, in *Arizona* v. *California*, 292 U. S. 341.)
6. That the III (b) water was intended to refer to waters flowing in the Gila, and that all uses on the Gila, even though amounting to perfected rights, were to be charged against that allocation and not against the share of III (a) water to which Arizona might be entitled. (Brief of Arizona, p. 16, in *Arizona* v. *California*, 292 U. S. 341.)
7. That it makes no difference whether the uses on the Gila are charged against III (a) or III (b), because the compact ought to be read as though III (a) apportioned 8,500,000 acre-feet to the lower basin. (Testimony of Arizona witnesses in H. R. 5434, 79th Cong.)
8. That Arizona's uses on the Gila are to be measured, not by diversions less returns to the river, which is the normal definition of consumptive uses, but by the effect these uses would have had upon the flow of the Gila into the Colorado, measured at the junction, in a state of nature, the so-called depletion theory. The effect is to permit Arizona the actual use in plant growth of 2,300,000 acre-feet, which flows into the Phoenix area annually on an average and is all used, while charging her with only 1,100,000, the average amount which the Gila is said to have discharged into the Colorado in a state of nature. Arizona, of course, would charge California's uses not on this depletion theory, but by California's actual diversions less returns to the river. (Arizona's theory as stated in Interior Department report on the central Arizona project.)

(Exhibit VIII (A), part 1, appears in the appendix of this hearing)

EXHIBIT VIII (A)

PART 2

FEDERAL STATUTES RELATED TO PUBLIC POWER

(February 24, 1949)

(Northcutt Ely, general counsel, American Public Power Association)

Commencing over 40 years ago Congress began the enactment, piecemeal, of statutes dealing with publicly owned hydroelectric power in various aspects. These statutes do not purport to constitute a unified code applicable to all public power operations affecting the Federal Government. Nevertheless, certain more or less uniform objectives or policies run through some of them, permitting their grouping under the following general heads:

I. Sites.
   (*a*) Statutes withdrawing or authorizing withdrawal of sites from location, sale, entry, etc.
   (*b*) Statutes granting right of eminent domain.

II. Planning of projects.
  (a) Statutes providing for local participation in planning.
  (b) Statutes according the States a right of review of Federal development plans.
III. Generation facilities.
  (a) Statutes authorizing installation by United States of power generating facilities in a Government project.
  (b) Statutes authorizing installation by a lessee, agent, or licensee of power generating facilities in connection with a Government project.
IV. Statutes establishing engineering and economic standards of feasibility.
V. Statutes providing for the retention of title to power facilities by the United States.
VI. Operation.
  (a) Statutes authorizing direct operation of power or generating facilities by the United States.
  (b) Statutes authorizing operation of power generating facilities by an agent of the United States.
  (c) Statutes authorizing operation of power generating facilities owned by the United States by a lessee or licensee.
VII. Rate policies.
  (a) Statutes requiring that power rates be based on the cost of production of energy.
  (b) Statutes limiting power rates to the lowest possible costs and encouragement of widespread use.
  (c) Statutes providing for rate readjustment.
VIII. Statutes relating to disposition of power revenues.
IX. Preferences.
  (a) Statutes granting preferences to public agencies including States and their political subdivisions, cooperatives, etc.
  (b) Statutes granting preferences to particular users.
  (c) Statutes relating to avoidance of monopolies.
X. Transmission.
  (a) Statutes providing for construction of transmission lines by the United States.
  (b) Statutes relating to construction of transmission lines by local public agencies.
  (c) Statutes regulating transmission by nonpublic agencies.

I. SITES

(a) Statutes withdrawing or authorizing withdrawal of sites from location, sale, entry, etc.

The Reclamation Act.—The Secretary of the Interior is directed to withdraw from public entry all lands required for any irrigation works contemplated under the act (act of June 17, 1902, ch. 1093, sec. 3, 32 Stat. 388, 43 U. S. C. A. 416).

New Mexico and Arizona Enabling Act.—All land actually or prospectively valuable for the development of water powers or power for hydroelectric use or transmission which should be so ascertained and designated by the Secretary within 5 years after the proclamation of the President declaring admission of the State are reserved to the United States (act of June 20, 1910, ch. 310, 36 Stat. 557, 575).

Withdrawal of public lands by the President.—The President is authorized to temporarily withdraw public lands of the United States from settlement, location, sale, or entry, and to reserve them for water-power sites and other purposes, such withdrawals to remain in force until revoked by him or by act of Congress (act of June 25, 1910, ch. 421, sec. 1, 36 Stat. 847, 43 U. S. C. A. 141).

Indian reservations—power sites reservation.—The Secretary of the Interior is authorized to reserve from location, entry, sale, etc., any land within any Indian reservation valuable for power or reservoir sites, or which might be necessary for use in connection with any irrigation project authorized by Congress. The President is also authorized to cancel trust patents issued to Indian allottees for allotments within any power or reservoir site (act of June 25, 1910, ch. 431, secs. 13, 14, 36 Stat. 858, 859, 43 U. S. C. A. 148).

Federal Water Power Act.—Public lands included in any proposed project under the act are withdrawn from entry, location, or other disposal from date of filing application therefor until otherwise directed by the Federal Power Com-

mission or by Congress (act of June 10, 1920, ch. 285, sec. 24, 41 Stat. 1075, 16 U. S. C. A. 818).

(b) Statutes granting right of eminent domain

The Reclamation Act.—Where necessary to acquire any rights of property for irrigation projects, the Secretary of the Interior is authorized to acquire same by purchase or condemnation under judicial process (act of June 17, 1902, ch. 1093, sec. 7, 32 Stat. 389, 43 U. S. C. A. 421).

Federal Water Power Act.—Where licensee cannot otherwise acquire an unimproved dam site, etc., in conjunction with an improvement which the Commission deems desirable and justified in the public interest, it may acquire same by right of eminent domain (act of June 10, 1920, ch. 285, sec. 21, 41 Stat. 1074, 16 U. S. C. A. 814).

Tennessee Valley Authority Act.—The Board is granted power in the name of the United States to exercise the right of eminent domain (act of May 18, 1933, ch. 32, secs. 4, 18, 48 Stat. 60, 67, 16 U. S. C. A. 831, 831q).

Bonneville Project Act.—The Administrator is granted authority to acquire any property or property rights, including patents, by exercise of the right of eminent domain (act of Aug. 20, 1937, ch. 720, sec. 2, 50 Stat. 732, 16 U. S. C. A. 832a).

Rivers and Harbors Act of 1937.—The Secretary of the Interior is authorized to acquire by proceedings in eminent domain, or otherwise, all lands, rights-of-way, etc., needed in connection with the Central Valley project (act of Aug. 28, 1937, 50 Stat. 850).

Fort Peck Project Act.—The Secretary of the Interior is given authority to acquire property or property rights including patents, by exercise of the right of eminent domain (act of May 18, 1938, ch. 250, sec. 2, 52 Stat. 404, 16 U. S. C. A. 833a).

II. PLANNING OF PROJECTS

(a) Statutes providing for local participation in planning

Federal Water Power Act.—The Federal Power Commission is authorized and empowered to cooperate with executive departments and agencies of State or National Governments in conducting investigations concerning utilization of water resources of any region to be developed, the waterpower industry, etc. (act of June 10, 1920, ch. 285, sec. 4, 41 Stat. 1065; Aug. 26, 1935, ch. 687, title II, sec. 202, 49 Stat. 839, 16 U. S. C. A. 797).

Boulder Canyon Project Act.—Any commission or commissioner duly authorized under the laws of any ratifying State is given the right to act in an advisory capacity to and in cooperation with the Secretary of the Interior in the furtherance of any comprehensive plan for utilization of resources of the Colorado River (act of Dec. 21, 1928, ch. 42, sec. 16, 45 Stat. 1065, 43 U. S. C. A. 6170).

Tennessee Valley Authority Act.—The President is authorized in making surveys and plans to aid further the proper use, conservation, and development of the natural resources of the Tennessee River drainage basin and related territory to cooperate with affected States, or with cooperatives or other organizations (act of May 18, 1933, ch. 32, sec. 22, 48 Stat. 69, 16 U. S. C. A. 831u).

Rural Electrification Act of 1936.—The making of any loan for construction, operation, or enlargement of any generating plant by Administrator is forbidden unless the consent of the State authority having jurisdiction in the premises is first obtained (act of May 20, 1936, ch. 432, sec. 4, 49 Stat. 1365; Sept. 21, 1944, ch. 412, title V, secs. 502 (a), 503, 58 Stat. 739; Dec. 22, 1944, ch. 725, 58 Stat. 925, 7 U. S. C. A. 904).

Flood Control Act of 1944.—Investigations which form the basis of any plans, proposals, or reports of the Chief of Engineers are required to be conducted in such a manner as to give the affected State or States, during the course of the investigations, information developed by the investigations and also opportunity for consultation regarding plans and proposals, and, to the extent deemed practicable by the Chief of Engineers, opportunity to cooperate in the investigations (act of Dec. 22, 1944, ch. 665, sec. 1, 58 Stat. 887). A substantially identical provision is contained in the River and Harbor Act of 1945 (act of Mar. 2, 1945, ch. 19, sec. 1, 59 Stat. 22).

(b) Statutes according the States a right of review of Federal development plans

Boulder Canyon Project Act.—The Secretary of the Interior is authorized and directed to make investigation and public reports of the feasibility of projects for irrigation, generation of electric power and other purposes in the States of Ari

zona, Nevada, Colorado, New Mexico, Utah, and Wyoming, for the purpose of making such information available to said States and to the Congress, and of formulating a comprehensive scheme of control and improvement and utilization of the water of the Colorado River and its tributaries (act of Dec. 21, 1928, ch. 42, sec. 15, 45 Stat. 1065, 43 U. S. C. A. 617n).

Flood Control Act of 1944.—The Chief of Engineers is required to transmit a copy of any proposed report to the Congress of each affected State. Within 90 days from the date of receipt of any such proposed report, the written views and recommendations of each affected State may be submitted to the Congress by the Secretary of War with such comments and recommendations as he deems appropriate (act of Dec. 22, 1944, ch. 665, sec. 1, 58 Stat. 887). A substantially identical provision is found in the Rivers and Harbors Act of 1945 (act of Mar. 2, 1945, ch. 19, sec. 1, 59 Stat. 22).

III. GENERATION FACILITIES

(a) Statutes authorizing installation by United States of power-generating facilities in a Government project

Lease of surplus electric power.—Where power development is needed for irrigation, or an opportunity is afforded for its development, the Secretary of the Interior is authorized to enter into a contract for the sale or development of any surplus power (act of Apr. 16, 1906, ch. 1631, sec. 5, 34 Stat. 116; Feb. 24, 1911, ch. 155, 36 Stat. 930, 43 U. S. C. A. 522). A substantially identical provision is found in the following statutes: Sale of electric power on Salt River project (act of Sept. 18, 1922, ch. 323, 42 Stat. 847, 43 U. S. C. A. 598); surplus power, Grand Valley project (act of Feb. 21, 1931, ch. 266, 46 Stat. 1202; sale of surplus power, Uncompahgre project, act of June 22, 1938, ch. 577, 52 Stat. 941).

Rivers and Harbors Appropriation Act, 1912.—Upon recommendation of the Chief of Engineers, the Secretary of War is authorized to provide in the permanent part of any dam authorized at any time by Congress such foundations, sluices, and other works as may be considered desirable for the future development of its water power (act of July 25, 1912, ch. 253, sec. 12, 37 Stat. 233, 33 U. S. C. A. 609).

Boulder Canyon Project Act.—The Secretary of the Interior is authorized to construct, operate, and maintain a dam and incidental works in the main stream of the Colorado River at Black Canyon or Boulder Canyon for several purposes, including the generation of electrical energy. The Secretary of the Interior is further authorized to "construct and equip, operate, and maintain, at or near said dam, or cause to be constructed, a complete plant and incidental structures suitable for the fullest economic development of electrical energy from the water discharged from said reservoir" (act of Dec. 21, 1928, ch. 42, sec. 1, 45 Stat. 1057, 43 U. S. C. A. 617).

Rivers and Harbors Act of 1935.—Grand Coulee Dam and Parker Dam are authorized for the purpose, among others, of generating electric energy (act of Aug. 30, 1935, ch. 831, sec. 2, 49 Stat. 1039).

Tennessee Valley Authority Act.—The Tennessee Valley Authority granted power to construct dams and reservoirs in the Tennessee River and its tributaries and to acquire or construct powerhouses, power structures, transmission lines, and incidental facilities and to unite the various power installations into one or more systems by transmission lines (act of May 18, 1933, ch. 32, sec. 4, 48 Stat. 60; Aug. 31, 1935, ch. 836, secs. 1-3, 13, 49 Stat. 1075, 1076, 16 U. S. C. A. 831c (j)).

Bonneville Project Act.—Completion of the dam, locks, power plant, and appurtenant works under construction on August 20, 1937, by the Secretary of War directed. The Secretary of War is also directed to install and maintain additional machinery, equipment, and facilities for the generation of electric energy at the project when in the judgment of the Administrator such additional generating facilities are desirable to meet actual or potential market requirements for such electric energy (act of Aug. 20, 1937, ch. 720, secs. 1, 2, 50 Stat. 731, 732, 16 U. S. C. A. 832, 832a).

Rivers and Harbors Act of 1937.—Central Valley project is reauthorized for the purpose, among others, of generating electric energy as a means of financially aiding and assisting the project and in order to permit the full utilization of the works constructed (act of Aug. 28, 1937, 50 Stat. 850).

Fort Peck project.—The dam and appurtenant works under construction at Fort Peck, Mont., and a suitable power plant are directed to be completed, maintained, and operated. The Secretary of War is directed to provide, construct,

operate, maintain, and improve at the project such equipment and facilities for the generation of electric energy as the Bureau of Reclamation may deem necessary to develop such electric energy as rapidly as markets may be found therefore (act of May 18, 1938, ch. 250, sec. 1, 52 Stat. 503, 16 U. S. C. A. 833).

Flood Control Act of 1938.—It is required that penstocks and other similar facilities adapted to possible future use in the development of hydroelectric power shall be installed in any dam authorized in the act for construction by the Department of the Army when approved by the Secretary of the Army on the recommendation of the Chief of Engineers and of the Federal Power Commission (act of June 28, 1938, ch. 795, sec. 4, 52 Stat. 1216, 33 U. S. C. A. 701j). Substantially identical provision contained in the following statutes: Flood Control Act of 1941 (act of Aug. 18, 1941, ch. 377, sec. 3, 55 Stat. 639); Flood Control Act of 1944 (act of Dec. 22, 1944, ch. 655, sec. 10, 58 Stat. 887); Rivers and Harbors Act of 1945 (act of Mar. 2, 1945, ch. 119, sec. 2, 59 Stat. 22); Flood Control Act of 1946 (act of July 24, 1946, ch. 596, sec. 10, 60 Stat. 641); Rivers and Harbors Act of 1946 (act of July 24, 1946, ch. 595, sec. 1, — Stat. —).

Water Conservation and Utilization Act.—In connection with any project undertaken pursuant to the act, provision may be made for developing and furnishing power in addition to the power requirements of irrigation (act of Aug. 11, 1939, ch. 717, sec. 3, 53 Stat. 1419; Oct. 14, 1940, ch. 861, sec. 9, 54 Stat. 1124, 16 U. S. C. A. 590z–7).

Flood Control Act of 1941.—The Chief of Engineers is authorized in his discretion to modify the plan for any dam so that such dam will be smaller than originally planned with a view of completing a useful improvement within an authorization. The smaller structure must be located on the chosen site so that it will be feasible at some future time to enlarge the work to permit the full utilization of the site for all purposes including, among others, the development of hydroelectric power (act of Aug. 18, 1941, ch. 377, sec. 2, 55 Stat. 638, 33 U. S. C. A. 701m).

Hungry Horse Dam.—Secretary is authorized to complete the construction of the Hungry Horse Dam including therein facilities for generating electric energy (act of June 5, 1944, ch. 234, secs. 1, 2, 58 Stat. 270, 43 U. S. C. A. 593a).

(b) Statutes authorizing installation by a lessee, agent, or licensee of power-generating facilities in connection with a Government project

Federal Water Power Act.—The Federal Power Commission is authorized to issue licenses to citizens of the United States for the purpose of constructing, operating, and maintaining dams, powerhouses, transmission lines, etc., along, from, or in any streams or other bodies of water over which Congress has jurisdiction upon any part of the public lands, or for the purpose of utilizing the surplus water or water power from any Government dam (act of June 10, 1920, ch. 285, sec. 4, 41 Stat. 1065; Aug. 26, 1935, ch. 687, title II, sec. 202, 49 Stat. 839, 16 U. S. C. A. 797).

Boulder Canyon Project Act.—The Secretary of the Interior is authorized to "enter into contracts of lease for the use of water for the generation of electrical energy." The Secretary is also authorized in his discretion after repayment of all money advanced with interest to transfer title to the All-American Canal and appurtenant structures, except Laguna Dam, to the districts or agencies having "a beneficial interest therein." The said districts or agencies are given the privilege of utilizing such power possibilities as may exist upon the canal (act of Dec. 21, 1928, ch. 42, secs. 6, 7, 45 Stat. 1061, 1062, 43 U. S. C. A. 617e, 617f).

IV. STATUTES ESTABLISHING ENGINEERING AND ECONOMIC STANDARDS OF FEASIBILITY

Fact Finders Act.—No new project or division of a project may be approved for construction or estimates submitted therefor by the Secretary of the Interior until he has secured information in detail as to the following factors, among others; engineering features, cost of construction, etc., and he has made a finding in writing that it is feasible and will probably return its cost to the United States (act of Dec. 5, 1924, ch. 4, sec. 4, subsec. B, 43 Stat. 702, 43 U. S. C. A. 412).

Boulder Canyon Project Act.—Before any money is appropriated for the construction of the Hoover Dam or power plant, or any construction work is done or contracted for, that the Secretary of the Interior is required to make provisions for revenue by contract adequate in his judgment to assure repayment of all expenses of operation and maintenance and the repayment of the Federal investment within 50 years from the date of completion of the works, together with

interest thereon (act of Dec. 21 1928, ch. 42, secs. 2b 4b, 45 Stat. 1057, 1058, 43 U. S. C. A. 617a, c).

Reclamation Project Act of 1939.—The act prohibits expenditure for construction of any new project, new division, or new supplemental works on a project until the Secretary has made an investigation thereof and has reported to the President and the Congress his findings on the following, among others: engineering feasibility of the proposed construction; the estimated cost; part of the estimated cost properly allocable to power which can probably be returned to the United States in net power revenues, etc. (act of Aug. 4, 1939, ch. 418, sec. 9, 53 Stat. 1193, 43 U. S. C. A. 485h).

Water Conservation and Utilization Act.—No construction may be undertaken under the act until the Secretary of the Interior has investigated and has submitted to the President his report and findings on the engineering feasibility of the proposed construction, estimated cost of proposed construction, part of estimated cost which can properly be allocated to irrigation, the part of the estimated cost which can properly be allocated to municipal or miscellaneous water supplies or power and probably be returned to the United States in revenues therefrom, etc. (act of Aug. 11, 1939, ch. 717, sec. 3, 53 Stat. 1419; Oct. 14, 1940, ch. 861, 54 Stat. 1120, 16 U. S. C. A. 590z–1).

Flood Control Act of 1946.—Policy of Congress declared that no project or modification not authorized of a project for flood control or rivers and harbors shall be authorized unless a report for such project or modification has been previously submitted by the Chief of Engineers, United States Army, in conformity with existing law (act of July 24, 1946, ch. 596, sec. 2, 60 Stat. 641; June 30, 1948, ch. 771, title II, sec. 202, 62 Stat. 1175, 33 U. S. C. A. 701o).

V. STATUTES PROVIDING FOR RETENTION OF TITLE TO POWER FACILITIES BY THE UNITED STATES

Reclamation Act of 1902.—Title to reservoirs and works necessary to their protection and operation are to remain in the United States until otherwise provided by Congress (act of June 17, 1902, ch. 1093, sec. 6, 32 Stat. 389, 43 U. S. C. A. 498).

Boulder Canyon Project Act.—Title to Hoover Dam, reservoir, plant, and incidental works are to forever remain in the United States (act of Dec. 21, 1928, ch. 42, sec. 6, 45 Stat. 1061, 43 U. S. C. A. 617e).

Special provisions of Interior Department Appropriation Act, 1931, Yakima project, Prosser Dam.—Title to and legal and equitable ownership of the power plant and appurtenances constructed by the United States pursuant to this appropriation shall be and remain in the United States (act of May 14, 1930, ch. 273, 46 Stat. 308).

Tennessee Valley Authority Act.—Title to all real estate is entrusted to the corporation (act of May 18, 1933, ch. 32, secs. 4 and 7, 48 Stat. 60, 63, 16 U. S. C. A. 831, ch. 831f).

Bonneville Project Act.—Title to all property and property rights are required to be in the name of the United States (act of Aug. 20, 1937, ch. 720, sec. 2, 50 Stat. 732, 16 U. S. C. A. 832a).

Water Conservation and Utilization Act.—Title to dams, reservoir, and other project works to be retained by the United States until Congress otherwise provides (act of Oct. 14, 1940, ch. 861, sec. 1, 54 Stat. 1119, 16 U. S. C. A. 590y).

Fort Peck Project Act.—Title to property and property rights is to be in the name of the United States (act of May 18, 1938, ch. 250, sec. 2, 52 Stat. 404, 16 U. S. C. A. 833a).

VI. OPERATION

(a) Statutes authorizing direct operation of power or generating features by the United States

The Reclamation Act.—Management of reservoirs and irrigation projects is to remain in the United States until otherwise provided by Congress (act of June 17, 1902, ch. 1093, sec. 6, 32 Stat. 389, 43 U. S. C. A. 491).

Boulder Canyon Project Act.—Secretary of Interior is authorized "to construct and equip, operate and maintain at or near said dam, or cause to be constructed, a complete plant and incidental structures suitable for the fullest economic development of electrical energy from the water discharged from said reservoir." See section 6 of the act for alternative for the operation of the power plant (act of Dec. 21, 1928, ch. 42, sec. 1, 45 Stat. 1057, 43 U. S. C. A. 617).

Bonneville Project Act.—Project is to be "completed, maintained, and operated" under direction of the Secretary of the Army and the supervision of the Chief of Engineers. The electrical energy generated is to be disposed of by the Bonneville Project Administrator, who is appointed by the Secretary of the Interior (act of Aug. 20, 1937, ch. 720, secs. 1, 2, 50 Stat. 731, 732, 16 U. S. C. A. 832, 832a).

Fort Peck Project Act.—The Secretary of War is required to "provide, construct, operate, maintain, and improve machinery, equipment, and facilities for the generation of electric energy." The energy generated which is not required for operation of the dam is required to be delivered to the Bureau of Reclamation for disposal (act of May 18, 1938, ch. 250, secs. 1, 2, 52 Stat. 403, 404, 16 U. S. C. A. 833, 833a).

Hungry Horse Dam.—The Secretary of the Interior is authorized and directed to construct, operate, and maintain the dam and facilities for generating electrical energy (act of June 5, 1944, ch. 234, sec. 1, 58 Stat. 270).

(*b*) *Statutes authorizing operation of power-generating facilities by an agent of the United States*

Tennessee Valley Authority Act.—The Board is authorized "to produce, distribute, and sell electric power" (sec. 5); "to provide and operate facilities for the generation of electric energy" (sec. 9 (a)) (act of May 18, 1933, ch. 32, secs. 5, 9 (a), 48 Stat. 61; sec. 9 (a) added Aug. 31, 1935, ch. 836, sec. 5, 49 Stat. 1076, 16 U. S. C. A. 831, 831h).

Boulder Canyon Project Adjustment Act.—Secretary of the Interior authorized to negotiate for termination of existing lease of Boulder power plant, and, in event of such termination, is authorized to provide for the operation, maintenance, and the making of replacements by the United States directly or through such agent or agents as he may designate (act of July 19, 1940, ch. 643, sec. 9, 54 Stat. 777, 43 U. S. C. A. 618h).

(*c*) *Statutes authorizing operation of power-generation facilities owned by the United States, by a lessee or licensee*

Lease of surplus electric power.—Where power is developed in connection with an irrigation project, the Secretary of the Interior is authorized to lease any surplus power or power privilege (act of April 16, 1906, ch. 1631, sec. 5, 34 Stat. 117; Feb. 24, 1911, ch. 155, 36 Stat. 930, 43 U. S. C. A. 522).

Federal Water Power Act.—The Federal Power Commission is authorized to issue licenses to citizens, corporations, public bodies, etc., for the purpose of utilizing the surplus water or water power from any Government dam (June 10, 1920, ch. 285, sec. 4, 41 Stat. 1065; Aug. 26, 1935, ch. 687, title II, sec. 202, 49 Stat. 839, 16 U. S. C. A. 797).

Boulder Canyon Project Act.—The Secretary of the Interior is authorized to "enter into contracts of lease of a unit or units of any Government-built plant, with right to generate electrical energy, or alternately, to enter into contracts of lease for the use of water for the generation of electrical energy" (act of Dec. 21, 1928, ch. 42, sec. 6, 45 Stat. 1061, 43 U. S. C. A. 617e).

Grand Valley project.—The Secretary of the Interior is authorized to enter into contract or contracts for the sale or development of any surplus power or power privileges, in Grand Valley reclamation project (act of Feb. 21, 1931, ch. 266, 46 Stat. 1202).

Reclamation Project Act of 1939.—The Secretary of the Interior is authorized to sell power or to lease power privileges (act of Aug. 4, 1939, ch. 418, sec. 9, 53 Stat. 1193, 43 U. S. C. A. 485h).

VII. RATE POLICIES

(*a*) *Statutes requiring that power rates be based on cost of production of energy*

Boulder Canyon Project Act.—Rates are required to provide revenue which, in addition to other revenue accruing under the reclamation law and this act, will cover all expenses of construction, operation, and maintenance incurred by the United States and payments to the United States under section 4 (b) of the act which requires contracts in advance of construction of project assuring that the project be self-liquidating over a period of 50 years. Contracts for electrical energy also required to be made with a view of "obtaining reasonable returns" (act of Dec. 21, 1928, ch. 42, secs. 2, 4, 5, 45 Stat. 1057, 1058, 1060, 43 U. S. C. A. 617a, 617c, 617d).

Tennessee Valley Authority Act.—Power is required to be sold at rates which when applied to the normal capacity of the Authority's power facility will produce gross revenues in excess of the cost of production of said power (act of May 18, 1933, ch. 32, sec. 14, 48 Stat. 66; Aug. 31, 1935, ch. 836, sec. 8, 49 Stat. 1077, 16 U. S. C. A. 831m).

Bonneville Project Act.—Rate schedules are required to be drawn having regard to the recovery upon the basis of the application of such rate schedules to the capacity of the electric facilities of the project, of the cost of producing and transmitting it, including the amortization of the capital investment over a reasonable period of years (act of Aug. 20, 1937, ch. 720, sec. 7, 50 Stat. 735, 16 U. S. C. A. 832f).

Fort Peck project.—Rate schedules are required to be drawn having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of the electric facilities of the project) of the cost of producing and transmitting such electric energy, including the amortization of the capital investment over a reasonable period of years (act of May 18, 1938, ch. 250, sec. 6, 52 Stat. 405, 16 U. S. C. A. 833e).

Reclamation Project Act of 1939.—Any sale of electric power or lease of power privileges made by the Secretary of the Interior in connection with the operation of any project or division of a project is required to be at such rates as in his judgment will produce power revenues at least sufficient to cover an appropriate share of the annual operation and maintenance cost, interest on an appropriate share of the construction investment at not less than 3 percent per annum, and of such other fixed charges as the Secretary deems proper (act of Aug. 4, 1939, ch. 418, sec. 9, 53 Stat. 1193, 43 Stat. 485h).

Boulder Canyon Project Adjustment Act.—Rate stabilized for period from July 1, 1937, to May 31, 1987, at a figure calculated to provide revenues sufficient to meet the following requirements: (1) operation, maintenance, and replacements; (2) repayment to the Treasury with interest, of its reimbursable advances, excluding an allocation for flood control; annual payments of $300,000 each to the States of Arizon and Nevada; and annual payment of $500,000 to the Colorado River Development Fund (act of July 19, 1940, ch. 643, secs. 1, 2 b, c, d, 54 Stat. 774, 43 U. S. C. A. 618).

Water Conservation and Utilization Act.—Contracts for sale of surplus power are required to be at such rates as will produce revenues at least sufficient to cover the appropriate share of the annual operation and maintenance cost of the project and such fixed charges, including interest, as the Secretary deems proper (act of Aug. 11, 1939, ch. 717, sec. 9 added Oct. 14, 1940, ch. 861, 54 Stat. 1124, 16 U. S. C. A. 590 (z)-7).

Flood Control Act of 1944.—Electric power generated at reservoirs under the control of the Department of the Army is required to be delivered to the Secretary of the Interior for disposal. Rate schedules must be drawn having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of the electric facilities of the projects) of the cost of producing and transmitting the electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years (act of Dec. 22, 1944, ch. 665, sec. 5, 58 Stat. 890, 16 U. S. C. A. 825s).

(*b*) *Statutes limiting power rates to the lowest possible costs and encouragement of widespread use*

Tennessee Valley Authority.—Policy is declared that sale and use of energy by industry is to be a secondary purpose, to be used principally to secure a sufficiently high load factor and revenue returns which will permit domestic and rural use at the lowest possible rates and in such manner as to encourage increased domestic and rural use of the electricity (May 18, 1933, ch. 32, sec. 11, 48 Stat. 64, 16 U. S. C. A. 831j).

Bonneville project.—Rates are required to be fixed and established with view to encouraging the widest possible diversified use of electrical energy (Aug. 20, 1937, ch. 720, sec. 6, 50 Stat. 735; Oct. 23, 1945, ch. 433, sec. 3, 59 Stat. 546, 16 U. S. C. A. 832e).

Fort Peck project.—Rates are required to be fixed and established with a view to encouraging the widest possible diversified use of electrical energy (May 18, 1938, ch. 250, sec. 5, 52 Stat. 405, 16 U. S. C. A. 833d).

Flood Control Act of 1944.—The Secretary of the Interior is required to transmit and dispose of energy generated at projects under the control of the Department of the Army in such a manner as to encourage the most widespread use

thereof at the lowest possible rates to consumers consistent with sound business principles (Dec. 22, 1944, ch. 665, sec. 5, 58 Stat. 890, 16 U. S. C. A. 825s).

(c) *Statutes providing for rate readjustment*

Surplus power, Salt River project.—The charge for power may be readjusted at the end of 5-, 10-, or 20-year periods after the beginning of any contract for the sale of power in a manner to be described in the contract (act of Sept. 18, 1922, ch. 323, 42 Stat. 847, 43 U. S. C. A. 598).

Boulder Canyon Project Act.—Power contracts are required to contain provisions whereby, at the end of 15 years from the date of their execution and every 10 years thereafter, there shall be readjustment of the contract, upon the demand of either party thereto, either upward or downward as to price, as the Secretary of the Interior may find to be justified by competitive conditions at distributing points or competitive centers (act of Dec. 21, 1928, ch. 42, sec. 5, 45 Stat. 1060, 43 U. S. C. A. 617d).

Bonneville project.—Rate schedules may be modified from time to time by the Administrator (act of Aug. 20, 1937, ch. 720, sec. 6, 50 Stat. 735; Oct. 23, 1945, ch. 433, sec. 3, 59 Stat. 546, 16 U. S. C. A. 832e).

Fork Peck project.—Rate schedules may be modified from time to time by the Bureau of Reclamation (act of May 18, 1933, ch. 250, sec. 5, 52 Stat. 405, 16 U. S. C. A. 833d).

VIII. STATUTES RELATING TO DISPOSITION OF POWER REVENUES

Lease of surplus electric power.—Money which is derived from the lease of power or power privilege is required to be covered into the reclamation fund and to be placed to the credit of the project from which the power is derived (act of April 16, 1906, ch. 1631, 34 Stat. 116; Feb. 24, 1911, ch. 155, 36 Stat. 930, 43 U. S. C. A. 522).

Sale of electrical power on Salt River project.—Money derived from sale of power developed at Salt River project is to be placed to the credit of the project for disposal as provided in the contract between the United States and the Salt River Valley Water Users' Association (act of Sept. 18, 1922, ch. 323, 42 Stat. 847, 43 U. S. C. A. 598).

Fact Finders Act.—Whenever water users take over the care, operation, and maintenance of a project, or division of a project, the total accumulated net profits derived from the operation of project power plants and other sources shall be credited to the construction charge of the project. Thereafter the net profits from such sources may be used by the water users to be credited annually, first, on account of project construction charge; second, on account of project operation and maintenance charge, and, third, as the water users may direct. No distribution to individual water users shall be made out of any such profits before all obligations to the Government shall have been fully paid (act of Dec. 5, 1924, ch. 4, sec. 4, subsec. I, 43 Stat. 703, 43 U. S. C. A. 501).

Special provisions of Interior Appropriations Act, 1926, Newlands project, Spanish Springs division.—All net revenues from any power plant are required to be applied to the repayment of the construction costs incurred by the Government on said division until such obligations are fully repaid, and all revenues from any power plant connected with the Lahonton Reservoir of the Newlands project are required to be applied to the repayment of the construction costs incurred by the Government on the existing project until such obligations are fully repaid (act of Mar. 3, 1925, ch. 462, 43 Stat. 1167).

Boulder Canyon project.—Total investment in Hoover Dam and related facilities is made reimbursable. A special fund is established to be known as the Colorado River Dam Fund, into which all revenues received under project are required to be paid (act of Dec. 21, 1928, ch. 42, secs. 2, 4, 45 Stat. 1057, 1058, 43 U. S. C. A. 617a, c).

Special provisions of the Interior Appropriations Act, 1930. Boise project.—All net revenues derived from the operation of the Black Canyon power plant are required to be applied to the repayment of the construction cost: first, of the Deadwood Reservoir; second, the Black Canyon power plant and power system; and, third, one-half of the cost of the Black Canyon Dam, until the United States shall have been reimbursed for all expenses made incident thereto. Thereafter, all net revenues are required to be covered into the reclamation fund unless and until otherwise directed by Congress (act of Mar. 4, 1929, ch. 705, 45 Stat. 1562).

Special provisions, Interior Appropriations Act, 1931, Yakima project (Kennewick Highlands unit).—All net revenues received from the sale of power are to

be applied first to payment of the construction cost incurred by the United States until same fully paid (act of May 14, 1930, ch. 273, 46 Stat. 308).

Bonneville Project Act.—All receipts from the transmission and sale of electric energy generated at project are required to be covered into the Treasury of the United States to the credit of miscellaneous receipts (act of Aug. 20, 1937, ch. 720, sec. 11, 50 Stat. 736, 16 U. S. C. A. 832j).

Fort Peck Project Act.—All receipts from the sale of electric energy generated at project are required to be covered into the Treasury of the United States to the credit of miscellaneous receipts (act of May 18, 1938, ch. 250, sec. 10, 52 Stat. 406, 16 U. S. C. A. 833i).

Shoshone power plant revenues.—Net revenues are to be applied, first, to the repayment of the proportionate construction cost of the power system; second, to the repayment of the proportionate construction cost of the Shoshone Dam, and, third, thereafter such net revenues shall be paid into the reclamation fund (act of April 9, 1938, ch. 132, sec. 1, 52 Stat. 210).

Flood Control Act of 1944.—All moneys received from sales of power generated at reservoir projects under the control of the Department of the Army and delivered to the Secretary of the Interior for disposal are to be deposited in the Treasury of the United States as miscellaneous receipts (act of Dec. 22, 1944, ch. 665, sec. 5, 58 Stat. 890, 16 U. S. C. A. 825 (825s)).

Special provisions, Interior Department Appropriation Act, 1947.—No power revenues on any project may be distributed as profits before or after retirement of the project debt, and nothing contained in any previous appropriation act shall be deemed to have authorized such distribution (act of July 1, 1946, ch. 529, sec. 1, 60 Stat. 366, 16 U. S. C. A. 825t).

IX. PREFERENCES

(*a*) *Statutes granting preferences to public agencies including States and their political subdivisions, cooperatives, etc.*

Lease of surplus electric power.—The Secretary of the Interior is authorized to lease, "giving preference to municipal purposes, any surplus power or power privilege" (Apr. 16, 1906, ch. 1631, sec. 5, 34 Stat. 117; Feb. 24, 1911, ch. 155, 36 Stat. 930, 43 U. S. C. A. 522).

Federal Water Power Act.—The Federal Power Commission is required in issuing preliminary permits or licenses to give preference to applications by States and municipalities (act of June 10, 1920, ch. 285, sec. 7, 41 Stat. 1067; 16 U. S. C. A. 800).

Sale of Water Power on Salt River Project.—The Secretary of the Interior is authorized, giving preference to municipal purposes, to enter into contracts for sale of surplus power (act of Sept. 18, 1922, ch. 323, 42 Stat. 847, 43 U. S. C. A. 598).

Boulder Canyon Project Act.—Preferences to States in the initial disposition of energy, in the event of conflicting applications. Any conflicts are to be resolved by the Secretary of the Interior "in conformity with the policy expressed in the Federal Water Power Act as to conflicting applications for permits and licenses" (act of Dec. 21, 1928, ch. 42, sec. 5, 45 Stat. 1060, 43 U. S. C. A. 617d).

Tennessee Valley Authority Act.—The Board is required to give preference to States, counties, municipalities, cooperatives, etc., in the sale of electrical energy. Policy declared to distribute and sell the power generated at Muscle Shoals equitably among States, counties, and muncipalities within transmission distance (act of May 18, 1933, ch. 32, secs. 10, 11, 48 Stat. 64; 16 U. S. C. A. 831i, j).

Rural Electrification Act.—The Administrator is required to give preference to States, Territories, municipalities, cooperatives, etc., in making loans for purpose of financing the construction and operation of generating plants, transmission lines, etc. (act of May 20, 1936, ch. 432, sec. 4, 49 Stat. 1365, 7 U. S. C. A. 904).

Bonneville Project Act.—The Administrator is required "* * * at all times, in disposing of electric enegry generated at said project, (to) give preference and priority to public bodies and cooperatives" (act of Aug. 20, 1937, ch. 720, sec. 4, 50 Stat. 733, 16 U. S. C. A. 832c).

Fort Peck project.—The Bureau of Reclamation is required to give preference and priority to public bodies and cooperatives in disposing of electrical energy (act of May 18, 1938, ch. 250, sec. 4, 52 Stat. 405, 16 U. S. C. A. 833c).

Reclamation Project Act of 1939.—The Secretary of the Interior is required to give preference to municipalities and other public corporations or agencies,

cooperatives, etc., in the sale of electrical energy or lease of power privilege (act of Aug. 4, 1939, ch. 418, sec. 9, 53 Stat. 1193, 43 U. S. C. A. 485h).

Water Conservation and Utilization Act.—Preferences are to be given to municipalities and other public corporations and agencies, cooperatives, etc., in sale of power or lease of power privileges (act of Aug. 11, 1939, ch. 717, sec. 9 added; Oct. 14, 1940, ch. 861, 54 Stat. 1124, 16 U. S. C. A. 590z–7).

Flood Control Act of 1944.—The Secretary of the Interior is required to give preference to public bodies and cooperatives in the sale of power and energy developed at reservoir projects under control of the Department of the Army (act of Dec. 22, 1944, ch. 665, sec. 5, 58 Stat. 890, 16 U. S. C. A. 825s).

(*b*) *Statutes granting preferences to particular users*

Tennessee Valley Authority Act.—Policy is declared that projects authorized in the act are to be considered primarily for the benefit of the people of the section as a whole and particularly the domestic and rural consumers (act of May 18, 1933, ch. 32, sec. 11, 48 Stat. 64, 16 U. S. C. A. 831j).

Rural Electrification Act of 1936.—The Administrator is authorized to make loans to persons, corporations, States, muncipalities, peoples' utility districts, etc., for the purpose of financing the construction and operation of generating plants, transmission lines for the furnishing of electrical energy to persons in rural areas (act of May 20, 1936, ch. 42, sec. 4, 49 Stat. 1365, 7 U. S. C. A. 904).

Bonneville Project Act.—Facilities for the generation of electric energy are required to be operated for the benefit of the general public, and particularly of domestic and rural consumers (act of Aug. 20, 1937, ch. 720, sec. 4, 50 Stat. 733; 16 U. S. C. A. 832c).

Fort Peck project.—Facilities for the generation of electric energy are required to be operated for the benefit of the general public and particularly of domestic and rural consumers (act of May 18, 1938, ch. 250, sec. 4, 52 Stat. 405, 16 U. S. C. A. 833c).

(*c*) *Statutes relating to avoidance of monopolies*

Federal Water Power Act.—Combinations, agreements, arrangements, or understandings, express or implied, to limit the output of electrical energy, to restrain trade, or to fix, maintain, or increase prices for electrical energy or service are expressly prohibited (act of June 10, 1920, ch. 285, sec. 10, 41 Stat. 1068, 16 U. S. C. A. 803).

Tennessee Valley Authority Act.—All contracts between the corporation and any municipality, cooperative, etc., are required to provide that the electric power shall be sold and distributed to the ultimate consumer without discrimination as between consumers of the same class, and that the contract is voidable at the election of the Board if a discriminatory rate, rebate, or other special concession is made or given to any customer or user by the municipality, cooperative, etc. Contracts covering sale of power to persons or corporations engaged in the distribution and resale of electricity for profit must require agreement that resales to ultimate consumer be at rates which do not exceed a schedule fixed by the Board from time to time as reasonable, just, and fair. If a sale is made to an ultimate consumer which is excess of the price deemed to be just, reasonable, and fair, the contract between the Board and distributor is voidable at the election of the Board (act of May 18, 1933, ch. 32, sec. 12, 48 Stat. 65, 16 U. S. C. A. 831k).

Bonneville Project Act.—The Administrator is authorized, in order to encourage widespread use and "prevent the monopolization thereof by limited groups," to construct, operate, and maintain transmission lines (act of Aug. 20, 1937, ch. 720, sec. 2, 50 Stat. 732, 16 U. S. C. A. 832a).

Fort Peck Project Act.—The Bureau of Reclamation is authorized to construct, operate, and maintain transmission lines in order to encourage widest possible use of electricity and prevent its monopolization by limited groups (act of May 18, 1938, ch. 250, sec. 2, 52 Stat. 404, 16 U. S. C. A. 833).

X. TRANSMISSION

(*a*) *Statutes providing for construction of transmission lines by the United States.*

Tennessee Valley Authority Act.—The Board is authorized to construct, lease, purchase, or authorize the construction of transmission lines within transmission distance from the place where power is generated, and to interconnect with other systems (act of May 18, 1933, ch. 32, sec. 12, 48 Stat. 65, 16 U. S. C. A. 831k).

Bonneville Project Act.—The Administrator is authorized and directed to provide, construct, operate, and maintain and improve such electric transmission lines and substations and facilities and structures appurtenant thereto as he finds necessary, desirable, or appropriate for the purpose of transmitting electric energy, available for sale, to existing and potential markets and of interconnecting the project with other Federal projects and publicly owned power systems (act of Aug. 20, 1937, ch. 720, sec. 2, 50 Stat. 732, 16 U. S. C. A. 832a).

Fort Peck Project Act.—The Bureau of Reclamation is authorized and directed to provide, construct, operate, and maintain electric transmission lines and substations as it finds necessary, desirable, or appropriate for purpose of transmitting electrical energy to existing or potential markets and for connecting Fort Peck with either private or other Federal projects and publicly owned systems (act of May 18, 1938, ch. 250, sec. 2, 52 Stat. 404, 16 U. S. C. A. 833a).

Flood Control Act of 1944.—The Secretary of the Interior is authorized to construct or acquire by purchase or agreement such transmission lines and related facilities as may be necessary in order to make power and energy generated at reservoir projects under the control of the War Department available in wholesale quantities for sale on fair and reasonable terms and conditions to facilities owned by the Federal Government, public bodies, cooperatives, and privately owned companies (act of Dec. 22, 1944, ch. 665, sec. 5, 58 Stat. 890, 16 U. S. C. A. 825s).

Central Valley Project.—Recent Interior Department appropriations acts carry annual appropriations for construction of transmission lines for the Central Valley project (cf. act of June 29, 1948, ch. 754, Public Law 841, 80th Cong., 2d sess.).

(b) Statutes relating to construction of transmission lines by local public agencies.

Federal Water Power Act.—The Commission is authorized to issue licenses to States or municipalities and others for the purpose of constructing, maintaining and operating dams, reservoirs, transmission lines, etc. (act of June 10, 1920, ch. 285, sec. 4, 41 Stat. 1065, 16 U. S. C. A. 797).

Boulder Canyon Project Act.—The Secretary is authorized to contract for delivery of electrical energy at switchboard to States, municipal corporations, political subdivisions, and private corporations. The use of public and reserved lands of the United States necessary or convenient for the construction, operation, or maintenance of main transmission lines granted (act of Dec. 21, 1928, ch. 42, sec. 5, 45 Stat. 1060, 43 U. S. C. A. 617d).

Tennessee Valley Authority Act.—If any State, county, municipality, or other public or cooperative organization of citizens or farmers not organized or doing business for profit, constructs or agrees to construct and maintain a properly designed and built transmission line to the Government reservation upon which is located a Government generating plant, or to a main transmission line owned by the Government or leased by and under control of the board, the board is authorized and directed to contract with such State, county, municipality, etc., for the sale of electricity. The board is required to extend credits to States, municipalities and nonprofit organizations for periods not exceeding 5 years to assist in their acquiring existing distributing facilities, and interconnecting transmission lines (act of May 18, 1933, ch. 32, sec. 12, 48 Stat. 65, Aug. 31, 1935, ch. 836, sec. 7, 49 Stat. 1076, 16 U. S. C. A. 831k, k–1).

Rural Electrification Act.—Administrator is authorized to make loans for the purpose of financing the construction and operation of generating plants, electric transmission and distribution lines or systems for the furnishing of electrical energy to persons in rural areas who are not receiving central station service (act of May 20, 1936, ch. 432, sec. 4, 49 Stat. 1365).

(c) Statutes regulating transmission by nonpublic agencies.

Federal Water Power Act.—Where the Commission, after hearing had on its own motion or upon complaint, finds that any rate, charge or classification charged or collected by any public utility for any transmission or sale subject to the jurisdiction of the Commission, or any rule, regulation, etc., affecting any rate is unjust, unreasonable, unduly discriminatory or preferential, the Commission shall determine the just and reasonable rate, charge, classification, rule, regulation, etc., to be thereafter observed and in force and shall fix same by order (act of June 10, 1920, ch. 285, sec. 206, added Aug. 26, 1935, ch. 687, title II, sec. 213, 49 Stat. 852, 16 U. S. C. A. 824e).

Tennessee Valley Authority Act.—Before the board sells any power to any person or corporation engaged in the distribution and resale of electric energy for profit, it must require said person or corporation to agree that any resale of electric power shall be made to the ultimate consumer at prices which do not exceed a schedule fixed by the board from time to time as reasonable, just and fair (act of May 18, 1933, ch. 32, sec. 12, 48 Stat. 65, 16 U. S. C. A. 831k).

EXHIBIT VIII (B)

STATEMENT OF NORTHCUTT ELY, SPECIAL COUNSEL, COLORADO RIVER BOARD OF CALIFORNIA

(Extract from testimony on S. 483, 80th Congress, authorizing the Gila project)

Mr. ELY. Mr. Chairman, I appreciate the opportunity to say a word or two, and I will be very brief.

There is a great deal of merit in Senator O'Mahoney's suggestion. The basic issues here are relatively simple, and most of them are questions of law. There are certain questions of fact. The questions of fact I believe can be resolved very quickly.

In 1937, when this project was first authorized, by finding of the Secretary of the Interior, not by act of Congress, it was assumed that the engineering report upon which that finding was made—it was assumed that the total draft on the river would be in the order of 600,000 acre-feet. It now develops, through later knowledge of the character of the land on the Yuma Mesa, that if the area originally contemplated is fully developed the amount of water required would be in the neighborhood of a million and a half acre-feet. The Reclamation Bureau proposes to cut back in part the amount of land on the Yuma Mesa and apply the water to lands in the Wellton-Mohawk area, the net result being a draft on the river of 921,000 feet, in our mind an increase in the draft on the river as originally contemplated in the 1937 authorization, of 300,000 acre-feet. We have not conceded that there was estabished by this project in 1937 a water right to 1,500,000 acre-feet. The duty of water is 11 acre-feet per acre. To the contrary, if the project were now one calling for the application of 600,000 acre-feet, as originally contemplated, our objections to this measure would be of an entirely different sort. We would still wish to present to the committee the effect upon the water supply of the river of the basic legal assumptions upon which Arizona proceeds, but the specific objection to the use of 600,000 acre-feet for this project would not be important.

Senator O'MAHONEY. You would still object to the use of the water, even though the amount did not exceed that originally estimated?

Mr. ELY. No, Senator O'Mahoney, I believe it is fair to say that if the total draft of the project was restricted to 600,000 acre-feet we would not object to this project as such. We would, however, call to your attention the fact that there is now before us a proposal for the central Arizona aqueduct project, and if Arizona's legal theory as to interpretation of the compact is adopted, there is not water enough for both projects. And furthermore, if Arizona's legal theories are adopted and this project is permitted to go ahead, and the central Arizona project is considered seriously by the committee, then it effects the destruction of the Colorado compact so far as the upper basin States are concerned, as well as California. That is a question of law upon which Arizona and California are obviously sharply divided, but we do wish the committee to know the consequences in point of law of the adoption of any part of Arizona's construction of the Colorado River compact.

Senator O'MAHONEY. Your point then is that this modification of the Gila project and the construction of the central Arizona project involves a construction of the Colorado River compact by which Arizona would obtain a larger amount of water than the spokesmen for California believe Arizona is legally entitled to draw?

Mr. ELY. Yes, sir. And with the further consequence that it would require a draft upon the upper basin which we so far have not found in the compact.

Mr. STRAUS. May I state that in my statement you will notice I religiously abstained from allocating the waters of the Colorado River, and so that I may not disappoint the committee in any information that the Bureau will offer, I want to point out at this time again, and reiterate that in the allocation of the waters of the Colorado River, the rights of the States are reserved to themselves

under the Colorado River compact, and that the Congress has recognized that as vested in the States, not in the Bureau of Reclamation. We make it a principal business not to interpret the Colorado River compact, and we are celebrating the silver jubilee of the failure to allocate the waters of the Colorado River.

Senator O'MAHONEY. I approve that position.

Senator MCFARLAND. What I am trying to do is to be helpful to the committee in what I thought Senator O'Mahoney was trying to accomplish, in that he wanted to cut down these hearings and shorten them by saying, "Well now, these facts are agreed to. We won't have to go into those in detail."

As I understand it, Mr. Ely, coming back to my original proposition, your chief objection and your questions are in regard to the water supply and not to the desirability of making this transfer to other lands if that water is to be used? Is that right?

Mr. ELY. Senator McFarland, you are partly correct. If the total draft on the river were restricted to 600,000 acre-feet, at originally contemplated, and if you elected to transfer and use a part of that on the Mohawk area and part of it on the Mesa area—part of the 600,000—I don't think we would object.

Senator MCFARLAND. But what I am getting at, your objection is to the supply of water and not to the lands to be irrigated? You do not contend that that is not the best way—I mean you do not contend that these lands are not better lands than the Mesa land and that it would not be better to irrigate them rather than the other? Your contention, as I understand it, is purely a matter of water supply, is it not?

Mr. ELY. I think you are correct.

Senator O'MAHONEY. You have no objection to where the water is used in Arizona?

Mr. ELY. That is correct.

Senator O'MAHONEY. You only objection is to how much water will be used?

Mr. ELY. Yes, sir. This plan calls for 900,000 acre-feet. The original plan called for 600,000 acre-feet.

Senator MCFARLAND. What I have been trying to develop here is that if we could get right down to the main point and brief our testimony on the transfer and direct to the other points which Mr. Ely has to present.

Senator O'MAHONEY. From what has been said by Mr. Ely—and I know Senator McFarland is correct—it will be possible for this committee to save a lot of time, not only for the members of the committee but also for those who will be called upon to come before us as witnesses, therefore, if California and Arizona—or to adopt the alphabetical order—if Arizona and California can come to an agreement as to what the facts are, then the committee will be in a position to listen to the argument with respect to the legal interpretation and whether or not this project, if allowed as is proposed in this bill, would constitute an excessive draft upon Arizona's share of Colorado River water.

Senator MCFARLAND. I believe we have gone as far as we can upon the agreement of facts. We maintain that if the water were to be used at this transfer it would be an advantage, but of course, California questions Arizona's right, which is all set forth in these hearings, in this volume.

Senator O'MAHONEY. You see, Senator McFarland, the agreement may be clear in your mind but it is not clear in mine, because this is my first opportunity to become at all acquainted with the issues which are involved here. So my desire is to help those who are interested in this project in presenting to the committee an understandable basis of facts, and then we can hear the argument, and you may not have to bring your witnesses from California.

Senator DOWNEY. Mr. Chairman, I want to say that I think Senator O'Mahoney's suggestion is a most valuable one. Certainly I will be very happy to cooperate to attempt, as far as possible, to reach an agreed statement of facts between Arizona and California, and likewise the statement of the issues as we see them, arising out of that statement of facts, and I do believe that will minimize the work of this committee.

Senator MCFARLAND. I don't want to go into the proposition with California in any agreement, because we worked on that for some thirty-odd years and we haven't gotten anywhere yet.

Senator O'MAHONEY. I am not asking for any agreement on controversial issues, Senator.

Senator MCFARLAND. All I was trying to point out to the committee was this, that—well, I don't mean to be abrupt; I just mean to state that we could not ever agree on these things. We could waste days trying to go into it, and the only thing that we would agree——

Senator O'MAHONEY (interposing). You agree that there is a Colorado River and Gila River and Imperial Dam, don't you?

Senator MCFARLAND. I think this committee would take judicial notice of that.

Senator O'MAHONEY. Then there are some basic facts which are just as familiar as day and night to you and to Senator Downey, but which are not familiar to me.

Senator MCFARLAND. I believe if we go ahead with presenting our case, that when we get through with the statement which has just been made by Mr. Ely, to the effect, as I understand it, that their objection is to the water supply and not to the question that the land is not better and that the transfer would not be desirable, if the water was to be used. That is about as far as they would want to go, and according to their testimony as I read it at the other hearings, they would not question the desirability of the transfer of the water if that water was to be used.

Senator ECTON. And that depends on which State has the better right? Whether the water belonged to California or Arizona?

Senator MCFARLAND. I don't think there is any question but what it belongs to us, but we will have to get into that later on.

Senator ECTON. It appears to me that the two States will need to have a session in the Supreme Court to decide which one has the better legal right.

Senator MCFARLAND. Mr. Chairman, we have tried to get in the Supreme Court, but we have not had to go into the Supreme Court, if I may suggest, for California to get its water. The Congress has appropriated money and built canals and built dams and so forth for them to get their water. They have never had to go into the Supreme Court, and when we get into the argument—we haven't the time in just these few minutes, but when we get into the argument we will show, I hope to the satisfaction of the committee, that this is the only way that Arizona can proceed in taking our portion of the water under our contract with the Secretary of the Interior, just as California has provided, and as they point out in their testimony that they have expended millions of dollars under those contracts which they made with the Secretary of the Interior. All we ask is the same privilege that Congress of the United States has granted to California.

Senator O'MAHONEY. No member on the committee would deny that right to Arizona, of course. My suggestion is merely to expedite the hearing of this matter by seeing whether there is not an area of fact upon which you can both agree. It may be small; it may be large. I don't know.

Senator WATKINS. I appreciate Senator O'Mahoney's motives, but I have had some experience as a judge trying to get people to agree on a statement of facts, and they usually argue longer on what they are going to put in their statement than it would have taken to hear the testimony. So we finally gave up trying, but go ahead and make the case. I have that feeling here from what I have heard already.

Senator MCFARLAND. Yes; I think we could better proceed. I think we have gotten as far as we can get in agreement. Don't you think so, Mr. Ely?

Mr. ELY. Well, Senator, I thought there was merit in Senator O'Mahoney's suggestion, and if the committee wishes to try that, we will make every effort to conform with it. If the committee decides otherwise and wishes us to testify here, we will do that.

Senator ECTON. I think it would be very fine if you will do that, Mr. Ely. If we could agree on a lot of these things that take up useless time and we could get together on the testimony, it would save a lot of time.

Senator MCFARLAND. I think it probably would be better to proceed in this way. We are presenting the affirmative proposition, and if California would prepare their statement as to what they agree with and what they do not, they have our affirmative testimony and they have had it in the other hearing, and if they will just make their statement as to what they object to or what they agree to, or what they do not—we can't make them agree to anything they don't want to. Our position has been laid on the table, and if they would do the agreeing, that would be fine. Let them point out what they will agree to and what they will not, and then that may shorten the matter very materially.

Mr. ELY. We will be glad to try to agree on the agreed statement of facts, eliminating testimony to be presented by each side, but if Arizona is going to present their side of the case by witnesses, we wish the opportunity to do the same, not be bound by an agreement on our part that does not bind them.

Senator MCFARLAND. We are willing to do that.

EXHIBIT VIII (C)

USING THE WATER—SUMMARY OF PRESENT AND POTENTIAL DEVELOPMENTS—UPPER BASIN

(Excerpts from pp. 125 and 128 of Bureau of Reclamation preliminary draft of report on the Colorado River dated November 1944)

Data on present and potential irrigation developments in the three divisions of the upper basin are summarized by States in the six tables which follow.

Perhaps of greatest interest is the concluding table on present and potential stream depletion. If a dry decade like that of 1931–40 should occur, the average annual stream depletion above Lee Ferry would be 2,440,000 acre-feet, provided that all projects now under construction and authorized were completed and in operation. Depletions from potential projects amounting to 1,845,000 acre-feet for irrigation within the upper basin, 1,792,000 acre-feet for export diversions to areas within the States of the upper basin, and 831,000 acre-feet for evaporation from power and hold-over reservoirs, would bring the ultimate stream depletion to 6,908,000 acre-feet. Although this is less than the 7,500,000 acre-feet allocated to the upper basin by the Colorado River compact, actually it is more than would have been available. The average annual flow at Lee Ferry, in the 1931–40 period, had no upstream diversions been made, would have been 12,234,000 acre-feet. After deducting from this the 7,500,000 acre-feet allocated to the lower basin, only 4,734,000 acre-feet would have remained for the upper basin. Full upper basin depletion of 6,908,000 acre-feet could have been made therefore, only if, at the beginning of the decade, the upper basin had hold-over storage sufficient to permit releases of 2,174,000 acre-feet annually throughout the 10-year period.

With the more abundant water available in periods of normal precipitation, upper basin consumptive use, particularly export of diversions, evaporation from fuller reservoirs, and filling of reservoirs for lean years, would exceed the quantities shown by more than enough to make total depletions reach 7,500,000 acre-feet yearly. The summaries do not include depletions for such potential developments as the Colorado River-Great Basin and Cisco-Thompson projects.

Present and potential stream depletion in the upper Colorado Basin

State and division	Estimated average annual depletion (thousands of acre-feet) [1]				
	Present	Potential increase			Total ultimate depletion [3]
		Water consumed	Water exported [2]	Total	
Wyoming: Green	362	298	127	425	787
Colorado:					
Green	107	324	0	324	431
Grand	1,235	342	946	1,288	2,523
San Juan	[4] 134	[5] 246	343	589	723
Subtotal	1,476	912	1,289	2,201	3,677
Utah:					
Green	451	248	369	617	1,068
Grand	13	11	0	11	24
San Juan	[4] 63	29	7	36	99
Subtotal	527	288	376	664	1,191
Arizona: San Juan	7	39	0	39	46
New Mexico: San Juan	68	308	0	308	376
Total	2,440	1,845	1,792	3,637	6,077

[1] Based on dry-period flows, 1931–40.
[2] Exclusive of water moved from one division to another within the upper Colorado Basin.
[3] Exclusive of evaporation from future power reservoirs, estimated at 831,000 acre-feet.
[4] Depletion to streams in San Juan division less return flow from imported water.
[5] Includes consumption of water to be imported from Grand division.

STATEMENT OF JAMES H. HOWARD, GENERAL COUNSEL, METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Mr. HOWARD. I am general counsel of the Metropolitan Water District of Southern California. Somewhat later in my discussion I want to tell you of the Metropolitan water district, its organization, and how its powers are derived.

I am not speaking from a prepared statement because of the nature of my assignment. I was given the task of listening to the California presentation for the purpose of plugging any gaps that might occur during the course of the discussion, and for that reason I have not prepared a statement, and I am not submitting a presentation in writing.

Chairman MURDOCK. You may sit down, if you wish.

Mr. HOWARD. Thank you, but I am accustomed to standing on my feet in court.

I want to point out some of the basic equities in this situation, and in order to do that let us transport ourselves back to the situation that existed in 1922 when the compact commissioners sat down to negotiate what is now the Colorado River compact.

California has a limited doctrine of riparian rights, but so far as this problem is concerned it is the same as all the other Western States, it applies the doctrine of appropriation, which is simply first in time, first in right in the use of water, the right dating from the time when the project is formulated, and the intention is evidenced to take the water, regardless of the time when the water is actually put to beneficial use, so long as the work is prosecuted with due diligence.

During the summer of 1922 the Federal Supreme Court in the case of *Wyoming* v. *Colorado*, had held that the doctrine of appropriation was applicable as between States regardless of State lines. In other words, that the doctrine of first in time, first in right, would be recognized in interstate lawsuits, regardless of the State lines. That thought was very apparent to the framers of the compact, and it was with that basic idea in mind that the Colorado River compact was designed to cut across and to a degree operate in derogation of the doctrine of appropriation, and it does so to the extent of 15,000,000 acre-feet.

At that time the State of California had initiated appropriations looking toward the beneficial consumptive use of a very substantial quantity of water.

In 1927, Governor Dern of Utah addressed the second session of the Seven-State Conference. I am reading from the record of the proceedings dated October 15, 1927, had at this conference. Before I quote him I should explain possibly that at that time, in fact in 1925 the State of California had ratified the Colorado River compact conditionally, that is conditioned upon the provision for at least 20,000,000 acre-feet of storage on the lower river. The reason for that condition was explained by Governor Dern when he said:

> California has unequivocally notified us that she will never ratify the compact unconditionally. She delivers the ultimatum that her ratification must always be predicated upon adequate storage. I want to say here and now,

and without any mental reservations, that I think California's position in this respect is reasonable, and that she is justified in this demand. If I were a Californian, I should take the same stand. I can see no reason why California should ratify the compact without being assured of storage; she is already using the whole river at low water, and has acquired a prior right to it, without any compact, and a compact will not improve that right so far as the natural stream flow is concerned; therefore a compact means nothing to California.

I will say that California ultimately did unconditionally ratify the compact, but it was done after the Boulder Canyon Project Act had provided for the construction of at least 20,000,000 acre-feet of storage.

You will notice that Governor Dern makes no mention of quantities there. I presume you also know who Mr. Bannister is. In 1927 he was special counsel for the city of Denver, and he has been called upon by Harvard University to deliver many lectures on water law at that institution.

There had been created a board known as the Sibert board, designated to make a complete review of the Boulder Canyon Project Act as to feasibility, and I think it might be an excellent idea if a similar board were created for the examination of this project.

Mr. Bannister addressed a letter to General Sibert, who was the head of the Sibert board, which appears in the Congressional Record of December 7, 1928, on page 242. Mr. Bannister's argument was that there should be a high dam constructed on the river. His reason for that argument was based on the decision in the case of *Wyoming* v. *Colorado* in which, he said, the doctrine of appropriation had been held applicable between the States regardless of State lines, and that the remedy for that was to provide big storage facilities in the lower basin.

Mr. Bannister had secured figures from E. B. Debler, who is appearing before this committee. These figures appear on page 242 of the Record.

California, 4,917,000 acre-feet. I am not reading it all because he also gives the diversion in another part. That figure is the result of supporting information which breaks it down in this fashion.

Mr. Debler gives Yuma Valley at California 45,000 acre-feet, and the Palo Verde area 247,000, and the Imperial Valley 4,635,000, which he totals as 4,917,000 acre-feet.

Now, that I think was a very liberal estimate of the established appropriated rights on the California side. The figures that I had had before I discovered that statement, would be more along this line, that the Imperial irrigation district included 900,000 acres in round figures, all of the water diverted for use in Imperial Valley goes into the valley and thence by return flow into the Salton Sea. The figure generally used is diversion duty of 4.5 or 4.7 feet per acre. Taking 4.5, the legitimate appropiation and the one which the Imperial could have sustained as of 1890, would be approximately 4,050,000 acre-feet. Palo Verde would be about 300,000 acre-feet. And there is a return so that if you apply a duty of water, you come out about 300,000 acre-feet. The Yuma Valley figured on the same basis would be 50,000 acre-feet.

California, if it had gone into a court instead of a compact, could have sustained an appropriative right to at least 4,400,000 acre-feet. We are only asking for 5,362,000 acre-feet. All we have gained by going into the compact is somewhat less than 1,000,000 acre-feet. Of

course, there are other benefits that are very valuable. That is flood control and silt control, and such matters, but I am speaking of the water we gained by reason of the storage.

California's attitude is not a grasping one. What I am seeking to bring to the attention of the committee is that in this matter our position is fundamentally equitable and sound.

Passing on now to the events of 1928 and 1929, and, further, discussing the equitable side of this case, Mr. Ely has outlined the legislative exhibits and history that led up to the adoption of the Boulder Canyon Project Act, particularly section 4 (a). A mere reading of section 4 (a) reveals that the Congress intended that the project act should take effect on one of two mutually exclusive methods. It says specifically that the project act shall not take effect, no work shall be done until the seven Colorado River States shall ratify the compact, and the President shall have so proclaimed, or, if they shall not do that, or if that shall not have occurred within 6 months of the time of the approval of the act, then unless and until 6 of the States, including California, shall have ratified the compact and California shall have limited her diversions. Those two methods were exclusive methods.

During that 6 months the California State Legislature did adopt a limitation act, but this limitation act was not just a flat "We hereby limit ourselves." The act appears on page A-231 of the Hoover Dam Documents which has been cited here, and it says this, and in reading it to you and because of the long references to documents, I am omitting unnecessary words.

The California Legislature said "in the event the Colorado River compact signed at Santa Fe, N. Mex., on November 24, 1922, is not approved within 6 months from the date of the passage of the said Act [the said act of Congress] then, when six of the said States, including California, shall have ratified and approved the said compact," then California agrees to limit herself.

You will notice the character of that limitation. It was adopted during the 6 months' period following the adoption of the Boulder Canyon Project Act in March of 1929. California was speaking then prospectively. There was still the possibility that the State of Arizona might decide to ratify, so that California said in the event there be no seven-State ratification within 6 months, then California agrees to limit herself.

The 6 months went by. Arizona affirmatively rejected the compact, didn't merely ignore it but refused it and after the 6 months had passed Mr. Hoover, then President, issued a proclamation in which he recited those facts. He said that there was no seven States compact. I am paraphrasing rather liberally. He said there was a six-State compact, and California has done what was required of her and he said, "I therefore proclaim the Boulder Canyon project to be in effect."

That crystallizes the deal, a six-State compact, plus a limitation act, and California proceeded from there out on that basis, and so did the United States. You may inquire, and legitimately, what difference it makes to California whether Arizona is in or out of the Compact. It makes a vast deal of difference, as was illustrated in the first Arizona case, by way of a note. You will recall that in addi-

tion to rejecting the compact, the State of Arizona sued in the first *Arizona* v. *California* case in (283 United States 423) to have the California Boulder Canyon project declared void, unconstitutional, and of no effect. The Court rejected the case, and I want to point out the difference between having Arizona in the compact and Arizona outside the compact.

It was stated in the note:

> It is also argued that of the 7,500,000 acre-feet allotted by the compact to the upper-basin States, only 2,500,000 have already been appropriated, and that thus the presently unused surplus of 5,000,000 acre-feet cannot be appropriated in Arizona. But Arizona is not bound by the compact as it has withheld ratification. If and when withdrawals pursuant to the compact by the upper-basin States diminish the amount of water actually available for use in Arizona, appropriate action may then be brought.

In other words, the State of Arizona being outside the compact and completely unfettered by the compact, would have been at liberty to appropriate water and have those rights attach to the 5,000,000 acre-feet of unused water coming down from the upper basin. That is a situation very different from that which now confronts the lower basin. The position in which the representatives of California found themselves after Arizona had stayed out of the compact was very different, from the equitable standpoint, from that which exists if by any chance Arizona can be considered a present party to the compact.

During that period—speaking now of the period between 1929 and 1932—there were certain things done in California which were done in the light of the situation as it existed at the time. In that period the agencies of the State of California entered into a priority agreement. In that agreement, by reason of the fact that the agricultural priorities had long been established; the Palo Verde goes to the 1870's and the Imperial Valley goes before the turn of the century, the municipal uses were given second place.

Mr. Welch asked during this hearing whether or not municipal and domestic uses should not have priority over irrigation. In general, I think that is correct. The California law of appropriation recognizes that fact. That is, of two competing applicants for appropriation the municipal appropriator has the right-of-way and has the priority. That does not mean that a municipal user can take away an established user without compensation. But consider the situation in which the representatives found themselves at the time. Arizona had solemnly represented to the Federal Supreme Court that the III (b) was not apportioned water. There was ample water under that theory so that the metropolitan water district could accept a junior position in the scale of priorities without any hazard whatever. While we were in that situation, that agreement was made, and so far as the metropolitan water district is concerned it fully intends to abide by that contract, as we abide by all of our contracts, so that there again we come into an equitable situation.

Since that time Arizona has completely reversed her position. Mr. Engle used the word "loop" the other day. In my limited airplane service when you perform a loop you go around completely and come up going in the same direction, but when you perform an Immelmann turn you turn around and end up going in another direction.

Mr. ENGLE. I stand corrected. In an Immelmann you do a half loop with a half roll on top.

Mr. HOWARD. And that is what Arizona did here, and there is in our law a doctrine of equitable estoppel.

Now, when the State of Arizona solemnly represented to the Federal Supreme Court that California was entitled in effect to participate in the III (b) water, and when she was standing outside the compact and rejected the offer, then these deals were made, and during that time my particular client, the metropolitan water district, entered into contracts calling for an expenditure of $200,000,000 of our own money for an aqueduct which was completed prior to 1941, and is now delivering water.

Before I am challenged and told we got our money from the RFC, I will say we did, because there was no bond market to that time and the bonds were sold to the RFC and by them to the Chase National Bank. The RFC made a very handsome profit of about $14,000,000 by that deal. It was our money that was spent and we are paying interest at the rate of 4 percent per annum. We are like any other corporation that has put out a bond issue and is paying off.

I would like to go into one phase of this case of *Arizona* v. *California* that was brought to perpetuate testimony. It was cited by Arizona as a holding by the Supreme Court that the water was apportioned.

I was out of the room part of the time and Mr. Ely may have covered this, and I didn't hear it, and if you heard this before stop me.

The court in that case had one issue before it, and that was whether or not the testimony which was offered to be perpetuated was material. The Court held that it was immaterial because the matter had not been called to the attention of the legislatures; that is, the State legislatures, and the Congress of the United States at the time of the ratification of the compact.

It is a rather odd thing that inasmuch as in that case the California Limitation Act was before the court and was specifically mentioned in the decision. The court held then that the water mentioned in article III (b) was intended, under the compact, for the lower basin, and that there is no ambiguity in the matter. The Court said that both California and Arizona appeared to consider the III (b) water apportioned.

Judge Brandeis wrote that decision. The case was not argued orally. I signed a brief in which it was said that we did not consider it an appropriate case to argue the status of the III (b) water. There is nothing in the record to sustain the Court's statement but it is clear that he was not using the word "apportioned" with the implications that have been derived from it since.

In that case it was specifically held that the water specified in III (b) of the compact was made available to the lower basin, not Arizona alone. Judge Brandeis held the compact III (b) to be free from ambiguity. The Limitation Act was before the Court. Having held that the (b) water was available to the entire lower basin, it cannot be inferred that, by the implications of the word "apportioned" the Court intended to exclude California from participation in its use.

Mr. ENGLE. He pointed out in the decision, in the footnote, that according to the Interior Department that it might be considered as a surplus.

Mr. HOWARD. Yes; that appears in a statement in the Interior Department brief. It might clarify it if I emphasize the fact that

there are two phases to the III (b) controversy. The first relates to the meaning of the Colorado River compact which was written in 1922 and the second, to the impact on the compact of the limitation imposed upon California by the Boulder Canyon project.

The Arizona interests have taken the position that the Colorado River compact, regardless of the Limitation Act, gave the III (b) water specifically to Arizona. They offered to produce testimony of the negotiators to substantiate it.

The court in the case just referred to, very clearly eliminated that particular phase of the argument and held specifically that there was no ambiguity about III (b), that the water therein referred to was available to the lower basin, and Arizona was a part of the lower basin.

Mr. ENGLE. I can't figure out how anyone could say that the California Limitation Act relates to or puts California out of III (b) water when it says that it is the water allocated under subdivision (a) of article III. Isn't that the language?

Mr. HOWARD. Yes; the language of the Limitation Act relates to 4,400,000 acre-feet of the water apportioned to the lower basin States by paragraph (a) of paragraph III.

Now, Arizona's argument runs this way: That California is limited to two classes of water; first the 4,400,000 acre-feet, of the 7½ million of III (a) water, and then, jumping over the III (b) water, it is entitled to one-half of surplus, leaving the (b) water entirely for Arizona.

Considering the fact that the act was a limitation and ordinarily the doctrine of strict construction is applicable, it would certainly seem to me that we get into legislative history and consider the exact text of this language, that it will be held that California is not excluded from that water, which makes a very substantial difference in the computations that are used in the determinations of water available to the several States.

I think the first phase, that the Colorado River compact itself apportions the III (b) water to Arizona has been completely disposed of. We then come to the second phase, and the argument that the Limitation Act by this use of the word "unapportioned" has excluded California from the III (b) water. That is a question that was never decided by the Court. The first phase has.

I think it is clear that the Court has held that the compact itself is not ambiguous. The second phase has never been before the Court, and all we ask of you to do is to apply the American principle of giving a man his day in court and an opportunity to argue the matter before some organization capable of deciding the case.

Chairman MURDOCK. Does that conclude your statement?

Mr. HOWARD. Am I being concluded?

I have just one more comment to make, and that is on the question of whether or not Arizona is a party to the seven-State compact, and I would like briefly to indicate my personal view of the matter, not attempting in any way to commit the State of California.

Chairman MURDOCK. We will be off the record for just a moment.

(Discussion off the record.)

Chairman MURDOCK. The committee stands recessed until 2 o'clock this afternoon.

(Whereupon, at 12:07 p. m., the committee adjourned until 2 p. m.)

AFTERNOON SESSION

Mr. MURDOCK. The committee will please come to order.

There are a few items that I wanted to submit for the record before we continue with our witness.

Governor Miles has just handed me a further statement from one of the witnesses who was here the other day, supplementing his statement, that of Mr. Sterling.

Governor Miles, would you prefer that this go in as a continuation of Mr. Sterling's statement?

Mr. MILES. Yes, please. I think they were a little excited when they were testifying the other day and left off some of the things they wanted to say.

Mr. MURDOCK. They probably felt we were pressed for time, too.

Mr. MILES. That is a nervousness felt by all of us from New Mexico.

Mr. MURDOCK. Without objection, this will be put in the record as a continuation of Mr. Sterling's testimony on the day he was here.

Mr. ENGLE. Mr. Chairman, may I ask if the statement by Mr. Packard has been made a part of the record?

Mr. MURDOCK. No, it has not yet been made a part of the record. I had it here before me to offer for the record. Without objection, the statement of Mr. Fred M. Packard, of the National Parks Association, consisting of a typewritten statement and a printed statement, will be submitted for the record and placed in the appendix of the record.

Now, Mr. Howard, are you ready to proceed?

STATEMENT OF JAMES H. HOWARD, GENERAL COUNSEL, METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA—Resumed

Mr. HOWARD. Mr. Chairman, at the noon recess, I was about to mention a matter that was discussed between Mr. Engle and Mr. Ely, and I think one of the earlier witnesses, that is, the effect of Arizona's act of 1944 in purporting to ratify the Colorado River compact, and to give you my personal views on the subject.

If Arizona is in fact a party to the seven-State compact now, something new and rather baffling has been added to the law of contract. An interstate compact, while it is a document executed between sovereign States, is contractual in character. Ordinarily, the usual rules of contract law, that is, offer and acceptance, a meeting of the minds, and so forth, would be applicable to such a document. In this instance, Arizona refused the offer several times. An offer in contract law is terminated by a rejection. If I offer you a business deal without putting any time limit on it or fixing a time limit and the next day it is rejected, the offer is terminated. It cannot be accepted later.

An offer is also terminated by lapse of time, a reasonable time, in view of the nature of the deal. I think under any circumstances, 22 years is more than a reasonable time to accept an offer in such a case as this. But the strongest reason for thinking that there has been no acceptance is that, as a result of the Boulder Canyon Project Act and the California Limitation Act of 1929, a 6-month limit was set.

I have heard it argued that the compact itself contains no limit for acceptance, and that is true. But in 1929, Congress said, "If there is

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no seven-State compact within 6 months after the approval of the Boulder Canyon Project Act, then we will take another course. We will go ahead on a six-State compact, plus a limitation act."

Arizona knew that and during that 6 months, again rejected the compact. So as of June 1929, the parties set out on another course, that is, a six-State compact plus a limitation act. Because of Arizona's refusal to participate in the seven-State compact, California undertook burdens which she would not have been called upon to undertake had the seven States ratified. If seven States had ratified it during this period, there would have been no limitation act.

It is a very curious thing if a State or a party can reject an offer of that sort, thereby forcing one of the other parties into a different course of action to the prejudice of that party, and then come around later, many years later, and assert both the protection of the basic compact and the protection of the limitation act. You can search the Boulder Canyon Project Act, its legislative history, and you can search the California Limitation Act, and you will find no intent whatever disclosed on the part of the State of California or on the part of the United States, the other party, to bind the State of California to a limitation act in the event of a seven-State compact.

In fact, Senator King, in the course of a debate in December 1928, said clearly that in the event of a seven-State compact, no limitation was intended.

Mr. ENGLE. Does it not boil down to this, Mr. Howard, that Arizona claims that the California Limitation Act is binding on California as to the lower basin, and that the basic Colorado compact is binding upon everybody else as to the upper basin?

Mr. HOWARD. Yes, that is a concept that I have a great deal of difficulty with, Mr. Engle.

Mr. ENGLE. In other words, they claim the benefit of the limitation act for the lower basin and the benefit of the big compact as against the upper basin, is that not right?

Mr. HOWARD. As nearly as I could understand, Mr. Engle, they claim to be a party to two deals. With one, the six-State compact plus the limitation act, Mr. Carson claims the benefit of that, and then Mr. Carson claims the benefits of the seven-State compact. But I cannot grasp the legal significance of it. There can only be one interstate compact. It is either a six-State compact plus a limitation act, or a seven-State compact. I think the matter was crystalized by the Presidential proclamation in 1929 as a six-State compact plus a California Limitation Act, and that the only way in which that set-up can be modified is by an agreement and the consent of the parties.

Getting to another phase of the contract law, that is, the meeting of the minds, ordinarily, parties are suppose to agree and to understand words in the same sense. At the time Arizona rejected the compact, she understood the compact to mean very much what California still thinks it means. She rejected it on this basis. Now she comes in with interpretations in which California has never acquiesced, and on the basis of those interpretations, purports to ratify the compact and to become a party and claim the benefits of that compact.

As I pointed out, that alters California's position markedly because if Arizona is a party to the compact she is competing for lower basin water. If she is entirely outside the compact, she can compete

for upper basin water as well. Under those circumstances, California is in a very different position and has acted greatly to her prejudice by reason of Arizona's conduct.

I do not want to belabor the law of this case unduly. Mr. Carson stood here where I stand now and made a statement that I thought was very bold. I would not be dogmatic enough to make it on behalf of my client. He made the statement that California could not possibly be right. As a matter of fact, that is his burden. He has to show this committee that California could not possibly be right before you would be justified in authorizing this extravagant project.

California's burden, I think, is somewhat simpler. I think if we show this committee that there is a reasonable ground for difference of opinion, that California might be right, that this committee should certainly insist upon an adjudication of these points before authorizing a project costing $738,000,000 or probably a billion. How anyone could hear the presentations made by Mr. Nelson, Mr. Hardy, Mr. Keith, and Mr. Ely without realizing that we have a matter which should be judicially determined is beyond me. I do not think any fair-minded person, looking at this thing objectively, could possibly assert that we have not a matter that should be adjudicated. That is all we are asking. We are not asking this committee to find that California is right. We are asking this committee to refer these disputed questions, or by its action at least to hold off authorization until the adjudication of these matters can be referred to a court and settled in the proper forum.

We stand here and argue these law questions before a congressional committee. Congress cannot decide them. Ultimately they will have to go to a court. Sooner or later, even though because of failure to fully grasp the situation, this Congress should decline to waive Federal immunity, some Congress in the near future will do it.

If this committee goes ahead and authorizes this project, that does not mean that the matter is disposed of. We live in a community where fair play is our basic doctrine. Sooner or later every man who thinks he is hurt is given a day in court. That is what is going to happen here. Sooner or later we will be given every opportunity to argue these matters before the tribunal that can settle them.

I am not going to be dogmatic or bigoted and say that California is going to prevail on all points, but I am going to say that we will have the matter adjudicated, and my view is that at that time the central Arizona project will find itself without water and the United States will be holding the sack for whatever expenditures shall have been made in the meantime.

Speaking a few words on the engineering features of this matter, we are inclined to forget these days, I think, how the Reclamation Service, as it was then called, came into being. At that time, in 1902 under the first Roosevelt administration, the Reclamation Service was set up. The United States owned arid lands in the West and desired to put water on those lands and make them available for settlement. That was done. That work was carried on in that fashion for many years.

Now, reclamation seems to cover a field vastly different and vastly greater from the original concept. The standards of feasibility that controlled reclamation were quite rigid at the start, very short terms

of repayment, interest-bearing money in part, at least insofar as power was concerned. Now we are asked to depart radically from even the present very liberal reclamation law.

As the Secretary of the Interior says in his report, this project can only be authorized as an exception to or a modification or amendment of reclamation law. The period of repayment is greatly extended. The write-offs for nonreimbursables are greatly extended. The interest, which is normally earned on investments in power, as it is earned on the Hoover power plant, does not return to the Federal Treasury but is plowed back into the project. The United States is asked to carry the debt.

We would be adding, I will say, a billion dollars. I do not think this thing could ever be built for $738,000,000. We are asked to take that debt and carry it as a Federal obligation. The Federal Government operates on borrowed money and pays probably 2 percent or something of the sort over a long period. None of the project here would repay any interest to the Federal Government. All that money would go back into the project. So the taxpayers of the United States would be called upon to carry that interest load without any provision whatever being made for the earning of interest.

I do not intend to go into all the engineering features that have been so adequately covered by previous witnesses. I think it is perfectly clear that the project is an extremely costly one and that if you prorate the cost against the acreage which would be rescued, to use an Arizona term, it is extraordinarily high. It is $300-an-acre land, costing somewhere around $1,700 an acre to rescue it. The taxpayers of the United States would be asked to pull the land speculators, who developed during the war period, out of a pretty bad hole. We do not feel yet that the possibilities of ground-water development of Arizona and the salvaging of water have been fully exhausted.

Before closing, Mr. Chairman, I would like to say a little bit more about my personal representation in this matter. I represent the Metropolitan Water District. I am sorry the map is not before the committee. It represents a very substantial area on the coast of southern California; all the way down the coast from Santa Monica area to San Diego, and including San Diego, and far back inland, including Burbank and Pasadena.

The Metropolitan Water District was incorporated in 1928 and it now represents a population of roughly 3½ millon, and a valuation in excess of $3,000,000,000 as assessed. That corporation was organized almost contemporaneously with the passage of the Boulder Canyon Project Act, and was developed really in connection with the Project Act. It came into being in 1928 for the specific purpose of importing Colorado River water to southern California.

As has been pointed out, during the time from 1928 up to 1931, when we voted $220,000,000 bond issues for the purpose of financing an aqueduct, we thought we knew and we did know what the Colorado River compact and what the California Limitation Act meant. We proceeded on that basis.

I say with confidence that we proceeded in the utmost of good faith. There was no attempt on our part to do otherwise. We had taken the subsidiary position with reference to irrigation water, but we did it in the light of the then interpretation of the compact and the California Limitation Act.

We proceeded to let long-term contracts on some of our tunnels. I think the longest one was about13 miles long and it took us about 5 years to build it. We made those contracts early in the game and committed ourselves to that great expenditure. Statements have been made here, and I think they are unquestioned, that if California is right in her interpretations of the legal situation, there is no water available for central Arizona, and that if the central Arizona project gets any water, it will be taken at the expense, in water, of the agencies on both sides of the river that are already established and operating.

We feel that under those circumstances, it would be utterly unfair and against American traditions to go ahead and authorize this project, and in authorizing it, authorize a taking which might result in the diminution of the supply upon which we rely, without at least giving us our day in court. That is all we are asking, an opportunity to present a case to the Supreme Court in which these matters, which have been discussed at such great length here, can be finally and authoritatively resolved.

I think, Mr. Chairman, that unless there are some questions, I will stipulate now that Senator McFarland and the chairman do not agree with what I have said. I do not think that need be made a matter of record here. I will be very happy to respond to any questions that may come from the committee.

Mrs. BOSONE. Mr. Chairman.

Mr. MURDOCK. Mrs. Bosone.

Mrs. BOSONE. Mr. Howard, as chief counsel of the Metropolitan Water District, would you do all in your power, with this matter turned over to the Supreme Court, to bring about that adjudication as soon as possible?

Mr. HOWARD. I certainly would. There is no advantage to be gained by California in delay, and I think the matter should be as expeditiously determined as possible. We are not the enemies of Arizona. The trade area of Phoenix is a part of the trade area of southern California. We are interdependent and I think that every effort would be made on the part of all Californians to bring about as early a decision as possible.

Mr. SHAW. Mr. Chairman, may I answer Judge Bosone's question in the same manner as Mr. Howard?

Mr. HOWARD. Mrs. Bosone, that was the assistant attorney general for the State of California.

Mr. MURDOCK. Mrs. Bosone, may I carry your question a bit further?

Mrs. BOSONE. Surely.

Mr. MURDOCK. In case neither H. R. 934 nor any similar measure should be enacted, and in case the Suit resolution before another committee of the House should be enacted, would that enactment make definite a judicial decision of the matter in controversy?

Mr. HOWARD. I take it the chairman is getting at the question of whether or not a justiciable controversy exists. Is that the point of the question?

Mr. MURDOCK. No; I do not want to go too far into legal technicalities and lead us astray. What I am wondering is if this resolution, which has been introduced and is before another committee, and which you have supported should be enacted, does that surely give you your day in court?

Mr. HOWARD. It would give us the opportunity to sue, or it might give Arizona the opportunity to sue. Arizona might feel that she should be in control as plaintiff in the litigation. The words applied to that resolution in another committee, I think, in many instances have been misleading. It is spoken of as a resolution authorizing litigation. That is not the effect of the resolution. All that resolution does is waive Federal immunity to suit. What Congress does right now will add nothing whatever to the controversy on one side or the other. It will not change its status at all. It will be merely a waiver of Federal immunity.

It has been held that because of the fact that the Federal Government took control of the lower river—and from here out I am speaking of the lower river, not the upper—the Federal Government installed Hoover Dam and made these various contracts. It is a party to these contracts that have been discussed so much here. So the Federal Government is a necessary party in any litigation to settle these matters.

All that the resolution does is to waive the Federal immunity to suit, so that California will be at liberty to bring a suit which, under normal circumstances, with ordinary parties, it could bring right now and quiet its title to the water rights, but inasmuch as the United States is a necessary party, the Federal Government must waive its immunity. That is the only effect of these resolutions, House Joint Resolution No. 3, and many others introduced by the California delegation.

Mr. MURDOCK. Those are the resolutions to which I have referred and I think I understand that, although I am not a lawyer. Would you want to venture an opinion that if that Resolution No. 3 is enacted, that California would at once begin suit?

Mr. HOWARD. As promptly as we could get the papers in order, we would apply for leave to sue. Then if we have no justiciable controversy, we would find it out because the court would not accept jurisdiction of a controversy unless it could take cognizance of that. I think based on a former decision, Nebraska versus Wyoming, in which a court compared a situation of this sort to the ordinary situation when two or more people claim title to a piece of land, that the court would accept jurisdiction and that we could proceed very expeditiously.

As you can see from the discussions here, the issues are entirely issues of law. They could be determined by the court very readily and without the taking of extensive evidence. If there are any issues of fact that have to be before the court, we could no doubt settle them. We would all have an interest then in getting an early decision.

Mr. MURDOCK. I have heard several say that it could be done in short order. Maybe that is undue optimism. Would Arizona then be in a position, do you think, also to bring suit?

Mr. HOWARD. The resolution, as worded, would give Arizona the opportunity, if Arizona felt she would be advantaged by taking the initiative and bringing in the other lower-basin States and requiring them to set up their rights, have them adjudicated. Arizona would be at liberty to do that. This resolution merely waives Federal immunity to suit by any party.

Mr. MURDOCK. I do not think we need to take the time to read it. I think all of us are familiar with the resolution. On what ground

could Arizona allege injury and start a suit immediately after the passage of this resolution No. 3?

Mr. HOWARD. On the same theory that other States have brought actions to settle interstate water claims. The claims overlap. Arizona is definitely being injured if California is wrong on this. She would then be inflicting a terrific injury on Arizona right now. If Arizona is wrong, she is inflicting an injury on California. It is a very present injury. It is not something remote and speculative.

We have financing to do and we have to build up our community on the strength of a certain water contract. If that water contract is not good, it affects our ability to finance our further works, the normal distribution works for which we need additional money. It affects our annexation policy. It definitely cramps the development of our communities. We are interested in an expeditious decision of the matter just as much as Arizona is.

Mr. MURDOCK. And you think that either Arizona or California could allege an injury and get into the courts squarely so as to effect a decision and judicial settlement?

Mr. HOWARD. I think on the basis of the most recent interstate case of like nature that that is true. There is right now, because of what you might call slander of title, to use a trick legal phrase, a present injury to both sides because of the controversy over the meaning of these documents, and the action would be somewhat in the nature of an action to quiet title, that is, to determine where the rights lie under existing contracts.

Mr. MURDOCK. Mr. Howard, I appreciate that statement and I appreciate your sincerity about it. I am no judge in the matter, but I just cannot see it that way. I believe that the enactment of that Resolution No. 3 would be, in effect, that Congress would say thereby that there would be no further legislation on Arizona's water rights; that litigation would be the only course for us ahead and we would be headed completely in that direction. Arizona might get some place some time after the manner of ordinary procedure of judicial matters, but only after fatal delay and the loss of her just share of the water.

Mr. HOWARD. I do not think the case could be settled as quickly as the cases in which Arizona has been tossed out of court heretofore. They were settled in short order. There is one case that has not been mentioned here that Arizona won. Arizona has not hesitated at all to block development of the Colorado River by litigation and, in one instance, by armed force. The United States sued to enjoin Arizona from military interference with the construction of Parker Dam, and it was held in that case that Arizona was right, the Secretary of the Interior lacked the necessary statutory authority. That was in 1935.

I remember distinctly coming back here in the summer of 1935 to get the Parker Dam authorized by the Congress. It was a very hot summer and we did not get the act through until about the middle of August. We finally got it through and got the contracts ratified. But Arizona has not hesitated, when she felt that her interests required her, to go into court. She has jumped into court very quickly indeed, without any hesitation at all. No one accuses Arizona of delaying tactics.

Arizona was trying at that time, and I think in good faith, to determine whether or not the Boulder Canyon Project Act was good,

whether or not the Colorado River compact was valid. She went ahead and tried to do it. She was tossed out of court in one case because the United States was a necessary party and was not named.

I will not go into the other cases, but she did not get very far, because one was settled on a motion to dismiss and the other two were settled by adverse action on her petition to file. They were settled right at the outset. I think this case would have to go further than that. I think, pleadings would have to be filed and answers, probably cross complaints, and the issues of law would be clearly framed. If there are any issues of fact, so far as California is concerned, you would find a disposition to agree upon the facts to the extent that facts are necessary in the case. We would not run into any 20- or 30-year litigation, you can be assured of that. It might take 2 years.

I think it would take longer than the cases that have been decided, but not as long as some of our friends have said here, 20 or 30 years.

Mr. MURDOCK. In view of the fact of what I have said in this committee and what I have said before the Judiciary Committee, I wanted to make it quite clear that it is not because I lack confidence in our highest court, or that I do not appreciate the function of our highest court in its constitutional duty of determining controversies between States. I just simply believe that to enact Resolution No. 3 without an authorization act would effectively prevent for years a final judicial settlement. Meanwhile, all the lower river could be diverted west.

I believe that such a step would hog-tie Arizona and we would not get another drop of water out of the Colorado River, excepting that which we are now authorized to take. Somebody else would get all the river for all time.

Mr. HOWARD. I often look at problems of that sort in the alternative. Supposing Congress does not authorize litigation. Then where are we? The United States goes ahead and spends this money. Sooner or later we are going to get into court, I can promise you that, if the Congress should by any chance authorize this project. Then we are up against a problem quite different. The money has probably been spent in part. Possibly the Appropriations Committee would not move on it until there was litigation and you would not have made any progress toward the actual consumption of water.

It is a very difficult problem. We wish very much that there was some solution that would enable us to settle down and all go to work for the development of the Southwest. That has been tried so many times that there seems to be no possibility of it at all. That does not mean that the representatives of the States are blind or unduly obstinate. The simple fact is that the water supply left to the lower basin after the Mexican treaty has been served and the upper basin has been served is not adequate to satisfy the legitimate aspirations of the two States, and by reason of these documents that give rise to difficult questions of interpretation, we have been led into a situation where we have made enormous investments. We can not give anything away in the way of water and go home to California; nor can anyone in Arizona give up any water and go home and live in that State. We are bound to have it adjudicated.

I think we will all accept the findings of the Supreme Court as determinative and then we can shake down and adapt ourselves to the then existing circumstances and plow ahead. We are bound to have

it sooner or later and I think we ought to have it soon and get it over with.

If we had gone ahead 2 years ago when we were arguing 1175 on the Senate side, we would probably have the whole thing straightened out by now.

Mr. MURDOCK. Mr. Regan.

Mr. REGAN. I would like to ask Mr. Howard a few questions to get this thing clear in my mind. You mentioned earlier in your talk the use of the water from the Colorado and the normal flow before the Colorado compact was passed in irrigating lands in the Imperial Valley.

About what was the total amount of land then in cultivation in the Imperial Valley?

Mr. HOWARD. The project was for about 900,000 acres of land and I think in 1922, roughly half of it had been actually put under irrigation, and the rest of it was being put under irrigation as rapidly as possible.

Mr. REGAN. Was 450,000 about the maximum of acres then in cultivation?

Mr. HOWARD. Let me check that figure. I think that is about right.

Mr. REGAN. And at that time the waters used were entirely from the Colorado. Was any part of that the waters used from the Gila River?

Mr. HOWARD. During the early stages, yes. When the diversion was made below the juncture of the Gila and the Colorado, some of the waters of the Gila would get into the Imperial side. After the diversion was shifted up to the Imperial Dam, none of the Gila water got into the All-American Canal, although it would still be possible by a short pump lift. Arizona does not let enough water come down there now to make it worth while to bother about.

Mr. REGAN. If this project were authorized, there is no water available to us. Now, as I understand it, there are 7,500,000 gallons of water there. Sixty-five percent of it goes to California and 2,800,000 to Arizona. What part of that water now is Arizona using?

Mr. HOWARD. The Congressman's statement is a little confusing, but I think I get the idea and I will attempt to answer it. The Arizona part of the Yuma project, which was developed many years ago—I will get the quantity of water for you from one of the engineers. The Arizona Parker Indian project, which I think calls for about 300,000 acre-feet of water—I am speaking now of main-stream water. A short time ago, the large Gila project was authorized, calling for 600,000 acre-feet of main-stream water. The name of the project was a little misleading, because the water was to come from the main stream.

In addition to that, of course, Arizona has the full use of the Gila River and there are other tributaries.

Mr. REGAN. What I am trying to get at is, aside from the Gila River or its waters, my understanding was that the plan was that Arizona would have 2,800,000 acre-feet of water, as against California's 4,400,000.

Mr. HOWARD. I do not think that is a correct statement. You have to speak of classes of water. There was no intention on anybody's part to impose that contractual arrangement on the States of the

basin. When that second part of section 4–A was before the Congress, being developed on the floor of the Senate and later concurred in by the House, that matter was discussed.

As Mr. Ely pointed out, Mr. Hayden's first amendment would require a certain distribution of water. Then it was later modified so that the amendment authorized the States to make a compact. At that time, Senator Johnson commented on the amendment, and I am quoting from the Congressional Record of the second session of the Seventieth Congress, at pages 471 and 472, December 1, 1928. I am going to read this because it is very illuminating:

Mr. JOHNSON. Here is the difficulty which strikes me in the matter: First of all, we are authorizing the doing of something that already the States have the right to do—

That is, making an agreement among themselves.

Secondly, we are stating the things that the three States are to do, and we are making a sort of Procustean bed upon which they must lie in the determination of matters that are suggested in this amendment without any elasticity, without any opportunity to alter phraseology, or possibly terms. What is done by the amendment is to put the impress of the Federal Government upon the necessity of an agreement, and if one of the States should not agree, leave that State in a position which would not be particularly enviable. With the distinct understanding that this authorization is one that, after all, is an authorization that is wholly unnecessary, because the parties may, in any fashion they desire, meet together and contract and subsequently come to Congress for the ratification of that contract, that there is no impress of the Congress upon the terms which might be considered coercive to any one of those States, I am perfectly willing to accept the amendment.

Mr. Pittman of Nevada spoke up in response to that statement:

There is nothing necessary at all, of course, so far as the adoption of this amendment is concerned, unless the element of time is considered valuable. If it should happen, mind you, that 2 weeks from now the legislatures of the three States, being in session, should be perfectly satisfied with the terms of this proposed agreement and should ratify it, they could, on the next day, also ratify the seven-State agreement. On the other hand, if we do not adopt this amendment now, but allow the three States to meet in order to agree, and they should agree, then it will be necessary for them to come to Congress next fall and we might find that Congress next fall would not ratify the agreement, might we not?

Mr. JOHNSON. That is possible.

Mr. PITTMAN. Suppose a majority of the Senate found there were things in the agreement they did not like?

Mr. JOHNSON. That is all right. But what I want to make clear is that this amendment shall not be construed hereafter by any one of the parties to it or any of the States as being an expression of the will or the demand or the request of the Congress of the United States.

Mr. PITTMAN. Exactly not.

Mr. JOHNSON. Very well, then.

Mr. PITTMAN. It is not the request of Congress.

Mr. JOHNSON. I accept the amendment then.

Now, here comes Arizona and says that that is the will of Congress, that there was an intention to do something or other. When Mr. Johnson accepted that amendment, he made it perfectly clear that the suggested three-State compact, to quote his words—

shall not be construed hereafter by any one of the parties to it or by any of the States as being the expression of the will or the demand or the request of the Congress of the United States.

So there was no intent. The parties never did agree upon that document and it all comes back to the same basic difficulty, Arizona would not agree because, as the document was set out in that 4–A

section, the Gila River being a part of the Colorado River system, it was included in that 2,800,000 you speak of.

Mr. REGAN. How much water is the State of Arizona now enjoying the use of in the Colorado River, exclusive of the Gila River?

Mr. HOWARD. Those figures should be readily obtainable. Let me clarify the question to this extent: I do not know whether you are familiar with the law of appropriation in the West or not. Do you speak of the right to use or the actual use?

Mr. REGAN. The actual use, the water now being used from the Colorado River, irrespective of the rights or the compact or anything else.

Mr. HOWARD. Within a very few minutes I can place the figures in the record and I think possibly both figures, the right to use and the use, should be set out because, after all, what we are talking about here is the right to use water. As a matter of fact, there is plenty of water in the river now.

Mr. REGAN. For my information, I just wondered how much Arizona is presently using.

Mr. HOWARD. Exclusive of its uses on the Gila?

Mr. REGAN. That is right.

Mr. HOWARD. I will get those figures with good authority and have them placed in the record.

Mr. REGAN. Thank you.

Mr. MURDOCK. Are there any further questions?

Mr. HOWARD. If not, being the closing witness on the part of California, I would like to thank the committee on behalf of the State for the extended consideration you have given these problems and the seriousness with which you take them. I realize the heavy duties of a Member of the House of Representatives. I regret that we have not had a fuller committee, but we have done the best we can under the circumstances and have tried to avoid repetition and tried to present our case in a concrete fashion.

We certainly appreciate the difficulties of the chairman, who is in the position of acting as both judge and advocate in this matter, and we thank him for the fairness he has shown us and thank the committee for their attention.

Mr. MURDOCK. I want to thank you for the sentiment and also for the testimony, Mr. Howard.

Mr. SHAW. Mr. Chairman, may there be supplied for the record certain statements which have been made on this subject for the committee. I am referring to the statement of the American Federation of Labor and certain others which need not be read, but may be offered to be printed for the record.

Mr. MURDOCK. Yes, they may be accepted, without objection, for the record.

Mr. Carson explained that perhaps with about a half hour, the rebuttal could be concluded. I was very anxious that we close the hearings at this session, or at least today. There is a meeting in the House Chamber at 4 o'clock. I wonder if we could wind up our work within 1 hour from this moment. I point out the fact that the committee does not have a time or place of meeting again until June 21. There are important matters to be considered by this committee.

I may find it necessary to be away from the city for a few days. If

I am out of the city, I will ask somebody else to take charge and take up these matters other than H. R. 934 and 935 that ought to be handled quickly as possible by the Subcommittee on Irrigation and Reclamation.

Do you have those figures now, Mr. Howard?

Mr. HOWARD. Yes. In response to Mr. Regan's question, I would like to put them in the record here. These figures were supplied to me by one of our engineers who is very familiar with the set up.

In Arizona, ignoring the uses on the Gila and speaking only of the main stream, we have the Yuma project, which is consuming—this is not a diversion, but a consumpive use—200,000 acre-feet per year. The Parker area, the Indian reservation, is using 150,000 acre-feet. The lower Gila project is using 100,000 acre-feet. With reference to those same projects, the right to use on the Yuma is 250,000. On the Parker area, it is 300,000. On the Gila, the lower Gila from the main stream, 600,000, as a matter of right.

That totals up to about 1,150,000 acre-feet right to use, and about 350,000 acre-feet actually used.

Mr. REGAN. Thank you.

(CLERK'S NOTE.—By order of the committee the rebuttal testimony of June 6, 1949, afternoon session, follows the testimony of June 7, 1949.)

THE CENTRAL ARIZONA PROJECT

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION,
OF THE COMMITTEE ON PUBLIC LANDS,
Washington, D. C.

MONDAY, JUNE 6, 1949

AFTERNOON SESSION

Mr. MURDOCK. The committee will come to order, please.

This is a continuation of hearings on H. R. 934.

According to the adjournment at 12 we are reconvening. We meet with this difference: Mr. Northcutt Ely was on the stand and had not completed his testimony. It was explained that there were some witnesses supporting the legislation here from the West who found it necessary to get away.

These witnesses are here to give rebuttal. However, the rebuttal pertains to engineering matters and not legal matters.

With that understanding we would like to hear briefly from these men who represent, first, the Department, and others that I shall call in order.

This is with the understanding that this is rebuttal testimony and is to be printed in the record at the conclusion of Mr. Ely's statement.

Mr. CARSON. No, at the conclusion of the whole California case.

Mr. MURDOCK. Very well, at the conclusion of the presentation of the California case.

In view of the fact that the witnesses yet to appear in opposition are dealing with the legal phases of it, there of course will be no need of reference to these engineering matters which are in rebuttal.

Mr. POULSON. Are these engineering items these two men are going to appear on?

Mr. MURDOCK. I have more than two. They are all engineers, however.

I spoke to Mr. Carson with regard to the length of time required for rebuttal and he first asked for 2 hours but I told him time was very limited and he will take probably not more than an hour.

Maybe we can compress these within that limit. It is pretty hard to compress any of these witnesses, I find. We have first Mr. Nielsen.

STATEMENT OF E. G. NIELSEN, REGIONAL PLANNING ENGINEER, REGION 3, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR

Mr. NIELSEN. My name is E. G. Nielsen. I represent the Bureau of Reclamation as regional planning engineer of region 3, within which region the central Arizona project area lies.

I appear at the invitation of the Chairman, not as a rebuttal witness, but for the purpose of clearing, if possible, the obscurities which conflicting testimony may have raised relative to the Bureau's relationship to the proposal to develop the central Arizona project.

The Bureau's formal response to that invitation is the prepared statement handed the chairman at the beginning of this session. I should like to discuss informally just a very few of the most important elements of that relationship.

The Bureau has made a favorable recommendation as to the project, with qualifications attached. Those qualifications are stated in the regional director's report, and the committee was reminded of those qualifications in the statements presented to this committee by Commissioner Straus and Regional Director Moritz.

Mr. Elder, who apparently assumes the power of clairvoyance, states:

> It was with great hesitance that the Bureau even included in its report a mild comment that such a controversy exists about the water right.

Mr. Elder's clairvoyancy failed him here, since the element of hesitancy was not present. I was there. As to the term "mild comment," how more specifically could we state the proposition than by this language, which appears in the regional director's report, under "Recommendations," to which the most casual reader will first turn:

> The showing herein of the availability of a substantial quantity of Colorado River water for diversion to the central Arizon project, for irrigation and other purposes, is based upon the assumption that claims of the State of Arizona are valid. It should be here noted that California challenges the validity of Arizona claims. The Bureau of Reclamation cannot authoritively resolve these divergent views. It is assumed that the Congress will give full consideration to the divergent views of the two States before providing funds for the construction of those project features which depend for the full realization of their objectives upon Arizona's claims being held valid.

Mr. Matthew attempted to raise doubts as to the adequacy of our cost estimates. Cost estimating is one of the Bureau's continuing jobs, and has been for 47 years; we are in the business of building great works and answering to the Congress for the adequacy of our cost estimates.

The Colorado River Board of California is not in that business. Out of the Bureau's collective experience, we state that we have made an adequate appraisal of the cost of the central Arizona project, and we are willing to answer to Congress as to that adequacy. We are not prophets, of course, and cannot provide guarantees against the inflationary effects of world wars, as demonstrated by our experience with the Colorado-Big Thompson project cost estimates. Present costs are about 2½ times those which prevailed when those estimates were submitted to the Congress.

After 11 months of study of our report, Mr. Matthew arrived at the conclusion that the requirements of the central Arizona project area could be met if 300,000 acre-feet of additional water were made available. That conclusion appears on page 67 of the formal comments of California on our report.

These comments are dated December 29, 1948. By the time Mr. Matthew testified before this committee, he had arrived at the conclusion that his estimate was 67 percent in error, and as a result he

stated to this committee his latest conclusion that a diversion of 500,000 acre-feet from the Colorado River represented the requirement.

If Mr. Matthew were to give the problem the detailed consideration given it by the Bureau, his estimate, if it were to reflect elements he has not considered adequately, would be revised upward again.

The Bureau has been criticized for investigating this project without having assurance that a water right would be available to it. After listening, for many years, to the attorneys debating the matter of water rights in the lower Colorado River Basin, the engineer must conclude that if validity is to be given to all of the arguments, there is presently no assured, firm, water right for some projects in the lower basin. Yet great works have been investigated and some have been constructed, while the present controversy over water rights has been developing.

The Colorado River aqueduct of the metropolitan water district, water rights for the full capacity of which are perhaps in the same field of doubt as are those of the central Arizona project, has been investigated and built: not by a Federal agency, but by a public agency of the State of California.

This at a cost, during the 1930's, of $200,000,000. Contrary to the impression which this criticism tends to give, the Bureau would have been going contrary to precedent had it not investigated the central Arizona project.

We have recently contracted with another public agency of the State of California, the San Diego County Water Authority, to report upon a second barrel of the San Diego aqueduct, for which aqueduct capacity there is not, under some arguments, a firm water right.

Let me comment on the application of the word "fantastic" to the proposal which the Bureau has sent to the Congress with qualified favorable recommendation.

That word has not been applied to Bridge Canyon Dam and power plant, nor to their necessary adjuncts, Coconino and Bluff Dams, although the Bridge Canyon development is comparable physically to Hoover Dam and power plant.

Nor have the physical works proposed for diversion to central Arizona been labeled fantastic. The charge of fantasy comes up only when attached to arguments over whose water would be diverted to central Arizona, and over the proposition of requiring power revenues to assist in irrigation enterprise.

The Bureau of Reclamation cannot, to any good effect, be drawn into the controversy over water. We can assure the committee that our studies indicate that the power elements of our plan can provide the assistance required by the irrigation elements of our plan, and at the same time make available to the commercial market a substantial block of firm energy at an attractive, and most certainly competitive, rate.

There is nothing new in providing such assistance; that policy has been endorsed by the Congress in connection with the Columbia Basin, Central Valley, and Colorado-Big Thompson projects, to name only a few. In each of these instances the irrigation enterprise would have been infeasible without assistance from power.

Finally, let me say that all of us are now reluctant to apply the word "fantastic" to major irrigation and power proposals for the

West, all of us having seen the chagrin of those whose faith in th potentialities of Hoover Dam and Grand Coulee Dam was too limited

The Bureau expresses the belief that the central Arizona project developed as we propose, and realization of its benefits assured by ad herence to the qualifications attached to our recommendations, coul repay the Federal investment and yield local and national benefit consistent with the national cost.

Mr. POULSON. Has the Secretary called the other members? I think Mr. Engle said if Mr. Ely is called and there is not a quorum he will raise a point of order.

Mr. MURDOCK. I think that was before lunch.

Mr. POULSON. Will Mr. Ely be called this afternoon?

Mr. MURDOCK. We will hear Mr. Ely at the conclusion of these witnesses' testimony.

Mr. POULSON. Well, this still holds true about a quorum. Mr. Engle saw me on the floor of the House and he asked me if I would bring up the same point, because of the fact that a lot of the arguments on the legal issues were concentrated in his paper, that he wanted to be sure there was a quorum here, as he would expect you to do the same thing when Mr. Carson appears, too.

Mr. MURDOCK. If the gentleman will withhold any point of order, these men, all of them, are expecting to get away.

Mr. POULSON. I am not asking for it on the basis of these gentlemen. That is your privilege. I am merely stating beforehand what I would expect to do when Mr. Ely is called up and let you know that it is your responsibility now when your witnesses are on here.

Mr. MURDOCK. I appreciate that. Let us cross the bridge when we get to it in that case.

We thank you, Mr. Nielsen, for that statement. Your formal statement will be inserted at this point.

(The statement referred to is as follows:)

STATEMENT OF E. G. NIELSEN

My name is E. G. Nielsen. I represent the Bureau of Reclamation as regional planning engineer of region 3. The Bureau's region 3 includes the central Arizona area.

This statement has been prepared in the expectation and hope that the committee would call upon the Bureau of Reclamation to clear up those parts of our report on the central Arizona project rendered obscure by testimony given in these hearings. We have assumed that the committee does not wish an item-by-item response, and so have selected for comment those items which bear strongly upon the feasibility or justification of the central Arizona project.

Our experiences with the Colorado Basin report, and in the hearings on S. 1175, Eightieth Congress, have made us particularly sensitive to the need for a full and adequate presentation of all matters involving waters of the lower Colorado River system. Throughout these investigations we have made every effort to consider carefully all comments. We have been anxious to avoid errors, and quick to rectify those coming to our atention. We have maintained a standing invitation to all concerned to visit our offices and to discuss problems arising out of our investigations. We have urged those whose studies yield results at variance with ours to bring their supporting data, since without those data little can be accomplished. The response to that invitation has not been such as to suggest that a reconciliation of data was desired. Mr. Cole, a subordinate engineer in the employ of the Colorado River Board of California, has called at our office three times, and Mr. Harold Conkling, one of its consulting engineers, has called once. Each of the calls was for the sole purpose of securing data most readily found in our files. None were for the purpose of reconciling data or views, nor did the callers bring their data for comparison and discussion.

The State of California has commented formally on the results of our studies of the central Arizona project. These comments have been carefully considered and appropriate revisions made. We have not considered it appropriate to follow California's suggestion that the report be altered to reflect California's views as to the division of the waters of the Colorado River. The Secretary and the Commissioner have repeatedly stated that this is a matter which the Department and the Bureau cannot, and will not attempt to, resolve. The report on the central Arizona project carries out these views consistently. Its water supply data are openly and frankly qualified by the statement that they reflect Arizona's claims, and we took some pains to point out that California challenges the validity of those claims.

A careful review of the 162-page volume of California's views and recommendations indicates no adequate basis for any substantial or important changes in the central Arizona project report. It appears that in many instances those comments are based upon incomplete studies or a misconception of the problems involved. Necessarily, then, California arrived at conclusions at variance with those of the Bureau.

In the main, California's comments criticize the report for lack of detailed surveys and estimates. I shall respond to that criticism in more detail later, but I should like to raise the question as to whether this type of criticism is not used as an indirect means of serving California's primary purpose, which is stated by Governor Warren, in the fourth paragraph of his letter of December 29, 1948, to Secretary Krug to be:

"Until there is a final settlement of the water rights by some method, the aggregate of Arizona and California claims to Colorado River water will exceed the amount of water available to the lower basin States under the Colorado River compact and relevant statutes and decisions. It is only because a determination of the respective rights of the lower basin States to the waters of the Colorado River system has not been made, that California submits any criticism of your proposed report. Whenever it is finally determined what water belongs legally to Arizona, it should be permitted to use that water in any manner or by any method considered best by Arizona, so long as that use does not conflict with the right of California to the use of its water from the Colorado River system. However, as long as the present unsettled situation exists, it is my opinion that each State in the lower basin must of necessity interest itself in the others' projects which would overlap its claims."

Mr. Matthew's testimony before this committee contained this statement on pages 13 and 14:

"However, the plans and cost estimates are based upon preliminary investigations for some of the major features, and were prepared without adequate surveys, explorations, and design plans."

The committee is, of course, interested in the significance of such a criticism. Investigations incident to a project of the magnitude of central Arizona could, of course, be carried on for years if it were necessary to refine every possible feature of the project before presenting plans to the Congress. The investigations to date have cost several hundred thousands dollars. The cost could run into several millions. But there is general agreement among engineers and laymen alike that investigations for project planning reports shall not go beyond such reasonable program of field and office work as may be required for a reliable over-all appraisal of the project. It is the considered opinion of the Bureau of Reclamation that the report on the central Arizona project serves that requirement. It would be impossible to justify the expenditure for the investigation of every feature of a project in the detail suggested by the comments of California. These details are obtained after a project has been authorized and as required for final designs.

Standard engineering methods have been used in obtaining data and in the preparation of preliminary designs of the various features. Topography of all dam sites has been secured. The fact that some topography may have been taken a number of years ago is no reflection on its accuracy. Based upon the topography, geological conditions, availability of construction materials, and the functions to be served by the feature, preliminary designs were prepared which served as the basis for estimating the construction costs.

The locations of the aqueducts are based upon field surveys which consisted of a stadia traverse with side shots to establish the general topographic conditions. Standard hydraulic procedures were employed in determining the size, slope, and shape of the aqueducts. These data provided the basis for estimating

excavation quantities and determining the location of special structures. The estimates of construction cost for all items of the aqueducts are based upon standard procedures. Many items can be determined accurately, such as the volume of concrete required for lining canals. This item alone represents 45 percent of the total cost of the Granite Reef and Salt-Gila aqueducts.

Even though the items described represent sound engineering principles as applied to planning surveys and design, they do not represent the maximum detail or indicate the accuracy of most of the estimates. For example, because Bridge Canyon dam site is in an isolated location, a large part of the cost of investigating this feature is represented by the purchase of required special drilling and other equipment and the costs of transporting the equipment, supplies, and personnel to the site. Because of this heavy initial expenditure and the probability that Bridge Canyon Dam and power plant would soon be constructed in any event, it was decided to complete the investigations in sufficient detail to serve the requirements of preparing plans and specifications. Therefore, the estimates for the largest single feature, which involves about 36 percent of the total project cost, are more detailed than usually prepared for project authorization reports. The cost of the pumping plants and the power plants may be estimated with reasonable accuracy without having detailed investigations covering the site. Nearly the entire cost of these installations is represented by equipment and buildings that would cost practically the same even though the location might be changed somewhat. These items together with Bridge Canyon Dam and power plant, and other features for which reliable estimates have been made total about 70 percent of the estimated project cost.

The data available for estimating the remaining 30 percent of the project cost was, in general, not as detailed as that for the previously described features. However, sufficient data were obtained and adequate estimates prepared for these items based on costs of similar construction on Bureau projects.

The Bureau does not maintain that estimates for each unit or feature are final. The over- and under-estimates for individual items will tend to balance so that the total cost should remain about the same as estimated if construction costs remain substantially the same as at present. This committee was furnished a chart showing the construction cost indexes for the period 1910 to 1948, inclusive. Construction costs for the central Arizona project are based on a high point of the cost curve which is almost two and one-half times the costs prevailing as of 1935. The inflationary effects of World War II are largely responsible for the increased costs of projects such as the Colorado-Big Thompson and the central Valley projects referred to by the California witnesses. If the central Arizona project were constructed during or immediately after a third world war, it would be only sound logic to expect higher costs. Conversely, if the project were constructed prior to another world war it is believed that the total construction cost would be less than our estimate.

Mr. Matthew states that the Bridge Canyon development and its necessary sediment-catching reservoirs, Bluff and Coconino, are not necessary parts of the central Arizona project. The simple fact is that there is no block of power available for the pumping requirements of the project. He states that the real reason for their inclusion is that they would "* * * provide a source of revenue to finance most of the cost of the project." Admittedly, Bridge Canyon commercial power revenues are needed to make the project financially feasible. There is nothing new about the use of the power revenues to assist an irrigation enterprise. The Central Valley project of California would be infeasible without assistance from power revenues. The same is true of other reclamation projects.

Mr Matthew makes a complaint over the proposed use of Lake Mead to conserve water for Arizona uses, and over the proposed use of Lake Havasu for diversion to the central Arizona project. He might as logically have complained about their use for flood control, since the right of the United States to use those facilities for multiple purpose is nonrestrictive.

We can pass quickly over Mr. Matthew's comments that upper Gila River developments have no necessary connection with the central Arizona project. Firmly established rights to upper Gila water make it impossible to develop greater uses in the upstream reaches until users downstream have been satisfied from some other source. Our plan for the central Arizona project would make this water exchange possible, and, incidentally, would make it possible for the upper Gila area to share in the benefits from project power.

Mr. Matthew's analysis of water supply requirements for the area represents a compounding of errors. Our report necessarily develops this subject in detail. Mr. Matthew finds that diversion of 500,000 acre-feet annually would satisfy the

deficiencies in the area. In short rebuttal: withdrawals from the underground basin exceeded recharge to the basin by 468,000 acre-feet a year during the period 1940–44 (this period included the first real flood since 1920); lands actually irrigated during that period were short by an average of 113,000 acre-feet a year; approximately 106,000 acres were idle; we propose to furnish Tucson 12,000 acre-feet; outflow for maintenance of salt balance is required; and aqueduct losses must be met. These are not hypothetical requirements and no amount of rationalizing will reduce them.

On page 67 of the comments by the State of California, the required diversion from the Colorado River to meet supplemental requirements is shown as 300,000 acre-feet. This was revised to 500,000 by Mr. Matthews in his statement before this committee. If Mr. Matthews will follow through his analysis and consider all factors, he will find that his estimate should be again revised upward.

Mr. Dowd's testimony before this committee contained this statement: "* * * the irrigators would pay no part of the construction cost of the project and only about 60 percent of the annual operating expenses."

As shown on table A–5 of Mr. Larson's testimony, $399,424,000 of the project cost is allocated to irrigation; this allocation is based on a 70-year repayment period. On table B–5, you will note that $2,210,800 of annual operation and maintenance costs and $792,200 for replacement reserve are allocated to irrigation. The average annual returns from the sale of irrigation water would be $3,147,900. This would pay all of the operation and maintenance costs and the replacement reserve assignable to irrigation. The surplus would repay 2.5 percent of the capital cost allocated to irrigation. The balance of this cost would be repaid as follows; Net power revenues other than interest, 9.6 percent; interest on commercial power investment, 87.3 percent; and municipal water revenues, 0.6 percent.

Reference is made also to another statement made by Mr. Dowd:

"The price of 1.74 mills per kilowatt-hour proposed for power delivered to the aqueduct pumping plants as compared to the price in the commercial market of such power of 4.82 mills would result in a loss to the Nation of $4,280,000 per year."

That kind of an analysis can be carried further. Under the central Arizona project it is proposed to deliver firm power to the load centers for 4.65 mills per kilowatt-hour. At the present time it costs about 7 mills per kilowatt-hour to produce power with oil-burning steam electrict stations, or 2.35 mills above the central Arizona project rate. The project would deliver an average of 2,715,000,000 kilowatt-hours annually for a 70-year period. Based upon the reasoning used by Mr. Dowd, the resulting loss to the Nation of 2.35 mills per kilowatt-hour would amount to $6,380,000 annually or $446,600,000 over a 70-year period. This same analysis could be made for the Boulder Canyon project. The firm power output of the plant at Hoover Dam is about 4,225,000,000 kilowatt-hours. This power is delivered to the load centers in southern California for about 3.5 mills less than the cost of power from oil-burning plants. In accordance with Mr. Dowd's analysis this would represent a loss to the Nation or an assistance to the power users of $14,780,000 annually.

In the testimony presented by Mr. Peterson, he referred to the power development features of the central Arizona project as being primarily for the purpose of paying for the cost of the project and not providing low cost or reasonable cost power for the market area. As outlined in preceding paragraphs, power delivered from the central Arizona project would be made available for 2.35 mills per kilowatt-hour less than cost of producing power by oil-burning plants, representing a saving to the power users of 33 percent.

Mr. Peterson's main statement goes to an effort to show that the firm energy generation at Bridge Canyon as developed in our report cannot be realized.

The estimated potential power production as shown in the report on the central Arizona project is based on certain predetermined criteria. Anticipated run-off was based on forecasts. Thus reservoirs could be drawn down or held at higher elevations to maintain a firm power output. Because of the undependable nature of secondary energy the Bureau studies disregard the secondary energy and consider only firm energy. Supplemental studies based on the same criteria indicate that any reasonable or foreseeable change in load pattern will not affect the results of the studies.

The Bureau studies consider the power plants at Bridge Canyon, Hoover, Davis, and Parker Dams as a system in which one unit helps the others to produce the maximum system firm energy. To have made the studies on any other

premise would have been to make them on the assumption that the Southwest is not fully conscious of the importance of producing the maximum amount of firm energy. This coordinated operation results in a maximum beneficial utilization of the power capabilities of the above-mentioned plants. By creating a maximum of firm energy the area that can be served and the scope of the service are broadened to include small as well as large consumers. Under this plan of operation a minimum amount of steam or Diesel installation is required to supplement the hydroelectric system. Thus a major saving in limited supplies of gas and fuel oil is realized.

Mr. Peterson's study is based on the operation of the Colorado River power plants at Bridge Canyon, Hoover, Davis, and Parker as four individual units or with limited coordination exclusively between the Hoover and downstream power plants.

A part of the flood-control reserve at Lake Mead is available for storage of water in years of low run-off forecast. The advantage of this possibility was not considered in the Peterson study nor was the active capacity at Lake Mead adequately utilized during the low run-off period. Thus, by maintaining a lower maximum active storage capacity and a high minimum active storage capacity at Lake Mead, Mr. Peterson's studies lose the benefit of the firm energy production of about 2,000,000 acre-feet of water and the possible increase of power head. It should be noted that the Peterson studies show the firm energy production to be the lowest monthly figure developed in the 10-year low run-off period even though at that time water amounting to 37 percent of the active storage capacity was being held in Lake Mead. Mr. Peterson states that his studies indicate that only 4,150,000,000 kilowatt-hours of firm energy or less than present contract commitments could be produced at Hoover power plant in years of low run-off. Bureau studies show that the firm output of the Hoover Dam power plant would be 4,500,000,000 kilowatt-hours a year, or an increase of about 8.5 percent over the California figure just quoted.

Mr. Peterson's studies assume the production of large amounts of secondary energy which is usable only by large consumers who have steam or Diesel installations with capacity to firm their system when secondary energy from Hoover is not available. However, a part of this secondary energy could be produced as firm energy by coordinated operation and proper utilization of the reservoirs.

The difference in the two independent studies is thus resolved to one of the production of a maximum firm energy which is usable by all types of consumers or production of a large amount of secondary energy which is of little monetary value for amortization of capital investment and is usable only by large consumers with other major generating units at their disposal. In practically all markets there is a wide difference in the value of firm and dump or secondary energy. It is only natural that any electrical utility would prefer to purchase the maximum amount of secondary energy that could be utilized and sold as firm energy.

The studies by Mr. Peterson fail to utilize the reservoir storage capacities and stored water and thereby fail to show the actual potential firm power output of the Colorado River plants. Under his plan of operation, energy made secondary by his definition would be produced and purchased each year, and then actually utilized as firm energy.

On pages 12 to 14 inclusive, of Mr. Peterson's testimony, he described the necessary adjustments made in the operation of the Hoover plant resulting from monthly forecasts of run-off on the Colorado River and the resulting variation in power production. Mr. Peterson failed to mention that these variations involve the production of secondary energy only and that every effort is made to operate the reservoir within prescribed limits but for the maximum power production.

Mr. Peterson finally, in appendix I of his statement, attempts to analyze the effect of silting upon the project works. It is acknowledged in the report that the reservoir formed by Bridge Canyon Dam would lose its effective regulatory capacity if silt-control structures were not provided to retain the large contributions of sediment from the Little Colorado and San Juan Rivers. Soconino and Bluff Dams have been included in the project plan as sediment-retaining adjuncts to the Bridge Canyon development. These dams would also provide flood control and river regulation benefits.

In computing the life of Bridge Canyon and other reservoirs, Mr. Peterson made the mistake of failing to recognize the fact that the total silt accumulation

will exceed the gross water-storage capacity. Silt deltas in a reservoir will have a minimum slope upstream of about 1 foot a mile, consequently the silt deposits in the upstream portion of a reservoir are considerably above the maximum water surface elevation of the reservoir.

More importantly, Mr. Peterson's estimates fail to make allowances for sediment retention in prospective upstream reservoirs. We think he exhibits too little faith when he assumes, as he must have, that the Glen Canyon site will not be built within the 53 years he estimates is the life of Bridge Canyon Reservoir. The Bureau's Salt Lake City office has recently circulated a planning report among the upper basin States for informal review in which the development of the Glen Canyon site by 1957 is proposed. Our report assumes that Bridge Canyon will receive the silt burden of the main stream for 15 years before relief is afforded by Glen Canyon.

Mr. Peterson states in his testimony that the Glen Canyon development has been silently leaned on free of charge for silt control. Again he failed to present the full facts. The cost of Bluff Dam and Reservoir is estimated at $29,628,000, the full cost of which is included as a part of the cost of the central Arizona project. This dam would be located upstream from Glen Canyon, therefore at such time as Glen Canyon Dam is constructed the Bluff Reservoir would retain silt that would otherwise be deposited in Glen Canyon Reservoir. At the minimum, then, there is reciprocity as between the central Arizona and Glen Canyon projects.

Mr. Elder has proposed an alternative plan for satisfying water-supply requirements of the central Arizona area. He would expect to make available, from local sources exclusively, an additional 500,000 acre-feet annually at a construction cost of about $200,000,000. His paper emphasizes that this construction cost would be only 53 percent of the cost allocated to irrigation under the Bureau plan. Missing from his paper is the appropriate corollary, i. e., that his plan would develop roughly 50 percent of the water made available under the Bureau plan, if it be granted that his plan would function as he supposes. Mr. Elder's plan, then, can be demonstrated to be the more expensive per unit of water delivered without resorting to evaluation of the fact that the Bureau's plan delivers surface water, while water under Mr. Elder's plan must be pumped from the underground.

In considering the practicability of Mr. Elder's plan, it must be recognized that his plan contemplates the distribution of floodwaters through new canals as large as 3,000 second-feet capacity to areas where the water may be dissipated into the ground water. These canals and spreading grounds would cost, he estimates, $56,000,000; they could be useful only when floodwaters beyond the capacity of existing reservoirs were experienced. Subsequent to 1910, that condition would have been experienced in 1915, 1916, 1917, 1920, and 1941. The $56,000,000 canals and spreading works would not present an attractive picture after lying idle from 1920 to 1941.

As a matter of fact, Mr. Elder has failed to recognize that the whole of the area presently under canal is now used as a spreading basin for dissipation of floodwaters into the ground water. When reservoirs spill, the canals are filled to capacity and water is furnished the irrigators free of charge for the express purpose of soaking the whole area and recharging the ground water. Unless Mr. Elder is prepared to divert floodwaters at much higher levels than he now proposes, at much greater cost, his spreading area would be only that thin wedge of desert which lies between existing canals and the flatter canal which he proposes. He could, of course, extend his canals to desert lands beyond and below the developed areas (not to the New and Agua Fria Rivers as he proposes, since they would be yielding floodwaters of their own). There would be no purpose in building canals to spread water below Gillespie Dam since the Gila River can and does accomplish this dissipation at the present time, without expense.

In conclusion, there has been an attempt to create the impression that the Bureau of Reclamation has brought to this committee a recommendation favoring a "fantastic" proposal. The records will show that the proposals for Hoover Dam and Grand Coulee Dam and their power plants were similarly labeled; that there were showings that the benefits claimed could never be realized within their repayment periods. They stand now as tremendously valuable elements of the national economy.

The Bureau of Reclamation has not recommended the central Arizona project unqualifiedly. We believe that the project, developed as we propose in our report, and within the qualifications which we propose, will return the public investment,

and will strengthen the national economy in a measure compatible with the national cost.

Mr. POULSON. Do I have a chance to question him?

Mr. MURDOCK. Well, if we need questioning, I think we may. Have you any questions, Mr. Poulson?

Mr. POULSON. Well, is not this gentleman paid by the taxpayers and has not he been sitting here in Washington for a couple of months?

Mr. NIELSEN. No, sir. I have attended the Senate hearings almost in their entirety and I attended the first of the House hearings, and have subsequently been in Boulder City.

I arrived in Washington on Saturday afternoon.

Mr. POULSON. Yes; but you are still working for the Government, or are you not?

Mr. NIELSEN. I am employed by the Bureau of Reclamation; yes, sir.

Mr. POULSON. Then I wondered why you described him strictly as an Arizona witness.

Mr. MURDOCK. I did not intend to do that. I meant to speak of these men who are to be heard this afternoon as men from the West who have duties and ought to be out there as soon as they can get there.

Your headquarters are Boulder City; are they not?

Mr. NIELSEN. Yes, sir.

Mr. POULSON. Mr. Larson was described that way. We had not finished with him, and he has since been in attendance every day.

Mr. MURDOCK. Pardon me. Are you speaking of this gentleman?

Mr. POULSON. I am speaking of Mr. Larson who was described as one of your witnesses who had to get away to go back to Arizona.

Mr. CARSON. May I say a word there? Mr. Larson had been back to his office at the Bureau of Reclamation in Arizona and has just returned when these hearings resumed this week.

Mr. POULSON. He was here, though, during all the other hearings, at all the times, Mr. Carson, because I made a special note of it.

He was back the next week and spent the entire week when we were here, that time.

I want the record to show that. In fact, he has been here during the entire hearings, which is his right, but I wanted to get this information in as to how we are being crowded with time.

Now, Mr. Nielsen, you say that the entire project is based on the fact that Arizona's rights are valid?

Mr. NIELSEN. No, sir. I read an excerpt from our report which said our report is based upon the assumption that those rights are valid, then we very carefully followed with the frank statement that California challenges the validity of those claims.

Mr. POULSON. Yes. All right. Now, you have heard the testimony here to the effect that the Bureau's findings have been that this dam was liable to be filled up with silt in about 50 years?

Mr. NIELSEN. Which dam?

Mr. POULSON. The main one they are building, Bridge Canyon.

Mr. NIELSEN. I heard that testimony in the other hearings. I did not hear it here.

Mr. POULSON. Do you want to dispute that fact?

Mr. NIELSEN. Yes, sir.

Mr. POULSON. You are disputing it?

Mr. NIELSEN. Yes, sir.

Mr. POULSON. Well, then, what is your authority for it?

Mr. NIELSEN. We anticipate that developments in the upper basin will call for the development of Glen Canyon Dam within 15 years from the time the Bridge Canyon goes in.

Mr. POULSON. Now, what will the Glen Canyon Dam cost, approximately?

Mr. NIELSEN. I do not know. That is a development which is being investigated out of our Salt Lake City office.

Mr. POULSON. But that is part of this whole project. In order to save this one here you are admitting that it will take Glen Canyon Dam——

Mr. NIELSEN. Not at all.

Mr. POULSON. What will that cost—from 250 to 400 million dollars?

Mr. NIELSEN. I have prepared absolutely no estimates on Glen Canyon Dam. You have stated that I admitted something that I did not have an opportunity to respond to.

Mr. POULSON. But all the other testimony has come along the same way. You are saying you expect this dam is going to be built above, which will help to control the silt. Is that not true?

Mr. NIELSEN. We have that expectation. We also have the expectancy that upper basin uses will increase as we go along. We inherit those things.

Mr. POULSON. But the Glen Canyon Dam is definitely needed in order to make this a feasible project; I mean in order to complete this project we have to have the Glen Canyon Dam above, protecting Bridge Canyon from silt, from filling up with silt because if you do not build the others Bridge Canyon will fill up with silt. That is your own report.

Mr. NIELSEN. Of course, and by the same token if the upper basin does not develop any more we will make a lot more money out of Bridge Canyon power.

Mr. POULSON. If it fills up with silt in 50 years you cannot make any out of it during that time?

Mr. NIELSEN. I do not think you have gotten the full sense of our report. Do you recognize that Bluff Dam is in the picture, and do you recognize that Bluff Dam is located on the San Juan above Glen Canyon and are you cognizant of the fact that the San Juan River is perhaps the biggest single contributor of silt to the Glen Canyon site and downstream areas and that the whole cost of Bluff Dam is charged against the central Arizona project, and that therefore there is reciprocity as between the central Arizona project plan and Glen Canyon Dam?

I think you have missed that point entirely.

Mr. POULSON. You duck the questions yourself. In this bill you have asked for authority for other dams and appurtenances thereto and projects.

Mr. NIELSEN. That is not a Bureau of Reclamation bill.

Mr. POULSON. I know, but that is what the bill asks for.

Mr. NIELSEN. I do not think you should use the word "you" there.

Mr. POULSON. That is what the bill asks for?

Mr. NIELSEN. That is my understanding of the bill.

Mr. POULSON. Then your report is not a report on the full bill?

Mr. NIELSEN. Our report is on the central Arizona project.

Mr. POULSON. As you have seen it and interpreted it?

Mr. NIELSEN. Yes, sir.

Mr. POULSON. But this bill, of course, asks for another part. For instance, you have not asked for the canals to be built either, have you?

Mr. NIELSEN. Well, certainly the aqueduct——

Mr. POULSON. It is authorized in here, but you have not shown it in your report.

Mr. NIELSEN. Certainly the aqueduct, the cost of the aqueduct is in our report. I do not follow you there. Which canal——

Mr. POULSON. The aqueduct.

Mr. NIELSEN. You have lost me there because certainly the cost of the aqueduct is in our report.

Mr. POULSON. The $400,000,000 it was supposed to have cost? That was the testimony that was brought out, that that is not included here.

Mr. NIELSEN. You have lost me entirely because I do not know anything about a $400,000,000 canal.

Mr. POULSON. Mr. Larson is the one. It is tunnels.

Mr. NIELSEN. Our report does not cover the cost of the tunnel.

Mr. POULSON. But the authorization is asked for in 934.

Mr. NIELSEN. That is what I understand. I am not an attorney or an authority on the bill, of course.

Mr. POULSON. Do you know how much money has been appropriated, for these projects throughout the 17 western States?

Mr. NIELSEN. Reclamation in its history?

Mr. POULSON. Yes, sir.

Mr. NIELSEN. As I recall, it is a little over a billion dollars.

Mr. POULSON. I think that is for the last 11 years.

Mr. Chairman, as soon as this witness has concluded, I have a short statement and some figures to put in on the total appropriation for the 17 Western States.

Now, you are coming here and trying to defend just that part of the project which you have placed the estimates on, which cost does not include the tunnel and does not include the Glen Canyon Dam, which all the engineers have been testifying will be needed in order to save Bridge Canyon from silting up over a period of 50 years.

If you have estimated you have to have these other dams, do you not have any idea what they will cost?

Mr. NIELSEN. We would be very happy to include Glen Canyon within the projects in the lower basin, becauses it appears to be a very attractive power potentiality. That power potentiality and that storage potentiality is very carefully and jealously guarded by the upper basin and I do not blame them.

Mr. POULSON. You have no idea what it would cost?

Mr. NIELSEN. We have a figure in our blue book which is a very preliminary one—I do not have it at my fingertips; no, sir.

We cannot know what it would cost, because the physical capabilities of the site are not now known definitely.

Mr. POULSON. You have admitted these projects like the Central Valley in California and the Thompson Dam in Colorado have ex-

ceeded in cost at least two and a half times the estimate of the original figures?

Mr. NIELSEN. That is right, you have gone through an inflationary process. In the case of the Central Valley project you have expanded that project far beyond the scope of anything that was dreamed of when it was authorized.

Mr. POULSON. That is all I have to ask.

I would like to make my statement at this time. It is very short.

Mrs. BOSONE. May I ask a question?

Mr. MURDOCK. Yes.

Mrs. BOSONE. I want to make sure of this: Did you say that you are assuming for your report that Arizona's water rights are as Arizona has declared them to be?

Mr. NIELSEN. For the purposes of our report we made that assumption.

Mrs. BOSONE. You are making no declaration as to the water rights?

Mr. NIELSEN. No; we stated that the Bureau of Reclamation could not with authority settle that controversy.

Mr. MURDOCK. Are there further questions?

Mr. MILES. Yes. I do not know whether this is the proper witness to ask this question but as testified by some one of the California group of witnesses about the underwater supply, the ground supply, it would contain more than 50 percent of that supplied by Lake Mead. Did you help make this survey on this dam that is included in this report?

Mr. NIELSEN. I am afraid I did not catch your point, sir.

Mr. MILES. It was reported here by some witness that there was an underground water supply in this central irrigation territory which would furnish 50 percent more water than that contained in Mead Lake.

Mr. NIELSEN. Well, of course we did not develop that; no, sir.

We point out in our reports and in our previous testimony, I am quite sure, that there has been a substantial overdraft on the ground water resources of the central Arizona area, that however much there may lie below the surface you cannot continue that overdraft without eventual impoverishment of your water supply.

Mr. MILES. I do not have the statement that I wrote down with me. I was very interested in that statement, that there was an underground supply of water available.

Mr. NIELSEN. So far as the Geological Survey has been able to tell us thus far, they are using not only the dependable supply of which the ground water basin would yield, but in addition a very substantial overdraft.

Mr. MURDOCK. Let us reserve that to another time. I think you will find the same answer from the others. Did you have a question, Mr. Welch?

Mr. WELCH. No, sir.

Mr. MURDOCK. Mr. Marshall?

Mr. MARSHALL. I do not believe I have any questions at this time.

Mr. MURDOCK. What is the length of the statement you have?

Mr. POULSON. Just two short pages here and I would like to bring it in at this time. I will read it very rapidly and submit it for the record.

It has some tabulations and figures.

Mr. MURDOCK. Very well, go ahead.

STATEMENT OF HON. NORRIS POULSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. POULSON. The proposed central Arizona project would cost at least six hundred million dollars more than has been appropriated for projects in all the 17 reclamation States in the last 11 years.

The attached tabulation, prepared by the Library of Congress, shows that $993,307,017 has been appropriated for projects in the 17 western reclamation States in the years 1939–49.

Arizona is now seeking authorization for the central Arizona project, H. R. 934, in Congress.

The Bureau of Reclamation report on this project states that its minimum cost would be $738,408,000. But this amount does not include additional appropriations of approximately $800,000,000 for tunnels, canals, a great dam at Glen Canyon, and other works which, it is admitted, are absolutely necessary to protect and complete the central Arizona project.

Therefore, a minimum of $1,500,000,000 would be required for this single project in Arizona. That is $600,000,000 more than Congress has given to the 17 reclamation States in the last 11 years.

Should this vast amount of money be handed to Arizona for a single project, what chance have other reclamation States to get the money vital to their own progress and development?

The central Arizona project would empty the reclamation money barrel for years to come.

Here is another fact to consider:

History shows that the actual cost of reclamation projects exceeds original estimates by two or three times. Good examples of this are the Colorado-Big Thompson and the Central Valley projects.

There is no reason to believe the central Arizona project would not cost at least twice as much as the present estimates. Thus, if the central Arizona project were authorized, reclamation funds which might have gone to other States would be denied them for at least a generation.

In addition to the prohibitive cost of the central Arizona project:

1. There is no assured water supply for it.
2. Those who would benefit from the central Arizona project do not intend to repay one cent of its cost. The United States Treasury—taxpayers from all States—would have to pay the cost.
3. The central Arizona project is so infeasible that it could not pay even the cost of its operation and maintenance.

The attached tabulation shows the exact amounts appropriated for all reclamation projects in the years 1939 to 1949. It was prepared by the Legislative Service of the Library of Congress.

Mr. MURDOCK. The tabulation will be placed in the record at this point.

(The tabulation referred to is as follows:)

How Reclamation Project Money Has Been Spent, 1939-49

Direct appropriations and emergency fund allocations, construction, fiscal years 1939-49

State [1]	Project	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	Total
California	All-American Canal	$500,000	$2,000,000	$1,500,000	$2,000,000	$1,000,000			$6,000,000	$5,000,000	$3,245,000	$4,000,000	$25,245,000
Oklahoma	W. C. Austin		1,000,000	630,000	350,000	800,000	$1,680,000	$1,045,000	3,020,000	2,664,610		320,000	11,479,610
Idaho	Boise-Anderson	750,000			3,250,000	2,249,970	3,000,000	4,300,000	4,925,030	2,040,735	4,574,000	5,100,000	30,189,705
Do	Boise-Payette	500,000	500,000	900,000	1,500,000		100,000		2,000,000	2,782,659	1,697,000	1,525,000	11,504,659
Arizona-Nevada	Boulder Canyon	3,500,000	5,000,000	5,000,000	6,900,000	4,999,750	775,000			433,605	435,000	2,300,000	29,343,355
New Mexico	Carlsbad	100,000	100,000	100,000	100,000						21,000		421,000
California	Central Valley	9,000,000	15,000,000	23,600,000	37,750,000	39,019,000	22,869,000	980,200	23,715,000	12,685,622	21,546,288	41,358,900	247,204,010
Colorado	Colorado-Big Thompson	1,650,000	2,350,000	2,000,000	3,000,000	6,249,070	3,500,000	2,482,000	6,550,000	7,504,075	16,650,000	20,225,000	72,160,145
Texas	Colorado River	3,280,000	5,000,000	5,513,517				126,000	6,900	68,400			13,994,817
Washington	Columbia Basin	13,000,000	30,000,000	19,500,000	17,000,000	19,172,675		1,900,000	16,275,000	18,000,000	31,084,000	45,312,000	211,243,675
Arizona-Nevada	Davis Dam				4,000,000	3,999,475			5,900,000	7,500,000	12,500,000	22,125,000	56,024,475
Oregon	Deschutes	300,000	400,000	400,000	1,000,000	100,000	100,000	2,250,000	1,450,000	1,716,837	1,698,000	580,000	9,994,837
Montana	Fort Peck					499,475		400,000	955,800	932,893	1,500,000	429,903	4,717,971
Arizona	Gila	900,000	700,000		500,000	1,249,750			2,550,000	2,000,000	1,400,000	2,470,000	11,769,750
Nevada	Humboldt	10,000		100,000									110,000
Montana	Hungry Horse								1,700,000	867,210	2,500,000	14,611,650	19,678,860
Utah	Hyrum					6,000							6,000
Wyoming	Kendrick	1,000,000	925,000	900,000	265,000	20,000			500,000	1,895,000			5,505,000
California	Kern River											42,500	42,500
Do	Kings River									100,000	100,000		200,000
Do	Klamath	100,000		200,000	500,000		420,000	400,000	1,000,000	1,281,605	1,800,000		5,701,605
Idaho	Lewiston Orchards										500,000	1,136,000	1,636,000
Do	Minidoka	941,662	100,000		125,000				720,000	1,000,000			2,886,662
Do	Missouri River Basin [2]								13,980,300	17,500,000	23,400,000	54,786,650	109,666,950
Utah	Moon Lake		49,851										49,851
Do	Ogden	100,000			60,000					62,000	30,000	34,000	286,000
Oregon	Owyhee	310,000	270,000		200,000	25,000			190,000	125,000		150,000	1,270,000
Idaho	Palisades							260,000	1,450,000	650,410	930,750		3,291,160
Colorado	Paonia		300,000		600,000							471,000	1,371,000
Arizona-California	Parker dam power	4,024,992		3,500,000	6,000,000	1,939,400						212,000	15,676,392
Colorado	Pine River		1,000,000	800,000									1,800,000
Idaho	Preston Bench											453,000	453,000
Utah	Provo River	350,000	1,350,000	1,250,000	1,250,000	2,000,000			2,860,000	2,223,520	1,000,000	1,980,000	14,263,520
Idaho	Rathdrum Prairie										109,500		109,500
New Mexico-Texas	Rio Grande	500,000	1,570,968	72,000					1,240,000	360,675	755,000	57,985	4,556,628
Wyoming	Riverton	225,000	100,000	200,000	100,000	734,840	100,000		1,000,000	3,520,550		1,780,175	7,750,565
Arizona	Salt River	600,000											600,000
Colorado	San Luis Valley			150,000	110,000				1,450,000	650,410			2,360,410
California	Santa Barbara											1,000,000	1,000,000
Wyoming	Shoshone	700,000	496,600	366,000	707,600		100,000		2,147,500	2,114,567	443,000	430,000	7,487,667

See footnotes at end of table.

Direct appropriations and emergency fund allocations, construction, fiscal years 1939–49—Continued

State [1]	Project	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	Total
Montana	Sun River	300,000		50,000	100,000	50,000		110,000	60,000	41,625		45,000	756,625
New Mexico	Tucumcari	250,000	2,750,000		1,200,000	750,000	500,000	2,500,000	4,000,000	1,738,000		1,293,000	14,981,000
Colorado	Uncompahgre		29,904	100,000	80,000								209,904
Oregon	Vale				24,824				3,000				27,824
Texas	Valley Gravity				2,500,000								2,500,000
	W. C. U.[3]		5,029,235	3,500,000	5,000,000		1,064,000	1,700,000		3,340,000			19,633,235
Washington	Yakima	1,400,000	900,000	500,000	600,000	800,000	865,000	1,121,000	1,975,000	2,597,100		1,298,650	12,056,750
Arizona	Yuma	100,000											100,000
Total construction		44,391,654	76,919,958	70,815,517	96,771,824	85,654,405	34,743,000	19,544,200	107,623,500	103,397,108	127,918,538	225,527,313	993,307,017

[1] Reclamation States: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming.
[2] Missouri River Basin includes North Dakota, South Dakota, Nebraska, and Kansas.
[3] W. C. U.: Stands for water conservation and utilization in all reclamation States.

Source: The Library of Congress Legislative Reference Service.

Mr. MURDOCK. Mr. Wingfield, will you come to the stand, please. Mr. Wingfield was here earlier in the hearings and did not quite complete his statement before the committee at that time.

STATEMENT OF K. S. WINGFIELD, ENGINEERING CONSULTANT TO THE ARIZONA POWER AUTHORITY—Resumed

Mr. MURDOCK. If you will identify yourself for the record, please.

Mr. WINGFIELD. My name is K. S. Wingfield, and I am engineering consultant, Arizona Power Authority Several weeks ago I appeared before this committee and introduced a statement, which is in the record, dealing with the power situation in Arizona as it has been in the past, and its outlook for the future.

I stated that the Arizona Power Authority had just completed a State-wide power-market survey, which indicated that the need for power in Arizona would probably increase to the point where all firm commercial power likely to be available from Bridge Canyon would be required to meet such need.

Following completion of that survey, the authority made formal application to the Secretary of the Interior for all available Bridge Canyon power. A copy of that application of the authority has been filed into the record of this hearing.

Despite the fact that Arizona has declared its need for all of the Bridge Canyon power, California witnesses contend that California and not Arizona interests will have to absorb Bridge Canyon power. The truth of the matter is that California wants all of the Colorado River power which it can get, and that there is no doubt that a market will exist for all of the Bridge Canyon power.

In recent testimony before this committee, Mr. W. S. Peterson, of the department of water and power of the city of Los Angeles, stated that, in his opinion, Arizona would probably not be able to take the output at Bridge Canyon by the time such would be available. In support of this conclusion, he raises the point that Arizona has not yet availed itself of its right to take Hoover power. He states that the availability of Parker and Davis power has undoubtedly caused some hesitancy on the part of Arizona in withdrawing its share of Hoover energy.

I can assure this committee that such is not the case. The authority has had for some time firm applications for power which greatly exceed all the available power from Parker, Davis, and Hoover; but mechanical difficulties have been responsible for the delay in withdrawing Hoover energy. The authority has been working since 1944 to unravel these difficulties, and already has under contract the installation of its Hoover generating units and expects to give notice of withdrawal of energy within a matter of days. I am in Washington now for that purpose. The greatest difficulty the authority has had is to apportion the power among these applicants.

Mr. Peterson further questions the results of the authority's power-marketing survey by suggesting that the rate of growth estimated might not be obtained. In support of this he raises four points:

(1) Arizona has been experiencing operations under the dry portion of the cycles of water flow.

(2) Pumping has increased to meet wartime demand for agricultural products.

(3) The central Arizona project would reduce irrigation pumping.

(4) The agricultural economy would be increased as to acreage only about one-third.

Based on these points he reaches the conclusion that the ultimate growth in Arizona would probably not reach the levels indicated by the authority's survey as soon as indicated.

In making its survey, the authority took into consideration all of the factors mentioned by Mr. Peterson, and allowed for them.

It is also true that pumping has probably increased somewhat during the war years due to wartime demands for agricultural products. However, the principal increase in pumping has resulted from increase in population with the accompanying development and the lowering of the water table.

It is anticipated that that bringing of water to central Arizona by the central Arizona project would reduce pumping in certain areas, and allowance was made in the power survey for this; but irrigation pumping will increase materially in the balance of the State.

We cannot go along with the point that the agricultural economy would only be increased one-third as a result of the central Arizona project, nor that even if it should be true that it would determine or limit the growth of the State as a whole. The past rates of growth of the principal distributing agencies within the State show what electric energy distributed in 1930 was over 240 percent that of 1920; that 1940 was about 200 percent of 1930, and that 1948—only 8 years of elapsed time—was again about 240 percent of 1940, despite rationing of power and discouraging of power use throughout the State.

Mr. Peterson also states that he is not sure that Arizona will want to purchase Colorado River power as against prospective gas availability and prices.

We have made studies of probable costs of generating electricity using oil as fuel and also using natural gas. Entirely apart from the fact that hydroelectric energy in many ways is preferable over steam generation, particularly over the long term, our studies indicate that generation of electricity, even using natural gas, will average more than the estimated cost of Bridge Canyon power.

And so, I should like to repeat on behalf of the Arizona Power Authority that we are desirous of obtaining all available power and energy from the Bridge Canyon project, and that we shall be prepared to take it by the time such project could be ready to deliver it.

I might add that Arizona needs, has applied for, and will be ready to receive and pay for all Bridge Canyon power as soon as it becomes available, in addition to all of Arizona's share of Hoover, Davis, and Parker power.

Mr. MURDOCK. I am glad to have that statement, Mr. Wingfield. Are there any questions?

Mr. POULSON. Mr. Wingfield, are you in a position to speak officially for Arizona, that Arizona is prepared and would enter into a firm contract with the United States to the effect that Arizona will guarantee to take and pay for all the commercial power output of the project, including all Bridge Canyon power for use solely within the State of Arizona, and pay for all such power whether you use it or not within an absorption period of 10 years?

Mr. WINGFIELD. Well, when you say officially, the Arizona Power Authority has a commission. Any such action of that kind would naturally have to be a formal action by the commission.

Mr. POULSON. Then you are not here to speak officially, are you, for it?

Mr. WINGFIELD. I am here representing the Arizona Power Authority.

Mr. POULSON. But you are not binding them in any way?

Mr. WINGFIELD. I cannot bind them in any way; no, sir. I can only say——

Mr. POULSON. Have you any type of written authority to the effect that you can make such a statement for them, that they are prepared to enter into a firm contract?

Mr. WINGFIELD. The Arizona Power Authority has already taken official action and filed an application with the Secretary of the Interior for all of such power. That is an official act of the power authority, not my act.

Mr. POULSON. That they will enter into a firm contract to take all of the power?

Mr. WINGFIELD. I do not know that it was worded exactly that way. They asked that all the power be allotted to it. Naturally the implication was if they asked for it to be allotted, they would contract for it.

Mr. POULSON. Isn't it true that when the Hoover Dam was built California had to enter into a firm contract?

Mr. WINGFIELD. That is true of Hoover, but it certainly is not true of Davis. I am going by the last one, not the first one.

Mr. POULSON. This body has asked for the allotment, but they have not asked for a contract? That is what you want to say?

Mr. WINGFIELD. They have asked that it be allotted to them; yes.

Mr. POULSON. That is all I have.

Mr. MURDOCK. Are there further questions? If not, we thank you, Mr. Wingfield.

Mr. MURDOCK. The record, I believe, will show and the reporter has taken note, and the clerk has taken note that this testimony is to appear in the printed hearings after the close of all the California testimony.

Mr. Sargent is our next witness.

STATEMENT OF HENRY B. SARGENT, PRESIDENT, CENTRAL ARIZONA LIGHT & POWER CO.

Mr. SARGENT. Mr. Chairman, my name is Henry Sargent. I am president of the Central Arizona Light & Power Co., located at Phoenix. I am also chairman of the Arizona Electric Coordinating Committee, a committee composed of six members, four private utilities, one of them being my own company, the other three being the Tucson Gas, Electric, Light & Power Co.; the Arizona Edison Co.; and the Arizona Power Co.; and two irrigation districts, Salt River Valley Rivers Association and the San Carlos irrigation district. These six distributors make up the coordinating committee, distribute over 90 percent of the total power that is now distributed within the State of Arizona. My purpose in appearing here today is to support the cen-

tral Arizona project and also to talk briefly about the matter of power disposal from the Bridge Canyon project. It is my firm belief that any additional irrigation projects of any consequence in the 17 Western States are going to be made possible only by the sale of commercial power from multipurpose dams which are coordinated with such irrigation development. Certainly the sale of electric power from Bridge Canyon is an integral part of the whole central Arizona project. The question has been raised here by a number of people as to where the output of Bridge Canyon is going, whether California will have to pay for it or whether Arizona itself will be able to absorb the entire output of the Bridge Canyon project. Our group, this coordinating committee, has employed an able electrical engineer and the staffs of our six companies have cooperated with him in making studies as to the needs of our group over the period of the next 10 years. As a number of you here on this committee know, Arizona itself is now in a period of rather acute power shortage.

In the year 1949 we will lack capacity of about 100,000 kilowatts of being able to carry our load. That load is going to be carried by the operation of old and inefficient and almost obsolete plants and will be served also by the purchase of temporary power from the Bureau, which the Bureau obtains from southern California distributors, namely, the city of Los Angeles and the southern California Edison Co. Those two companies have been very helpful in cooperating with us in making available to the Bureau surplus capacity from their old and stand-by units and that energy is being bought at the present time in order to meet this deficit even though it is being purchased at a relatively high price. In 1952, when we expect Hoover power to become available to the State of Arizona in its entire amount that the State is entitled to, we estimate that there will be a shortage at that time of about 50,000 kilowatts, after consideration has been given to the new steam units which are now being installed on our property and in Tucson, after consideration has been given to the entire amount that we are entitled to from Parker Dam, from Davis Dam, and to Arizona's entire share of Hoover power. In 1958, which is estimated as the year in which Bridge Canyon would go into operation, if it is authorized, we estimate—and this is only for our group itself—that there will be a deficit of about 300,000 kilowatts of power in Arizona. That amounts to about 60 percent of the available capacity of commercial power out of Bridge Canyon.

When you remember that our committee does not include any of the requirements of the mines and mills in the State of Arizona, when it does not include any of the rural electrification authority cooperatives in the State of Arizona, when our estimates do not include an aggressive sales campaign, which we have not had since before the war, and when you remember that our estimate does not include the shutting down of relatively inefficient steam plants in order to take additional power, it is my firm belief that the State of Arizona and the distributors therein will be able to absorb the entire output of Bridge Canyon Dam. With respect to the loads which we have estimated, we estimated that in this 10-year period the loads will increase about 80 percent. That is a very much smaller increase than that which has taken place in the past. Actually, in the last 5 years the loads in Arizona have doubled and in my own particular company

the load has doubled in the past 3 years and we are estimating only an 80-percent increase in a 10-year period in order for it to be possible for Arizona to take the entire output of the central Arizona project at Bridge Canyon.

Now there is one other matter I would like to mention. The question has been raised as to the price of 4.82 mills for Bridge Canyon power, based upon steam generating plants that my company installed last year, is installing this year, and will install next year; that price of 4.82 mills is substantially less than it is going to cost us to generate power in these new modern steam plants that are being installed now, even considering that the fuel for those steam plants is going to be natural gas at a cost of 18 cents per thousand cubic feet or 16½ cents per million B. t. u., which compares with oil at a price of $1.02 a barrel, and according to previous testimony put in by Mr. Peterson, in the city of Los Angeles, the cheapest they are paying for oil at the present time is $1.54, and in my judgment as the supply of oil continues to diminish on the west coast as it has over the past 10 or 15 years, that they can look for an increase in the price of oil rather than a decrease, so it is my considered judgment, first, that the distributors within the State of Arizona will be able to absorb the entire output of Bridge Canyon Dam and, second, that the price of 4.82 mills is a price at which anyone in Arizona or California would be glad to buy it at. Thank you, sir.

Mr. MURDOCK. If that is correct, then it would be somebody in Arizona paying for this so-called huge fantastic development instead of somebody in California paying for it.

Mr. SARGENT. Mr. Murdock, the distributors in Arizona, I think, will be prepared to take the entire output from the dam which will mean that Arizona citizens and customers will carry the entire cost of the project and that California will be asked to pay nothing for it.

Mr. MURDOCK. That is quite a picture you painted. I was going home pretty soon. I guess I cannot turn on quite so many lights in my own dwelling when I get there, according to your story of overload.

Mr. WELCH. Mr. Sargent, you are the head of a private power corporation?

Mr. SARGENT. I am president of the Central Arizona Light & Power Co.; yes.

Mr. WELCH. How do you feel with reference to public power helping to pay the cost of irrigation?

Mr. SARGENT. Mr. Welch, it is my feeling that power from these Government multipurpose projects should be sold at the market value, not at the cost of the power, and that the difference between the market value and the cost should be used to justify additional irrigation projects which are so badly needed in the West. Does that answer your question, sir?

Mr. WELCH. Yes, it does.

Mr. MURDOCK. Are there other questions? Mr. Poulson.

Mr. POULSON. You are familar with the letter dated March 26, 1948, to Secretary Krug?

Mr. SARGENT. Yes, I am.

Mr. POULSON. From the Arizona utilities, which you signed for the Central Arizona Light & Power Co.

Mr. SARGENT. I am.

Mr. POULSON. Which contains this statement which you have answered in substance when you answered Mr. Welch's question, but I want to bring it out. Here is what is stated:—

we do believe that power should be sold at the distribution center at a price equivalent to its market value. Such value should be equal to the cost of such power as it is produced in like quantities and qualities in the most efficient manner, according to the state of the art for the area in which the power would be used. Such a policy would result in the Government securing revenues in excess of those which it would secure if the price of the power was determined by its cost computed according to the formula in the basic reclamation law. Under this procedure the difference in price between value and cost could be applied to the irrigation portions of the project.

You stated that you subscribed to that statement?

Mr. SARGENT. I am thoroughly in accord.

Mr. POULSON. In other words, you are in favor of the high-cost power for Arizona consumers, all the traffic will bear, is that right?

Mr. SARGENT. No, sir; I do not word it that way.

Mr. POULSON. That is the net. It is what the traffic will bear, what the market price is.

Mr. SARGENT. Begging your pardon, Mr. Poulson, I think that is your interpretation of what I said.

Mr. POULSON. I read the statement.

Mr. SARGENT. Yes. I am thoroughly in accord with what the statement says. I think that power should be sold at its fair competitive market value and I think the difference between that and the cost as computed under the reclamation law should be used for the purpose of justifying additional irrigation projects.

Mr. POULSON. We would sell it at a price to protect you and the other public utilities companies or at the prices at which you are selling power today in Arizona. That is the net result, is it not?

Mr. SARGENT. No, sir.

Mr. POULSON. Aren't you selling on the market price, or are you getting more today?

Mr. SARGENT. Our company is regulated by the State corporation commission and as you know, a State commission regulates all private utilities so they make only a reasonable profit, Mr. Poulson.

Mr. POULSON. Yes; that is right, and you believe that the power rates of public power should be brought up to equalize that?

Mr. SARGENT. Well, I think that regardless of who buys the power, whether it is the public agency or a private agency, when it is sold from a multipurpose dam involving irrigation that it should be sold at the market value of that power.

Mr. POULSON. Now that is the basic problem they have had in California, Mr. Welch, that the PG&E is advocating the same policy he has, whereas others have advocated it should be sold at the cost value, so there is the same problem tied up in a different package and it has the same elements that we have in the Central Valley. He is taking the same side the PG&E takes there.

Mr. SARGENT. To put it another way, unless that is done I do not believe that any future irrigation projects are going to be proved or made feasible in the Western States. I think all of them have been built which can be justified unless power pays the cost of them.

Mr. WELCH. Mr. Sargent, you do not believe that public power should enter into cutthroat competition with private power?

Mr. SARGENT. That is true.

Mr. WELCH. Neither do I. Furthermore, it is not necessary, in order to have interest component on public power used to relieve the cost of water to farmers and irrigationists.

Mr. POULSON. Now on the basis on which you figure, is that the reason that your utility and others in Arizona have not used any of the Hoover Dam power that was reserved for Arizona; in other words, because Hoover is low-cost power, and at the same time you consider Arizona is short of power?

Mr. SARGENT. We have had our application in for power from Hoover Dam for over a year, Mr. Poulson, and are ready, willing, and able to take all that we can get from Hoover power as soon as it can be made available to us and my chief fear at the present time is that we are going to get substantially less than we want to get from Hoover.

Mr. MURDOCK. I want to flag that point right there. This committee needs to know something about why Arizona and Nevada have not gotten the power from Hoover Dam to which the law entitled them. That is a pretty important matter, but it is too big to go into at this point.

Mr. POULSON. Who is responsible for it?

Mr. MURDOCK. There have been applications in.

Mr. POULSON. Who is responsible for it, do you know, Mr. Chairman?

Mr. MURDOCK. Well, the point is that there has been application not only from the central Arizona power but from the Arizona Power Authority, trying to get this power from Hoover Dam into Arizona. They are not getting it either in Arizona or in Nevada because of the set-up. It requires a special machinery to produce Arizona's power and that dynamo is being manufactured and it takes years to do it. That is the situation. Do not suppose for one moment because Hoover power is not being furnished in Arizona, according to the law, that it is because of anything excepting that we cannot yet comply with all the conditions to get it. That is the point.

Mr. POULSON. Well then, California is not holding them up, is it?

Mr. SARGENT. That is right, California is not holding them up, Mr. Poulson. I might just say here, sir, as I mentioned in my testimony, that the reason that we will be able to get by this year in Arizona and that we got by last year in Arizona has been through the cooperation and the help of the distributors in southern California who made their spare capacity available to the Bureau to let us have it in Arizona. That is a customary method of operation among utilities, whether they are public or private.

Mr. POULSON. Well, now I would like to know how you square your position as to selling power on the basis of market value, or what all the traffic will bear, with the policy set forth in the 1944 Flood Control Act and I will quote it:

> Transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers, consistent with sound business principles.

Mr. SARGENT. I think what I just said, Mr. Poulson, is in accordance with sound business principles. I think it is sound business principles for power to bear the cost of irrigation projects which when the benefits are measured, add up to real benefit to not only the area in which they are developed but to the Nation as a whole.

Mr. POULSON. Now what makes up this market value that you speak about? Production from obsolete plants?

Mr. SARGENT. If you will read my statement——

Mr. POULSON. Twenty-five-cycle plants and the like?

Mr. SARGENT. Mr. Poulson, if you would read my statement again that you read into the record you would see what I mean by it.

Mr. POULSON. Well, you have an obsolete plant in order to make a profit——

Mr. SARGENT. That is not what my statement——

Mr. POULSON. Twenty-five cycle plants which you have in Arizona and if they have to make a profit and you have to bring all the public power which comes in there up to a price that equals that, what is happening? Are the people of the State getting the advantage of low public power? You are going to benefit those few men that have these 5,000-acre farms there by getting it in but you are going to make the people of Arizona, the little consumer, the man who is trying to make both ends meet and once in a while wants to take his family out on a week's vacation and bring back some of that revenue that is supposed to be brought in here through recreation, you are going to make him pay for these projects instead of the farmers that have the 5,000 acres and they get $2,000 an acre.

Mr. MURDOCK. Mr. Poulson, you have crowded that question.

Mr. SARGENT. May I answer that?

Mr. MURDOCK. I do not believe you can answer that. There are 5 or 10 questions crowded into one. I would appreciate it if members of the committee would put direct questions and wait until the witness can answer them.

Mr. POULSON. I will say it this way, that you are making the power consumer, the little man in Arizona pay for this dam instead of the farmers.

Mr. SANBORN. Mr. Chairman, might I just ask the gentleman one question?

Mr. MURDOCK. You mean Mr. Poulson?

Mr. SANBORN. Mr. Poulson.

Mr. MURDOCK. Do you yield?

Mr. POULSON. Yes.

Mr. SANBORN. Do you believe in the contribution of power to irrigation works?

Mr. POULSON. Do you mean——

Mr. SANBORN. The formula that has been advocated by the Bureau of Reclamation.

Mr. POULSON. I think you know that I do not believe in the complete subsidies to the extent to which they are now attempting to go to date.

Mr. SANBORN. You do believe in some?

Mr. POULSON. Yes, I believe in some.

Mr. MURDOCK. Now, Mr. Sargent, did you get the last question asked?

Mr. SARGENT. No, sir; I did not get the last question.

Mr. MURDOCK. Would you repeat it?

Mr. SARGENT. No; I think I would like to try to answer two of the points that Mr. Poulson made in the statement which you made just prior to Mr. Sanborn.

Mr. MURDOCK. Yes; very well, go ahead.

Mr. SARGENT. One was his statement we would use old and obsolete plants as a measure of the market value of power, which is an oversight or a distortion of the statement that he read into the record from the letter that he quoted from in which it was stated that the market value of the power would be computed on new plants according to the state they are in at the time the contracts are entered into, and, second, with respect to the small poor consumer bearing the cost of this; I would just like the record to show that the residential customer in Arizona that is served by my company is paying rates that are 16 percent less than the national average.

Mr. MURDOCK. Well, that will make me feel better about my power bill at home in Tempe.

Mr. POULSON. By the way, how much is Parker power delivered in Phoenix costing?

Mr. SARGENT. A little over 2 mills, about 2¼ mills.

Mr. POULSON. How much are you selling it for?

Mr. SARGENT. Some of it we sell as low as 5 mills. We are serving over 35,000 kilowatts of irrigation load in the State of Arizona at rates which average between 6 and 7 mills and that is in excess of the entire amount of power that we buy from Parker Dam.

Mr. POULSON. Now Hoover power has been available since 1937 and Nevada applied, but Arizona did not apply until 1949. Do you know why the 11 years' delay in applying for power?

Mr. SARGENT. I have only been in Arizona a little over 3 years so I do not know of a certainty as to why the application was not made prior to that time, but my judgment——

Mr. POULSON. As president of a big company like that, you certainly should know something of the background.

Mr. SARGENT. If you will let me finish, I will try to answer you, sir. I think the reason that application was not made was that in order for Hoover power to be economic within the State of Arizona you had to apply for a quantity large enough to be able to carry the fixed charges, not only on the new units that had to be installed in Hoover Dam but also on the necessary transmission lines to get it from the dam to the market, and the loads in Arizona have only grown to the point where applications could be made in that quantity, since the year 1945. Prior to that had applications been made by Arizona for Hoover power, the amount of power taken out would have been so small compared with the large investment necessary to get it in that the price would not have been economical.

Mr. POULSON. Do you not think you are getting very optimistic? In fact, you are even exceeding the Los Angeles Chamber of Commerce when you say you did not need power, did not apply until 1948 for Hoover power and how you figure in another 10 years you can use all the power from this Bridge Canyon Dam? Do you not think you are getting really up in the clouds in your planning?

Mr. SARGENT. Based on the growth in the past 5 years, Mr. Poulson, it is a very conservative estimate because we are estimating a rate of growth in the next 10 years at less than half of the rate we have had in the last 5 years.

Mr. POULSON. Then on that basis you believe you can use all the power from the Bridge Canyon Dam?

Mr. SARGENT. Yes, I do.

Mr. POULSON. You are willing as a company to sign up for the same?

Mr. SARGENT. My company is not the largest distributor of power in the State of Arizona but the group that I represent of the Electric Coordinating Committee, according to the studies that we have made, is firmly of the opinion that the power can be used in its entirety when it becomes available.

Mr. MURDOCK. Are there further questions of Mr. Sargent? If not, we thank you very kindly, Mr. Sargent, for that statement.

Our next witness is Mr. Lane. While Mr. Lane is coming to the witness stand, I want to say to the committee that Mr. Sargent gave us a good answer as to why Arizona had not applied for and received the power due it under law from Hoover Dam, but there is a point of that answer that he has not touched on which is pretty elaborate and I want at some future time to make it clear to this committee. We cannot afford, however, to take the time now to do it. Mr. Lane.

REBUTTAL STATEMENT OF W. W. LANE, CONSULTING ENGINEER, PHOENIX, ARIZ.

Mr. LANE. My name is W. W. Lane. I am consulting engineer from Phoenix, Ariz., and I have previously been before this committee and presented a statement. I have a statement today that I wish to present, but due to the press of time and the short time that Arizona has allotted to it to finish, I will just read the summary and will present the paper for the record.

There has been some testimony put in regarding the underground water reservoirs, and so forth, that this paper is in answer to, and in summation of the paper that I am presenting now, I read as follows: There is an adequate ground-water reservoir under the lands of and for the storage of flood and surplus waters for the central Arizona project. This underground reservoir was partially filled by the inflow for centuries. Filling was completed by irrigation in 1921 but it is now being mined of its contents and is being rapidly depleted as its draft far exceeds its inflow.

There are 728,000 acres which are or have been in cultivation within the central Arizona area within Maricopa and Pinal Counties, all endeavoring to survive on the surface and/or the underground supply now available although some of this acreage is not included within the boundaries as outlined by the Bureau of Reclamation for the project area.

Spreading of floodwaters for percolation into the underground reservoir should be done to the maximum extent practical, but due to occasional high peak floods of short duration beyond control by reasonable reesrvoir capacities this cannot be completely affected within the area. Such uncontrolled surplus, however, can be regulated lower on the Gila River for use in Arizona and in Mexico.

Salvage from phreatophytes can and will be done to the extent practidable when effective means are developed.

I might say in regard to that that there has been a good deal of effort made to control the growth of these plants. It has been a very difficult thing to do. However, I think progress is being made and there will be means worked out to where partial control at least may be effected.

With the fullest practicable utilization of all local waters coming into the area and an adequate outflow for salinity control, there will be an estimated deficit of 924,000 acre-feet per annum, which can only be made up from the Colorado River.

Mr. Chairman, I read just a summary of this because of the pressure of time and the conclusions read are more in detail in the paper itself.

Mr. MURDOCK. Yes. The statement will be inserted in the record as if it had been read in its entirety.

STATEMENT OF W. W. LANE, CONSULTING ENGINEER, PHOENIX, ARIZ.

Mr. LANE. My name is W. W. Lane. I am a consulting engineer from Phoenix, Ariz. I have been engaged in irrigation work in Arizona and the Southwest for the past 30 years.

I have previously presented a statement before this committee endeavoring to show the needs for irrigation water in central Arizona, the total of the local water available, and the amount of additional water required from adequate irrigation supply. I request that this statement be considered a part of, and a supplement to, my previous statement.

A statement presented by Mr. Clayburn C. Elder, employed by the Metropolitan Water District of Southern California, and including the presentation of a statement by Mr. Harold Conkling, a consulting engineer, attempts to show that local streams and underground reservoirs will fully supply the needs of the central Arizona project.

UNDERGROUND RESERVOIRS

I wish to quote from Mr. Elder's statement at the top of page 4 thereof as follows:

> Beneath the central Arizona project and within a certainly economic pump lift of, say, 200 feet and not over 150 feet long-time average, there is a ground-water reservoir still nearly filled with water in spite of years of drought and pumping. Its capacity is at least 45,000,000 acre-feet, or 50 percent greater than the total capacity created by Hoover Dam at Lake Mead. It is much more than 10 times the capacity of all the numerous great central Arizona surface reservoirs combined, including those now proposed as well as all reservoirs now in operation. This ground-water basin capacity is ample to conserve and regulate all flood spills and waste of wet years until needed in subsequent dry periods.

Mr. Elder does not show his computation as to how he arrives at the 45,000,000 acre-feet capacity. He stated orally that the subsurface soils have voids of approximately 15 percent in which water may be stored—using his depth of 200 feet, this would require a surface area of 1,500,000 acres, all with a minimum of 200 feet in depth of alluvial fill. There are not that many such acres in the area. The gross of such acres is under 1,000,000 acres. Using 1,000,000 acres, however, reduces its capacity by one-third, or to 30,000,000 acre-feet.

On page 10 of my previous statement there is a tabulation of the water pumped for the years 1940 to 1947, inclusive, within the area, as taken from the records of the United States Geological Survey. The total is 12,800,000 acre-feet, or an average of 1,600,000 acre-feet for the 8 years, and 2,100,000 acre-feet for 1947 alone. Upon this basis there is a supply for not to exceed 6 to 8 years now remaining

if about the same amount is annually pumped. It is of interest, however, that during the past 4 years there has been a serious shortage of water for the lands in spite of the increased pumping, and if such shortage is aggravated by added pumping from this source, the present supply would be exhausted within a short time.

The water that has filled this reservoir, and which has greatly aided in the recent years' water supply, has been accumulated over the centuries. In order to continue the usefulness of this reservoir there must be a recharge into it equal to the withdrawal or outflow. The accumulation of the past centuries has been and soon will be mined from the area. Irrespective of theory, the proof of the pudding is the eating.

The fact is that the water level is receding and upon an accelerated rate as shown in my preceding paper quoting records of the United States Geological Survey. The farmers are drilling deeper wells and lowering their pumps in many instances trying to keep pace with the drop. Some wells on the fringe of the valley in the shallow alluvial fill areas are now dry. The new wells that are being drilled on the presently irrigated lands are in many instances not increasing materially the total withdrawal but are to some extent reducing the production of surrounding wells. The deeper wells are proving that the deeper water-bearing strata are tighter and not as productive of water as the more recent and less compacted upper strata.

This large underground reservoir is a great asset to central Arizona. It does have a large capacity and should and must be used as a reservoir. Capacity of a reservoir is of no value unless water is provided to utilize the capacity. In analyzing the available inflow into the central Arizona area due consideration was given to the use of underground as well as surface reservoirs to the maximum practical extent.

SPREADING CANALS

Mr. Elder stated that there should be three large spreading canals to distribute the infrequent and very large spills from the watershed above this area. He proposes an additional canal on the north side of Granite Reef Dam flowing westerly of 3,000 second-feet, one of 1,100 second-feet on the south side, and one of about 420 second-feet in Pinal County, or an aggregate capacity of 4,520 second-feet. In theory this is good, and would be of some advantage to aid in the control and spreading of run-off from the small local washes surrounding the valley as well as from reservoirs. When these heavy precipitation periods occur which result in large spills at the surface reservoirs, the land is also saturated. The spills over those reservoirs are very infrequent but are of relatively short duration and of large volume. It is not uncommon in such floods to reach 100,000 or more second-feet over the dams alone. The 4,520 second-feet would not take much of this flow when they do occur but would be generally utilized in handling the smaller and more frequent local wash flows. To utilize these excessive peak flows by storing in the underground reservoir will require millions of acre-feet in large-capacity surface reservoirs just to detain this water to permit its gradual release for spreading. This may be accomplished in part by the raising of the present dams, and the construction of additional dams on the main

streams, but it will also require the construction of storage facilities around the valley on the numerous smaller streams and washes. In the latter case such dam and reservoir sites are not readily available in the flatter terrain.

This water, however, need not be lost to the basin. The United States Army Engineers are now proposing to construct a flood-control dam below this valley at a point called Painted Rocks on the Gila River. This is the logical place to collect such excessive peak flows that cannot be retained for spreading above. This water can then be utilized to the benefit of lands in the Yuma area, and for delivery to Mexico in satisfaction of a small part of its treaty rights to the extent available, which in turn will be a benefit to the lower basin States, including California.

WATER TABLE

Mr. Elder referred to the fact that in 1903 the water table under the Salt River Valley project was 48 feet below the surface, and in 1947 it was 54 feet, only 6 feet lower. Referring to the chart included in Mr. Conkling's statement showing the record of this water table for this period, it will be noted that from 1903 to 1920 the water table within this area rose to only 15 feet below surface in 1920, and the drop in the table from 1920 to 1947 has actually been 39 feet.

I wish to quote from the report of the United States Geological Survey of February 4, 1947, entitled "Geology and Ground-Water Resources of Salt River Valley Area, Maricopa and Pinal Counties, Arizona," by H. R. McDonald, H. N. Wolcott, and J. D. Hem, page 23, as follows:

SALT RIVER PROJECT

In 1913 the water table was less than 10 feet below land surface in approximately 12 percent of the area occupied by the Salt River project, according to data furnished by the Salt River Valley Water Users' Association. In about 67 percent of the project area the water table was from 10 to 15 feet below the land surface and in about 21 percent of the area the depth was from 50 to 150 feet (pl. 2). The water table in 1945 was less than 10 feet below the land surface in only 0.2 percent of the area, and 10 to 50 feet in about 55 percent of the area, and from 50 to 150 feet in about 45 percent of the area (pl. 3).

Also:

In general, the water table in the Salt River project rose from 1913 to 1920 and then started the decline that has continued to the present time.

In 1903 there were less than 100,000 acres cultivated in all of central Arizona. There were no storage dams and no irrigation wells. A dry cycle was then in effect which broke in 1905 and a wet cycle continued until 1921 which resulted in large river run-offs. The Roosevelt Dam started operation in 1911, which began the spreading of retained flood flows over the land within that project. Land was going into cultivation at an increasing rate throughout central Arizona, principally by putting in wells and by 1920 there was near 450,000 acres under cultivation. Later other dams were constructed and more wells drilled until now this acreage has increased to around 728,000 acres and there are now around 2,000 wells in operation drawing from the underground reservoir. The filling of the underground reservoir from 1903 to 1920 within the Salt River project and under the other lands could not now occur to the same extent as then occurred. The record

of draw-down from 1920 to 1947 as shown for the Salt River Valley also occurred in the other areas, definitely indicates the need for additional water.

UNDERGROUND-WATER STUDY

The United States Geological Survey has been making underground-water studies in Arizona since 1940 to date. They have collected much valuable data on both the geology and safe yields from this storage. Mr. G. E. P. Smith, formerly professor of civil engineering at the University of Arizona, to whom Mr. Elder referred, also has for many years conducted extensive underground studies. Both Mr. Smith and Mr. Turner, a district engineer of Ground Water Division for the USGS in Arizona, have consistently and upon many occasions given press releases, appeared before our State legislature, and at other water hearings stating the gross overdraft now being made upon the underground water. They have not publicly reversed this stand. The USGS has made a tentative estimate of the safe annual yield from this source of 714,000 acre-feet annually. It is subject to corrections and refinements, but such cannot materially affect their final results. The Bureau of Reclamation uses slightly less annual yield than given by the USGS. Further, such studies can and will be beneficial, but it will not make more water, and their final results after many more years of such study cannot affect the need for the project.

In the final analysis, the available water from local sources for the project is the total water coming into the area, less natural and necessary losses such as unpreventable and necessary outflow and evaporation. The capacity of the underground reservoir is extremely useful, but its usefulness is limited to its inflow.

The inference from the statement of Mr. Elder is that, with all of this water available, only requiring the pumping of it to the surface from the relatively shallow depth referred to and the spreading of floodwaters as they occur to replenish the supply indicates ample local water. If this theory and inference were true in this area, it would likewise be similarly true of many other western areas now being and proposed to be supplied with water from extensive and costly facilities which could have and could now obtain their water from the same type source, including the areas within the Metropolitan Water District now taking and proposing to take more water from the Colorado River with a pump lift of approximately 1,600 feet.

PHREATOPHYTES

Much has been said about the use of water by water plants that inevitably grow in the river channels where return-flow percolation occurs, and which is giving considerable concern in many reclamation projects. Many and extensive efforts have been made to eradicate such growth. No satisfactory results have as yet been obtained, but progress is being made and to some extent such wasteful use will be curtailed. It has been definitely found that the slow process of trying to pump the water from under them does not work as the roots can and will follow down faster than the possible lowering by pumping. They are hardy plants. Other means can and will be found to reduce this loss. Some salvage is necessary from this source even with the

Colorado River water as proposed, to enable irrigation to continue on the 728,000 acres now and in the past irrigated in the central Arizona area.

WATER SUPPLY

In my previous statement, pages 19 and 20 thereof, there is an analysis of the total usable and available water from all local sources. In this analysis, consideration has been given to all of the water and facilities as mentioned herein. I will not repeat the tabulation here. It will be noted in this analysis that, by taking all of the factors into account and the necessary outflow for salinity control, there is a deficit of 924,000 acre-feet. This is taking into consideration the 728,000 acres of cultivated land within the area, although some not included in the boundaries of the project lands as considered by the Bureau. Such lands bordering upon but now within such boundaries drawing water from the same underground reservoir must be taken into the same accounting. This is also as expressed by Mr. Matthew in his testimony before this committee.

The only source of water to make up the deficit is from the Colorado River.

Mr. MURDOCK. We appreciate your statement. I regret that your facts must necessarily refute Mr. Elder on underground supply.

Do you mean to say, then, Mr. Lane, that at the very best we can salvage water from these shrubs and plants that are growing along our canals and streams now, that waste into the air so much; that there will still be a need of importing water, nearly a million acre-feet?

Mr. LANE. That is my statement, Mr. Murdock.

The total amount of tree consumption may run as high as 300,000 to 350,000 acre-feet, but I do not believe it will ever be possible to completely eliminate some loss from that type of growth because it is bound to occur along any stream channels.

However, I do think that some or close to half of that amount should be eventually salvaged.

Mr. MURDOCK. Are there questions?

Mr. POULSON. Yes.

Forgetting the controversy about water coming in, do I understand you to say that you are not in accord with Mr. Elder as to amounts, and so forth, but there is some underground water and that you believe that a thorough study should be made of this possibility?

You do believe in that? We are forgetting about your central Arizona project.

Mr. LANE. The term "underground water" is the terminology, of course, that we use, but underground water must come from some source, and the only source that we know of that it can come from is from the drainage area of the streams surrounding it; that the water percolates into the ground and is stored there in these alluvial-fill areas.

That is what we know as underground water. It is really a storage of water in underground reservoirs. We do have a substantial underground reservoir under these lands, but in order to make those useful we must have an inflow to those reservoirs equal to our outflow, or we would be mining the area that is there.

Mr. POULSON. How much of it have they dropped in the past 10 or 15 years?

Mr. LANE. In the past 10 or 15 years they have dropped on the average, throughout the total area, I would say, around 60 feet.

Mr. POULSON. That did not conform with the statement Mr. Elder made here.

Mr. LANE. Mr. Elder's statement said that in the Salt River Valley project in 1903 the water table was 48 feet below the surface. In 1947 it was 54 feet, but Mr. Elder, if you will refer to a chart and a tabulation in Mr. Conklin's paper, you will find that in 1903 the water table was approximately 48 feet.

In 1920, however, that water table was 15 feet. During that period, beginning with 1903, there was less than 100,000 acres in cultivation in the total area. That is not only Salt River but the entire central Arizona. There are no wells, no dams at that time. Then we hit the wet cycle, beginning in 1905, and the Roosevelt Dam came into operation in 1911.

During that period, up to 1920, the water table increased until in the Salt River project it was only approximately 15 feet.

Now, in 1947, however, the water table within the Salt River project alone was 54 feet, or a drop of 39 feet in the 27 years.

Mr. POULSON. Do you agree with Mr. Elder that the practices, for instance, of the handling of that growth in there, would help this matter?

Mr. LANE. I agree with anyone that to any extent we can eliminate this growth, which is a thing that is giving all reclamation projects throughout the Southwest a good deal of concern, is something that would be beneficial to any such project.

Mr. POULSON. Would not the cost of conserving that water that way be many, many times less the cost of these huge projects?

Mr. LANE. The cost in controlling those; of course, we do not know what that cost is because so far they have not been able to control it. There as been a good deal of money spent on them, along the middle Rio Grande and in several other areas.

The various agencies of the Government have spent a good deal of money; but, so far, they have not worked out a satisfactory or effective plan of controlling them.

I am optimistic enough to think that sooner or later there will be some means worked out, but even then you are talking about probably a 5 or 10 percent, 5 percent I would say as a maximum amount you are talking of water required within this area.

Mr. MURDOCK. Are there further questions?

If not, I had just one more. Do you believe that there is an underground capacity in central Arizona of 45,000,000 acre-feet?

Mr. LANE. No; I do not believe there is one of that extent, Mr. Murdock. I do believe, and I know that there is a very large underground capacity, sufficient for any amount of water that we would have available to put into it.

Mr. MURDOCK. Thank you, sir.

This part of our testimony is running a little longer than I thought. Mr. Carson, have you anything further for today?

Mr. CARSON. No; I would suggest we will not have anything further for today, but that concludes what we will have except for one other witness and myself at the conclusion of Mr. Howard's testimony.

Then I would like to put in the record a statement made by Mr. O. L.

Norman before the Senate committee. After making that statement, and while he intended to be present for this hearing he had a heart attack at home and cannot come. His statement, however, was along the lines which have been last discussed as to the underground water supply in Arizona and the use of electrical energy in Arizona; and, while it was directed at a former statement put in the Senate committee hearing by Mr. Conklin, still Mr. Elder put in a statement by Mr. Conklin which is somewhat different in material respects from the same engineer's statement put in the Senate committee hearing; and, therefore, a part of Mr. Norman's statement is not entirely applicable to the statement put in in this committee. There is a great deal of it that is applicable to whatever the situation might be relating to ground water and the utilization of power in Arizona.

I will bring it tomorrow and ask permission to put it in the record.

Mr. MURDOCK. How long would it probably take you, Mr. Carson, in finishing the rebuttal?

Mr. CARSON. Mr. Moeur has kept track of our time here, and he has about 20 or 22 minutes for all of Arizona, and we think we will still be able to stay within an hour on direct statements.

Mr. MURDOCK. Does the committee understand that Mr. Engle said this morning that he would relinquish the committee room for tomorrow for this committee?

I believe that was it. With that understanding, then, the hour is rather late, the committee should adjourn now and will reconvene tomorrow at 10, with Mr. Ely as our witness.

The committee stands adjourned.

(Whereupon, at 4:20 p. m., the committee adjourned, to reconvene Tuesday, June 7, 1949, at 10 a. m.)

(Rebuttal statements presented on June 7, 1949, are as follows:)

Mr. MURDOCK. Mr. Carson, I will ask you now to proceed with rebuttal. Did I understand that you wanted Senator McFarland to take a few moments?

Mr. CARSON. Yes.

Mr. MURDOCK. Senator, we are glad to have you with us, and we are glad to have you take a few minutes in rebuttal.

STATEMENT OF HON. ERNEST W. McFARLAND, A UNITED STATES SENATOR FROM THE STATE OF ARIZONA

Senator MCFARLAND. Mr. Chairman and members of the committee, I do not want to trespass upon Mr. Carson's time.

There have been a few things said in regard to this legislation which I would like to rebut by placing in the record statements which I have made before the House Judiciary Committee and before the Senate Interior and Insular Affairs Committee.

I know that you are coming to the conclusion of these hearings and that all of you are tired and want to finish them. For that reason, I will place such statements in the record and will not read them.

The first is a statement rebutting the testimony of Mr. Ely in regard to the legislative history of the Boulder Canyon Project Act. I would call your attention to the fact that this legislation took months and months; that statement after statement was made on the floor. Of

course, in debates questions are asked and answers are given which might indicate one particular thing when viewed in isolation; but, when you take the record as a whole, there is no question in my mind that Congress fully understood that Arizona was to have the exclusive use of the Gila River and all of the waters in it, that California was limited to 4,400,000 acre-feet of the 3–A water; and that California was excluded from the use of 3–B water, because 3–B water is apportioned water.

The effect of the Boulder Canyon Project Act is that California does not get the 3–B water.

I have extracts here from statements which were made on the floor of the Senate which support Arizona's contention in this regard. The most important probative elements, if you please, are the questions propounded to Herbert Hoover by Senator Hayden and Mr. Hoover's replies, which the Senator presented to the Senate, and which prove that Mr. Hoover stated that 3–B water was apportioned water.

California has admitted in these hearings that, if 3–B water is apportioned water, she is not entitled to any of it. She has made a statutory contract with the United States of America for the benefit of the other interested States which effectuates this principle.

I ask, Mr. Chairman, that my statement in this regard be placed in the record. I know the committee will appreciate that if we would go into the actual reading of all of the pertinent portions of the debates as set forth in the Congressional Record, we would be engaged even longer than you have been in these hearings; and you do not want that to occur, I know.

(The statement referred to is as follows:)

SUPPLEMENTAL STATEMENT OF SENATOR ERNEST W. MCFARLAND

California has chosen to expound its views on the legislative history and interpretation of section 4 (a) of the Boulder Canyon Project Act, by the device of quoting short extracts from the Congressional Record, reporting statements made on the floor of the Senate at the time the bill was under consideration; and California has attempted by citing the fragments so selected to prove that certain Senators understood the Colorado River compact to mean that the article III (b) water was "excess or surplus waters unapportioned by said compact," to which California would be entitled to one-half under the provision of the then prospective act. However, the reading of the full text of the statute, and of the whole record of the Senate debate, plentifully demonstrates that the contrary is true.

Take, for instance, the remarks reported on page 389, volume 70, of the Congressional Record of the Seventieth Congress, second session, where Mr. King and Mr. Phipps are quoted as asking the following questions and Mr. Johnson as having made the following answer:

"Mr. KING. Does California agree there shall be a limitation if there is a seven-State compact?

"Mr. PHIPPS. If there is a seven-State compact, in the terms of this amendment: yes. May I ask the Senator from California if I am correct?

"Mr. JOHNSON. My impression is that the amendment provides, first, for a seven-State compact, and, secondly, for a six-State compact, in which event the Legislature of the State of California pledges itself never to use a greater amount than 4,400,000 acre-feet."

Mr. Johnson's statement leaves no doubt but that he understood that California was to be required to limit itself to 4,400,000 acre-feet of the water apportioned to the lower basin.

At a later point on the same page of the Record, Mr. Phipps explained his opinion upon the limitation in the following language:

"Mr. PHIPPS. I have always understood the principal bone of contention to be the division of the water. Now, by vote of the Senate, if it is carried into effect by concurrence of the House, that figure is fixed. The maximum to California

would be 4,400,000 acre-feet. There is every reason to believe that would be acceptable to California."

In its memorandum California refers to a part of the colloquy appearing on page 459 of the same volume of the Record, a portion of which I now will repeat to refresh the memory of the committee.

"MR. KING. If I may have the attention of the Senator from California and the Senator from Colorado, I direct attention to line 5, page 3, of the amendment offered by the Senator from Colorado. Let me read back a few words: 'plus not more than one-half of any excess or surplus waters unapportioned by said compact.' I was wondering if there might not be some uncertainty as to what surplus waters were therein referred to. I think it was the intention to refer to the surplus waters mentioned in paragraph (b) of article III of the compact, being the 1,000,000 acre-feet supposed to be unappropriated.

"MR. JOHNSON. No; that is not quite my understanding. It is by no means certain that there is any other, and it is by no means certain that there is the 1,000,000; but the language referred to any other waters.

"Mr. KING. Speaking for myself, I have no objection; but I was under the impression that the purpose was to link it with paragraph (b) so as to be sure that California was to receive one-half of the 1,000,000 acre-feet.

"Mr. JOHNSON. Not necessarily. This gives one-half of the unapportioned water, and I think it is a better way to leave the matter.

"Mr. KING. If it is sufficiently certain to suit the Senators of the lower basin, I have no objection.

"Mr. JOHNSON. I think it is."

Now, when this last series of remarks are compared with those which I have just quoted from page 389, it is clear that Mr. Johnson knew that California was to be limited to the 4,400,000 acre-feet, and that the waters embraced by the article III (b) of the compact were not in the class of excess or surplus waters. If he had not so understood, he would not have answered the question by saying "No; that is not quite my understanding." Rather, had he in fact thought that to be the case, he would have definitely stated that article III (b) waters were excess or surplus waters, and that California would be entitled to half thereof, as well as half of any other surplus waters. In my opinion, Mr. Johnson did not state that the III (b) water was in fact excess or surplus water, first, because he knew that such an interpretation was incorrect and, second, because he realized that such an interpretation would only create additional opposition to passage of the bill so greatly desired by California.

California's printed memorandum likewise attempted to take an answer made by Senator Hayden on page 460 of the same volume of the Record, and from the answer to render an interpretation to the effect that Mr. Hayden lumped the III (b) waters in with any other excess or surplus or unapportioned water, and that he expressed the view that all such waters were subject to the same disposition. To clarify the situation, I now quote the question preceding the one quoted by California, all of Mr. Hayden's answer thereto, and the remainder of the colloquy, through the complete pertinent statement made by him, of which only a portion is quoted in said memorandum.

"Mr. KING. And that is provided in the compact, is it not?

"Mr. HAYDEN. Yes; and the compact has been so interpreted. If the Senator from Utah is interested in an interpretation of the meaning of surplus unapportioned water, I might well read to him an answer to a question I addressed to Mr. Hoover shortly after the compact was written. I asked Mr. Hoover:

" 'What is the estimated quantity of water which constitutes the undivided surplus of the annual flow of the Colorado River, and may the compact be construed to mean that no part of this surplus can be beneficially used or consumed in either the upper or the lower basins until 1963, so that the entire quantity above the apportionment must flow into Mexico, where it may be used for irrigation and thus create a prior right to water which the United States would be bound to recognize at the end of the 40-year period?'

"Mr. Hoover's answer to that question was:

" 'The unapportioned surplus is estimated at from 4,000,000 to 6,000,000 acre-feet, but may be taken as approximately 5,000,000 acre-feet.'

"He referred to the unapportioned surplus in both basins.

" 'The right to the use of unapportioned or surplus water is not covered by the compact. The question cannot arise until all the waters apportioned are appropriated and used, and this will not be until after the lapse of a long period of time, perhaps 75 years. Assuming that each basin should reach the limit of

its allotment and there should still be water unapportioned, in my opinion, such water could be taken and used in either basin under the ordinary rules governing appropriations, and such appropriations would doubtless receive formal recognition by the Commission at the end of the 40-year period.

"'There is certainly nothing in the compact which requires any water whatever to run unused to Mexico, nor which recognizes any Mexican rights, the only reference to that situation being the expression of the realization that some such right may perhaps in the future be established by treaty. As I understand the matter, the United States is not "bound to recognize" any such rights of a foreign country unless based upon treaty stipulations.'

"So Mr. Hoover, who was the chairman of the Commission which made the compact, expresses it as his opinion that surplus and unappropriated waters above the allocation in the compact are unaffected by the compact, and are subject to appropriation in any State. I think that is not only a very important interpretation of the compact, but it is a sane, logical, and legal conclusion.

"Mr. KING. Mr. President, will the Senator yield?

"Mr. HAYDEN. I yield.

"Mr. KING. Does the Senator interpret the compact to mean that if there is any unappropriated water in addition to the 1,000,000 acre-feet referred to in the compact, that that is subject to the same disposition or division as the 1,000,000 acre-feet?

"Mr. HAYDEN. There is no question about it, in the light of the statement I have just read which was written to me in answer to a specific question which I propounded to Mr. Hoover * * *."

In the light of a more complete disclosure of the discussion, there seems to be no doubt about Mr. Hayden's understanding of the fact that the surplus to which he was making reference was a surplus of waters above and beyond that referred to in articles III (a) and III (b).

I quote again portions of Mr. Hoover's answer to Mr. Hayden's question, as follows:

"The question cannot arise until all the waters apportioned are appropriated and used, and this will not be until after the lapse of a long period of time, perhaps 75 years. Assuming that each basin should reach the limit of its allotment and there should still be water unapportioned, in my opinion, such water could be taken and used in either basin under the ordinary rules governing appropriations, and such appropriations would doubtless receive formal recognition by the commission at the end of the 40-year period."

Obviously, Mr. Hayden, in the course of responding to Mr. King's question, would not have been referring solely to the III (b) water, for Mr. Hayden well knew that such water could be used by the lower basin States. It is therefore clear that in his response to Mr. King's question, Mr. Hayden doubtless referred to the division of waters which might be in excess of those mentioned in articles III (a) and III (b), which were clearly not thought by Mr. Hayden to be surplus, as was manifest by the perusal of the two answers made by him, taken together.

To clinch the proof upon this point, I likewise will quote a question propounded by Mr. King at the foot of the self-same page 460, and the answer made by Mr. Hayden at the top of page 461 of the volume in question:

"Mr. KING. Does the Senator interpret the compact to mean that if there should be, for instance, 16,000,000 acre-feet of water in the river, and by any treaty negotiated between the two Governments Mexico should be allocated 1,000,000 acre-feet, that that 1,000,000 acre-feet should be taken from the 1,000,000 surplus; that is, the 16,000,000 and not any part of the 15,000,000 be called upon to meet that payment?

"Mr. HAYDEN. The compact, from a literal interpretation of its words, means that the upper basin and the lower basin shall meet that deficiency equally, regardless of how much water is apportioned to each basin.

"In further answer to the question of the Senator from Utah, the compact states that any water must first be supplied to Mexico out of the surplus or unapportioned water; but if it is necessary to supply Mexico with any water out of that water which is apportioned in each basin—that is to say, the 7,500,000 acre-feet apportioned to the upper basin and the 8,500,000 acre-feet apportioned to the lower basin—then the upper basin is burdened with furnishing one-half of the water, and these words I think, should convince the Senator * * *."

There could scarcely be a clearer indication as to what Mr. Hayden understood to be excess or surplus waters, and waters unapportioned by the compact. Patently, Mr. Hayden knew that article III (a) of the compact apportioned 7,500,000 acre-feet, and that article III (b) apportioned an addtional 1,000,000.

Again, as in the hearings on S. 1175, I wish to refer to the volume entitled "The Hoover Dam Contracts," and more particularly to page 395 thereof, where there appears a question propounded by Mr. Clarence C. Stetson to Mr. Hoover, as well as Mr. Hoover's reply, the question being in the following language:

"Why is the basis of division changed from the 'Colorado River system' to the 'river at Lee Ferry' in paragraph (d) of article III, the period of time extended to 10 years and the number of acre-feet multiplied by 10?"

The answer is:

"I do not think there is any change in the basis of division as the result of the difference in language in articles III (a) and III (b). The two mean the same thing. By reference to article II (f) it will be seen that Lee Ferry, referred to in III (d), is the determining point in the creation of the two basins specified in III (a)."

The committee will recall that a California witness attempted to explain this answer away by speculating that it was a typographical error. However, the fact remains that the question and answer were placed in the Congressional Record by Mr. Hayden as far back as January 30, 1923 (vol. 64, 67th Cong.) and remained unchallenged through all the years of consideration of this subject.

I have hesitated to burden the record of this hearing with some of the statements made on the floor in the course of the lengthy debates attendant upon the passage of the Boulder Canyon Project Act. However, I think it beyond question that the clear intent of Congress may be ascertained by perusal of such statements in connection with the language of the Boulder Canyon Project Act itself; and the necessary conclusion is that it was the intention of Congress to limit California to 4,400,000 acre-feet of the III (a) water, and that Congress understood III (b) water was "apportioned" and so voiced its interpretation in the explicit text of the statute itself, which also demonstrates that the excess and surplus waters mentioned in such statute are waters above and beyond the 8,500,000 acre-feet embraced in article III (a) and III (b), as was clearly pointed out by Mr. Hayden, as just shown.

Senator MCFARLAND. I want to say that I understand that Mr. Carson is going to cover one point with which I agree 100 percent. The Boulder Canyon Project Act itself makes clear that 3–B water is apportioned water; and the Supreme Court has held that 3–B water is apportioned water. That being true, the legislative history is unimportant. I only place my statement in the record because, if anyone is interested, they may see that the conclusions in Mr. Ely's testimony in that regard are not correct.

Mr. Carson is more able than anyone else to discuss the Supreme Court case. He was the principal attorney in that case. The Supreme Court disposed of that matter at that time. He can discuss it with you in detail.

I cannot help calling attention to the fact that, though these California witnesses today admitted that the statements were in the Supreme Court's decision, they tried to turn the decision on another point and to say that such statements were merely a dictum and, therefore, the statements were not legally significant.

The Supreme Court said—

but the fact that they are solely useful to Arizona—

referring to the 3–B waters—

or the fact that they have been apportioned by her does not contradict the intent clearly expressed in paragraph b, nor the rational character thereof, to apportion the 1,000,000 acre-feet—

and California admits that she is not entitled to the water if it is not apportioned—

to the States of the lower basin and not specifically to Arizona.

This language was no dictum; it was a part of the substantive decision of the Court.

As I stated, Mr. Carson will undoubtedly go into that matter more in detail and has already done so before this committee. The Supreme Court has said the language is clear. It makes no difference what the parties may have admitted or denied in their pleadings. The Supreme Court had the question before it; and that is the way the Court disposed of the proposition, by saying that the 3–B water was apportioned to the lower-basin States instead of to Arizona alone. The Supreme Court having spoken, I consider it final.

Reference was made to some of the statements which I made before the House Judiciary Committee in regard to the question of justiciable controversies. I want to say that the dispute between Arizona and California is not a justiciable controversy upon the present status of the case, and cannot become so until an injury, actual or threatened, comes into the picture.

Mr. Chairman, the evidence of the various interested States before the House Judiciary Committee and before the Senate Interior and Insular Affairs Committee, other than the evidence of California, is to the effect that a justiciable controversy does not exist and cannot exist until a project is authorized.

I wish also, Mr. Chairman, to place in the record my statement which summarizes that question.

(The statement referred to is as follows:)

SUPPLEMENTAL STATEMENT OF SENATOR ERNEST W. MCFARLAND

I

Undeniably, there is and has long been a great dispute between the States of Arizona and California, involving differences of opinion ranging from slight to violent. California seizes upon the fact of the dispute itself as proof that such dispute must be settled in the Supreme Court.

However, and this is the absolute core of the matter, the mere fact of dispute cannot and does not confer jurisdiction upon the Supreme Court. That court may act when and only when a "justiciable controversy" is presented; but every controversy, no matter how great, is by no means justiciable.

The general principle has been enunciated in many cases, and I therefore quote the following excerpt from the decision in the case of *Texas* v. *Florida* (306 U. S. 398), at page 405, where the Court spoke as follows:

"So that our constitutional authority to hear the case and grant relief turns on the question of whether the issue framed by the pleadings constitutes a justiciable 'case' or 'controversy' within the meaning of the constitutional provision, and whether the facts alleged and found afford an adequate basis for the relief according to the accepted doctrines of the common-law or equity systems of jurisprudence, which are guides to decisions of cases within the original jurisdiction of this Court."

The dispute between Arizona and California is not a justiciable controversy upon the present status of the case, and cannot become such until an injury, actual or threatened, comes into the picture.

What is a justiciable controversy?

That point has been many times determined by the Supreme Court of the United States in litigation between the various States. As a preliminary, it probably would be well to note, in passing, that the determination as to whether there is a justicable controversy in an interstate suit is upon a basis entirely different from that prevailing in suits between private parties.

For example, in the case of *Alabama* v. *Arizona* (291 U. S. 286), the Court said:

"This Court may not be called upon to give advisory opinions or to pronounce declaratory judgment * * *. Its jurisdiction in respect of controversy between States will not be exerted in the absence of absolute necessity."

In the more recent case of *United States* v. *Appalachian Electric Power Co.* (311 U. S. 377), the Court said:

"To predetermine, even in the limited field of water power, the rights of different sovereignties, pregnant with future controversies, is beyond the judicial function."

The Court does not lightly regard the question of the existence of a justiciable controversy. For example, the Court in the case of *Louisiana* v. *Texas* (176 U. S. 1) said:

"But it is apparent that the jurisdiction is of so delicate and grave a character that it was not contemplated that it would be exercised save when the necessity was absolute and the matter in itself properly justiciable."

In brief summary, the Supreme Court has held that it will not grant relief against a State unless the complaining State shows an existing or presently threatened injury of serious magnitude. The Court will not grant relief against something merely feared, something which may happen or is likely to occur at some future time. The correlated rule is that the judicial power does not extend to the determination of abstract questions. The existence of a justiciable controversy depends upon a showing that the complaining State has suffered a loss or injury through the action of another State, which loss or injury is of a nature to furnish a claim for judicial redress; or, the complaining State must assert a right which is susceptible of judicial enforcement according to the accepted principles of jurisprudence. The mere fact that a State is a party plaintiff is not sufficient. Although an injunction will issue to prevent an existing or presently threatened injury, relief will not be granted as against something merely feared as likely to occur at some indefinite time in the future.

The Court has repeatedly held that it will not issue declaratory decrees; and it is clear that inchoate rights which depend upon possible future development furnish no basis for a decree in an interstate suit.

The final effect of the rules may be boiled down to this: You must have an existing injury of serious magnitude, or an immediately threatened injury of the same type, before you have a justiciable controversy. Neither exists in this instance. Neither California nor Arizona is using the amount of water to which they are respectively entitled. It therefore is clear that there is no present injury.

It is equally clear that there is no threatened injury. So far as I know, there is no project under construction or authorized in any part of the Colorado River Basin which in any way would threaten to reduce or diminish the flow of the river so as to make less water available to California. The only project which has thus far been tangibly put forward is the central Arizona project. Bills seeking its authorization are now before the Congress; but, unless and until the project is authorized, it cannot be said that such project constitutes a threat to the State of California.

A threat not coupled with an actual, or apparent, or a probable ability to effectuate such threat is in law no threat at all. California's witnesses have cited a number of items which they claim jointly constitute a threat of injury; but dress the facts how they will, they cannot conceal the final and determinating fact that Arizona has absolutely no physical means whatsoever wherewith to divert water to an extent in any way impinging upon California's rights. The passage of an authorization bill, looking forward to the construction of physical structures to divert water, probably is no actual threat; but certainly the passage of such an act would be the earliest point at which a threat might be created.

It is well settled, of course, by reason of the language of the Constitution itself, that the Supreme Court has original jurisdiction in controversies between the several States. But granting that the Court possesses jurisdiction of the parties, no action is maintainable unless there is a justiciable controversy.

Other considerations point up another basic fallacy of the assertions that a justiciable controversy exists between the State of California and other States of the Colorado River Basin, particularly Arizona. The proponents do not say that the Court may equitably apportion the waters of the Colorado River; nor do they say that the issues involve specific property or rights therein; nor do they say that there is an actual or even imminent threat of irreparable injury to property. They do say that the purpose is to submit various documents to the

Court, and to seek an interpretation thereof, so that the engineers may at a later date proceed with the actual division and use of the waters.

Manifestly, the proponents are seeking an advisory opinion, asking for the interpretation of various written instruments.

Lest the inquiry arise as to whether the passage in 1934 of the Declaratory Judgment Act may have in some way diminished the requirement of a justiciable controversy as a condition precedent to the maintenance of suit, I invite the committee's attention to the case of *Coffman* v. *Breeze Corp.* (323 U. S. 316), which was decided in October of 1944. The case involved facts dissimilar to those now in question, but the Supreme Court unequivocally voiced the following rule:

"The declaratory-judgment procedure is available in the Federal courts only in cases involving an actual case or controversy * * *, and may not be made the medium for securing an advisory opinion in a controversy which has not arisen * * *."

In the case of *New York* v. *Illinois and Sanitary District of Chicago* (274 U. S. 488), the State of New York sought to enjoin the defendants from diverting immense quantities of water from Lake Michigan, among other things upon the theory that such diversion would interfere with or prevent the use of the waters of the Niagara and St. Lawrence Rivers by the plaintiff States and her citizens for the development of power. There was no showing that there was any present use of the waters for such purpose which was being or would be disturbed, nor that there was a definite project for so using them which was being or would be affected. The Court there said:

"The suit is one for an injunction, a form of relief which must rest on the actual or presently threatened interference with the rights of another. Plainly, no basis for such relief is disclosed in what is said about water-power development. At best the paragraph does no more than present abstract questions respecting the right of the plaintiff State and her citizens to use the waters for such purposes in the indefinite future. We are not at liberty to consider abstract questions (*New Jersey* v. *Sargent* (269 U. S. 328))."

The applicability of this language to the position presently taken by California does not require elaboration.

In the course of the decision in the case of *Ashwander et al.* v. *Tennessee Valley Authority et al.* (297 U. S. 288), decided in February 1936, a case having no resemblance to the present issue as to factual aspects, the Court said, at page 324:

"The judicial power does not extend to the determination of abstract questions (*Muskrat* v. *United States*, 219 U. S. 346, 361; *Liberty Warehouse Co.* v. *Grannis*, 273 U. S. 70, 74; *Willing* v. *Chicago Auditorium Assn.*, 277 U. S. 274, 289; *Nashville C. & St. L. Ry. Co.* v. *Wallace*, 288 U. S. 249, 262, 264). It was for this reason that the Court dismissed the bill of the State of New Jersey which sought to obtain a judicial declaration that in certain features the Federal Water Power Act exceeded the authority of the Congress and encroached upon that of the State (*New Jersey* v. *Sargent*, 269 U. S. 328). For the same reason, the State of New York, in her suit against the State of Illinois, failed in her effort to obtain a decision of abstract questions as to the possible effect of the diversion of water from Lake Michigan upon hypothetical water power developments in the indefinite future (*New York* v. *Illinois*, 274 U. S. 488). At the last term the Court held, in dismissing the bill of the United States against the State of West Virginia, that general allegations that the State challenged the claim of the United States that the rivers in question were navigable, and asserted a right superior to that of the United States to license their use for power production, raised an issue 'too vague and ill-defined to admit of judicial determination' (*United States* v. *West Virginia*, 295 U. S. 463, 474). Claims based merely upon 'assumed potential invasions' of rights are not enough to warrant judicial intervention (*Arizona* v. *California*, 283 U. S. 423, 462).

"The act of June 14, 1934, providing for declaratory judgments does not attempt to change the essential requisites for the exercise of judicial power. By its terms, it applies to 'cases of actual controversy,' a phrase which must be taken to connote a controversy of a justiciable nature, thus excluding an advisory decree upon a hypothetical state of facts. (See *Nashville, C. & St. L. Ry. Co.* v. *Wallace*, supra.)"

II

Complete rebuttal and refutation of the testimony upon behalf of California appear in the evidence submitted by the Bureau of Reclamation, the proponents of S. 75, and the opponents of Senate Joint Resolution 4, including evidence

given not only at the present hearings but that which was incorporated from the earlier hearings during the Eightieth Congress on Senate bill 1175 and Senate Joint Resolution 145.

I feel that the foregoing statement necessarily must serve for present purposes, as the task of separately singling out various elements of California's evidence and then respectively offsetting such elements by citation of the contradictory evidence in refutation, would be unnecessarily repetitive and time-consuming.

The testimony of Mr. Northcutt Ely is a case in point. For example, Mr. Ely selected certain items from context and presented them in support of his argument concerning the understanding and purpose of Congress at the time of the passage of the Boulder Canyon Project Act. For the sake of brevity I will not here reiterate but will merely invite attention to my testimony appearing at pages 315 through 319 of the printed hearings on Senate Joint Resolution 145, which testimony refutes Mr. Ely. It is quite clear that a review of the record of statements made on the floor, taken as a whole and in their proper order and perspective, plainly establishes that the understanding and purpose of Congress when it passed the Boulder Canyon Project Act were exactly the same as Arizona contends. However, it is unnecessary to go behind or beyond the language of the act itself, as its meaning is clear and unambiguous and plainly shows that Arizona is entitled to the water she now claims.

Senator McFARLAND. I want to state to you that the cases are clear upon this point. The mere fact that a bill is introduced in Congress does not amount to a real threat. If it did, we would have several thousand threats going around all the time which would never materialize. If all these bills, when introduced, thereby became threats, there would certainly be a lot of threats that were not carried out.

Mr. MURDOCK. It makes me feel very important and to have it said that I have caused a threat by the introduction of this bill.

Senator McFARLAND. I want to say, Chairman Murdock, that it is quite a compliment to you that the introduction of the bill is a threat; and I am happy to see that we get at least that much satisfaction from our good friends and our neighbors on the West admitting your ability. You have conducted these hearings very ably.

When a man like Judge Howell, from Utah, and Mr. Jean Breitinstein, of Colorado, both disinterested in the dispute between California and Arizona, say there is no actual threat, then it can be believed. They have cited various water cases which have gone to final adjudication as justiciable issues, clearly pointing out that in those cases there were authorized projects, or appropriations, which did amount to an actual threat, which in turn constituted an indispensable element of such an issue.

Now we come down to the equity that Mr. Howard was talking about. I want to say that I have a great admiration for Mr. Howard. He is an able lawyer. But when you come down to the equities and speak of fair play, where are they, I ask you? If no justiciable controversy now exists, and if this suit is authorized, and if suit is actually started, where will Arizona be?

First, please recall that no resolution for the authorization of suit was introduced until the last day of our hearings on S. 1175, the predecessor of this bill. So the true purpose of the resolution, as I see it, was to prevent the passage of this legislation which would have authorized the central Arizona project.

However, if suit is authorized and instituted, and no justiciable issue exists, the suit will be dismissed. Mr. Howard concedes that it cannot be disposed of in the same relatively brief length of time taken for disposition of these earlier cases. Then, when Arizona appeals to Congress again, we will have to get new and current engineering data.

All that we have thus far done will be old information; and we will have to go all through it again, with new efforts, and grind it over. In the meantime, California will have suffered no harm or prejudice; upon the contrary, she will be trying to put this water to beneficial use in such a way that she can then say to the Congress, "Well, you cannot take water away from the people who are now using it." She cannot say that now, but she does possess the physical facilities to divert the water while Arizona is being harassed and restrained.

Mr. Howard talks about what they were doing before the Boulder Canyon Project Act was passed. They had appropriated all of the water during the low flow of the river, although I am not clear that all such water had been actually used. But, remember, it was the low flow; and they needed regulated flow in order to irrigate this vast acreage in the Imperial Valley. They needed storage. They had to have storage for irrigation and flood control.

The Federal Government came to their rescue and gave them that needed regulated flow and storage, as well as power and the additional water that they needed on the coast. In their self-constituted system of priorities, they have included vast acreages on the east and west mesas of the Imperial Valley. Those lands are not now being irrigated, except a few acres that have been irrigated for experimental purposes. It is not denied, if you please, and it has never been denied by California, and could not be succesfully denied, that if the east and west mesas were not put in cultivation, they would have all the water that they need.

The Secretary of the Interior has said the mesas would not be irrigable; that it would not pay to irrigate them either as a financial or as a reasonably feasible proposal. The Federal Government owns 96 percent of that land. The owner of the land says, "I do not want to irrigate it. It will not pay." Yet, California comes along and says, "Mr. Owner, we want you to irrigate your lands whether you want to or not." Those are among the equities they were talking about.

According to the Secretary of the Interior, those mesa lands can never be irrigated. Nevertheless, I do not say for one moment, and Arizona does not contend, that California is not entitled to use her water where she pleases. So long as she stays within the California Limitation Act and so long as she lives up to that act and that statutory contract made with the Federal Government for the benefit of Arizona and the other interested States, we cannot complain.

They say they do not complain about what Arizona does. They come along in one breath and say, "We are for you if the water belongs to you"; but they come along in another breath and they hit us the hardest blows they can, talking about the feasibility of the project and the cost of it and everything else they can conjure up to defeat and overreach us.

Yet California herself, through her witnesses, has stated that the Bridge Canyon Dam should be built and these other dams should be built. These would benefit California. The only thing they oppose, of course, is the aqueduct and the works needed to bring water into Arizona.

Their storage and their facilities were built by the Federal Government.

It is true they contracted to pay for them. The Federal Government advanced the money, and California will repay from the ensuing benefits. But they did not pay one dime for the storage of water. That is part of what the Federal Government has done for California.

Furthermore, let me add this to the equities: the wasting of something like a million acre-feet of water into the Salton Sea. I think if they tried, without queston they could save more of the now wasted water, and make more economical use of it. But that is none of our business, so long as it does not affect us.

They talk about the evidentiary value of the passage of this act. They say that that would be of some evidentiary value to Arizona. If that is of evidentiary value, the help which the Federal Government has given California to develop their projects is also of evidentiary value. They stand silent as to the evidentiary value of congressional inaction. They are mute as to the inestimable and unearned value to themselves of all action which delays Arizona while they consolidate and increase their advantages.

I want to express my appreciation for the time and the courtesy that have been extended to me here, and I want to say to the members of this committee that all that Arizona wants is fair play. If we could have gotten into court and gotten this decided without the authorization of our project, do you not know we would have been in there a long time ago? We have been knocking at the doors of the court for a long time and we have not gotten anywhere with it. California then readily suppressed the noble attitude now taken by them, and were well content to avoid any issue upon the merits.

The Supreme Court has convinced us that the only thing that we can do is to get an authorization of this project. Then, if California has a true cause of action, it will be at that time, and not before, that they can maintain an action in court. I have no question but that the statement Mr. Howard made here today, to the effect that California would sue, is correct and that she now expects to do so. When she does, of course, just as in the case of *Nebraska* v. *Wyoming*, the Attorney General will intervene and the United States will be then a party to the action. It is inconceivable that the Attorney General would abstain from intervention in such a suit.

We represent, Congressman Murdock, a small State. We are here doing the best job that we can. Arizona is not able financially to initiate this project and carry it from scratch on her own funds. All that we ask of you, all that we ask of the Congress of the United States, is to give to us the same opportunity, the same fair deal, that have been given to our neighbor on the other side of the Colorado River.

We have never opposed development in California. Congressman Engle has a project over there now calling for some $200,000,000, with the use of the same interest component involved in our project. Congressman Engle is going to find that we will be trying to help him out, as we have done in the past, and get his matter through the Senate, as I told him we would do.

I again want to express my appreciation for this opportunity of appearing here before you. I am sorry I do not have the time to read these summaries touching upon the topics of legislative history and justiciable issue. It is my firm conviction that no progress can be made

until this project is authorized; otherwise, California will continue to use the water and there will be nothing to keep her from doing so.

I thank you.

Mr. MURDOCK. You have voiced my judgment and I thank you.

Mr. ENGLE. Before the Senator leaves the witness stand I would like to make a comment.

I want to thank the Senator for his expression in regard to the pending legislation now over in the Senate committee. And I may say to him that his attitude in that regard will receive thorough reciprocity from California, which we think we have demonstrated before, on those issues which have come before this committee involving Arizona and which do not involve any conflict of water rights. They have and will continue to receive my very best cooperation.

I think the chairman had a couple of his bills on the floor yesterday. That was our position on the upper-basin compact and will continue to be. We desire no conflict with Arizona. We wish we did not have this one.

Inasmuch as you seem to feel that this matter is going to court anyway, do you think, Senator, that your problem would be very greatly mitigated, to say the least, if you got the litigation out of the way, or at least got the litigation resolution on the road, so that the other aspects of this project, and it is a big project, can be considered independent of any questions of legal availability of water? Do you not think that your problem, from the standpoint of strategy in handling this legislation, would be much easier if the litigation factors were out of the way?

Senator MCFARLAND. If they could be gotten out of the way, then my answer would be "Yes." But they cannot be gotten out of the way, because there is not a justiciable issue. The Supreme Court has held that the Congress cannot create a justiciable issue by the mere authorization of suit. For that and the other reasons I have voiced, the only way that we can get equity is to have this project authorized.

Mr. ENGLE. The Supreme Court is the only body to determine whether or not it is a justiciable issue. This committee cannot decide that. In other words, that point is going to have to go before them anyway. I doubt very much if the authorization of the project would make the danger any more real or any more imminent. I am inclined to agree with Mr. Howard that if Arizona is right and has title to this water, California's opposition to her utilization of the water and therefore the development of projects, whether this or some others, is injurious to Arizona and it is not a question even of threat of present injury. It is a proposition of present injury because it reflects upon the ability of the State to plan and develop, the same as it does with us. But aside from that—and I don't undertake to decide a justiciable issue, I think the Supreme Court is the only one to decide it—the thing that has puzzled me is that Arizona should be bawling its project up in a lawsuit, when the matter should be considered on its merits without that complication.

Senator MCFARLAND. I do not want to take too much time, Mr. Chairman. Let me answer Mr. Engle in just a few words.

First, California could plead that her actions constitute no threat as she expects to stay within the confines of her Self-Limitation Act, and the fact is that she is now using way below her share of water.

The Secretary of the Interior says he is not going to permit irrigation of the Imperial Valley mesas. So Californians have all the water they need. Thus viewed, it might be argued that there is no threat on either side. The only way that this can be gotten into court is to authorize the project, at which point it is at least arguable that a threat comes into being.

I wish that I had the time to go over the whole thing in detail. I have submitted authorities in my statement, particularly the case of *New York* v. *Illinois and Sanitary District of Chicago* (274 U. S. 488). in which case no project was authorized for power purposes and no presently harmful use existed, which authorities show that without authorization nothing is cognizable in court. That is all there is to it, from our point of view. If a justiciable controversy were now in being, we would be going right along with suit. But, authorization is the only way we can get the job done.

Mrs. BOSONE. You made a statement that impressed me just a few minutes ago. You said that if this matter goes to the Supreme Court, then California will get hold of the water and use it.

Senator MCFARLAND. She hopes to.

Mrs. BOSONE. Your last statement was that there is no threat; that she has plenty of water to use and she cannot get hold of water.

Senator MCFARLAND. I think your point is well taken. California has physical facilities through which she can divert all the water. That is the reason why she wants to delay this whole Arizona project until she can develop additional uses to consume such water. There is now no requirement in California for all the water, but she will develop uses for all of it if she can delay Arizona.

Mrs. BOSONE. That impressed me.

Senator MCFARLAND. That is the whole point. She has the physical facilities but is not actually using more than approximately 3,000,000 acre-feet, which quantity is well within the 4,400,000 acre-feet of III (a) water specified in her Self-Limitation Act; but she has a right to one-half of the excess or surplus waters above the apportioned quantities. If Arizona filed a suit against California without the prior authorization of this project, we would not get any further than we have with our earlier cases. California could plead that she expects to stay within the limits of her Self-Limitation Act inasmuch as she is not actually using the 4,400,000 acre-feet. This circumstance, coupled with the fact that Arizona has no physical facilities or an authorized project providing for the construction thereof, results in the situation that no actual or apparent threat of injury has been presented and cannot be presented upon that status of the case. Therefore, an actionable injury does not exist. California hopes to delay action on our project by going to court under these circumstances. The court would again kick us out, but California would hope to secure sufficient delay to put all our water to use so that she could thereafter say to Congress, "You should not take water off of lands already in use and thereby destroy our homes."

Mrs. BOSONE. Do you think a year would make much difference?

Senator MCFARLAND. I don't think the issues can be disposed of in a year. Precedent indicates the case will require at least several years. Even in disposing of this point of justiciable controversy, quite a little time will be consumed. It is of course true that the Court is the only

body which can authoritatively rule whether a given case before it involves a justiciable controversy. But Congress itself has duties it cannot shirk. In cases such as the present it must form its own opinion as to whether such a controversy exists. Otherwise, vast quantities of legislation could easily be defeated by the introduction of resolutions for suit.

Mr. MURDOCK. Unless there are further questions, we thank you, Senator.

Mr. Carson, is it your opinion that the rebuttal can be finished in 30 minutes?

Mr. CARSON. I think it can be. I will boil it down all I can.

Mr. MURDOCK. In that case, in view of the fact that there is a meeting in the House at 4 p. m., some may want to leave before 30 minutes has expired. Shall we put it this way, that 5 minutes before 4, according to the clock before us, we will consider the evidence all in and the hearings closed?

Hearing no objection, it is so ordered.

Mr. Debler, will you come forward?

Mr. DEBLER. Yes, sir.

STATEMENT OF E. B. DEBLER, CONSULTING ENGINEER FOR THE STATE OF ARIZONA

Mr. DEBLER. I am a consulting engineer for the State of Arizona. I have prepared a paper here which shows the amount of water that California needs to carry through with the projects for which she claims she has expended half a billion dollars. I will not read the entire paper; I will read only the conclusions which are, however, supported by the first 14 pages of this paper.

Mr. MURDOCK. The paper will be inserted as is, in its entirety.

(The document referred to is as follows:)

CALIFORNIA USE OF COLORADO RIVER WATERS

(By E. B. Debler, consulting engineer for the State of Arizona)

California interests claim a need for 5,362,000 acre-feet of water annually to service existing and authorized projects with contracts for the use of Colorado River waters, as follows:

Annual consumptive use in acre-feet

Palo Verde irrigation district	300,000
Yuma project in California	50,000
All-American Canal project	3,800,000
Metropolitan water district and San Diego County water authority	1,212,000
Total California projects	5,362,000

PALO VERDE IRRIGATION DISTRICT

Irrigation started from a slough in the lower part of the valley in 1856 and from the Colorado River about 1880. The district was formed about 1920 and prior to Lake Mead river control in 1935 had much difficulty with meandering of the stream which thus attacked the levees, and costly removal of silt from the canals. Some 30,000 to 35,000 acres were usually irrigated for many years prior to 1942. The impetus of high crop prices during the war years and after, and improved diversion facilities provided by the Government in recent years when the river bed was lowered by clearer water, resulted in an increase

to about 50,000 acres in 1948. The Bureau 1946 report on Colorado River states the irrigible area to be 75,000 acres:. Increases from now on will require one or more of the following types of land preparation: Very costly heavy leveling, improvement of light sandy soils, drainage of heavy alkaline lands, low head pumping to lands lying between the canals and the adjacent mesa, and levee protection and drainage pumping at the lower end of the valley in the backwater from Imperiol Dam. While it appears unlikely that the area of 75,000 acres will ever be fully reached, that area may be taken as the limit of development, including a few hundred acres lately developed nondistrict lands lying a few miles above the district intake, and similar small tracts that will be developed elsewhere along Colorado River from the Nevada State boundary to Imperial Dam.

The development of this irrigation will deplete the Colorado River as follows:

	Area, acres	Consumptive use per acre		Depletion of Colorado River, acre-feet
		Before irrigation	After irrigation	
Irrigated lands	75,000	1.2	3.5	172,000
Affected nonirrigated lands	5,000	1.2	2.0	4,000
Total				176,000

YUMA PROJECT (IN CALIFORNIA)

The irrigable area within the levees, including Indian lands, is about 14,000 acres, of which about 8,000 acres are being cropped at this time, although an average of 11,000 acres was cropped 20 years ago. The irrigable lands not now irrigated require drainage, leveling. and soil improvement which may come with time. An area of around 1,000 acres is now irrigated outside the levees but the continuation of that irrigation is precarious by reason of flood threats from Gila River, meandering of Colorado River, and silt accumulations below Laguna Dam. An ultimate area of 15,000 acres should be contemplated with a water use as follows:

	Acres	Consumptive use per acre		Depletion of Colorado River, acre-feet
		Before irrigation	With irrigation	
Irrigated land	15,000	1.5	3.5	30,000
Nonirrigated land	2,100	1.5	2.0	1,000
Total				31,000

ALL-AMERICAN CANAL

The Boulder Canyon Project Act authorized construction of the All-American Canal to convey water into the Imperial and Coachella Valleys. These conduits have been completed, and largely also a distribution system and other works in Coachella Valley. Other areas considered for irrigation at the time of the passage of the Boulder Canyon Project Act were the East Mesa, West Mesa, and scattered lands west of Salton Sea. Pilot Knob Mesa was later suggested for irrigation.

Imperial Valley

Irrigation was started in Imperial Valley in 1902 when water was first brought in from Colorado River by deepening of the Alamo Channel, northern-most delta channel of the Colorado River. The irrigated area grew rapidly until about 1920, when it was 425,000 acres, and has since fluctuated between 375,000 and 450,000 acres, at present being about 400,000 acres.

All valley bottom lands, and also the cities and towns therein, are included in the Imperial irrigation district which operates the irrigation system.

Over a period of some 20 years the cropped area together with areas irrigated but not cropped while leveling, leaching and for other reasons, made an area of 400,000 acres receiving water. The balance of the district area of about 600,000 acres is represented by lands inundated by Salton Sea or subject to recurrent inundation, lands lying above the canal system, town and city areas subject to taxation but not farmed, and lands largely unsuitable for farming because of excessively sandy, heavy or alkaline soils, very rough topography, streams, channels and draws, high-water tables, and other reasons. A considerable area has recently been brought into production for the first time or restored to production, by drainage and leveling. But there are also many areas on which farming has ceased, through raising of Salton Sea, in alkalied areas along canals, and in the case of excessively sandy lands of low fertility and high-water requirements. New land has at most offset land losses and no better result can be expected in the future. A temporary recession is likely when the present favorable agricultural economic situation comes to an end.

The valley is subject to quick changes in character of crops. Cotton in the early twenties and flax in 1943 constituted around 40 percent of all crops; today there is little cotton and flax is declining. Rice made a minor start a few years ago but is almost absent now. Alfalfa and truck are the mainstays.

Coachella Valley

The Coachella Valley has at various times and by various agencies been reported to have up to 140,000 acres of irrigable land. The Bureau of Reclamation expects to irrigate 78,000 acres. The main canal into Coachella Valley is now complete with work in progress on the lateral system, drains, and flood control works for interception and regulation of floodwaters by means of massive levees along and above the main canal. A contract for repayment of the cost of the distribution system was voted in 1948 by the Coachella Valley district.

The Coachella Valley is markedly different from the Imperial Valley in that it bears the earmarks of a coming intensive development largely in small holdings that may average not more than 10 to 20 acres; in short, more like a suburban type of development in contrast to vast farms in Imperial Valley. Temperatures average about 2° higher than Imperial Valley, and there are more plantings of near-tropical plants like date palms. The net result will be a higher consumptive use of water.

Mexico uses

Delivery of water to Mexico through the Alamo canal in the years 1943 to 1947, inclusive, averaged 1,160,000 acre-feet, mostly utilized in areas lying north and west of Colorado River, and naturally draining into the Alamo and New River channels above their entry into the Imperial Valley. With a present salt content of 1 ton per acre-foot for Colorado River water, an outflow of 211,000 acre-feet is required for salt balance, with an allowable salt content of 5.5 tons per acre foot for outflowing waters. Discharges of these streams at the boundary have been as follows:

	Acre-feet
1942	64,102
1943	58,022
1944	40,298
1945	37,902
1946	42,050
1947	46,172

The present outflows in Alamo and New Rivers are clearly inadequate to maintain a salt balance. When Mexico uses its treaty supply of 1,500,000 acre-feet of water, with a salt content exceeding 1.66 per acre-foot of water, it will become necessary for a salt balance, to carry out of the Mexico irrigated area at least 600,000 acre-feet of salt-laden water, with fully 400,000 acre-feet naturally draining toward Salton Sea. Since these waters would be unfit for further agricultural use, they would pollute usable return flows originating in Imperial Valley, besides adding that much water to be evaporated in an already overburdened Salton Sea.

Arrangements should be made to return the Mexico return flows to Colorado River by pumping with lifts up to 75 feet. In view of the alternative damage in Imperial and Coachella Valleys, such arrangements are presumed in the fol-

lowing discussions, to the extent that inflows to the United States will be held to 50,000 acre-feet per year.

Salton Sea controls

The crest of the Colorado River delta lies along the river until it reaches the Arizona boundary and thence continues westerly to high ground. The crest is generally close to existing levees preventing flood waters from flowing northerly into Imperial Valley. Investigations by the United States Geological Survey made fully 40 years ago, showed deep waters in the Holtville area of Imperial Valley to be of the same character as Colorado River water, indicating as was to be expected, underground flow from the Colorado River through its delta to Salton Sea. Thus all waters diverted from the Colorado River, after they leave the immediate vicinity of the river, and not otherwise consumed, must be evaporated by Salton Sea or stored therein, in addition to surface and underground water reaching the sea from its own watershed.

Water delivery to the farm must exceed consumptive use by a sufficient amount to enable the unused water to carry away the salts brought in by the applied water. Consumptive use studies by the Bureau of Reclamation are covered by a paper entitled, "Consumptive Use of Water for Agriculture," Robert L. Lowry, Jr., and Arthur F. Johnson, July 1940. When applied to Imperial Valley and Coachella Valley conditions, with due allowance for the high temperatures of Imperial Valley which result in a slowing of growth in periods of extreme heat, and to the tendency toward considerable acreages of crops such as flax and grain which are grown in the cooler parts of the year, these data indicate an average consumptive use of 3.5 acre-feet per acre of river water. This rate of use also equals the observed difference between inflow and outflow on the Yuma project for the years 1938 to 1944, inclusive.

For a number of years immediately prior to delivery of water to Coachella Valley in 1946, Salton Sea was stable at an average elevation of 241 feet below the sea level with close to 2,600,000 acre-feet per year entering Imperial Valley through the All-American Canal and from Mexico through the Alamo and New River channels. The imported waters entering the valley were disposed of as follows:

	Acre-feet
Entering Imperial Valley	2,600,000
Consumed by 400,000 acres of irrigated land at 3.5 acre-feet per acre	1,400,000
Consumed on nonirrigated areas, 10 percent estimated	140,000
Unavoidable operating waste, estimated	100,000
Total	1,640,000
Return flow entering Salton Sea	960,000

Water losses from the Coachella Valley Canal and added operating wastes from the addition of that canal system will increase inflow of unused or but partially used All-American Canal water by an equivalent of 100,000 acre-feet.

Additional irrigation in the Imperial-Coachella Valleys will raise Salton Sea unless return flow is kept from increasing by reuse. Further raising of Salton Sea will reduce the irrigated area in Imperial Valley. In Coachella Valley a raise of more than a few feet will necessitate abandonment of many thousands of acres already damaged by seepage together with the town of Mecca and considerable railroad trackage. Further irrigation then depends on reuse of return flow to the limit of plant tolerance as to salt contents, estimated to be an average of 5.5 tons per acre-foot for Imperial Valley crops.

The salt content of Colorado River waters at Hoover Dam averaged 0.92 tons per acre-foot in 1943 to 1948, with an average outflow of 11,760,000 acre-feet per year. With the upper basin depleting Colorado River to the extent of its apportionment of 7,500,000 acre-feet, with lower basin development above Hoover Dam completed to the extent outlined in the 1946 report of the Bureau of Reclamation, with Parker and Palo Verde Valleys developed and the Metropolitan district and central Arizona project diverting 1,200,000 acre-feet each, the salt content of Colorado River water at Imperial Dam is estimated at 1.66 tons per acre-foot.

The limit of future irrigation in the Imperial-Coachella Valleys will then be as follows:

Permissible return flow	acre-feet	860,000
Salt content thereof at 5.5 tons per acre-foot	tons	4,730,000
Permissible importation, with salt content of 1.66 tons per acre-foot of water	acre-feet	2,850,000
Operating waste and other losses not usable	do	200,000
Total flow into valleys	do	3,050,000
Less waters received from Mexico	do	50,000
All-American Canal flow	do	3,000,000
Water consumed in irrigation	do	1,990,000
Area to be irrigated with consumptive use of 3.5 acre-feet per acre	acres	569,000
Imperial Valley	do	400,000
Coachella Valley	do	78,000
Total	do	478,000
Other areas that may be irrigated	do	91,000

In the event that the Department of the Interior does not change its views, as expressed in the press release of March 28, 1949, that the east mesa lands are not practicable of irrigation and reclamation, and if the west mesa is also found to be similarly unsuitable for irrigation, the waters required for the irrigation of 400,000 acres in Imperial Valley and 78,000 acres in Coachella Valley would then be as follows:

	Acre-feet
Water consumed by irrigation at 3.5 acre-feet per acre	1,673,000
Return flow with salt content of 5.5 tons per acre-foot	723,000
Water used in irrigation	2,396,000
Operating loss and waste	200,000
Total	2,596,000

Thus the ultimate water requirements for the Imperial-Coachella Valleys will range from 2,600,000 acre-feet with the present works to a maximum of 3,000,000 acre-feet if 91,000 acres worthy of irrigation are found and developed on the East, West, and Pilot Knot Mesas. In view of the very questionable character of these lands which are claimed by the representatives of California to be worthy of irrigation it is believed that the average of the two amounts, or 2,800,000 acre-feet, represents a reasonable estimate of water requirements for these valleys.

While the All-American Canal has in the last 4 years averaged an inflow to Imperial Valley of about 2,900,000 acre-feet, with Salton Sea rising a little less than 1 foot, that is not an indication of the final result if such importations are indefinitely continued with the present irrigated area. Much of the excess over the earlier importation of 2,600,000 acre-feet is being stored underground along the route of the Coachella Valley Canal, and elsewhere, at sufficient distance from Salton Sea so that the full effect of these extra inflows is not yet reflected in the levels of the sea.

METROPOLITAN WATER DISTRICT

General situation

The metropolitan water district was organized in 1928 to deliver Colorado River water to the South Coastal Basin, bounded on the southwest by the Pacific Ocean and on the northeast by the San Gabriel and San Bernardino Mountains.

It extends from San Fernando to Beaumont along the mountains and from Santa Monica to Newport Beach along the ocean. Los Angeles lies in the central-west portion of the basin. Of the present estimated basin population of 4,000,000 roughly 3,000,000 people are within communities that have qualified for water service by entering the district, among them Los Angeles with a population of about 2,000,000. In 1946 San Diego and parts of the county organized as the

San Diego County Water Authority with a population of about 400,000 were annexed to the district.

The Colorado River aqueduct was completed to Lake Matthews in 1938 and the San Diego branch to San Vincente Reservoir in 1947. Distribution mains out of Lake Matthews have been built as various entities joined the district.

By a contract of April 24, 1930, as amended on September 28, 1931, the district contracted with the United States for 1,100,000 acre-feet of water to be diverted from Lake Havasu above Parker Dam, subject to availability thereof for use in California under the Colorado River compact and the Boulder Canyon Project Act. On February 15, 1933, the United States contracted with the city of San Diego similarly for 112,000 acre-feet of water to be diverted through the All-American Canal. By contract dated October 4, 1946, the United States, the metropolitan water district, and the San Diego County Authority, amended previous contracts to enable the previously contracted San Diego water to be diverted through the Colorado River aqueduct. The annexation agreement provides for merging of the rights of the district and the authority to Colorado River waters.

Present status of water supplies

The South Coastal Basin is traversed by a range of hills and mountains, parallel to the ocean, lying immediately above Los Angeles and roughly midway of the basin. The Los Angeles, San Gabriel, and Santa Ana Rivers pass through these interior hills at breaks sufficiently constricted to bring to the surface, the ground waters of the extensive upper basins. The upper basins are largely deep, permeable fills favorable for ground-water development, under natural conditions readily storing a large part of the flashy run-off from the mountain area. The coastal plain adjacent to the interior hills is a permeable valley fill. With decreasing permeability this formation then dips under a relatively impermeable cap covering fully half of the coastal plain.

Mountain run-off coming into the upper valleys percolated readily into the large ground-water reservoirs, and enabled an extensive irrigation development with but scattered overdrafts up to this time. The San Fernando Valley, except Glendale and Burbank, alone, was not so well supplied, but it lies within Los Angeles city limits and is thereby entitled to use Owens Valley aqueduct water for irrigation, until required for municipal purposes by Los Angeles, and consequently has no shortage of water.

On the coastal plain the situation is different. There the bordering hills produce little run-off, the Los Angeles River has been paved for flood protection across the percolating area and the floodwaters of the San Gabriel and Santa Ana Rivers pass quickly over the percolating fringe area and then onto the clay-capped area which accepts no water. Ground-water pumping is general over the coastal plain. Along the three streams where they cross the percolating area such pumping is replenished by the "rising" waters coming out of the upper basins and while water tables have been lowered some, this result also provides a better opportunity for the storage of floodwaters. Away from the streams, lowering water tables are general, being worst under the clay-capped area where replenishment is limited to the slow-moving waters entering the aquifers where the streams cross the percolating area.

A temporary replenishment occurred in the 1938–46 period in localities where the abnormal rainfall of that period, averaging 122 percent, together with resulting favorable stream flows, could so improve conditions, but in the less favorable constituted areas near the coast, where artesian flows originally abounded, there has been a continuing fall in ground-water levels. Salt water is steadily moving inland in some localities.

Bulletin No. 53 of the California Department of Public Works, division of water resources, dated 1947, presents the results of a comprehensive study indicating that the net overdraft for the South Coastal Basin, with full use of the Owens River aqueduct supply, and with average precipitation, is 20,000 acre-feet, exclusive of the overdraft in the West Basin southwest of Los Angeles, which in another report is estimated at 53,000 acre-feet making a total overdraft of 73,000 acre-feet. In 1948, 72,000 acre-feet of Colorado River water was delivered to member communities in the South Coastal Basin. The district water constituted from 3 to 99 percent of the total water supply of individual members, being lowest for Los Angeles. With present uses and average precipitation the Los Angeles, San Gabriel, and Santa Ana Rivers would average a combined annual

discharge of 106,000 acre-feet to the ocean. Sewage discharged into the ocean averages 280,000 acre-feet per year by Los Angeles County alone, and 300,000 acre-feet from the entire South Coastal Basin.

Briefly the present situation in the South Coastal Basin can be summarized by a statement that with average precipitation and full use of Owens River aqueduct waters, and with a use of 100,000 acre-feet of Colorado River water there would be a combined overdraft in scattered areas of 73,000 acre-feet, and an outflow to the ocean of 400,000 acre-feet a year of which 106,000 acre-feet is flood flow and the rest sewage, none of which is now used for any purpose. With restoration of natural percolation facilities lost by channel improvements to dispose of damaging floods, with more efficient use of ground storage capacity of the upper valleys in particular and with a minor reuse of sewage, the Basin could even now get along without Colorado River water. Human problems and prejudices to be overcome would be tremendous, as would costs. The inevitable future requirement for Colorado River water makes its immediate use more attractive than the better use of local waters.

The deeply filled alluvial valleys of the South Coastal Basin have no counterpart in San Diego County. The Pacific side generally slopes quite steeply to the ocean with but moderate soil cover. The streams fall rapidly in relatively narrow canyons or valleys, devoid of deep fills except for at most a few mills above their mouths. Population is concentrated along the shore and will so continue. Sewage will therefore be concentrated in substantial amounts only along the ocean shore. Its treatment and pumping to agricultural lands would be costly for that purpose. A small amount may be reclaimed for industrial purposes but such a market is apt to be limited as ocean water would likely be preferred for many purposes, and San Diego County is expected to be industrialized far less than the South Coastal Basin. Numerous reservoirs have been built, and others are proposed, to regulate the highly erratic local run-off, but the inadequacy of local supplies to meet severe drought conditions was so clear to all informed, that the city and the Navy had no great difficulty in securing funds from Congress for construction of the branch aqueduct.

FUTURE WATER NEEDS

The far-future population of the south coastal basin is difficult of estimation with any dependability, involving necessarily a forecast of the further growth of the area as a manufacturing center for parts of California and nearby States and even foreign countries, the limitations of support by the tourist, and its residence attractions. A large factor in the past growth of Los Angeles no doubt is the movie industry, which has brought in untold millions of dollars without requiring a heavy outlay for raw materials as with most industries. The estimates for the south coastal basin vary from 7,000,000 to 10,000,000 people or roughly double the present population. For the San Diego city and county area the ultimate population is estimated at 1,250,000 people. There is thus an estimated increase of a little over 5,000,000 people for the area served by the MWD.

A diversion of 1,212,000 acre-feet per year by MWD would result in a delivery to member communities of about 1,150,000 acre-feet per year after deduction of conduit losses and evaporation loss. Without reuse of sewage it is necessary to deduct the present use of 100,000 acre-feet of Colorado River water and the existing overdraft of 73,000 acre-feet on other existing sources, leaving 977,000 acre-feet for the further increase in population. Present water use in member cities of the MWD is 170 gallons per day, or 0.19 acre-feet per year per capita. The 977,000 acre-feet would then permit an increase of about 5,000,000 in population, or just about the estimates of possible population, without reuse of sewage. In the upper valleys of the south coastal basin, waters being used for irrigation on areas that will convert to urban uses, may be used for irrigation on lands not now irrigated, or could be devoted to municipal and domestic uses. In the lower valleys there will be little opportunity to do so since that area, as now, will likely have around three-fourths of the total basin population with most of the valley and some of the hill lands converted to urban uses. With such a population and use of water, sewage waste to the ocean will double to a flow of 600,000 acre-feet per year, and storm outflow by reason of increased water-shedding surfaces will at least double to more than 200,000 acre-feet per year.

CONCLUSION

The maximum water requirements would then be as follows:

	Acre-feet
Palo Verde Valley and scattered areas	139,000
Yuma project	31,000
All-American Canal (Imperial and Coachella Valleys)	2,800,000
Metropolitan water district (including San Diego authority) without reuse of sewage and without a real effort to reduce flood run-off	1,212,000
	4,182,000

The listed water requirements may well be considered the maximum needs for the authorized projects and are likely to prove to be too high for the following reasons:

(*a*) Palo Verde Valley development is unlikely to reach an area of 75,000 acres on which the indicated need is based. The maximum area probably will not exceed 65,000 acres with a reduction of 18,000 acre-feet in water needs.

(*b*) The All-American Canal requirement of 2,800,000 acre-feet is based on a highly efficient irrigation system to irrigate a maximum area and consume a maximum of water, and success in maintaining the presently irrigated area in the Imperial Valley. Less efficient operations would raise Salton Sea and flood-irrigated lands. There are strong doubts that the presently irrigated area can be maintained with increasing salt content of the irrigation waters, and thus the needed irrigation water will become less.

(*c*) Present population of the South costal basin (Los Angeles area) and San Diego County, served by the metropolitan water district, totals 4,500,000. The future population may not reach 9,500,000 for which the presently contracted Colorado River water is adequate without reuse of sewage or proper measures to reduce waste of local run-off. Reuse of sewage involves, besides prejudices, such practical matters as the segregation of highly polluted wastes through zoning or duplicate sewage systems, constant policing of areas producing sewage to be treated in order to prevent pollution difficult or impossible of treatment, high content of dissolved solids in the reclaimed water, and the construction and operation costs for the treatment of the sewage and its delivery to places of use. In the absence of a thorough investigation of the sewage reuse possibilities it is thought that a moderate reclamation of sewage for nondomestic uses combined with measures to reduce the current escape of floodwaters to the extent that this could be done with reasonable costs, will readily enable a reduction of as much as 300,000 acre-feet in waters imported from the Colorado River. Failure to achieve a population of 9,500,000 would also reduce water requirements. In this connection I wish to quote from an article by Mr. Samuel B. Morris, general manager and chairman engineer, Los Angeles Department of Water and Power, printed in the May 1949 issue of Western City:

"The time to prove up on present competitive water supplies of fresh water is now. We can very well retain the increasing quantities of sewage effluent as a sort of 'ace in the hole' which we may, of necessity, at some distant date, fall back upon when all sources of fresh water are fully consumed."

A previous statement presented by me to this committee found California entitled to 58⅔ percent of 6,516,000 acre-feet or 3,824,000 acre-feet of divertible water from presently apportioned waters. Although this is 358,000 acre-feet less than the listed maximum requirements, the gap can be largely met by reasonable measures for the conservation of water in the Los Angeles area. Failure to reach the limit of irrigation and population growth will doubtless account for at least the remainder of the gap.

There is finally a reasonable expectation that California will secure a part of the 220,000 acre-feet per year of presently unapportioned waters under the existing Colorado River compact. Consequently the existing California projects will not be impaired by the proposed diversion of 1,200,000 acre-feet annually for the Central Valley project of Arizona.

Mr. DEBLER. Thank you.

The maximum water requirements would then be as follows: The Palo Verde Valley and scattered areas, 139,000 acre-feet; the Yuma project, 31,000 acre-feet; the All-American Canal (Imperial and Coachella Valleys), 2,800,000 acre-feet; the Metropolitan Water District

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(including San Diego Authority), without reuse of sewage and without a real effort to reduce flood run-off, 1,212,000 acre-feet, making a total of 4,182,000 acre-feet.

I might add at that point that California claims a need for 5,362,000 acre-feet for those same projects.

The listed water requirements may well be considered the maximum needs for the authorized projects and are likely to prove to be too high for the following reasons:

(*a*) Palo Verde Valley development is unlikely to reach an area of 75,000 acres on which the indicated need is based. The maximum area probably will not exceed 65,000 acres with a reduction of 18,000 acre-feet in water needs.

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(*c*) Present population of the South Coastal Basis (Los Angeles area) and San Diego County, served by the Metropolitan Water District, totals 4,500,000. The future population may not reach 9,500,000, for which the presently contracted Colorado River water is adequate without reuse of sewage or proper measures to reduce waste of local run-off. Reuse of sewage involves, besides prejudices, such practical matters as the segregation of highly polluted wastes through zoning or duplicate sewage systems, constant policing of areas producing sewage to be treated in order to prevent pollution difficult or possible of treatment, high content of dissolved solids in the reclaimed water, and the construction and operation costs for the treatment of the sewage and its delivery to places of use.

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There is finally a resonable expectation that California will secure a part of the 220,000 acre-feet per year of presently unapportioned waters under the existing Colorado River Compact. Consequently, the existing California projects will not be impaired by the proposed diversion of 1,200,000 acre-feet annually for the Central Valley Project of Arizona.

That is my statement, Mr. Chairman.

Mr. MURDOCK. Have you any questions to ask of Mr. Debler?

We thank you, Mr. Debler, for the statement.

Mr. Carson, if you please.

STATEMENT OF CHARLES A. CARSON, COUNSEL, ARIZONA INTERSTATE STREAM COMMISSION—Resumed

Mr. CARSON. Mr. Chairman, I will hurry through as fast as I can. I would like to incorporate in the record at this point the statement to which I referred yesterday, of Mr. O. L. Norman, general manager of the Salt River Valley Water Users' Association, as it was given before the Senate.

Mr. MURDOCK. Without objection, it will be so entered.

(The document referred to is as follows:)

STATEMENT OF O. L. NORMAN, GENERAL MANAGER, SALT RIVER VALLEY WATER USERS' ASSOCIATION

My name is O. L. Norman. I am a graduate of the United States Naval Academy and have had approximately 25 years' experience in engineering, construction, and management. For the past 15 years I have specialized in hydroelectric and irrigation developments.

I am appearing before this committee as general manager of the Salt River Valley Water Users' Association, one of the oldest, largest, and most successful irrigation districts in the United States. It is one of the few districts that weathered the depression of the early thirties, without being refinanced, and was able to meet all of its financial obligations. This organization distributes water to some 242,000 acres situated in the south central part of Arizona, and, in addition thereto, is the largest single producer and distributor of electric power in the State of Arizona.

I am also appearing as a director of the Arizona Electric Coordinating Committee, which represents the six utilities, both private and public, in the State of Arizona, and who distribute approximately 95 percent of the power distributed within the State. By resolution I have full authority to testify before this committee in behalf of the coordinating committee.

I have no intention in appearing before this committee of trying to qualify myself as an expert on underground water. Our association, however, is the largest developer and user of underground water within the State of Arizona. We have an excellent underground water section headed by a very capable engineer whom we acquired from California. He is assisted by other capable underground water men who are charged with the drilling, equipping, operation, and maintenance of irrigation wells. I have heard some of the members of this committee express themselves as being confused at some of the testimony in connection with the underground water. Frankly, I have been confused also, although I am an engineer who is supposed to be able to comprehend such engineering reports.

Underground water has entirely too many intangible things connected with it for me to attempt to qualify myself as an expert on quantity, quality, or location. There are, however, a few things I know from our actual experience in developing underground water that I feel should be brought to the attention of this committee.

The earliest report on underground water in central Arizona that I know was prepared by Mr. W. T. Lee in 1905. I have heard of and am sure that

several other engineers have made reports on underground water conditions in central Arizona since Mr. Lee's report. The only other report with which I am familiar was made by Raymond Hill for the Water Users' Association in connection with some possible litigation with an adjoining district.

The Lee report was made prior to any upstream storage development on either the Salt or the Verde Rivers. The Lee report indicated that the natural recharge for the central Arizona area was approximately 360,000 acre-feet of water per year. The Hill report indicated a recharge of approximately 350,000 acre-feet per year, but further indicated that by recycling the water, probably as much as 550,000 acre-feet of water could be pumped each year to supplement irrigation without depleting underground storage.

Whenever the extraction of water from the underground exceeds the recharge the result is that of mining water. In other words, you are taking water out from under the land that has been put there over a long period of years and just like a gold mine, a coal mine, or any other mining operation, you are taking something from the underground that is not being replaced and subjecting your supply to depletion.

The Hill report covered only what is known as the Phoenix-Mesa Basin. The Lee report covered the area contemplated under the central Arizona project. The Lee report estimated that the natural recharge for the area other than that included in the Phoenix-Mesa Basin was approximately 70,000 acre-feet per year. Using a value of 50 percent for recharge from recycling the total recharge to the basin other than the Phoenix-Mesa Basin would be 105,000 acre-feet per year. Using this figure for the basin. outside the Phoenix-Mesa Basin, and using Hill's figure of 550,000 acre-feet for the Phoenix-Mesa Basin, the total recharge to the area would be about 655,000 acre-feet per year. The average annual water pumped from the area covered by the central Arizona project is approximately 1,800,000 acre-feet per year. In other words, the amount of water being used from the underground basin each year exceeds the replenishment by about 1,145,000 acre-feet. It doesn't take an underground water expert and it doesn't take much mathematics to determine what is happening to the underground water basin.

You gentlemen have been informed by prior testimony that the underground water basin supplying the lands incorporated in the central Arizona project contains some 300,000,000 acre-feet of water. I don't know this to be true but I will not contest this statement. The fact that there might be 300,000,000 acre-feet of water under the project or included in the basins supplying the project is not the answer. The impression was left with this committee that all the water users had to do was put down wells to a depth of approximately 1,000 feet and pump this water out for their use. I do contest this statement.

The figure of 300,000,000 acre-feet was evidently derived by taking all of the area, which is purported to comprise the underground water basin, multiplying that by approximately 850 feet, which is the difference between the average present static level and the thousand-foot depth referred to, and considering that that area contained 15 percent water content. The amount of water under an area is not the answer. The amount that can be extracted from an area for beneficial use is what counts.

It also appeared to me from testimony I heard that there was an attempt to leave the impression with this committee that if we could afford to lift water nine-hundred-odd feet at one location we could afford to sink individual wells and pump water from the same depth. There is a great deal of difference in having a central pumping plant at the Colorado River as against having a thousand or more well pumping plants spread over some 700,000 acres. The central pumping plant would be a great deal more efficient in operation, it would be located considerably closer to the source of power, and would not result in the tremendous loss in power being distributed to some thousand-odd pumping plants over the seven-hundred-thousand-odd acres. You do not have to be an engineer to know you may be able to afford one without being able to afford the other.

I said a minute ago that it doesn't make any difference how much water might be contained in certain materials lying below the surface of the ground, it is the amount that can be economically extracted for use that counts. Approximately all materials underground carry a certain amount of water and the content is rather high. There is water in granite, limestone, sandstone, etc., but you don't get it out with a pump. Clays usually carry a higher water content than sand and gravel, but you don't get that out with a pump: the clays do not yield their water fast enough for economical pumping. We have an area in the north end of our project that is away from the river, where the water table stands higher

than it does at almost any other place in the project, in fact at times the water table is within 25 feet of the surface, and we have numerous drainage wells in this area, but they yield very small amounts of water; in fact, we cannot afford to operate them as irrigation pumps.

The project of which I am general manager now owns some two-hundred-odd wells and is in the process of drilling 65 additional wells which are being drilled to a depth of 700 feet. I would like to show this committee the log of some of these wells. Wells have been selected from different sections of the project which gives a fairly good coverage of the project. You can see from these logs the types of material encountered in drilling the wells to a depth of approximately 700 feet. I also have some samples of materials taken from these wells which I would like for the committee to look at. You can see from these samples the types of material encountered and make up your own minds as to about how much water you think can be extracted from them by pumping from deep wells.

We like to start our perforations as far down from the surface as we can in order to attempt to get a better class of water. To show you the results of this, we drilled a well in what we call the Scottsdale area, which I will indicate on the map, and started perforations at 350 feet from the surface and perforated to the bottom of the casing. When we put a test pump on this well we were only able to produce 800 gallons of water per minute. This was not a satisfactory well so we perforated up to 250 feet and again put a test pump on the well and got 1,800 gallons per minute. This will give you some idea of what you are up against in extracting water from the lower levels. We put one of our wells down to a thousand-foot depth and did not get as much water out of it as we did a well of 700-foot depth located less than a mile away.

Naturally, having a substantial investment in wells I have been very interested in deep well information and have read all of the articles on deep well pumps and pumping that I could get my hands on. Most of these articles, supposed to have been written by experts, end up by suggesting that you see your local driller. Our project comprises only about 242,000 acres. I know of over 450 wells within this project—that is, irrigation wells—and would estimate that there are at least 500 irrigation wells in the area. These wells fairly well cover the entire project, yet on our new well-drilling program we find almost every well we drill is a wildcat. It is nothing unusual to get a very productive well in one location and get almost a total loss only a half-mile from it.

I think statements to the effect that if we can afford to raise water nine hundred-odd feet at a central pumping plant on the Colorado River we can afford to drill wells to a depth of a thousand feet and raise the water a thousand feet in the project and that there is approximately 300,000,000 acre-feet of water stored under the project and all we have to do is to drill wells to a thousand feet and start pumping it out is entirely misleading to this committee and would not be supported by any impartial engineer.

This committee was informed by previous testimony that all we had to do was to drill these wells and get a better quality of water than the Colorado River water. Our association has a chemical laboratory which is constantly engaged in sampling and testing water from the various wells and from different points on our canals. I have taken wells at random over the project and can point out the location of them to you on the map and will tell you the parts per million of soluble salts in samples taken from these wells. The parts per million of soluble salts in the Colorado River water is approximately 700. You will notice at a glance that the Colorado River water is much better water from a quality standpoint than water we are able to produce from the majority of our wells. As a matter of fact, the water from some of our wells has to be well diluted with surface water before it can be used at all for irrigation. Irrigation water should not contain over about 1,500 parts per million of soluble salts, otherwise it would be too hot for diversified farming. We are having constant complaints in my office from shareholders over the amount of pump water supplied to them. This is particularly true in certain parts of the project that are being supplied a heavy percent of pump water.

As explained to you before, I am not attempting to qualify as an expert on underground water, but am presenting you only facts that I have encountered in managing an irrigation district that is expecting to receive a supply of water from the central Arizona development.

I've heard testimony before this committee to the effect that all the water that is needed for the entire central Arizona areas is approximately 300,000 acre-feet. As general manager of the Salt River Valley Waters Users' Association, I can tell you that although our area comprises only about a third of the area

covered by the central Arizona project we expect to apply for, purchase if allotted, and put to beneficial use approximately that much water in our own right and we are the only project in the entire area that has a substantial surface supply and are not primarily dependent upon pumping for our requirements.

I have heard a great deal of testimony before this committee on wastage of water in central Arizona and the amount of water that could be salvaged and put to beneficial use. In one capacity or another I have worked on irrigation projects from Montana to the lower Rio Grande Valley and it is my opinion that most irrigation areas could take lessons from central Arizona in the conservation and economic use of water. From what I have observed and heard from the Imperial Valley of California and their wastage of water into the Salton Sea, flooding areas of productive land, they could certainly take lessons from Arizona. We don't have that kind of water to play with.

I have always been somewhat astounded at engineers who attempt to draw up a water balance similar to a financial statement. I don't know whom they are trying to impress, certainly not other engineers who have some knowledge of the intangibles involved in trying to balance out water.

I was somewhat bewildered but not enthused with the impression that one of the witnesses attempted to leave with this committee concerning the amount of water that could be salvaged in central Arizona simply by eliminating salt cedars. It is granted that salt cedars do consume a great deal of water. They are an obnoxious plant and should be destroyed, but neither the United States Government through its various agencies nor the people of central Arizona have been asleep on this problem. Experiments on the eradication of salt cedars have been under way continuously by both Government agencies and by individuals and districts. To date the results have not been encouraging. There is one thing I am sure of, that you are not going to kill salt cedars by trying to pump the water out from underneath them. If my memory serves me correctly there was quite an extensive program on the eradication of Phreatophytes on the Pecos River and the middle Rio Grande in New Mexico by the Bureau of Reclamation and the Department of Agriculture. The experiments ended up in turning the area into a bird sanctuary.

I do not wish to take up the committee's time in hashing over things that have already been covered but I would like to make a brief statement in connection with the power angle of this development . Arizona's power loads have been growing by leaps and bounds. There has been absolutely no attempt to increase the loads in our area by promotional rates or promotional sales campaigns encouraging the use of electric energy. As a matter of fact, all companies in Arizona have been discouraging load. In particular, on irrigation pumps, quite a few Diesel- and gas-driven engines have been installed. These installations are all potential electric-power customers. We have all been quite concerned about our power requirements and about power costs.

The coordinating committee that I referred to at the beginning of my statement has employed a very highly qualified engineer to study our load and power conditions. The engineer has had benefit of engineering help and advice from all the utilities in the area. These studies indicate it would cost us approximately 6.1 mills per kilowatt-hour to produce power with steam generation using natural gas as a fuel at a cost of 18 cents per thousand cubic feet. Gas at 18 cents results in a cost of approximately 16½ cents per million B. t. u. content. This is an oil equivalent of about —1.02 per barrel. The above figure is based on operation at 60 percent load factor which is about the load factor available from hydroelectric energy developed on the Colorado River. Hydroelectric energy has a great many characteristics that are desirable over steam fuel, particularly so for peaking power, in that it is not necessary to keep equipment on the line and warmed up in order to carry the swings of the load. We feel that hydroelectric energy from the Colorado River at a price ranging around 5 mills will be very desirable capacity to the operating companies in Arizona. Our load growth studies show that at the time power could be produced from the central Arizona development the State of Arizona could consume all of the power so produced and the companies of Arizona are ready and willing to contract for this power. Therefore, it will not be necessary for California to take any of the power.

It is my feeling that California's main objection to the central Arizona project is that with the central Arizona project included as a part of the over-all development, power from Bridge Canyon will cost more than it otherwise would if Bridge Canyon were developed as a power project only. Undoubtedly the Bridge Canyon development will be made whether or not the central Arizona project is tied into it. The question is whether it will be developed as a higher cost power project, yet with power still at a competitive figure, to assist agriculture in

Arizona, or whether it will be developed as a low-cost power project with a substantial part of the power going to California, resulting in cheap power for California and the subsidizing of industry in California. As economy in the United States starts at grass roots, as successful agricultural development in Arizona sells automobiles in Detroit, steel in Pittsburgh, paint in Cleveland, shoes and clothes in St. Louis and Boston, it is my opinion that the subsidizing of agriculture in Arizona is a great deal more important to national economy than the subsidizing of industry on the west coast which results to a large extent in pulling industries from other sections of the country to the west coast.

In summing up my remarks I request that this committee consider the following facts:

(1) We are mining our water in central Arizona.

(2) That two-thirds of the area now under cultivation is entirely dependent upon pumping from the underground for its water supply, and that the other one-third is dependent upon underground pumping for its supplemental supply.

(3) That the area is desperately in need of a supplemental supply of water from the Colorado River, otherwise thousands of acres of productive land now contributing to the general economy of the Nation will be taken out of production.

(4) That central Arizona is very conscious of water conservation and is and has been taking all steps that are practical to conserve its water supply.

(5) That statements to the effect that there is a great underground basis of water in central Arizona, which only needs tapping and pumping to supply an adequate amount of water for irrigation purposes are entirely misleading.

(6) That no simple and practical method of eradication of phreatophytes has yet been developed and that any insinuation that all we have to do is to pump the water out from under the phreatophytes to kill them off is an impractical supposition.

(7) That it is not necessary for California to spend any money for power from the Bridge Canyon development and therefore carry any of the burden of financing the central Arizona project. The utilities in central Arizona need and are ready and anxious to purchase all of the power so produced for use in Arizona.

(8) That it is more important to the economy of this country to use revenues from power sales to assist agricultural development in Arizona than it is to expend Government moneys in constructing facilities to produce low-cost power for California.

I appreciate the opportunity of appearing before this committee and of being permitted to present my views in connection with this very necessary and worth-while project.

Mr. CARSON. I also would like to have incorporated in the record the summary of the condition of the financial set-up of the California projects, as prepared by Mr. J. H. Moeur, which are in contrast and conflict with the positions here taken by these California witnesses and members of this committee. May that be printed in the record?

Mr. MURDOCK. I had intended to ask that that be inserted in the appendix of the record. Without objection, it will be so ordered.

(The document referred to is inserted in the appendix of this hearing.)

Mr. CARSON. I would like to have incorporated the statement made by Senator Carl Hayden before the Senate committee this year, since his name has been brought in here by these California witnesses.

Mr. MURDOCK. Without objection, it will be so entered.

(The statement referred to is as follows:)

STATEMENT OF HON. CARL HAYDEN, A UNITED STATES SENATOR FROM THE STATE OF ARIZONA

Senator HAYDEN. Mr. Chairman, I sincerely regret that pressure of duties in other committees has prevented me from attended the hearings, much as I would have like to have done.

The CHAIRMAN. I think all the members of the committee understand the pressure under which the Senator from Arizona is working.

Senator HAYDEN. But I am glad to have an opportunity to appear before you this morning.

One of the questions raised in connection with this authorization bill is the cost of the central Arizona project, which has been estimated by the Bureau of Reclamation to be $738,408,000, a considerable sum of money. However, I think it is fair to mention other appropriations for similar purposes, particularly those made for the State of California, that are comparable to the cost of the central Arizona project.

I have before me a list of the authorized flood-control projects in the State of California, which list was supplied to me by the Corps of Engineers of the Army.

Authorized flood-control projects in the State of California

Project	Total estimated Federal cost	Amount appropriated to date
Bear Creek	$503,000	$20,000
Black Butte Reservoir	11,079,000	
Cherry Valley Reservoir	6,200,000	610,000
Farmington Reservoir	3,729,000	395,000
Folsom Reservoir	50,792,000	1,582,000
Hogan Reservoir	11,264,000	105,000
Isabella Reservoir	14,300,000	3,858,000
Los Angeles County drainage area (exclusive of Whittier Narrows Reservoir)	301,605,600	89,231,200
Merced County stream group	2,700,000	1,555,000
New Melones Reservoir	38,127,000	100,000
Pajaro River	714,000	714,000
Pine Flat Reservoir	51,121,000	6,700,000
Sacramento River and minor and major tributaries	21,520,000	1,035,000
Salinas River	3,515,000	30,000
Santa Ana River Basin (including San Antonio Dam)	44,805,900	1[illegible] 479,700
San Joaquin River and tributaries	4,005,000	45,000
Santa Clara River	4,956,000	
Stewart Canyon debris basin and channel	880,000	36,000
Success Reservoir	11,144,000	295,000
Table Mountain Reservoir	55,229,000	645,000
Terminus Reservoir	13,395,000	275,000
Ventura River	1,510,000	1,350,000
Whittier Narrows Reservoir	26,880,000	1,194,100
Eel River	280,000	
Napa River	65,000	
Sacramento River flood-control project	42,600,000	36,195,000
Total	722,919,50	165,450,000

There have been authorized for construction by congressional enactment, flood-control projects in the State of California aggregating a total of $722,919,500. The principal items authorized are the Los Angeles County drainage area, exclusive of the Whittier Narrows Reservoir, $301,605,600. There are five other important projects: Folsom Reservoir costing $50,792,000; Pine Flat Reservoir costing $51,121,000; Santa Ana River Basin, including San Antonio Dam, $44,805,000; Table Mountain Reservoir, $55,229,000; and the Sacramento River flood-control project, $42,600,000, which five projects aggregate something more than $244,000,000.

Now, not a soul—at least a sensible soul—in Arizona begrudges the appropriation by Congress of that $722,919,000 for that use in the State of California.

Each one of these projects has been approved for construction after careful investigation by the Corps of Engineers. The cost is less than the benefits that would accrue to the property owners in the several areas. These are not all the flood-control projects that are to be constructed in California; others are under investigation at this time and undoubtedly there will be future authorizations by Congress for additional sums of money.

It is true that the local interests are required to acquire the rights-of-way and make substantial contributions in a number of instances, but none of this $722,919,000 is actually reimbursable to the Federal Treasury. It is a gift, a subsidy. In one sense, you might say the Congress would not be justified in making such appropriations. However, when broadly and fairly viewed, I say that that money will all be returned to the Treasury of the United States, with good interest, because when valuable farm lands are protected, when manufacturing establishments and business enterprises in cities and towns are protected Congress is preserving taxable wealth. By constructing these flood-control projects, Congress creates additional wealth; and when the wealth is created it becomes subject to Federal income and profits taxation.

Out of the prosperity that will ensue in California the Federal Government will get its money back, and all of it, without waiting very long. In my judgment the Federal Treasury will be fully reimbursed.

As far as we are concerned in Arizona, our people like to have prosperous neighbors. It does not make any difference whether a steer is fattened on one side of the Colorado River or the other, he goes to the Los Angeles market. Our mining products and agricultural products are all in greater demand because there are more millions of people living in California who are prospering. They make a better market for everything we produce. We are all in one economic unit. The people of Arizona are not at all jealous of the development of the resources of California.

I would also like to direct the attention of the committee to another set of figures which should be of interest; namely, the Federal reclamation appropriations which have been authorized in the State of California. Up to the present time Congress has passed authorizing acts amounting to $694,981,137. The amount that has actually been appropriated to construct those projects is $354,808,274. That is not all that will be done by Congress. There is now under investigation by the Reclamation Service additional irrigation developments in the Central Valley Basin that are estimated to cost between $300,000,000 and $400,000,000.

Federal reclamation developments in California

Projects authorized for construction	Estimated total cost	Funds appropriated through June 30, 1948
All-American Canal project	$76,448,670	$53,070,162
Central Valley project	440,069,000	272,803,972
Central Valley project irrigation distribution systems	72,500,000	----------
Klamath project (California portion)	5,873,583	8,155,000
Orland project	2,448,670	2,500,000
Parker Dam and power plant project	16,272,466	[1] 15,676,392
Santa Barbara project	34,189,000	[2] 1,000,000
Solano County project	45,577,000	----------
Yuma project (California portion)	1,602,748	1,602,748
Total authorized	694,981,137	354,808,274

[1] Exclusive of $7,256,553 of trust funds contributed by Metropolitan Water District of Southern California and transmission-line system in Arizona.
[2] Contract authorization, $1,600,000.

There are other proposed reclamation developments in California, all of them worthy, that will in time undoubtedly be authorized by Congress.

Now, these sums of money for reclamation and for flood control in California are comparable to the amount of money we have asked for in Arizona. It makes no difference whether the appropriations are divided up into different units, since the sum total is a quantity of money that is to come out of the Treasury of the United States. It is either taxpayers' money, or borrowed money, as the case may be.

But my contention again is that every one of these reclamation or irrigation projects in California is fully justified. The sums expended on them will be directly reimbursed to the reclamation fund and to the Treasury of the United States; but even more important, they all create new wealth which becomes taxable wealth. From the taxation angle alone, the Federal Government will again get its money back. Each one of these reclamation projects in California

is a good investment, so far as the United States is concerned. And nobody in Arizona begrudges their development over there.

Now, take the figures that we have with respect to the central Arizona project. The estimate cost, as I stated, is $37,408,000. That sum can be divided into two parts:

First, the irrigation features which would not be required if Colorado River water is not brought into central Arizona. Second, the features of primary value for silt and flood control and for the production and transmission of hydroelectric power, which are fully justified on the basis that has been adopted elsewhere throughout the United States, with respect to flood control and power projects.

DIVISION OF COSTS

The estimated construction cost of the central Arizona project is $738,408,000 which can be divided into two parts.

(1) Irrigation features which would not be required if Colorado River water is not brought into central Arizona:

Havasu pumping plants	$25,973,000
Granite Reef aqueduct	131,716,000
McDowell pumping plant and canal	3,346,000
McDowell Dam and Reservoir	16,326,000
McDowell power plant	1,012,000
Salt-Gila aqueduct	34,585,000
Irrigation distribution system	54,086,000
Total deduction	267,044,000

(2) Features of primary value for silt and flood control and for the production and transmission of hydroelectric power:

Bluff Dam and Reservoir	$29,628,000
Coconino Dam and Reservoir	7,487,000
Bridge Canyon Dam and Reservoir	191,939,000
Bridge Canyon power plant	73,419,000
Horseshoe Dam (enlargement) and Reservoir	7,078,000
Horseshoe power plant	2,628,000
Buttes Dam and Reservoir	29,037,000
Buttes power plant	1,159,000
Charleston Dam and Reservoir	9,270,000
Tucson aqueduct	6,401,000
Safford Valley improvements	4,090,000
Hooker Dam and Reservoir	15,484,000
Drainage system for salinity control	9,973,000
Power transmission system	83,771,000
Total retained features	471,364,000

The above estimates were made by the Bureau of Reclamation during a period of high prices. If a reduction of 15 percent in future construction costs (as recently provided by the House of Representatives in the Interior Department and the War Department civil functions appropriation bills) is justified the present estimated cost of all features of the central Arizona project would be reduced by $110,760,000 to $627,648,000.

If there is to be no water taken out of the Colorado River for the irrigation of lands in central Arizona, then the project cost could be reduced by $267,044,000. There would be no need for Congress to appropriate money for the Havasu pumping plant at $25,973,000, or for the Granite Reef aqueduct at $131,716,000. Money for the McDowell pumping plant, the McDowell Reservoir, the McDowell power plant, aggregating some twenty-million-odd dollars, would not be required. The Salt-Gila aqueduct would not be constructed, and certainly, if there is to be no water to distribute there would be no need for an irrigation distribution system at a cost of $54,086,000.

In the second group of features, the Bluff Dam and Reservoir and the Coconino Dam and Reservoir, to cost about $38,000,000, are for silt control, which control is approved by everyone in California and Arizona.

Then comes the principal item, the Bridge Canyon Dam and Reservoir at an estimated cost of $191,939,000, to develop power for which there is a crying need in California, in Arizona, and Nevada. It is a plant that simply has to be

built because at the present moment there is not enough power for industrial uses and for irrigation purposes in any of the three States.

It is absolutely necessary to build a power plant there, at a cost of $73,419,000. Another large item in this list is $83,771,000 for transmission lines to get Bridge Canyon power to the various places where it is to be used.

In connection with these figures let me state that they are based upon estimates made by the Bureau of Reclamation during the period of high prices. If a reduction of 15 percent in future construction costs, as recently provided by the House of Representatives in the Interior Department and in the War Department civil functions appropriations bills is justified, then the present estimated cost of all the features of the central Arizona project would be reduced by $110,760,000 to $627,648 000.

The House of Representatives has taken that deliberate action on each of those appropriation bills for the fiscal year 1950 on the assumption that the costs of construction have gone down and will go down during the next year by at least 15 percent. I am making no prediction as to the future. All I know is that if this project is adopted by Congress for construction, like all other reclamation projects, it is going to take a number of years to be built; and if construction costs do return to normal, they will not be as high as such costs were at the time these estimates were made by the Reclamation Service.

Another factor to be seriously considered is that the central Arizona project should be included in a series of approved projects upon which engineers are working all over the United States for flood control, hydroelectric power, and irrigation, so that if, unfortunately, our country should go into another economic depression, there could be made available employment for many men on such great public works, which would also provide a market for machinery and large quantities of construction materials.

I have broken these costs down into two parts, because of the very argument to which the committee listened this morning as to whether or not Arizona had a right to obtain water out of the Colorado River. If the Supreme Court of the United States, for example, should decide that Arizona did not have any right to take the required quantity of water out of the Colorado River, then there would not be any sense in asking Congress to appropriate money to build the authorized irrigation works. It is obvious that in the order of construction the irrigation works come last, and not first. It will be necessary to build a great dam, a large power plant, and the transmission lines before any water can be pumped out of the Colorado River. So if the whole project is authorized, and those features that had to be built first were under construction, there might be then time to try a lawsuit and see whether Arizona had a right to take water from the Colorado River. If the Supreme Court decided that Arizona did not have that right, we would not have water for the project; that would be an end to it, and the Congress would not appropriate the money for that part of this authorization for which there was no water available.

I am not a lawyer. All the law that I know I acquired as a sheriff when for about 5 years I listened to legal arguments in the Maricopa County courthouse.

The CHAIRMAN. Do you take no credit at all, Senator, for listening to all the legal arguments since you have been a Member of Congress?

Senator HAYDEN. If I had paid strict attention to all the congressional arguments, particularly with respect to the Constitution of the United States, I am afraid that confusion would be worse confounded in my mind. [Laughter.]

I did get it in my head, as sheriff, while listening to the lawyers, that one could not go to court and allege imaginary damages; there had to be something real. The complaining party had to demonstrate that he had lost, or was about to lose, something that really belonged to him.

Now, it is just a sheriff's opinion that if this authorizing act is passed, and work was actually begun with money appropriated by Congress under that authorization, and it looked like Arizona was going to take 1,200,000 acre-feet of water out of the Colorado River, the State of California then would have some standing in court; at least get a start, as Mr. Carson said this morning, toward developing what he called a justiciable issue—and I don't know just exactly what that means—and thereby get a case into court. The validity of the California claim might then be tried out, while the Reclamation Service is constructing the other part of the works which are not directly related to irrigation.

My contention is, and I think it is as clear as a bell from the record, that Arizona is entitled to 2,800,000 acre-feet of water out of the main stream of the Colorado River, out of the 7,500,000 acre-feet apportioned to the lower basin. I know how those figures came about. I was here in Congress at the time.

What happened historically was that the Colorado River, combined with floods from the Gila, broke over into the Imperial Valley and drowned out a lot of valuable agricultural land. All of the river ran into the Salton Sea for a while. To adequately protect people of the Imperial Valley it was necessary to go up somewhere along the river and build a great dam to control the floods, and the Boulder Canyon site was selected.

To build the Boulder Canyon Dam required an authorizing act by Congress. The States of the upper basin, looking the situation over, said, "Before any dam is built on the Colorado River we must have an understanding about how the waters of that river are going to be divided. We want to know what water will be left for us, because California is lower down, has lands that are level and more susceptible of irrigation, and if nothing is done about dividing the water, they will put it to beneficial use; and once land is irrigated in California we never could take the water away from them. Whatever the future situation may be, it will not be possible to turn existing irrigated farms back into the desert."

It was the upper-basin States which insisted that there should be a Colorado River compact. It was at their request that Congress, in the act of August 19, 1921, authorized the making of a compact among the basin States for the apportionment of the water of the Colorado River. The act was conditioned upon the appointment of, and participation in the compact sessions by, a representative of the Federal Government. Herbert Hoover, who was then Secretary of Commerce, was persuaded to be the Federal representative because everyone wanted an engineer of standing and national reputation to be at the head of the Commission.

The commissioners from the seven States negotiated all summer and did not get anywhere. I remember talking to Mr. Hoover one day about it, and he said they just could not agree on anything at all. I said, "What you say is due to your political inexperience; there is an election coming on this fall, and it does not make any difference what a State official should now agree, because his opponent is going to say that he has traded away the heritage of his people. But if you will just wait until after the election and then get the State commissioners together, they will write a compact." And that is exactly what they did.

They went over to Santa Fe and agreed upon the Colorado River compact, which was signed November 24, 1922. It was found impossible at that time to make a division of the water among the seven States; so they agreed to divide the Colorado River Basin into two parts, and that 7,500,000 acre-feet should be allocated to the upper basin and 7,500,000 acre-feet to the lower basin out of the main stream at Lee Ferry near the Utah-Arizona boundary line.

Then again, having had difficulty with California in getting that State to come together with them on the compact, the representatives of the upper-basin States decided that they had better have a further assurance before Congress authorized the construction of the Boulder Canyon project. "We insist that the California Legislature shall meet and irrevocably bind that State for the benefit of the United States and all the other States of the basin; that California will never claim more than 4,400,000 acre-feet out of that 7,500,000 coming down the Colorado River." The Boulder Canyon Project Act accordingly was passed by Congress with the specific provision that it would not be effective until the California Legislature made that irrevocable agreement.

Subtract 4,400,000 acre-feet from 7,500,000 acre-feet, and what is left could go only to two other States, Arizona and Nevada.

The 4,400,000 acre-feet apportionment to California as worked out was in close accord, but not quite identical, with an arbitration award that Arizona accepted at one time in order to get a settlement with California. Arizona submitted to the Governors of the upper-basin States and their representatives this question: How should the lower-basin water be divided?

The governors came back with a finding that Arizona should get 3,000,000 acre-feet, California 4,200,000, and Nevada 300,000. When the time came to write the Boulder Canyon Project Act, California took another 200,000 acre-feet. That is how it gets up to 4,400,000. I remember the argument made to us during consideration of that act: "Arizona has been allocated under the Governors' arbitration, 3,000,000 acre-feet; your State is losing less than 10 percent of that amount of water and you had better go along," and that is the way it was done.

Unfortunately, the State of Arizona failed promptly to ratify the Colorado River Compact. We then had a group of folks in Arizona who were perfect fanatics about Colorado River water. They would look at a map of the State, see a level place on it somewhere, figure up the number of irrigable acres, and

insist that there were millions of acres of desert land in Arizona that could be irrigated. We had one gentleman, Mr. George H. Maxwell, who even argued that, based upon the doctrine of riparian rights, the State of Arizona had the right to have the Colorado River come down its northern border with an undiminished flow.

Approval of of the Colorado River Compact got mixed up into politics because the defeated Governor of Arizona went over to Santa Fe when the compact was signed, and came back saying that it was a wonderful document. The Governor who had defeated him a few weeks before in the State election, of course, did not like that. So, when it came to the ratification of the compact, much trouble developed in the Arizona Legislature.

In an effort to straighten out that situation, I addressed a long series of questions to Mr. Hoover as to what the compact meant. All of the questions were asked in order to satisfy people in Arizona who were alleging that somehow or other our State was going to suffer great injury if we ratified the Colorado River Compact. The questions were not based upon any fear that California would not do the right thing, or that the other States in the basin would not do right by us, but just simply to satisfy local sentiment at home.

But we did not succeed in that effort, and my recollection is that the Colorado River Compact failed of ratification in one house of the Arizona Legislature by about two votes and by one vote in the other. So Arizona was not in the compact when the time came for Congress to pass the Boulder Canyon Project Act. And because Arizona had not approved it, the other six States said, "We are going to fix it so that Arizona cannot get any water out of the Boulder Canyon Reservoir until Arizona joins the compact." If Senators will read through the Boulder Canyon Project Act, they will find one place after another where it is in effect provided that unless a State had approved the compact it did not get any water out of the Colorado River.

The bill to authorize the construction of the Boulder Canyon project was reported in the Senate in the spring of 1928. Senator Ashhurst and I were there to represent our State. Here was a bill which absolutely deprived Arizona of any benefits whatsoever from the construction of that project. We concluded that our only recourse was to fight the bill. So we tied it up for over a month, toward the close of the summer session of Congress, which was not difficult because the appropriations bills and other business frequently caused it to be set aside. The bill finally was made the exclusive unfinished business of the Senate, when Congress reconvened on the first Monday in December 1928. Then we started talking again. There were just the two of us——

Senator KERR. Not a filibuster, Senator.

Senator HAYDEN. We did filibuster; there was no fooling about it at all. [Laughter.]

We did it all day long and then when the Senate ran into night sessions we kept on—insisting that there must be some indication in the bill that Arizona had some right to water in the Colorado River.

Finally—I very well remember the last night; I talked until about 11 o'clock when a quorum did not develop; so I went to sleep on a couch. The last of the Senators to make a quorum straggled in just as the sun was coming up. I told all the Senators to go home, get a bath, get breakfast, and take their time, because I was not going to yield the floor until at least half past 10. I knew there were then in progress negotiations to work out something in the bill that would help Arizona.

Senator Pittman of Nevada was the principal negotiator who was trying to get our troubles straightened out. He thoroughly understood our attitude with regard to the legislation.

He had told me the evening before, and then again that morning—I remember I yielded the floor to my colleague and talked to Senator Pittman in the Democratic cloakroom. He said: "We haxe fixed up an amendment which clearly indicates what water in the Colorado River Arizona is entitled to." That is the provision in the Boulder Canyon Project Act by which Congress authorized in advance the approval of a supplemental compact between the three States of the lower basin for a division of Colorado River water. It gave advance congressional approval. Ordinarily, an interstate compact is approved after the States have negotiated it, but this was another way of getting at it.

It is provided in the Boulder Canyon Project Act that:

"The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre-feet annually apportioned to the lower basin by paragraph (a) of article III of the Colorado River

compact, there shall be apportioned to the State of Nevada 300,000 acre-feet and to the State of Arizona 2,800,000 acre-feet for exclusive beneficial consumptive use in perpetuity, and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact, and (3) that the State of Arizona shall have the exclusive beneficial consumptive use of the Gila River and its tributaries within the boundaries of said State, and (4) that the waters of the Gila River and its tributaries, except return flow after the same enters the Colorado River, shall never be subject to any diminution whatever by any allowance of water which may be made by treaty or otherwise to the United States of Mexico. * * *"

One of the allegations made by some of the fanatics in Arizona was that if Arizona should ratify the Colorado River compact and a shortage of water occurred in Mexico, we would have to open up the Roosevelt Dam and all the other Arizona reservoirs, turn the water down the Gila River, and let it run to Mexico; that we would have to open up the floodgate and turn the water down, even though it would never get to Mexico, but would be soaked up in the sands.

But that is what some people in Arizona construed the compact to mean. Those words last quoted were used in the act, not for fear of California or of the other basin States, but to answer the fears of the fanatics in Arizona. That is also why the following language is in the Boulder Canyon Project Act:

"If it shall become necessary to supply water to the United States of Mexico from waters over and above the quantities which are surplus as defined by said compact, then the State of California shall and will mutually agree with the State of Arizona to supply, out of the main stream of the Colorado River, one-half of any deficiency which must be supplied to Mexico by the lower basin, and that the State of California shall and will further mutually agree with the States of Arizona and Nevada that none of said three States shall withhold water and none shall require the delivery of water which cannot reasonably be applied to domestic and agricultural uses, and that all of the provisions of said tri-State agreement shall be subject in all particulars to the provisions of the Colorado River compact. * * *"

Senator Pittman brought us this solution. I remember very well that Senator Kendrick came to talk to me in the cloakroom and said, "Now, this is what you have been talking about: You want a clear definition of Arizona's rights to water out of the Colorado River. We have given it to you and you ought to abandon this filibuster." We could have kept it up. We were not afraid of cloture. That had been tried once before and failed to get the necessary votes. We could have tied the bill up for good. And I can assure you that I would have been right there talking yet if we had not made this agreement.

Senator McFARLAND. Senator, pardon me just a minute. Did you read the earlier portion of that section of the Project Act which provided for the apportionment of 2,800,000 acre-feet of III (a) water to Arizona, plus the waters of the Gila?

Senator KERR. Yes; he read that.

Senator McFARLAND. Pardon me; I did not hear that.

Senator HAYDEN. There is another provision in the act about an additional million acre-feet allocated to the lower basin.

Senator KERR. That is III (b).

Senator HAYDEN. III (b). Everybody knew that was Arizona water. The California Senators knew it better than anybody else because if you will look at that map the Gila River runs into the Colorado River below any point where California could divert it into that State. It could not be used in any other State. The old Laguna Dam and the present Imperial Dam are above the mouth of the Gila River. So everybody agreed that no other State could have any claim to any water that could be physically used in one State alone. That was the Gila River situation.

But we had to put all that language in the act in order to satisfy a lot of our people that Arizona would not be required to deliver any Gila River water to Mexico and that no one else had any claim to it. That is why it was written.

The language was not adopted, as I say, because any representation had been made at any time by any Senator from any State that Gila River water did not belong to Arizona.

That was thoroughly understood by Senator Johnson and Senator Shortridge, the then Senators from California.

If the representations made with respect to the Gila River in later years, on behalf of the State of California, had been so much as whispered at that time, the Boulder Canyon Project Act would never have been passed. I know that

positively, because these later representations are so different from the concept that was in the minds of all the Senators who had to do with the passage of that act, that such later representations just would not fit the true original situation.

Since that time the intent of that act has been twisted and squirmed and distorted. Sometimes I think the way some people in California, and particularly the groups over in the Imperial Valley, try to twist the meaning of words and to distort the record of history, and to welch on the solemn agreements that the State of California made—the best group I can compare them with is the politburo in Moscow. That is about as close a comparison as I can summon as to anyone acting to twist and distort the meaning of words and the distinct understanding that we had at the time.

Senator DOWNEY. Mr. Chairman, in view of that very bitter statement that I think is totally uncalled for and that I very much resent, on which specific act does the Senator base that statement? What specific act?

Senator HAYDEN. The assertion, for example, that the State of California could count in the waters of the Gila River as a part of the lower basin waters to which they might lay claim. That is perfectly idiotic. There is not a thing like it in the record. It never was in the mind of Senator Hiram Johnson. It never was in the mind of Sam Shortridge. It never was in the mind of any Senator that any such cockeyed idea could ever be advanced, and yet it has since been seriously advanced by California over and over again.

Senator DOWNEY. Mr. Chairman, I want to say we will certainly endeavor to present very persuasive evidence that the statement just made by the Senator from Arizona is not correct.

Senator HAYDEN. All I can say to the Senator is that no such idea had been advanced at that time by any Senator or Congressman from California, nor were any of these extravagant claims that are now being made, whether based upon a subsequent contract with the Secretary of the Interior for nearly a million additional acre-feet of water out of the surplus or otherwise. That idea was not dreamed of at the time of adoption of the Boulder Canyon Project Act. Nobody even thought it or even mentioned that California could firm up a contract above the 4,400,000 acre-feet of water by taking water away from Arizona. If that proposal had ever been before the Congress there would not have been a Boulder Canyon Project Act and you could not have gotten a Senator from any State to support it.

Senator Johnson and Senator Shortridge never advocated anything of the kind. I know what I am talking about because I was there.

That is the situation the way I see it, and that is why I have recited this history to the committee.

My mother came to California right after the Union Pacific Railroad was built. She taught school in the San Joaquin Valley. She married my father and moved down to Arizona, where I was born. As a boy I went with her and visited her friends in the San Joaquin Valley. Then as a student at Stanford University and on other occasions I went by there, so I know that country very thoroughly. I know just what happened in that valley. Originally it was a very fine cattle-grazing country. Miller and Lux was the big cattle outfit. Then water was first diverted out of some of the streams for irrigation. Later it was discovered that water was not very far down if one wanted to drill a well.

So there began a great irrigation development with a fine climate and excellent soil. Out of the stream flow and the underground water a wonderful civilization was created. But it so turned out that they attempted to irrigate more land than they had water for, either out of the rivers or out of the underground. The wells had go lower and lower and lower to get water.

I went into San Joaquin Valley in later years. I saw worried people who said: "What are we going to do? What is our future? We have some of the finest lands, producing enormous crops of extreme value, but the water is gone. We must do something about it."

First they talked about the State constructing a great irrigation and power project. Then they decided it was too big a job for the State of California to undertake, and that the Federal Government had to built it. As a Member of Congress, and out of deep sympathy for those people, I helped to authorize the central California project, which is no less fantastic (to use a California expression) than the Arizona proposal now before this committee. That is to say, to build a great dam on the Sacramento River; generate a large quantity of power; let the power pay the major part of the cost; have a regulated flow of water come down the Sacramento River; use the power to pump up the water to irrigate the

lower half of the San Joaquin Valley, and thereby make available the San Joaquin River water for use in the upper end of that valley. It was a scheme of enormous cost, as the figures which I have cited show; but it had to be done; it was a must. Congress just could not get away from it. The civilization of the San Joaquin Valley could not be saved in any other way.

I was happy to aid in the authorization of the Central Valley project and in obtaining appropriations for it, because I knew the country intimately and knew that the work had to be done. There was no other way out of it. It was entirely proper that as a Senator I should render every possible assistance in saving a civilization.

Suppose that Congress had taken the view, "This Central Valley project will cost too much money; we just cannot do it." When a farmer starts to pump water for irrigation, if he can get it within 30 or 40 feet that is easy. But the water in the wells keeps going down and down and down, and finally he comes to a place where he cannot grow alfalfa if he has to pump water at that depth. He has to grow specialty crops, and there is only a limited market for such crops. If he is told that there is no hope at all, he is going to pull out the pumps and abandon the farm. That is all there is left for him to do.

The farmers were given hope in the Central Valley of California, given hope from the very start, and they stayed with their farms. Congress is now appropriating money for that great project; Congress is going to finish it up, and thereby save and insure the prosperity of that great valley. I am glad it turned out this way, and there is nobody in Arizona that is not glad it resulted like this, if for no other reason than it is a perfect precedent for what we are asking. We did the same thing in central Arizona that was done in the Central Valley in California. We built storage reservoirs on the streams and irrigated arid lands. The surface supply was not enough so we started pumping out of the underground waters. As we continued to pump the wells had to go deeper. Wells that were once 40 feet deep now go 200 and 250 feet to water. It is perfectly evident from the well records that they will take all the water out, and that irrigated lands must go back to the desert unless more water is made available.

There is only one place to obtain the water to replenish the underground loss and to save the civilization that we have built up in central Arizona—and we say it is as fine as there is anywhere in the world—and that is to go to the Colorado River and get it.

We claim we have a perfect title to enough water to do the job. We claim that the project is feasible, both from the angle of reimbursement as provided in this bill; and, second, that if that wealth is preserved we will continue to pay millions of dollars in taxes into the Federal Treasury and be a prosperous community.

To deny us this relief, to simply say, "Congress is never going to do it"—what is sure to happen? If the farmers of Arizona are convinced that there is no hope at any time, they are going to pull the pumps and leave. At least 240,000 acres of land will go back to the desert, and a quarter of a million people will have to move out of there. They would become just as much a class of displaced persons as there is anywhere in Europe. They would have to go because the entire economy of that area cannot live without water. It is a must in central Arizona, exactly as it was in central California.

Congress never has failed to act in any case like this. Congress did not fail to act in authorizing the construction of the Colorado-Big Thompson project. There was a large area of fine land on the eastern slope of the Rockies which ordinarily had enough water during the early part o fthe year. But irrigation water was wanted to finish out the crops which were lost year after year. What did Congress do? Money was provided to dig a great tunnel through the backbone of the Rocky Mountains. Power was generated and a great agricultural area was supplied with water.

Congress has never failed in these great causes and Congress, in my judgment, is not going to fail in this instance. We ask the help of this committee that there be no failure, that we do get relief by authorizing the construction of the central Arizona project.

I thank you.

Senator DOWNEY. I have a few questions, Mr. Chairman, but I do not want to antecede anybody else.

The CHAIRMAN. Senator Hayden, there has been considerable uncertainty among the minds of some of the members of this committee, with respect to the effects upon other States in the Colorado River system, of the interpretation which may be placed upon the Colorado River compact with respect to the allo-

cation of the waters of the system, as the result of any action that might be taken by the committee on the measures now before it. There has been a good deal of ambiguity, perhaps, in some of the testimony with respect to the meaning of the division of the waters between the upper and lower systems. You have discussed, for example, the 7,500,000 assigned to the upper basin; 7,500,000 to the lower basin, and the 1,000,000 acre-feet extra.

There have been some grounds for believing the testimony of some of the witnesses would lead to the conclusion that the upper basin may be compelled to make contributions to the lower basin which would reduce the 7,500,000 allowed to the upper-basin States.

So I ask you, in the light of that situation, what, in your opinion, is the right of the upper basin to the water of the Colorado River, and whether if this project should be allowed, it would create a demand at some future time which would prevent some of the developments in the upper-basin States.

Senator HAYDEN. I want to state right off that Arizona never has claimed, and so far as I know never will claim, any interest whatsoever in the 7,500,000 acre-feet of water allocated to the upper basin.

The allocations of water made by the Colorado River compact were based upon a set of stream-flow figures extending back over a series of years. I am sure that the commissioners who negotiated the compact honestly believed there was more water than the records show there has been during this later dry period. There are dry cycles and wet cycles, and we may come into a wet one in another 30 or 40 years which will show the water that they thought was there. But there is not presently as much water in the river as the State commissioners anticipated when they drew up the compact.

But they did believe, and the records will show, that there are substantially some 16,000,000 acre-feet of water as a minimum which is subject to division. That is the best guess, so far as I now know.

The upper basin is entitled to take 7,500,000 acre-feet. There is another provision in the compact that deliveries must be made in 10-year increments——

The CHAIRMAN. That it never shall be less than 75,000,000 for any 10-year period.

Senator HAYDEN. Yes; there is that limitation upon the use of water in the upper basin. But Arizon could not claim, California could not claim, and Nevada could not claim that because in any one particular year 7,500,000 acre-feet did not come down to them, that they could immediately go up and get it—I do not believe the compact could be construed that way.

The CHAIRMAN. Then do you, as a spokesman for Arizona, and as a supporter of this legislation, take the position that the waters which would be allocated or which would be used for the benefit of Arizona, as the result of the construction of this project, would never establish any basis by which a claim could be made for additional contributions of any kind from the upper basin?

Senator HAYDEN. My answer is "Absolutely no." All we are interested in is our share of the water allocated to the lower basin by the Colorado River Compact. If 7,500,000 acre-feet did not come down in any 1 year, we would have have to divide the lesser flow with California on a two-eight and four-four basis, that is all we could do.

The CHAIRMAN. So when you say "No," you mean that Arizona would not, under any circumstances, make any such demand?

Senator HAYDEN. Not only would not, but I do not see how Arizona could.

The CHAIRMAN. So that the development of the lower basin, whatever it may be, is development which must be taken out of the 7,500,000 plus the 1,000,000?

Senator HAYDEN. Confined to the lower basin allotment under the compact, absolutely.

The CHAIRMAN. Have you in mind an opinion as to the water which would be assigned to Arizona under this project, how much it would amount to?

Senator HAYDEN. All I have are the engineering estimates of some 1,200,000 acre-feet.

The CHAIRMAN. I understand from your testimony this morning, that you take the position Arizona was allowed 2,800,000 acre-feet in the Boulder Canyon Project Act and that in addition thereto the waters of the Gila.

Senator HAYDEN. Yes; and in addition thereto Arizona will split any available surplus, whatever it may be, equally with California. As I have said, there is not as much surplus water as was anticipated. That is really what is worrying them in California. The quantities of water that have come down past Lee Ferry have not been as great as was expected at the time when the compact

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was written. In the meantime California made a contract with the Secretary of the Interior for nearly 1,000,000 acre-feet of water which is supposed to come out of the surplus. If there may not be any surplus and they want to firm up that contract, then there is only one place to get that water and that is to take it away from Arizona.

The CHAIRMAN. What about the States of Utah and New Mexico, so far as the lower basin is concerned?

Senator HAYDEN. It does not amount to very much water. Utah has some lower-basin water in the Virgin River country. In New Mexico there is not very much except on the headwaters of the Gila. I have always felt that there should be storage provided for the irrigation of lands in that part of New Mexico. This bill contemplates aid for such storage and flood control. A dam in New Mexico would be a very material benefit to us also, since there are several towns, Duncan and Safford and others in Arizona, that have been badly damaged by floods in the Gila River.

The CHAIRMAN. This proposed Arizona project, what effect would it have on the development of lands in New Mexico on the upper reaches of the Gila?

Senator HAYDEN. There is an authorization in the bill for the construction of a dam in New Mexico, which I have listed as one which should be built whether or not Arizona gets any water out of the Colorado River. It is desirable both from the point of view of irrigation and flood control, and is well as justified as the flood-control projects I have listed in California which are now authorized by Congress for construction.

The CHAIRMAN. So far as the division of deficiencies that may occur at any time in the future between the upper and the lower basins, what is your opinion of that, speaking out of your intimate knowledge of this whole development?

Senator HAYDEN. The only place that the deficiency question came in, as I remember the original talks, was that if a treaty was made with Mexico requiring a certain amount of water to go there, and if there was not water enough to comply with the treaty, then the upper and lower basins should equally bear the shortage.

The CHAIRMAN. Do you mean by that that the shortage should be deducted 50 percent from the 7,500,000 assigned to the upper basin and 50 percent from the 8,500,000 over-all assigned to the lower basin?

Senator HAYDEN. No. The 50 percent would have to come out of the 7,500,000 acre-feet assigned to the lower basin for the reason that under the treaty the dividing point, where the water for Mexico is regulated, is at Davis Dam, which is above the mouth of the Gila. It is regulated for them at the Davis Dam for delivery at the international boundary.

Senator MCFARLAND. From the Davis Dam?

Senator HAYDEN. From the Davis Dam. Therefore, if the water was let out of the Davis Dam and Reservoir to go down the Colorado River to Mexico and there was a shortage, it would have to be made up from the upper and lower basins, upon the basis of their respective shares of 7,500,000 acre-feet each.

Senator KERR. Doesn't the compact specifically state that?

Senator HAYDEN. No, the compact does not. It simply states that the two basins shall equally share a shortage of water for Mexico. There could be an argument as between California and Arizona as to which State would have to contribute more to Mexico out of the Colorado River. But as between the two basins, the quantity of water would be the same. That is why the provisions appear in the Boulder Canyon Project Act to the effect that Mexico should not claim any water out of the Gila, which was just an imaginary idea, because in time of drought there would not be any water to run out of that river; it could not possibly be delivered. If the whole reservoir at the Roosevelt Dam was emptied out during a dry season in a day or two the water would simply soak up in the sand and none of it could get to Mexico. It is over 200 miles to Mexico from where our storage reservoirs are located in Arizona, through a sandy desert country. It would be necessary to build a concrete conduit for 200 miles to get any water down there. So the only place Mexico can get water physically is out of the mainstream of the Colorado River as provided in the Boulder Canyon Project Act.

The CHAIRMAN. I do not know that I quite understand you, Senator. The Gila empties into the Colorado River?

Senator HAYDEN. Yes.

The CHAIRMAN. And way below the Davis Dam.

Senator HAYDEN. Oh, yes.

The CHAIRMAN. So whatever flows comes out of the Gila into the Colorado cannot be delivered to California, but is necessarily delivered to Mexico?

Senator HAYDEN. That is correct, and that is one reason why the location of the lands to be irrigated under the Gila project was changed. There is a strip of land along the Gila from Yuma up to east of Wellton—fine fertile soil, well drained, with gravel underneath. When that land is irrigated, the return flow will go into the Gila and then into the Colorado River, where it will be measured as a credit under the Mexican Treaty. The more land irrigated in the lower Gila Valley the better it is for all concerned.

The CHAIRMAN. But we all hope that deficiencies will never arise in any serious proportion. What I am trying to get clear in my mind is whether, in your opinion, since the Gila does empty into the main stream of the Colorado, whether the 50-percent deficiency must be taken only out of the 7,500,000 coming from above, and will never come out of the Gila, having the result, therefore, of providing that irrigation on the Gila would never have to get along with less than was flowing in the river, while in other areas the projects would have to get along with less.

Senator HAYDEN. Unfortunately, we have had very dry years. I believe it has been about 7 years since any water ran out of the Gila into the Colorado. That is why we transferred Colorado River water away from the Yuma Mesa, where the sandy soil is similar to the lands of the East Mesa of the Imperial Valley, where it takes about 10 or 11 acre-feet of water to irrigate a crop because the sand drinks it up. We decided to abandon the Yuma Mesa lands and move up into the lower Gila Valley, where there is good soil and where there can be a return flow. That return flow would contribute to some extent—and we think it will be substantial as the project is developed—toward paying off the amount of water due to Mexico.

There is no specification in the Mexican water treaty as to any particular place from which the water shall come. The physical fact is that the Mexican treaty water is to be regulated up at the Davis Dam, but any water that came into the Colorado River below that dam would be counted in on the total before the two basins would have to divide up a shortage of treaty water for Mexico.

The CHAIRMAN. Are there any other questions from any of the members of the committee?

Senator DOWNEY. Yes; I have questions.

The CHAIRMAN. I thought perhaps Senator Anderson might want to ask a question, or Senator Kerr.

Senator ANDERSON. I am sorry I missed the first part of your testimony, but again we have had this testimony that Arizona is entitled to 2,800,000; Nevada, 300,000, which leaves 4,400,000 for California, and the compact to which you refer provided that those three States would enter into an agreement to divide up the 7,500,000 acre-feet, yet the compact names five States. Would, in your opinion, the three-State agreement have been any good under those circumstances? Nevada, California, and Arizona, it says, can divide up the water, but the compact between the seven States says that California, Arizona, Nevada, Utah, New Mexico could divide it up.

Senator HAYDEN. Undoubtedly, to make it a perfect compact, we would have to include New Mexico and Nevada.

Senator ANDERSON. Then this Boulder Canyon Act would not really be very binding, would it?

Senator HAYDEN. The binding part of it is, the thing that induced Senator Ashurst and me to end our filibuster, was the fact that the Boulder Canyon Project Act fixed a limit of 4,400,000 acre-feet for California, which left 2,800,000 acre-feet in the river for Arizona and 300,000 acre-feet for Nevada. That water is all in the main stream below Lee Ferry, where neither Utah nor New Mexico can get at it. The New Mexico part of the lower basin is at the headwaters of the Gila; the Utah part is at the head of the Virgin River. There is the possibility of some storage on the Virgin. But no Colorado River water, no water out of the main stream of the Colorado River, can be diverted into the upper Gila or into the upper Virgin. It is physically impossible to do so. Any water that New Mexico can get out of the lower basin would be waters stored on the headwaters of the Gila; any water that Utah can get out of the lower basin would be water stored on the headwaters of the Virgin.

Senator ANDERSON. Are those waters not taken into consideration in this compact?

Senator HAYDEN. They may be, but the quantity is not great. It is serious to each locality, but not to the basin as a whole.

Senator McFARLAND. I just had one question because it is on this point.

Senator Hayden, as I understand your testimony, it is that it was the understanding and interpretation of Congress that the California Self-Limitation Act, which was required of California, left this amount of water for the other States.

Senator HAYDEN. It could not go anywhere else.

Senator McFARLAND. That is, the 2,800,000 acre-feet of water, the 300,000 acre-feet, and the waters of the Gila. It so limited California that the quantity of water I have just named was available for the remaining lower basin States?

Senator HAYDEN. That is right.

Senator McFARLAND. It was an agreement made by California which forever bound them to give that water to the other States.

Senator HAYDEN. There is no question about that.

I believe, Senator, you have previously placed in the record the extracts of what was said at the time when the Boulder Canyon Project Act was under consideration, so that if anybody wants to check up on what I am now saying they will find it in the record.

Senator McFARLAND. Yes; I did call attention to those things. We can make reference to them later.

The CHAIRMAN. Any other questions?

Senator DOWNEY. Senator Hayden, you made two statements, among others, that attracted my attention, and the two statements o which I now refer are, first, that you are glad we have the Central Valley project as a precedent for the present Arizona project.

Senator HAYDEN. Yes.

Senator DOWNEY. The second statement was that you do not consider the Central Valley project any more fantastic than the central Arizona project.

Senator HAYDEN. They are based upon the same general principle, exactly. To build a dam, store water, use the power generated from the dam to pump the water to another place.

Senator DOWNEY. As a member of the Appropriations Committee of the Senate of the United States you would not want to say that the element of money or capital has entirely vanished in our considerations, have you?

Senator HAYDEN. Oh, not at all, of course.

Senator DOWNEY. Well, do you not know that the central Arizona project is four, five, or six times as expensive per acre as the Central Valley?

Senator HAYDEN. It may be that the per acre cost is greater, I am not arguing about that. Nevertheless, it is one of those things that has to be done, and regardless of the cost it is worth the money.

Senator DOWNEY. Then you would say that the Central Valley project, because they did spend several hundred million dollars to relieve the overdraft and underground pumping, would justify central Arizona even though that would cost five or six times as much per acre? Then would you go a step further and say that the next project could cost four or five times as much per acre as central Arizona?

Senator HAYDEN. All I know is that wherever we have a civilization based upon agriculture, fully developed, we have got to save it. When we do, we save it on the basis of direct reimbursement which goes as far as it can. All a farmer can do is take so much of the proceeds from his crops each year and pay for irrigation. If he cannot pay it in 10 years he has to have 20. If he cannot pay in 20, he has to have 40. He has got to have a greater length of time, and I think you will find from now on that the period of repayment will vary with different projects, according to their cost, which is all right.

But on top of that we must never forgot—and certainly they should not forget it in California—the enormous sums of money that have been paid into the Federal Treasury because you do have a going concern in that State with respect to agriculture.

I say if the Central Valley project was a gift, just as this $722,000,000 for flood control was a gift, it would still be a good investment for the United States to keep California going as a paying enterprise.

Senator DOWNEY. Well, Senator Hayden, I want to say as far as southern California is concerned, it certainly is not a gift because the tax money paid in from the State of California to the Federal Treasury exceeds on any proportionate basis the amount of money we get back. The State of California pays the tax money to do that flood control, so it is not a gift from anybody.

Senator HAYDEN. I said it was not. I said if it were considered a gift, as some people would—if they look at this 722,000,000 for flood-control projects in Cali-

fornia, they would say there is no reimbursement; all that is done by local interests is to provide some rights-of-way and make some more local contributions of one kind or another. But that money is appropriated out of the Treasury of the United States without a string to it, so far as reimbursement is concerned.

But the Government is going to get every cent of it back, and more, because it is to keep California prosperous and a good taxpaying State. I say it is a good investment; I am glad it was made.

Senator DOWNEY. Let us explore that further. You yourself have stated very emphatically in several different ways that you consider the Central Valley project of California as a precedent of the central Arizona project. Undoubtedly there will be arguments before this committee, and if this issue ever gets out on the floor of the Senate we will have extensive arguments on this, because I think you will agree with me, will you not, Senator Hayden, that this is by far the most expensive reclamation and irrigation proposal that has ever been made, on any basis, total cost and acreage.

Senator HAYDEN. I cannot say that, because I have not checked the figures. You may be right.

Senator DOWNEY. What is the population in the Phoenix area that lies within the central Arizona project? What is the population?

Senator HAYDEN. Close to half a million.

Senator DOWNEY. You realize that that is not much more than 10 percent of the population we now have in the Central Valley area?

Senator HAYDEN. Yes; I realize that.

Senator DOWNEY. We have something over 4,000,000 there.

Senator HAYDEN. Yes.

Senator DOWNEY. I assume you would admit that the amount of income taxes now being paid in that area are approximately 10 times the amount of income taxes being paid in the Phoenix area?

Senator HAYDEN. I would not doubt it.

Senator DOWNEY. Do you not think those two factors certainly should be weighed in considering how much money the Federal Government can afford to invest in the community to support an existing agricultural economy?

Senator HAYDEN. Let me understand you distinctly, then. If you arrive at that conclusion you would say that rather than appropriate money out of the Treasury, rather than authorize this project, let it go back to the desert, let it burn up. Are you willing to say that to this committee, that you are perfectly willing to sit here and see a couple of hundred thousand acres of land go right back to the desert and be perfectly barren, with the people moving out of it and going to some other place?

Senator DOWNEY. Senator Hayden, I would certainly say if it were in the State of California, that any land which cost, say, even twice as much to develop water for and irrigate as it would be worth when irrigated, should not be irrigated by the Federal Government.

Senator HAYDEN. You might say it, but nobody else in California would say it.

Senator DOWNEY. Oh, I beg your pardon, that is not correct.

Senator Hayden, let us review the figures. Let us take the Central Valley project. I assume you well realize that started out as a $170,000,000 project did it not?

Senator HAYDEN. Yes; that was the original estimate, I believe, made by the California State Board.

Senator DOWNEY. And by the Bureau of Reclamation when it came into it, is that not correct?

Senator HAYDEN. I think you are right.

Senator DOWNEY. The present project is nothing more than what we started out with, except that we have had two minor increases of about 20 percent each, that is correct, is it not?

Senator HAYDEN. I think so.

Senator DOWNEY. You now show us figures that that $170,000,000 has swollen to $740,000,000, almost four times the amount the Bureau of Reclamation started out to spend, and what they now expect to spend. That does not include the distributing systems for the irrigation districts that you have in a separate act.

Senator HAYDEN. That is right.

Senator DOWNEY. Don't you think we may well take that as a guidepost, that if the Bureau of Reclamation says, "Here is a project that will cost three-quarters of a billion, and before we get through the Federal Treasury may find itself in debt for this for a billion or a billion and a half or two billion, on the basis of past experience"?

Senator HAYDEN. All I know, of course, is that when we started to develop the Central Valley project we estimated the costs at that time, which were probably a third of what they are now—at least a half. That is one factor that enters into its cost. The other thing is that always when we get into construction we find this has to be done and something else has to be done. They are fully justified in order to make the project a success. We have to do it.

I am glad, so far as I am concerned, that we are going to do all the things necessary to be done in order to make the Central Valley project a complete success. I would not begrudge a dollar of it.

Senator DOWNEY. Do you know the amount of water that is to be developed in the Central Valley project that will actually be applied to the lands?

Senator HAYDEN. I am sorry, I do not have the figures with me.

Senator DOWNEY. You know it is approximately 2,000,000 acre-feet, do you not? It is certainly more than double the amount of water that is to be developed here; is that not correct?

Senator HAYDEN. Yes; that is about right.

Senator DOWNEY. I do not mean the 1,200,000, but the amount you are actually putting on the land.

Senator HAYDEN. There is more land in the California project and it takes more water.

Senator DOWNEY. Consequently, the Central Valley project will irrigate twice as much land at about one-half the cost of the central Arizona project; is that correct?

Senator HAYDEN. That may be.

Senator DOWNEY. That is a differential of 4 to 1 already; is it not?

Senator HAYDEN. Whatever it is, you can figure it arithmetically or geometrically. All I have to say is that there was a civilization endangered in California and the Congress saved it. There is a civilization endangered in Arizona and Congress must save it. When it is done, it is a profitable investment in either case.

Senator DOWNEY. Senator, let me ask you this: You realize that in the Central Valley, in addition to this irrigation water we will release out of Shasta Dam somewhere around 3,000,000 acre-feet of water for salinity control; is that not correct?

Senator HAYDEN. An excellent thing.

Senator DOWNEY. Yes; a very excellent thing. That water for salinity control that we will utilize for very valuable purposes is three times as much water, more than three times as much water as you are going to use to irrigate from the Colorado River; is it not?

Senator HAYDEN. Because the Lord so arranged things that it rains more on the Sacramento watershed than it does in Arizona.

Senator DOWNEY. That 3,000,000 acre-feet of water for salinity control will make possible the irrigation of more than a million acres of land on the lower delta that otherwise would become saline; is that not correct?

Senator HAYDEN. That is right; it makes wonderful rice-growing lands.

Senator DOWNEY. Consequently we have here another large differential, have we not?

Senator HAYDEN. Surely. We in Arizona do not have the water, to start with, and we do not have the delta of the two rivers.

Senator DOWNEY. Senator Hayden, maybe our minds are not meeting at all. Are you indicating by the line of your discussion with me that the per acre cost or the total cost of projects is immaterial?

Senator HAYDEN. I am saying that if you were starting out to irrigate some perfectly raw desert land that had no water at all, never had been irrigated and was not suffering for water because of the fact that the water table had dropped, it presents a very different picture when you go to figure costs. There is no population there to be displaced. You just simply tell folks, "This scheme is not feasible because either there is not enough water or it costs so much to get it."

I caused a survey to be made one time, when I was a member of another committee, of the water resources for the entire West. The fact is that we are now irrigating, using about half the water of the streams of the entire arid region. The other half is now going to waste in the sea. Almost invariably we have a choice as to where we are going to place the water. There is one place where it costs more and another place where it costs less, to put it on new land. Naturally, if we have a choice between two or more places, we are going to the most economical place to utilize the water.

But that is a very different proposition than saving a civilization such as existed in the Central Valley of California.

Senator DOWNEY. Senator Hayden, may I ask you if you realize that in the Central Valley project the farmers plus the municipal water users will be able to pay off more than half of their investment?

Senator HAYDEN. What do you mean?

Senator DOWNEY. I mean the farmers will pay sufficient money for this water, along with the municipal water users, to more than half pay out the cost of the irrigation and the municipal water capitalization or investments, do you realize that?

Senator HAYDEN. What you have in the Central Valley and what we have in Arizona is that it is impossible for the users of waters, either the municipal users or the irrigation users, to pay the entire cost of the project. So we had to subsidize that development in a sense by the development of power. We have to charge to power a part of that cost.

Senator DOWNEY. Senator Hayden, the point I am making is this: In the central Arizona project, the farmers cannot afford to pay 1 cent upon their own irrigation investment.

Senator HAYDEN. They have been doing it.

Senator DOWNEY. Fortunately, from our point of view at least, the central Arizona project is not in as yet. I am talking about the proposed project, your figures indicate that the farmers may be able to pay their operation and maintenance and not 1 cent upon the capital investment for irrigation. Those are the Bureau of Reclamation figures.

Senator HAYDEN. That is your construction of their figures. I did not so understand it.

Senator DOWNEY. That is not denied.

In the central California project, the farmers pay off a very substantial amount of the irrigation investment.

Now, Senator, do you realize that in the Central Valley we can utilize power to what extent we need it to retire the balance of the farm investment and still have a rate below the market for power that will permit us to do that?

Senator HAYDEN. You have very cheap power in California.

Senator DOWNEY. And that is not true in Arizona, is it? In order to work out this plan you will have to compel the power users to pay approximately, according to the Bureau, at least the amount required to produce steam power.

Senator HAYDEN. My understanding is that until the water can be diverted by gravity it would take about a third of the power generated at Bridge Canyon Dam to lift the Colorado River water into central Arizona. All the power would have to be sold, of course. If you include that cost, the rate is bound to be higher than if you did not. There is no doubt about that at all. Still, the power rate would be comparatively cheap.

Senator DOWNEY. You say it would be comparatively cheap. Would it be any cheaper than in Los Angeles or any other place, for instance, where we could produce steam power?

Senator HAYDEN. They have been able to produce steam power in Los Angeles by putting natural gas under the boilers, but the gas supply is running out, and the story I get is that there is a crying need for Colorado River power.

It is not the quantity of water in the Colorado River that makes it possible to generate power; there is not as much water in the entire Colorado River system as the Pend Oreille River puts into the Columbia River. But there is an enormous drop which we can take advantage of. It is some 2,000 feet in Arizona alone. One plan has been designed and undoubtedly will be undertaken, to go to Marble Canyon and run a tunnel under the Kaibab Plateau and get a 1,200-foot drop in one place. That will have to be done some day, because the need for power is so great.

Senator DOWNEY. Senator Hayden, I will divert from that question of the utilization of the power profits or power revenues and come back to it later by another course.

You have presented to the committee here memoranda which, Mr. Chairman, I think should be included in the record——

Senator HAYDEN. Yes, it would be well to include all of these memoranda.

Senator DOWNEY. Along with all the other memoranda by the Senator.

This is headed "Division of costs" which, of course, is applicable to the central Arizona project. You state the estimated construction costs of the central Arizona project are $738,408,000. You said that later there would be canals constructed

under the bill which would take the water from Bridge Canyon down to the central Arizona project; is that correct?

Senator HAYDEN. There is a proposal at some later time, probably considerably later, I do not know how long, to dig a tunnel that would take the water out of Bridge Canyon by gravity and avoid the pumping.

Senator DOWNEY. Do you understand the cost of that, according to the Bureau of Reclamation estimates, would run about $500,000,000 more?

Senator HAYDEN. Frankly, I do not know about those costs. All I have taken up is what we are proposing to do here. But I do know there have been extensive developments in the reduction of tunnel costs, particularly the tunnels that were built at Boulder Dam which were very much cheaper than originally estimated. The same is true of the big tunnel in Colorado. It did not cost nearly as much as it used to.

Senator DOWNEY. Senator Hayden, is not the only reason for putting that sort of an authorization in the bill, to be exercised 20, 30, 40, or 50 years from now, or probably never, by the Bureau of Reclamation, that it is an attempt to show in some way that Bridge Canyon is an integral part of the central Arizona project?

Senator HAYDEN. It is an integral part, and certainly just as much as the Shasta Dam is an integral part of the central California project.

Senator DOWNEY. Oh, Senator Hayden, I beg your pardon, the irrigation water in the Central Valley project will be stored in Shasta Dam. That is not true in the central Arizona project. You have the water in the river, and that impossible tunnel is included in the bill merely to be able to make a showing that Bridge Canyon Dam is a part of the central Arizona project. It is not in any way a part of the central Arizona project, because it does not store any water. You will get your water out of Lake Mead.

Senator HAYDEN. How will we get the water out of the Colorado River unless we have the power from Bridge Canyon Dam?

Senator DOWNEY. You have enough power in Hoover Dam to do it.

Senator HAYDEN. Oh, no.

Senator DOWNEY. You have power in Davis. You could build steam plants.

Senator HAYDEN. Every kilowatt of the power at Hoover Dam and every kilowatt of the power at Davis Dam is allocated and gone now. There is a crying demand for this additional power from Bridge Canyon.

Senator DOWNEY. Senator Hayden, perhaps I misunderstood your statement. If what you are saying is that you would have to have sent over to Arizona all the profits and all of the value in the Bridge Canyon Dam in order to work out the central Arizona project, I will agree with you, but you do not need it for any purpose except for that—you need the financing.

Senator HAYDEN. If it were not from the power revenues derived from Shasta Dam which help to pay the cost of the Central Valley project that project would not be feasible. If it were not for the power revenues that would come from the Bridge Canyon Dam, the central Arizona project would not be feasible, so it is 50–50 as far as I see it.

Senator DOWNEY. Senator Hayden, I do not think there is any similarity between the two projects. The primary purpose of Shasta Dam is to store water to irrigate our lands. That is where we are going to get our water to irrigate our lands and for our salinity control.

Senator HAYDEN. It is true that it does not cost as much; they do not propose to charge farmers in the Central Valley as much for irrigating water, because a large part of the cost of that project is to be paid from power revenues.

Senator DOWNEY. That is certainly true. That is the very reason, the very necessary reason, from your viewpoint, that you bring Bridge Canyon into this project, because otherwise it would be totally infeasible and impossible, from even the most improvident and fantastic viewpoint.

Senator HAYDEN. Just as it would have been improvident and fantastic and infeasible to think about the central California project without the power revenues from Shasta Dam.

Senator DOWNEY. All right, Senator, if the chairman will bear with me, let me reiterate my position.

Bridge Canyon is not an integral part of the central Arizona project at all. Your water is in Lake Mead and there is plenty of other available power. You probably have an abundance of it in the 18 percent of the cheaper power that you have in Hoover Dam, which would just about take care of the pumping lift for central Arizona.

Senator HAYDEN. I am sure you are wrong about that.

Senator DOWNEY. Well, amplified by steam plants it would.

Now, it is true that you have to take the total value of Bridge Canyon power away from all the other States in the basin to work this project out.

Now, I want to proceed to the next question. You make a division of costs here under which you itemize certain of the irrigation facilities with their prospective costs and reach a sum of $267,000,000 for the irrigation facilities and $471,000,000 plus for the dam features. Would you have the committee understand from that that the only benefit the central Arizona project gets is from this first proposed expenditure of $267,000,000?

Senator HAYDEN. No; the project is integrated as a whole. I made these figures primarily for the purpose of showing that if California could prove in any court that Arizona did not have the water in the Colorado River, then Congress could cut the amount of this project by $267,000,000, and still have an entirely feasible project that ought to go on and be authorized.

Senator DOWNEY. But Senator Hayden, is it not true from the standpoint of the other lower basin States and the people of the Nation generally, that this total investment is being made for the benefit of the central Arizona project, the whole $800,000,000?

Senator HAYDEN. I cannot concede that. If two-thirds of the power that would be generated there is immediately made available for use in Arizona, Nevada, California, and southern Utah, when the power comes on to the market it will create new wealth, new taxable wealth. It will add to the prosperity of the whole region. That is a highly desirable thing to do.

Senator DOWNEY. In the first place, Senator Hayden, you immediately set over to the Arizona farmers, without any cost to them, one-third of the total amount of power generated which is to be used to pump this million acre-feet of water up 987 feet. You immediately set over a third of the power to them, do you not, without any cost to them?

Senator HAYDEN. What would you have us do with it?

The CHAIRMAN. Pardon me, I will interrupt the matter at this point to consult the convenience of the committee.

This is off the record.

(Discussion off the record.)

Senator DOWNEY. Mr. Chairman, I will discontinue my cross-examination. I will make a 3- or 4-minute statement as to the facts I would have endeavored to elicit by my questions.

The CHAIRMAN. Do you care to make that statement now?

Senator DOWNEY. No; I will wait.

Senator KERR. Off the record.

(Discussion off the record.)

The CHAIRMAN. The committee will stand in recess until 2:30.

(Whereupon, at 12:10 p. m., a recess was taken until 2:30 p. m. of the same day.)

Mr. CARSON. I will not have time, of course, to rebut in detail a lot of the arguments that have been here made. I would like to call your attention to the fact that Mr. Keith attributes to me statements which were made by the Colorado River Basin States Committee, and the members, lawyers, and engineers of all the States of Arizona, Colorado, Utah, New Mexico, and Wyoming. I have already placed in the record their statement of principles; and there is in the record the briefs which they filed before these various committees on the suit resolution to which Mr. Keith referred. In those briefs the committee and its lawyers say that the two points raised by California here are definitely settled and determined. I think they are, and I would like for you to read those briefs.

The Utah lawyers, the Utah engineers, the Wyoming lawyers and engineers, the Colorado lawyers and Colorado engineers, and the New Mexico engineers and lawyers all agree in that brief that those two questions are now settled and that there is no necessity for a compact between California and Arizona. The only thing necessary and required is for California to live within her limitation act, and then they have no quarrel with Arizona.

Now, particularly on this question of what occurred during these negotiations of the original compact and these minutes which have been referred to, and these suit allegations, in the first and third suits to which reference has been made, all are immaterial, irrelevant, and incompetent for any purpose whatever. I was in one suit. It was a suit in the Supreme Court to try to perpetuate the very things which these men now bring into this hearing and the Court refused to let us perpetuate it on the ground that it could never become material or relevant and that there was no ambiguity in the Colorado River compact. Now, why do they bring them in here?

I would like to call the committee's attention to the fact that we, of course, also have tried to find all of the original minutes. We have minutes of the same number of meetings they have—18. The available minutes show that at the eighteenth meeting there was a drafting committee appointed to work out the language of the original Colorado River compact, and from there on there are no minutes available to us and they have said they are not available to them.

There is nothing in the early part of those minutes that can be taken as authoritative on the language as it was finally worked out. But, the reading of the whole refutes everything that they have here said concerning the intent. In this record I have placed the testimony of Mr. R. J. Tipton, of Colorado, which completely refutes their statements here, and I have also placed in the record the testimony of Mr. Ralph I. Meeker, who was the engineer adviser to Delph Carpenter during all that period of time.

But, even those things in my view are immaterial and irrelevant and incompetent. There is a well-known rule of law that where a contract, a compact, or a statute is plain on its face, not ambiguous, and clear in meaning, you cannot go behind it; you have to stay within the four corners of the instrument, and the Supreme Court has held that very thing in regard to this controversy that California here seeks to raise. They have held that there is no ambiguity in the Colorado River compact and that an inquiry behind the language of that compact cannot be material or maintained, and they had to do that in order to determine that the evidence that we sought to perpetuate was immaterial. It was not simply the evidence of Arizona witnesses. We also sought by our bill to perpetuate the testimony of Mr. Herbert Hoover and everybody else that participated in that conference. They said we could not go behind the compact because it was clear on its face.

Then, Mr. Nelson and Mr. Ely cite only a portion and read to you only a portion of the sixth ground of the Court's opinion in that case of *Arizona* v. *California* (292 U. S.), and I am referring now to page 358. They read only a part of the first paragraph.

On account of the shortness of time, I am going to skip a little and read the language I have in mind.

> But the fact that they are solely useful to Arizona, or the fact that they have been appropriated by her, does not contradict the intent clearly expressed in paragraph b (nor the rational character thereof) to apportion the 1,000,000 acre-feet to the States of the lower basin and not specifically to Arizona alone. It may be that, in apportioning among the States the 8,500,000 acre-feet allotted to the lower basin, Arizona's share of waters from the main stream will be affected by the fact that certain of the waters assigned to the lower basin can be used only by her; but that is a matter entirely outside the scope of the compact.

Then, the next paragraph, which is a part of the same ground, reads:

The provision of article III (b), like that of article III (a), is entirely referrable to the main intent of the compact, which was to apportion the waters as between the upper and lower basins. The effect of article III (b) (at least in the event that the lower basin puts the 8,500,000 acre-feet of water to beneficial uses) is to preclude any claim by the upper basin that any part of the 7,500,000 acre-feet released at Lee Ferry to the lower basin may be considered as "surplus" because of Arizona waters which are available to the lower basin alone.

Now, on both points, then, the III (b) question and the question of how to measure beneficial consumptive use, California is defeated by the language of the Court, to which they now say they seek to return. That Court has already decided it.

All of the States of the Basin States Committee are agreed that the only way you can measure beneficial consumptive use is by the resulting depletion of the stream, and I submit to this committee that the language of the California Limitation Act and the Boulder Canyon Project Act, on which that limitation is based, when it uses the term "beneficial consumptive use" (diversions less returns to the river), means net depletion and can mean nothing else. There is no attempt there to define beneficial consumptive use except by depletion.

Now, the argument, then, between California and all these other States is, Where are you going to measure it? It does not say in that act, "measured at the site of the use." California tries to construe the language of the statute and to write in their own meaning. It is the testimony of Mr. Howard in one of these current hearings that they read it to say, "diversions less returns to the river, measured at the site of use," and those words "measured at the site of use" were not there and they are not there and they cannot be read into it.

You have to go, then, back to the concept that these were sovereign States dealing as such. No State was surrendering any extraterritorial jurisdiction within its borders to any other State. It must of necessity follow that as between States the beneficial consumptive use measured by the resulting depletion must be measured at the State line.

Mr. ENGLE. Do you mean that you measure it in your State and the other States are bound by it?

Mr. CARSON. Yes, sir, You have no right to come into Arizona, Utah, or any other State, and say to John Jones, "You are using too much water."

Mr. ENGLE. Will you do that on our 4.4 at the State line?

Mr. CARSON. Yes.

Mr. ENGLE. You are putting one shoe on us and another on you.

Mr. CARSON. No. Mr. Ely said that that is what we are trying to do. It is not. I have not, nor has anybody in Arizona, nor in any of these other States, made any such statement.

Mr. ENGLE. I thought we were going to measure at the State line.

Mr. CARSON. At the international boundary.

Mr. ENGLE. I thought we were going to measure the State line.

Mr. CARSON. I have covered that with you before. It is in my statement already made that the Colorado River compact requires the measurement of the depletion by the upper basin to be measured at Lee Ferry. The measurement of the depletion caused by beneficial consumptive use in the lower basin is measured at the international boundary.

Mr. MURDOCK. That is the State line?

Mr. CARSON. Yes. We have no objection to California computing its beneficial consumptive use, measured by the resulting depletion at the Mexican boundary, and I think that is where it should be measured. They take this view and read in there, "measured at the site of the use" and try to apply it everywhere.

Those two points are taken care of by this case.

Mr. ENGLE. Not to my satisfaction. I want to know whether you are talking about the international boundary line, the Mexican line, or the State line. You use the State line and revert to the proposition of State sovereignty. Do you measure it at Utah's State line?

Mr. CARSON. Yes, where the tributary flows into another State. I would measure the tributary where it flows into another State at every State line in the basin. Use in the upper basin is measured by the depletion at Lee Ferry; measured in the lower basin by the depletion at the international boundary.

Mr. ENGLE. Lee Ferry is not the boundary line for all the States.

Mr. CARSON. The line between California and Arizona is the thread of the stream. California water does not cross the California line until you get to the Mexican boundary. California does not have any tributaries contributing to the river whatsoever. It does not flow from California into any other State. So, then, you go to the international boundary and we have no objection to your so measuring it.

Mr. ENGLE. I would like to see that, where it was provided in the contract.

Mr. CARSON. I have put in here the statements of the Basin States committee so determining and spelling it out. That is the way the compact provides for the measurement, and is the way it must be measured.

Mr. ENGLE. Who decided that?

Mr. CARSON. The lawyers from Utah, Colorado, Wyoming, and Arizona.

Mr. ENGLE. I am talking about what is in the compact.

Mr. CARSON. That is in the compact.

Mr. ENGLE. I have never seen it.

Mr. MURDOCK. Are you referring to the upper-basin compact?

Mr. CARSON. No; I am referring to the original compact, as well as the upper-basin compact. In our judgment, they all mean that, and I covered it with you fully on my main testimony, and it is in my written statement which is here on file.

I want to go, then, to one other question. Mr. Howard says that he thinks Arizona may not be a party to the compact. I have never heard of anything so far-fetched in my experience. The compact had no limit on time. The act of the Congress approved the seven-State compact; we ratified it. We have made the upper-basin compact, and in it recited that we are subject to the Colorado River compact, and we have ratified it and Congress has consented to it. We are doubly bound by the Colorado River compact. It makes no difference actually between California and Arizona whether or not we are in the compact, because their limitation act made for our benefit was not in any sense dependent upon whether or not we ever ratified the Colorado River compact. We would be entitled to its benefits in either event.

Mr. ENGLE. But there is this difference: that you must remember that, if you are not a party to the compact, you cannot assert the bene-

fits of the compact. You cannot claim the benefits of III (b) water; you cannot claim anything under the compact. You are limited to the benefits which accrue to you through the third-party operation of the Limitation Act. It makes a big difference.

Mr. CARSON. There is not a thing in the world which accrues to us as far as the controversy between Arizona and California is concerned, whether or not we are a party to the compact, which does not accrue to us by the Limitation Act. The approval of the compact by Congress was not conditioned upon a ratification within 6 months by Arizona. That was a condition attaching to the effective date of the Boulder Canyon Project Act and the building of the Hoover Dam for California and the All-American Canal, and that was the condition which required the Limitation Act. There was nothing anywhere in there limiting time for Arizona's ratification of the compact.

Mr. ENGLE. It says "6 months to ratify the compact or * * *." It says, "or," not "and."

Mr. CARSON. We went over that, too. It is covered very fully; and, if you read it carefully, you will agree, I am sure, that those conditions affected only the effective date of the act, not the effectiveness of the seven-State compact. Of course, we are not a party to any six-State compact, we never claimed to be. We are a party to a seven-State compact as between ourselves and the other States of the basin, and that is controlling.

As between California and Arizona, we rely on the Californa Limitation Act.

Mr. ENGLE. They have not agreed to let you in.

Mr. CARSON. They have.

Mrs. BOSONE. Mr. Chairman, I don't think anything he can say would change your mind, but maybe our minds can be changed, and I would like to have the witness go straight through.

Mr. ENGLE. I am not going to ask any further questions. I would like for Mr. Carson to proceed.

Mr. MURDOCK. In view of the fact that there has been some interruption and questions asked, is it too much to grant the witness 15 minutes' extra time?

Proceed, without interruption, for 15 minutes.

Mr. CARSON. That leaves only one of these California contentions against this project that is not completely and absolutely settled, in my opinion, by the express language of the compact and of the Limitation Act, and so stated and held by the Supreme Court of the United States and concurred in by all these other States, and the sole question remaining open is the question of the evaporation losses.

As in the case of every irrigation project in the West and as a matter of equity, I have no doubt whatever that, if that question should ever become material, we will share reservoir losses pro rata, and that is our position and what we propose to do. Anything else would be entirely unfair, inequitable, and unconscionable in any court of which I have ever heard.

It could never arise, however, within any foreseeable future, because it could not arise until the upper basin had put to full use 7,500,000 acre-feet, and all the surplus has disappeared from the river, and there came to time when there was a shortage in Lake Mead for the supply of existing rights below.

Now, everywhere in the West, if that occasion ever arises, subject only to intrastate priorities, they are shared equally, and in this matter of the Colorado River there are no priorities as between States.

That brings me to one other point. Mr. Dowd, of the irrigation district, and Mr. Matthew have dwelt at length on the amount of priorities claimed by each of their agencies within the framework of California law and within the framework of their intrastate priority agreement.

Such matters, of course, as between California and Arizona have no validity because, as Mr. Howard says, the compact and the Limitation Act cut square across the question of priorities and established an over-all limit for California use; and if they stay within that limit, as Senator McFarland says, it is none of our business where they use the water. But when you add up the priorities, which they have here claimed in this committee as again Arizona, you will be surprised at the amount. Mr. Dowd testified that they wanted to irrigate an additional 300,000 acres of land in Imperial Valley with a water duty or 6 acre-feet per acre, and that alone would greatly exceed the California limitation with their present uses.

The Metropolitan has claimed here before this committee a priority to divert 1,500 cubic feet of water per second.

The trouble in California is entirely internal. Those questions of priorities are perhaps material within the State of California, and I understand why Imperial would be fighting Metropolitan and why Metropolitan would be fighting Imperial to determine who was going to get within the 4,400,000 acre-feet of water to which California is forever limited.

Mr. ENGLE. Wait a minute. We get half the surplus, too.

Mr. CARSON. There is 220,000 acre-feet of surplus left in the whole river.

We are not cutting you off. That is all there is in the whole river, upper basin and lower basin.

Here is the question that the Supreme Court decided. The whole effort of California, as against Arizona, is to claim that III (b) water is a part of the surplus, and the whole effort on this question of where to measure "beneficial consumptive use" by the resulting depletion is to try to calculate uses beyond any possible theory on the Gila, and to claim that by those calculations, by a million acre-feet of III (b) water and a million acre-feet, or whatever figures are brought about by that measurement of beneficial consumptive use, which they undertake to prescribe, that there is left in the main stream in the river available to them and to Arizona to divide equally 2,300,000 acre-feet of water or 2,900,000 acre-feet of water, as some of them say, out of this 7½ million to be delivered at Lee Ferry by the upper basin, and that that quantity of the 7½ million acre-feet is surplus. Otherwise, their case falls.

Here it is, in the Supreme Court decision, that no part of that 7½ million acre-feet delivered at Lee Ferry can be claimed as surplus. So they are stopped now on that. They are stopped on the III (b); they are stopped on the question of surplus by this language of the Court, which they now refuse to accept but to which Court they say they want now to return, and it is already decided. This is the only one of the three cases where the Court really made any decision at all. It is already decided in that manner in this case.

Mr. ENGLE. That was the second case, was it not?

Mr. CARSON. Yes.

Mr. ENGLE. If it decided everything, why did you go back?

Mr. CARSON. I did not go back.

Mr. ENGLE. Somebody did.

Mr. CARSON. Arizona was not satisfied with the provision made for her by the Boulder Canyon Project Act and the California Limitation Act. Arizona thought she was entitled to more water than thus provided.

When I first got into this matter, the Colorado River Commission of Arizona asked me for an opinion as to whether California could claim any part of III (b) water, and I gave it as my opinion that they could not, under the express language of the compact and the act, but they wanted me to make it clear so I brought this suit to perpetuate the testimony, to make it clear in the event a suit might be brought later, and in denying our petition to perpetuate testimony the Court went ahead and construed the compact and the Limitation Act, and said there is no ambiguity and in effect said you cannot perpetuate the testimony as you cannot use it in the absence of an ambiguity, and it is not material.

After that case, people in Arizona still wanted more water and they wanted me to bring a case for an equitable apportionment in the Court, and I gave it as my opinion that it could not be maintained, relying in main upon the first Arizona-California case in which they said, in effect, you cannot maintain such an action in the absence of an established use or a threat of injury to an established use, not a paper claim, and we had no such established use. So I gave it as my opinion that we could not maintain it. They got other lawyers to bring it, and the Court said there was no threat of injury, no justiciable controversy. It also said that the United States would be a necessary party in that character of litigation. But it had the two angles, and the first angle was that there was no justiciable controversy; that was in 298 U. S.

After that case was decided in view of the rapid expansion of Mexican uses brought about by the activities of the Imperial irrigation district of California to their financial profit, and I put in my statement the pages of testimony where they themselves testified as to that profit; our water rights being in jeopardy, Arizona concluded—and I helped bring about the conclusion—that if we did not get in there and establish a right, we would lose all claim to water to California and Mexico.

Therefore, in 1939, as I set forth in my statement, we wrote an action, and I helped write it, and offered to California and Nevada the tri-State compact authorized by the United States in the Boulder Canyon Project Act, and California refused to take it and refused to sign it, and that was the first time that Arizona became satisfied that our best interests were to take the 2,800,000 acre-feet instead of trying to contend for more main-stream water, and then when California refused to accept that compact, I went to work, through all these interstate committees, committees of 14 and 16, and worked out a contract with the United States in accordance with and using as a basis the regulations which had been promulgated, offering us such a contract, and it was signed and ratified, and in that matter we had the active aid and assistance and approval of every State in the basin except California.

I had tried to do that before, in 1933 and 1934.

Mr. ENGLE. Did Nevada help you?

Mr. CARSON. Yes, in 1944. In 1933 and 1934 California opposed because we were not a member of the compact. Also the upper States opposed it because we were not a member of the compact. In this 1944 contract we put in that we would ratify the Colorado River compact, and we did so.

So, we are bound by the compact. We have a right under the compact and under the contract with the United States Government, and this water which we claim cannot lawfully be used in California, Mr. Engle, or any other State in the basin, and not one drop can lawfully be used in California or any other State in the basin, and it is just a question if this Congress of the United States is going to permit one State to exercise a veto power against the Government of the United States and its sister States to prevent their utilization of a natural resource, which would either go to waste or go to a foreign country, and it is that simple and that clear.

With that, I again want to thank the committee for the time you have given us and the patience you exercised, and we leave it in your hands.

Mr. ENGLE. Mr. Chairman, I would like to compliment Mr. Carson. He has a splendid knowledge of this subject, and I am sure he believes what he says, although I do not agree with him. He is a delightful gentleman to have on the witness stand, and I enjoyed his testimony.

Mr. MURDOCK. We thank you. I, too, feel that Mr. Carson is a splendid witness.

This committee has scheduled June 21, 22, and 23 for hearings. There will be no further action on this particular bill prior to June 21. However, there is an important matter which this subcommittee should handle, and we have scheduled hearings on Friday of this week. It is a matter pertaining to the joint effort of the Bureau of Reclamation and the Army engineers on the Columbia River development. The Public Works Committee already are having hearings and the Public Lands Committee should have hearings on the same important matter of joint concern.

Mr. SHAW. Before the hearings are closed, will it be appropriate to ask leave to file rebuttal statements for the record, and to be printed in the appendix, as to certain new matters which came in the hearing this afternoon? It will be very limited.

Mr. MURDOCK. That is a little unusual. I thought we were going to have everything presented orally.

Mr. SHAW. It is my impression, on very hasty reading of Mr. Debler's statement, that an entirely new conception has been thrown into the record, which we may want to comment on very briefly. That is, the subject matter.

Mr. ENGLE. Let the statement be submitted with reference to answering only new matter.

Mr. MURDOCK. After studying the documents and comments, if any new matter has been brought in, your comments may be submitted to the committee and acted on either by the chairman or by the committee for the record.

Mr. SHAW. Thank you very much.

Mr. MURDOCK. Accordingly, these hearings are closed and the committee stands adjourned.

APPENDIX

ITEM 1

STATEMENT OF FRED M. PACKARD, FIELD SECRETARY, NATIONAL PARKS ASSOCIATION

The National Parks Association is a nonprofit, educational organization, with a Nation-wide paid membership of over 3,000. The association was established in 1919 to promote the preservation of natural conditions in the national parks and in certain national monuments, to maintain the high standards of the national parks adopted at the creation of the National Park Service, and to create an informed public understanding of the principles upon which the national park system is administered. The association publishes the authoritative National Parks Magazine. All revenues of the National Parks Association are derived from dues and contributions from its members, no income being derived from any commercial source. The association promotes the national good, on the principle that our national parks and monuments are created for the benefit of all of the people of the United States.

The National Parks Association has studied H. R. 934 and the various reports that describe the Bridge Canyon Dam and associated projects in order to determine the relations of this project upon the natural values protected within the Grand Canyon National Monument and the Grand Canyon National Park. This project will directly affect both of these reservations. The act of February 26, 1919, establishing the Grand Canyon National Park, authorizing the Secretary of the Interior to permit utilization of areas therein which may be necessary for the development and maintenance of a forest-reclamation project, whenever consistent with the primary purposes of this park; the proclamation of December 22, 1932, establishing the Grand Canyon National Monument, includes no such provision.

As a matter of principle, the National Parks Association believes that all of the national parks and monuments should be inviolate and free from any engineering projects, for their highest use, for which they were established for the benefit of all of the people, is represented by their existing natural values and not by their commercial or artificial potentialities. The association, therefore, believes that the disadvantages of this project, in relation to the national interest, outweigh the expected benefits; and that authorization of its construction may open the way to the construction of similar projects affecting national parks and monuments elsewhere, with resultant destruction of the protection afforded the national parks system.

Mr. Frederick Law Olmsted, in report of October 20, 1942, discusses in detail the effects of the Bridge Canyon Dam upon the Grand Canyon itself. He points out certain ways in which this dam, if constructed with the natural values of the canyon in mind, could produce conditions benefiting the recreational use of the lower parts of the canyon. All of his conclusions are based upon the premise that such a dam would not exceed a height of 1,772 feet; he describes many serious adverse effects that would result were the dam built to a higher elevation. If H. R. 934 receives favorable consideration by this committee, it is strongly urged that the bill be amended (p. 2, lines 10 and 11) to provide for a dam not exceeding 1,772 feet in elevation. Such an amendment would insure more adequate protection for the natural features of the national park and national monument than does the present wording.

It is also to be noted that the wording of the provisions of H. R. 934 on pages 3 and 4 is so general as to be subject to the possible interpretation that it is intended also, without specifically saying so, to authorize construction of the proposed Kanab tunnel. This tunnel project represents a threat that would irremediably destroy the greatest assets the Grand Canyon possesses. The following comment is quoted from the interim report of the Secretary of the Interior entitled "The Colorado River," July, 1947, page 243:

"The project involves a 42.5-mile diversion tunnel under the Kaibeb Plateau to a power plant site at Kanab Creek.

"Probably the most serious effect upon scenic and related values from building the suggested tunnel to Kanab Creek would be the curtailment of the flow of the Colorado River through Grand Canyon National Park, reducing it to a minimum arbitrary allotment for purely scenic effect. Certainly such a project should not be considered until there is a need for the power thus generated which cannot be met by other means. Then the decision should be made as stated by Mr. Olmstead as in the case of Bridge Canyon Reservoir, not primarily upon technical details—but upon broad considerations of public purpose—upon how much the people care about preserving the natural conditions and scenery in the portion of Grand Canyon selected for such preservation in 1908 and whether they are able and willing to pay the price of such preservation."

It is respectfully suggested that the wording of pages 3 and 4 of H. R. 934 be changed to make explicit exactly what additional works are contemplated by this bill, and that a definite clause be included excepting from authorization any subsidiary projects within or relating to Grand Central National Park or that will substantially change the flow of the Colorado River through that national park.

[To be published in National Parks magazine, July 1949, published by the National Parks Association]

GRAND CANYON MONUMENT IN DANGER

(By Fred M. Packard, field secretary, National Parks Association)

Through the depths of the western gorge of the Grand Canyon, in Grand Canyon National Monument, flows the Colorado River. It winds around barren headlands, foams over rapids, and from its banks rise cliffs famous the world around for their spectacular beauty. Broken by pale-colored fan-like taluses, these escarpments tower thousands of feet above the river to high plateaus north and south. Here, in ancient time, volcanic activity spewed lava, which, in molten streams, flowed toward the chasm's brink and then poured over. The fire streams of the Toroweap cooled, and today their falls are marked by black rock that stands in contrast to the canyon's red. Nearby, where cascades tumble to the river, live the Havasupai Indians, hidden away in the verdant Havasu Canyon.

In 1869, the first explorers of the gorge tempted death on the river's treacherous water, for it was in that year that Maj. J. W. Powell and party launched their little boats upon the Colorado and traversed the entire canyon. Powell went again in 1872, as far the Kanab Creek. More recently, the Kolb brothers and other adventurous men have explored the Grand Canyon's wilderness of rock by way of the Colorado.

In July 1947 the Secretary of the Interior released a report titled "The Colorado River," which described 134 reclamation and power projects planned by the Bureau of Reclamation to be built on the Colorado River and its tributaries. Two of these projects, the Bridge Canyon Dam and the Kanab tunnel, would seriously affect the Grand Canyon National Park and the Grand Canyon National Monument.

The Colorado River rises in the Rocky Mountains of Colorado, and flows nearly 1,400 miles to the Gulf of Lower California. Above Lee's Ferry the mountain plateaus carved by the main stream and its tributaries in Utah, Wyoming, New Mexico, and Arizona, comprise the upper basin. The area west of Lee's Ferry, including the Grand Canyon and the broad valleys below Hoover Dam, is known as the lower basin. These lands are so arid that they can be cultivated only if water is available for irrigation and industrial use. Although fewer than 1,000,000 people are living in this entire area, water is so scarce that livestock, grazing near the streams, is injuring the land and causing erosion. Southern Arizona, outside the Colorado Basin, depends also upon additional water for its economic survival, and is demanding that a share of the river's water be diverted into the central Arizona project for its use. At the same time, southern California must be allocated some of the water from the Colorado River for agriculture, while the many industries and large cities there require the hydroelectric power that can be produced by dams and power plants controlling the flow of water through the lower basin.

There is not enough water in the Colorado River to meet all of these demands. After long controversy, the upper basin States have signed a compact this year

that divides the available water between them. The lower basin States, California, Arizona, and Nevada, are still debating how much water each has a right to use; it will probably require a decision of the Supreme Court to settle the question. Although it would seem advisable to defer major construction in the lower basin until this dispute is settled, congressional authorization is being sought now for the Bridge Canyon project.

This calls for construction of a dam across the river at Bridge Canyon to form a reservoir, upstream from Lake Mead, that will supplement the power facilities of Hoover Dam, provide irrigation water for the central Arizona project, and retard the present rapid flow of silt into Lake Mead. The total cost of the 134 projects in the river system is expected to be $3,460,497,200 (estimated at 1940 prices); the Bridge Canyon project is the fourth most expensive of them, $234,400,000. Authorization is being sought concurrently in the same bills for a project known as the Parker Lift, raising the total appropriation requested to $738,000,000. Of this, $420,000,000 is desired to irrigate 4,000 farms, which would average $105,000 per farm. The President disapproves of this project. He has informed Congress that authorization of the program does not conform to the national budgetary estimates.

Several methods of supplying central Arizona with irrigation water from the Colorado River have been proposed that would not affect the national park or monument. The Parker Lift would take water from the river far below the Bridge Canyon site; if this is built, it would appear that the Bridge Canyon Dam need not be constructed, as far as this aspect of the problem is concerned. Nor would it be necessary, in all likelihood, to build the tentatively proposed diversion tunnel to run south from Bridge Canyon Reservoir for the same purpose. The Bridge Canyon project, then, would become almost entirely a power project. If this diversion tunnel were to be built, one-quarter of the power generated at Bridge Canyon would be required to send water through it. Steady power production depends in part upon the stability of the water supply, and drawdowns from this reservoir would seriously affect the production of power at the dam. Water used for irrigation must be relatively free of silt. Siltation of Bridge Canyon Reservoir would proceed so rapidly that its waters soon would be unfit for irrigational use in central Arizona.

There is growing public feeling that there is need for reappraisal of the actual value of many of the projects planned by the Bureau and the Army engineers, and that the cost is greater than the worth of some of them. The Hoover report recommends drastic changes in the present administrative organization of the agencies concerned. One cannot but speculate that the haste to have the most expensive projects approved first may be due in part to a recognition of this public sentiment, on the theory that if work can be started on them soon they will have to be completed regardless of this consideration.

Bridge Canyon reservoir would be a long, narrow lake extending upstream to Tapeats Creek. Its capacity would be so small that the Marble Canyon Reservoir, upstream from the Grand Canyon, would have to be created to provide sufficient water to do the work Bridge Canyon Dam is intended to do. The Colorado River in its natural state carries a load of silt exceeded by only one or two rivers in the world; 95 percent of this silt originates above the proposed dam site. Hoover Dam has temporarily solved the silt problem below Black Canyon, for perhaps 100 years. The Bridge Canyon Reservoir will, for a few years, hold silt back from Lake Mead, but it will soon be completely filled itself and cease to produce any benefits. The only solution is to build other siltation dams on the main river and tributaries farther upstream, and such projects are also proposed. It would seem sensible, in that case, to start construction in the upper basin (correlated with a major effort to prevent overgrazing, erosion and forest depletion there) before undertaking expensive projects downstream that may, in the end, prove to have been a serious mistake. The key to proper development of our rivers is the sequence and timing of the projects, not the evaluation of the local and immediate benefits.

There are other reasons for believing that the Bridge Canyon project may have been planned to produce more benefits than will result, at a cost greater than they are worth; and there is a serious consideration involved that concerns everyone who values the preservation of our national parks and monuments. This project directly invades a national park and a national monument with a major engineering program. The reservoir created by Bridge Canyon Dam will extend upriver through the full length of Grand Canyon National Monument and 18 miles into Grand Canyon National Park.

The bills now before Congress call for a dam at an elevation of not less than 1,877 feet above sea level. That means that the canyon would be flooded up to about the 2,000-foot contour line. Mr. Frederick Law Olmstead surveyed this part of the canyon, at the request of the National Park Service, to determine what the effects on the canyon would be were the dam to be built at elevations of 1,772 feet, 1,836 feet and 1,919 feet. He reported that, while the dam would prevent silt and floating debris from accumulating in Lake Mead, as at present, by holding it in this reservoir, the unpleasant disturbance of the natural scene would be less significant if the lower height were used. The reservoir itself might add to the recreational use of the lower canyon as boat trips would be possible there.

He also pointed out, however, that the necessary withdrawals of water from the reservoir would cause fluctuating shore lines that would be conspicuous and unsightly. At high water levels, the reservoir would be a rather impressive artificial lake; but at low water levels, it would be "a colossal and more obviously artificial mess of mud and miscellaneous debris." The crystal clear creek running through Havasu Canyon is one of the distinctive features of the canyon. The quality of the stream and natural scenery near the mouth of this canyon would be radically affected for the worse if the dam were built above 1,772 feet.

The damage may be seen by few, and the economic gain from the project may be substantial; but as Mr. Olmstead concludes, decisions as to the authorization of artificial exploitation of areas reserved as national parks or monuments cannot properly be based upon the degree and extent of the damage. Such a policy would open the door to hair-splitting about where the line should be drawn. Had it been proposed that the entire Grand Canyon be flooded, and the economic gain appeared sufficient, there would be no assurance that this would not be done. Under such a policy, any of our national parks or monuments might be irretrievably ruined by deciding that economic considerations justified the violation of the existing principle that they shall remain free from exploitation.

It has been suggested that the Bridge Canyon Reservoir can be excluded from the national monument by changing the boundaries. While it may be agreed that boundary lines are not sacrosanct, the continued preservation of our entire system of national monuments depends upon their protection from just this sort of indirect invasion. To alter the areas in response to demands for commercial use would establish a policy diametrically opposed to the intent with which they were reserved. If commercial interests could achieve their ends simply by redrawing lines, the same tactics could be applied to the Olympic National Park, Glacier National Park, the Jackson Hole National Monument and to any other park or monument.

The only justification for altering the boundary of a national park or monument is that the primary purpose of its reservation, its protection, will be served by doing so. The national interest must be considered, not alone that of a local segment of our population. It is not proper to authorize a project, regardless of existing natural values, and then, adjust the boundaries of an affected area to accommodate the project. For this and other reasons of practicality and principle, it is imperative that authorization of the Bridge Canyon project be withheld.

ITEM 2

EXHIBIT VIII (A)

PART 1

FEDERAL LEGISLATION AFFECTING PUBLIC POWER

(By Northcutt Ely[1])

PAPER PRESENTED TO AMERICAN PUBLIC POWER ASSOCIATION CONVENTION, LOS ANGELES, CALIF., MAY 1949

The agenda of the present Congress is heavy with matters affecting public power. Heading the list are the recommendations of the Commission on Organization of the Executive Branch of the Government (the Hoover Com-

[1] Of the California and District of Columbia bar; general counsel, the American Public Power Association.

mission), to which more detailed reference will be made in a moment. Congress has before it bills to create the Savannah Valley Authority (S. 64); the Merrimack Valley Authority (H. R. 463); the Missouri Valley Authority (S. 1160); the Columbia Valley Authority (S. 1645 and other bills); to include the Cumberland Valley in the Tennessee Valley Authority, beside important bills to authorize specific projects, such as the American River development in California (H. R. 165), the central Arizona project (S. 75, H. R. 934), and many other projects. It has before it appropriation bills for the Interior Department and the War Department based on budget requests of over three-quarters of a billion for the Corps of Engineers and about a half billion for the Interior Department's public works program. It has received or will receive comprehensive river basin development plans of the Engineer Corps and the Reclamation Bureau aggregating several billion dollars. It also has under consideration H. R. 1770, which liberalizes the Reclamation Project Act of 1939, under which most reclamation power projects are now constructed.

Out of these measures will probably come policy determinations that will control the future course of public power in this country. Before examining them, let us review briefly the present situation.

Congress first authorized power development in connection with reclamation projects in 1906. It first authorized power features in connection with the War Department's dams in 1912. Up to 1930 only 17 plants had been built by the Government as incidental to reclamation operations, with a total capacity of about 225,000 kilowatts. The War Department had built Muscle Shoals.

The Federal Water Power Act, enacted in 1920, set up a system of licensing the construction of works on navigable streams by public and private agencies, with authority to withhold licenses as to projects which it thought should be built by the Federal Government but the Boulder Canyon Project Act, or Swing-Johnson Act in 1928, was the first legislation authorizing a large multiple-purpose project as such.

It is appropriate that we should be discussing the relationship of the Federal Government to public power at a meeting in Los Angeles. This area had a vital part in the formulation of the Boulder Canyon project, the pioneer in this field. We may profitably examine the key features of the Swing-Johnson Act, not only because of their importance in establishing Federal policies at the time, but for comparison with later statutes.

Among the distinctive features of the Boulder Canyon Project Act, with respect to power, were—

(*a*) The requirement that power contracts be executed in advance of appropriations and construction.

(*b*) The requirement that these contracts produce revenues adequate to amortize the entire investment.

(*c*) The absence of any write-offs whatsoever, the flood-control allocation offering relief only to the extent of possible deferment if revenues were inadequate to retire this allocation within 50 years.

(*d*) Provision for added payments, in lieu of taxes, to Arizona and Nevada.

(*e*) Provision for the retention of revenues, after amortization, in a fund for the development of the river basin.

(*f*) Specific accounting procedure between the projects and the Treasury, through the Colorado River Dam fund, to assure repayment to the Treasury of principal plus interest.

(*g*) The requirement that the customers build their own transmission lines.

(*h*) Provision for the operation of the power plant by the customers at their own expense.

(*i*) General provisions for preferences to public bodies, and particular provisions for preferences to States, as customers.

(*j*) After determination of preferences and allocation of energy, general and uniform treatment of all customers as to rates, duration of their contracts, and renewals.

The Project Act incorporated a rigorous and complex set of rate requirements, which had the effect not only of fixing the initial rates at not less than the amount required to amortize the whole investment plus 4 percent, but also of requiring periodic adjustments upward or downward based on the competitive value of power from other sources.

Under the Boulder Canyon Act, the Secretary of the Interior promulgated regulations in 1930, allocating 36 percent of the firm power to Arizona and Nevada, and the remaining 64 percent to California users. These included the city of Los Angeles, the Metropolitan Water District of southern California

for pumping water in its aqueduct, the municipalities of Pasadena, Glendale, and Burbank, and three privately owned utilities, of which the Southern California Edison Co. was the major one. Inasmuch as Nevada and Arizona were unable to make firm contracts for the energy allotted to them, the Secretary required the city of Los Angeles and the Southern California Edison Co. to underwrite the State's allocations, that is, agree to take and pay for so much of the energy allocated to Arizona and Nevada as those States should not be using for the time, reserving tot the States the option to take the energy, release it if the load should decline, and take it again on notice if the load should revive. When all of the firm energy is taken by the ultimate allottees, approximately 92 percent will be absorbed by public agencies, and about 8 percent by privately owned utilities, but during the period when Arizona and Nevada are failing to use their full share, the privately owned utilities, by virtue of this underwriting requirement, are obligated to take a total of approximately 24 percent of the firm energy. Transmission lines have been constructed by the city of Los Angeles, the metropolitan water district, the Southern California Edison Co., the California Electric Power Co., and by certain users in Nevada. The power plant, under the 1930–31 regulations, was leased to the Department of Water and Power to the City of Los Angeles, and the Edison Co. The city is the generating agent for all of the publicly owned customers, and the Edison Co. is the generating agent for the privately owned utilities. The power plant machinery was installed by the United States, but was, and is, operated by the city and the Edison Co. This lease was subsequently converted into an operating agency contract.

The Project Act's requirements that contracts for sale of power be executed prior to construction of the project, or even prior to the obtaining of appropriations, laid upon the Secretary of the Interior and the managements of the contracting agencies heavy responsibilities in forecasting the growth of load and the value of the energy, as well as estimating the cost of the project to be retired from these revenues. The rates established by the Secretary in 1930 necessarily made allowances for these factors, including the gamble of whether the metropolitan water district would, in fact, be able to finance and construct the aqueduct to which 36 percent of the entire firm output was allocated for pumping. The rate initially fixed in 1930 proved to be about 50 percent higher than the rate required to meet the statutory objectives, because the metropolitan water district succeeded in financing and constructing its aqueduct (at a cost of over $200,000,000), and because Hoover Dam and power plant were built well within the estimate.

However, the project was not completed, and these power contract consequently did not go into operation, until June 1, 1937. During this 7-year interval, the Federal Government embarked on important projects which were based on a different philosophy.

These included the Tennessee Valley Authority, the public works program during the depression (which financed some three hundred millions of power development), the Bonneville project, and others. In all these cases a substantial amount of capital was made nonreimbursable and interest rates were reduced. The energy rates thus produced were substantially below those required of the Boulder Canyon power users.

In partial response to this situation, Congress in the 1940 Boulder Canyon Project Adjustment Act reset the Hoover Dam rates on a 50-year, 3-percent amortization basis, in lieu of a fluctuating competitive rate, but it did not write off any capital, even a flood control allocation of $25,000,000 being reimbursable (although deferred). The United States receives back dollar for dollar of capital, plus 3 percent interest, and this interest component is not diverted and credited to any irrigation investment; it is paid to the Treasury as hire for the money and is available to pay interest on Government bonds in the amount of the whole investment. In addition, the power users furnish $600,000 per year to Nevada and Arizona in lieu of taxes and $500,000 pery ear to a development fund for the river basin. The irrigation features of the project, i. e., the All-American Canal, costing some $78,000,000 are repaid by the irrigators. The domestic water supply function is paid for separately by the southern California water users, who bonded themselves for $220,000,000 and built the metropolitan water district aqueduct. The transmission lines, representing another $50,000,000, were built and paid for by the local power users. In all, the cash investments and firm commitments by southern California in connection with the Boulder Canyon project aggregate about $550,000,000.

Almost contemporaneously with the Boulder Canyon Project Adjustment Act, Congress passed the important Reclamation Project Act of 1939. The Reclamation Project Act pointedly excludes the Boulder Canyon project from its coverage, and, as presently construed, goes off in quite a different direction.

This statute controls substantially all the multiple-purpose projects since built or proposed by the Interior Department.

Section 9 of the Reclamation Project Act has become the center of considerable controversy. It authorizes the Secretary, upon finding a project feasible, to authorize it for construction by a finding to that effect, without further authorization by Congress. It does not free him from the necessity of obtaining appropriations to build the works he so authorizes. It sets up certain standards which he must meet in order to find a project feasible. In general, he is to make allocations to certain nonreimbursable functions, such as flood control, and he must find funds to recover the balance of the investment within stated periods of years. These sources of funds are repayments by water users, sale of domestic water to cities, and sale of commercial power. The limit of the irrigator's contribution is the amount they are able to repay without interest, but by using rental contracts instead of fixed-term repayment contracts, the idea of a fixed amortization period for irrigation virtually disappears. The allocation to municipal water supplies may be interest bearing or not as the Secretary chooses. Power is required to repay the allocation to commercial power, and, in addition, to repay that portion of the capital allocated to irrigation which the irrigators ought to repay but are financially unable to pay; that is, a subsidy to irrigation, paid by power users. The Interior Department, relying on a solicitor's opinion, maintains that under this act there is no fixed amortization period with respect to the investment allocated to be repaid by power, although power contracts are limited to 40 years. As to interest, it contends, first, that the irrigation capital or subsidy repayable by power is interest free; as to this, there ought to be no great controversy. Second, it contends that (speaking now of the investment in commercial power) although the rate charged the buyer, i. e., the municipal systems and other customers, must be high enough to retire the investment plus interest at 3 percent, the Reclamation Bureau, having collected from the customers rates which include this interest component, is not obliged to pay the interest so collected over to the Treasury as hire for the money, but may account for it as available for the retirement of just that much more capital allocated to irrigation. To state it simply, under this construction the Treasury gets back the whole reimbursable investment in a multiple-purpose project without interest, no matter how much of it was allocated to power and how much to irrigation, and no matter how much interest the power users like yourselves pay. You pay interest on the power investment, but the irrigators get the benefit of it, through reduction of the debt otherwise repayable from irrigation.

Some interesting results have been forthcoming, particularly the incredible central Arizona project, referred to later.

In 1944 Congress enacted the Flood Control Act of that year. In this statute, while basically just one more of a series of authorizations for flood-control projects, Congress came to grips with the fact that two great development agencies were at work on the same rivers, one working its way up from tidewater and one working its way down from the mountains; that they were by this time operating under wholly inconsistent policies; and that something had to be done to avoid a collision. The result, to summarize briefly, was a law which—

1. Required each agency to submit its plans to the other, and to the affected States.

2. Suspended the Interior Department's power to authorize itself to construct a project, if the War Department or an affected States objected.

3. Directed that consumptive uses, e. g., irrigation, should take precedence over navigation as to works west of the ninety-eighth meridian.

4. Gave the Department of Agriculture jurisdiction over soil erosion and watershed protection works.

5. Directed the War Department to turn over to the Interior Department the energy it generated, and told the Secretary of the Interior that he " * * * shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles, the rate schedules to become effective upon confirmation and approval by the Federal Power Commission."

6. Gave the Secretary of War general control over flood-control operations of storage works and the Secretary of the Interior control over irrigation uses of reservoirs.

There were, of course, other provisions, but the foregoing was the general formula.

Important as these provisions are, they did not dispose of the basic competition between the Corps of Engineers and the Reclamation Bureau. Both organizations have proceeded to draw up comprehensive plans for development of river basins, sometimes in direct competition and candidly overlapping.

The Hoover Commission reports that by June 30, 1947, the Federal Government had constructed or purchased 46 hydro and 10 steam plants with an installed capacity of 4,909,582 kilowatts. Thirty-seven additional plants were under construction with a capacity of 8,481,400 kilowatts. Seventy-nine more plants have been authorized with a capacity of 6,842,655 kilowatts. It says: "Thus, by about 1960, when these 172 plants were in full operation, they would have a capacity of about 20,233,637 kilowatts."

The whole country's installed capacity in 1947, public and private, was about 52,000,000 kilowatts.

Some 3.7 billion has been spent on multiple-purpose projects and another 4,000,000,000 will be spent to finish those authorized.

Public power accounts now for about 20 percent of the total installed capacity of the country, divided about equally between Federal and local public investments.

But the comprehensive plans proposed by the Army and the Interior Department include an aggregate of nearly 46,000,000 kilowatts, divided about equally between the two, thus multiplying by eight or nine times the present Federal installation. The multiple-purpose projects of which these are a part will cost 35 to 40 billion dollars. The Corps is planning 85 projects in 32 States, the Bureau of Reclamation 541 projects in 17 States. Comprehensive basin plans have been prepared by one or both agencies for the Colorado, the Central valleys of California, the Columbia, the Missouri, and the Rio Grande, among others.

The Commission recommends the unification of the civil functions of the Corps of Engineers and the Reclamation Bureau, a majority favoring consolidation in the Interior Department and a minority in a new Department of Natural Resources. This issue will be highly controversial. The Commission recommends unanimously the creation, within whatever department, of a "water development service," which would include the Reclamation Bureau and the Corps of Engineers' civil functions, the Bonneville and Southwestern Power Administrations, the Division of Power, and certain functions of the Federal Power Commission and State Department. They all agree on the necessity for establishing review boards independent of the organizations constructing the projects, although they differ over details, and they differ over regional "authorities." When it came to power policies, as distinguished from administrative mechanics, five separate statements were filed, Chairman Hoover being joined by four Commissioners, Vice Chairman Acheson by two, and three other Commissioners filing individual and rather general reservations on power matters. Not only will this Congress have these recommendations before it; it will receive also a number of the comprehensive plans referred to.

It is inevitable that the legislative decision in these matters will develop a collision between two basic Federal power philosophies. One of them is stated in the Flood Control Act of 1944, previously quoted, to "* * * transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles * * *."

The other is stated in a petition of the utilities distributing 90 percent of the power sold in Arizona, filed with the Secretary of the Interior March 26, 1948, with reference to Davis Dam power:

"* * * we do believe that power should be sold at the distribution center at a price equivalent to its market value. Such value should be equal to the cost of such power as it is produced in like quantities and qualities in the most efficient manner, according to the state of the art for the area in which the power would be used. Such a policy would result in the Government securing revenues in excess of those which it would secure if the price of the power was determined by its cost computed according to the formula in the basic reclamation law. Under this procedure the difference in price between value and cost could be applied to the irrigation portions of the project."

That is to say, in plain English, "all the traffic will bear."

These same utilities are among the warmest supporters of the central Arizona project. This project, now under hearings, affords an excellent example of what

can happen to public power when it is joined with an unsound reclamation project.

The central Arizona project will cost $738,000,000, of which about $400,000,000 is allocated to irrigation and about $240,000,000 to power. But the irrigators are unable to pay any part of that capital cost. Moreover, a third of the project's power production will be used to pump water for the irrigators a height of 985 feet and a distance of over 300 miles. The remaining two-thirds of the power must be sold for enough to repay that $400,000,000 of irrigation capital plus all the power capital. This amounts to a 100-percent subsidy to irrigators, furnished out of a 60-percent sales tax on power, paid by the power users. This watering of the power rates is serious enough when the power and irrigation water are produced by the same works and are used in the same community, so that the beneficiaries are to some degree identical, but in this case Bridge Canyon Dam, which will generate the power, has no physical connection with the acqueduct, several hundred miles downstream, and is joined in the same project primarily as a source of revenue. It is particularly obnoxious in this case because the California public power users are thus blandly expected to pay for an Arizona aqueduct which will take water which is claimed by California and on which California works, already built, are dependent. It is not surprising that the Arizona utilities are delighted with this arrangement, and that the public power agencies of California are less than enthusiastic. The power to be used for pumping will amount to nearly a billion and a half kilowatt-hours a year, the equivalent of the perpetual loss of over two and a quarter million barrels of oil annually. The area "rescued" by this project is 150,000 to 225,000 acres, which about equals the increase in cultivated area in Arizona during the war. The land is worth not over $300 per acre, and the cost allocated to irrigation, $400,000,000, is at least $1,750 per acre. The subsidy paid by the power users for the benefit of each farm family owning 160 acres is over $280,000. Yet this project is seriously proposed, and is endorsed by the Bureau of Reclamation, subject only to a reservation as to Arizona's water rights, not as to the economics of the project.

Moreover, a bill now pending H. R. 1770, would so change the reclamation laws as to give the Secretary of the Interior general authority to find feasible, and hence to authorize for construction without further legislation, projects on substantially as liberal a basis as that proposed for the central Arizona project.

These developments lend increased significance to the resolution adopted by the American Public Power Association at its 1947 meeting:

"The American Public Power Association favors the continuing development of the West through Federal reclamation, and the construction of the multiple-purpose projects upon which such development depends. But in view of the heavy subsidies to irrigation which are carried by power on those projects, the following safeguards for the power users are deemed essential:

"1. Power developed on Federal multiple-purpose projects should be disposed of in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles.

"2. The burden supported by power in a multiple-purpose project should not exceed the amount which power would have to pay if the project were constructed as a single-purpose power project.

"3. Inasmuch as the irrigator pays no interest and the power user does, the interest rate which enters into the calculation of the power rate should be as low as can be justified, and there should be no discrimination between projects with respect thereto. A rate of 2 percent is recommended.

"4. Inasmuch as the purchaser of power from a Government reclamation project pays rates sufficient to return to the United States the capital invested in power facilities, plus interest, he is entitled to an accounting by the Government which makes it clear that he is repaying capital, plus interest, and is not receiving power at a rate subsidized by the United States Treasury. It is difficult to make this clear answer to the critics of public power under the Reclamation Bureau's present practice of applying the interest paid by the power user as though it were capital being returned, with resulting confusion as to whether a subsidy is thereby extended to irrigation, as intended, or to power, as contended by some critics of public power. The accounting practices of the Bureau should be corrected, in the best interests of public power and the reclamation program."

In conclusion:

The whole problem of the Federal Government's relation to public power, municipal and Federal, may well come to a head in the Eighty-first Congress,

in consequence of the Hoover Commission reports, the impact of comprehensive river plans involving many billions of dollars, and the launching of such proposals as the central Arizona project.

The Federal Government has properly dedicated itself to the conservation and development of the great river systems. It is dependent upon public power to make that development possible. Public power can and should aid irrigation. But, as this association has said, there should be reasonable ceilings on that aid, so that power can be marketed at the lowest possible cost consistent with sound business principles. And ways must be found to let the great power developments, urgently needed, go forward without shackling them politically and financially to doubtful projects.

ITEM 3

STATEMENT OF SIDNEY KARTUS, SUCCESSOR TO FRED T. COLTER, TRUSTEE FOR AND ON BEHALF OF STATE OF ARIZONA AND WATER USERS UNDER SAID PROJECT; PRESIDENT, ARIZONA HIGHLINE RECLAMATION ASSOCIATION AND OF GLEN-BRIDGE-VERDE-HIGHLINE RECLAMATION DISTRICT

My name is Sidney Kartus, of Phoenix, Ariz. I am submitting this statement as president of the Arizona Highline Reclamation Association and of the Glen-Bridge-Verde-Highline Reclamation District (preorganization), and successor-trustee for the Colter filings on some 40 dams and canal sites in the Colorado River system made in 1923 and initiated in 1917 for and on behalf of the State of Arizona and water users under said projects, among them being the Bridge Canyon Dam and Reservoir site and gravity tunnel-canal diversion of water from this river into central Arizona the construction of which Congress is being asked to authorize in these bills. The Colter filing numbers before the Arizona State Water Commissioner on these sites and water appropriations therefor are R–132 (reservoir) and A–413 (appropriation), both dated September 20, 1923. These prior and superior filings have appropriated said waters and the power thereof for Arizona and are ahead of California, Mexico, or other adverse contenders. The Colter filing number on this development before the Federal Power Commission is No. 660 dating from 1925.

I am also a member of the Arizona House of Representatives, now serving my third term, and have served in an expert and advisory capacity to the Arizona-Colorado River Commission as well as former assistant secretary of that body, member of the President's National Resources Committee for the lower Colorado River Basin, and in other official capacities in relation to the problems of this interstate and international stream.

It has been our contention from the beginning that the important factor in Colorado River development is the matter of title to the use of water. To determine this we must first ask: What is the full extent of the water resources of the river system? The second question is: By what right has title to use of any of this water been acquired? The basic right of prior appropriation and beneficial use was purported to be set aside by the Santa Fe Colorado River compact. This being recognized by six of the seven basin States, California being the principal immediate beneficiary, took the right under the compact and the Boulder Canyon Project Act to construct works to divert and apply water to beneficial use up to and past the full limits of the water purportedly granted to her by those instruments. All of this had the concurrence of the upper-basin States and the opposition of Arizona.

Arizona in the course of its opposition on several occasions sought court action to determine the rights of each State in the basin. This was all declared to be premature by the United States Supreme Court on the ground that no harm had been done to Arizona. It is proper to say at this point that in these decisions the Court as usual passed only on what was before it. Had the Arizona pleadings included the basic allegation of water rights and filings of this State and those claiming under it, including said filings made by Fred T. Colter on their behalf to develop several million acres and electrical horsepower under the Glen-Bridge-Verde-Highline projects, Arizona's case would have been strengthened and this dispute might have been harmoniously settled long ago with fairness to all instead of continuing to be a source of contention before Congress and among the basin States.

California is pleading before Congress that there is insufficient water and at the same time extends the argument that it needs virtually the entire flow of the river for present and future use. After having received all of the benefits, including ample irrigation and domestic water for their present needs and millions of kilowatt-hours of cheap power to make possible a city the third in size in the United States, that State is now ready to renounce the compact or let it go its way, in order to obtain all that compact gave California plus whatever might be obtained outside of it and by means of the law under which the irrigated west was developed before interstate water division compacts were conceived to set it aside. Our organizations have long proclaimed that the compact is unfair to Arizona as well as against the best interests of the entire basin, and those becoming disillusioned with the compact would do well to let it be known and be prepared to recognize the rights of others and to receive no more than what is justly theirs.

It is inconceivable that California should presume that Arizona is trying to harm her by taking but a small portion of what Arizona is entitled to while California is enjoying her full pro rata from the Colorado River. California can claim or show no damage by Arizona that the courts will recognize, although Arizona could have shown and at any time will be able to show such damage by California and others whenever Arizona's water rights and filings, including the Colter filings which have been maintained with due and reasonable diligence, are brought before the highest court of the land which in its decisions has left its portals open for this purpose and for the granting of any appropriate relief to Arizona.

California has contended that Congress cannot divide the waters of the Colorado River. This we agree with wholeheartedly. Yet that very principle is being violated by California in its stand that a court clarification of such a purported division by Congress in the Boulder Canyon Project Act is the answer to this problem. If Congress cannot divide the water, then the division which it has already made and on which California relies has no authority. It is opportune to go further to say that States also cannot by interstate compacts divide water to the destruction of individual, vested and inchoate rights. Moreover, they can be rescinded at will, as has previously happened with this particular compact, nor is there any way to enforce them since they are not Federal statutes as the United States Supreme Court has held.

Far from being the "law of the Colorado River" as has been declared of the Santa Fe compact by those who we hope are beginning to learn to the contrary, nothing could be more lawless. Such compacts are treaties, not laws. As such they are negotiated in the age-old fashion of treaties whereby the stronger or the more cunning prevail over the weaker or the conquered. It is well that the United States Supreme Court has now resumed the historic position of that tribunal that it should take and hold jurisdiction of interstate water disputes and reopen its decrees thereon as need be. Otherwise such compacts would have free reign to override every time-honored principle of law and conservation in water matters as would be done by the Santa Fe compact which would destroy the State of Arizona and ruin the proper development of the entire Colorado River system by diverting the greater part of its waters into other drainage basins and restricting development to solely power dams for monopolies and a small irrigated area near the river's mouth chiefly in Mexico and California, in the delta and out of the river system, respectively, leaving the watershed above to the inhospitable desert.

Concerning economic feasibility, California has got into a quagmire in its mental thinking in Colorado River matters by concluding that because California offers a market for power which it desires to obtain at the lowest cost that it is paying for the Bridge Canyon Dam which will be entirely within Arizona. Arizona has never laid claim to the oil fields of California or Texas because of the gasoline produced there but purchased in part by Arizona citizens. Power made in Arizona is not a gift provided this State is in a position to make reimbursement for funds advanced for construction purposes. The repayment experience of Arizona does not lead us to expect that this State will default, and our Colorado River assets are so vast that any moneys advanced from whatever source will be well secured.

As for comment on loss of power in perpetuity and excessive cost of pumping of the Parker pump lift project to divert water from Lake Havasu into central Arizona, California's representatives have overlooked the proposition that the pump-lift project is a temporary expedient costing some $20,000,000 to be used

only as an auxiliary in the permanent Bridge Canyon tunnel-canal gravity diversion project.

California has tied some of its main arguments to the conclusion that Parker pump lift is permanent and excessively costly, while a California project with a pump head far greater from Parker Dam to Los Angeles and environs is a permanent actuality which that State considers successful in every way.

While the organizations which I head, and myself as trustee, are far from pleased with the small amount of water that responsible Arizona officials are claiming in connection with these bills, we can with satisfaction note that California has pointed out that Congress cannot divide the water, which was Arizona's official position up until the last 4 or 5 years, and hope that in due time Arizonans might see that to which their plight is due in Colorado River matters and invoke a proper general adjudication suit, not the one California seeks, but one which will establish our rights to far more water in the full amount of our rights, especially the Colter filings.

Unless the financial outlook changes radically in the near future, there will be billions of dollars available at low-interest rates. This means that funds will be looking for an outlet or for reliable sources of investment. It has been estimated that some $48,000,000 would be the annual power revenue from Bridge Canyon Dam even from the relatively incomplete development planned there under these bills. That amount of money would pay interest at 1 percent on $4,800,000,000 annually, or 2 percent on $2,400,000,000 annually which is twice the highest estimated cost of the entire project. This is computing only a small part of the potential power development in the Colorado River in the State of Arizona. This is far more financial justification than any ordinary investment house would deem necessary for the full development, including the immediate driving of the gravity tunnel from Bridge Canyon Dam potential reservoir while the dam at the site is being constructed, and for the vast expansion of Arizona's irrigation contemplated under the Colter filings. The power revenue alone, which under these findings is combined with and made subsidiary to the maximum reclamation and multiple use of the waters in Arizona through a municipal irrigation and power district, will three times overpay all costs.

It has often been said that the greater part of the lands and resources of the State of Arizona are federally owned. This argument is used to prevent rather than to aid development of resources in this State. Let us point out that we are among those who know that Federal ownership has been but the means of delivering into private ownership of Arizona people a great part of Arizona's potential wealth. At one time we can visualize that all lands on both sides of the stream were federally owned but are now in large part in possession of the States, their political subdivisions and their people.

I have submitted this brief for the information of the subcommittee. The earliest, broadest, and soundest program for highest beneficial use and conservation of the Colorado River waters for Arizona and all concerned was established by the patriot reclamationist, Fred T. Colter, whose work it is my humble privilege and duty to continue as his successor. We see his work coming to fruition in bills now being introduced in Congress to construct the vast works on which he filed for the people of his native State many years ago, confident that his vision would fill their future need and that time would bring about the full realization of the great life-giving development which he planned in the mighty chasms and vast and fertile desert valleys of the Colorado River where the world's greatest project of its kind would flourish to contribute to the sustenance and happiness of his fellowmen.

We stand for that full realization. We oppose transmountain diversion in any quantities that will seriously affect the water supply of lands within the basin, whether in the upper or the lower division, unless replenished by importations from other river systems, the study of which we heartily endorse. We also endorse all conservation of soil and water that will lead to a more plentiful production throughout the Colorado River Basin and the United States. It is our view that the Colter program and filings and the facts set forth in this statement conform to those aims for which we will continue to exert our constant efforts.

ITEM 4

THE FINANCIAL SET-UP FOR CALIFORNIA PROJECTS WHICH IS ENTIRELY INCONSISTENT WITH CALIFORNIA ATTACKS ON RECLAMATION PROJECTS IN THE SIXTEEN OTHER RECLAMATION STATES

(Compiled from hearings before congressional committees, Eighty-first Congress, by J. H. Moeur, Arizona Director of National Reclamation Association, Phoenix National Bank Building, Phoenix, Ariz.)

In the hearings on Senate Joint Resolution 75 and on H. R. 934 and 935 reference has often been made by those opposing the proposed legislation to the cost of the central Arizona project, and particularly to the alleged "inability of the water users" to pay any substantial portion of the costs allocated to irrigation.

It may be of some value in considering this subject to examine (1) pending legislation before this Congress that would liberalize the present reclamation act; (2) comparison of the aid contributed by power in present authorized reclamation projects throughout the West and that proposed for the central Arizona project; (3) the projects in California by Army engineers or Bureau of Reclamation.

H. R. 1770

Reclamation interests in the West have for several years realized that there must be some liberalization of the existing reclamation act if future projects are to be authorized. Commissioner of Reclamation Straus at the Omaha convention of the reclamation association held in 1947 stated in substance they had scraped the bottom of the barrel for feasible projects under the existing law, and if they were to continue to authorize and build projects the law would have to be liberalized and the time for repayment extended.

The legislative committee of the National Reclamation Association assisted in the preparation of a bill in the Eightieth Congress known as the D'Ewart bill, H. R. 830. This bill was reported favorably by the committee and passed the House but failed of action in the Senate. The same subject matter now under consideration by the Eighty-first Congress in H. R. 1770, and similar bills was before the Public Lands Committee of the House for consideration March 2, 3, 4, 7, and 8 of this year and favorably reported by that committee to the House for action.

The text of the bill as presented to the committee proposes to extend the time for repayment and also contains certain nonreimbursable features not existing under the present law. These nonreimbursable features both present and new are as follows:

"SEC. 2, section 9 (b) of the Reclamation Project Act of 1939 is amended to read as follows:

"In connection with any new project, new division of a project, or new supplemental works on a project there may be allocated to (I) flood control; (II) navigation; (III) the preservation and propogation of fish and wildlife, pursuant to the act of August 14, 1946 (60 Stat. 1080); (IV) recreation; (V) general salinity control; (VI) sediment control; (VII) the improvement of public transportation; (VIII) protection of the public health; (IX) promotion of the national defense; and (X) the fulfillment of international obligations such portions of the estimated cost of the proposed construction as the Secretary may find to be proper and those portions of said cost, together with operation and maintenance costs properly allocable to the same purposes, shall be nonreimbursable and nonreturnable. The Secretary shall, after consultation with Federal and State agencies concerned therewith, operate the project or require that the project be operated for the purposes for which the allocations have been made to the extent justified thereby. * * *" (Pp. 1 and 2.)

Commissioner Straus explains these nonreimbursable features in his testimony as follows (pp. 58, 59):

"Now, about these new nonreimbursables that have been frequently referred to as 10 new nonreimbursables. They are 10 nonreimbursables. They are not 10 new nonreimbursables."

"Two, the most important, flood control and navigation, are written in this bill and are two of the nonreimbursables, but they have been in the reclamation law for years, they are not new. We do not make any recommendation as to change of the nonreimbursability of flood control and navigation benefits. Navigation, I think, was considered a nonreimbursable Federal function since the time of the Constitution. They are mentioned, however, in this bill, and quite properly, since this bill is a restatement and revision of those subsections of section 9 of the Reclamation Project Act of 1939 that deals with the allocation of benefits. They are merely reiterated in the bill."

"The next nonreimbursable item is the preservation and propagation of fish and wildlife. Many members of the committee I see here will recall that we discussed that, I believe, over 3 years ago. That item, however, is already in the law. What happened in that instance is that during the period of these discussions and considerations, the Congress say fit to go ahead and make provision for the reimbursability of that part of the estimated cost of a reclamation project that the Secretary found to be properly allocable to the preservation and propagation of fish and wildlife. I believe that the Committee on Maritime Affairs and Fisheries, if I have the name right, considered the bill which authorizes that allocation. There are three nonreimbursables."

"Mr. WELCH. Mr. Straus, excuse me, it is Merchant Marine and Fisheries."

"Mr. STRAUS. The Committee on Merchant Marine and Fisheries. Thank you Congressman Welch."

"The matters of salt and silt control and recreation allocations have been heretofore considered in some detail by this committee last year in a bill, the number of which escapes me, but I remember very well that it was discussed by this committee, passed on favorably by the full committee and that the bill with those reimbursables was passed by the House without change. So we see that the House of Representatives has heretofore considered them.

"The remaining nonreimbursable benefits to health, transport, international obligations and the national defense, have not been in this form before this committee heretofore. However, they are readily recognizable as general benefits to the Nation and not specific benefits to the water and power users. The policy of considering those items as general benefits has heretofore been recognized by the Congress in many statutes."

"What is before the committee is writing established policy of Congress (that such benefits are national benefits) into the reclamation law and bringing reclamation law into step with the other legislation the Congress has passed * * *" (p. 58).

It will be noted that the nonreimbursables set forth in this amendment included a number of items not contained in the central Arizona project bill.

Mr. Polk, president of the National Reclamation Association, testifying in support of the bill, stresses the importance of reclamation; the role that western water projects played in national defense and the part that reclamation development of the West has contributed to the prosperity of the country as a whole, concluding with the following statement (pp. 16–17):

"In spite of the fact that reclamation pays for itself many times over, we do not advocate abandonment of the traditional policy that the cost of irrigation features of projects should be repaid. We do say that, however, based on present-day planning, present-day construction, and present-day benefits, the terms provided by law for the repayment and return of those costs ought to be consistent with fairness. They ought to be consistent with the lessons of experience. They ought not be so rigid that they cannot be adjusted to meet changes in circumstances."

Mr. Polk's statement was well received by the committee and a number of members expressed their approval of the position that he took, particularly Congressman Lemke, who comments as follows (p. 18):

"Mr. MURDOCK. Thank you, Mr. Polk. We recognize you as an authority, and one whose heart is in the great cause of reclamation. We will take the matter of questioning in due order. I will begin with Congressman Lemke. Have you a question, Mr. Lemke?

"Mr. LEMKE. Just one or two. I want to congratulate my friend because of the concise and splendid presentation he has made of this bill.

"You suggested that the Nation gets its money back many times because of income tax as a result of these irrigation projects. I think we have had evidence before us that the Nation has spent some $12,000.000[1] since 1876 on Federal

[1] $12,000,000 appears to be a typographical error and should be $12,000,000,000.

projects, $3,900,000,000 in 17 Western States. All but that $3,900,000,000 was given to other States and communities free, harbor and river improvements and flood control.

"The people who had advantage of it paid nothing in return. I have no objection to that. But some of those people object very seriously to letting these western States repay what they get from the Federal Government, which was $3,900,000,000, out of which we have already paid a large proportion and will undoubtedly repay most of it as time runs along. Do you agree that there is very little room for complaint on the part of these eastern States as to what little we are doing for these Western States?"

"Mr. POLK. I think that is correct, Congressman on the basis that they fail to recognize these over-all national benefits that come from the reclamation program. I think they have centered their attention too much on the water users repaying the obligation, not only of the direct benefits that come to them, but repaying the obligation of the benefits that come to the Nation as a whole, which we contend is unjust and unfair.

"Mr. LEMKE. I may state one Congressman told me he is in the apple business and that on 1 acre, when the apple prices were high and he had a good crop, he paid as high as something over $400 in 1 year for income tax. To get this acre irrigated originally cost only $300. He has paid the $300 back and an income tax of $400 in 1 year. It seems to me that these irrigation projects have done more than their share in maintaining the national economy and will continue to do so in the future. Am I correct on that?

"Mr. POLK. Yes, sir. I may say that just the other day before the Appropriations Committee I called particular attention to the fact that the records show that more in actual dollars in income had come back to the Federal Government than had been expended so far on reclamation projects."

Some of the observations made by other members of the committee were (p. 26):

Congressman Marshall, of Minnesota: "* * * I would like to make one observation that we have referred to the income that came from these things as it affects the West. I would like to observe that anything that helps the West build up their income in turn helps the rest of the United States and by doing that we feel that you are in better position to help us take care of the cost of running the Federal Government * * *."

Congressman Aspinall, of Colorado: "* * * Mr. Chairman, I cannot help but supplement the remarks of our good Member, Mr. Lemke. He was talking about the flowing of money and the advantages to the National Treasury. I happen to represent one of the old predecessor projects which in 1 year returned on some acreages nine times the original cost of placing the water on the land. I think that is about double what the gentleman stated * * *" (p. 27).

The only objection to the bill was voiced by California witnesses, particularly Mr. Arvin Shaw; who, when questioned concerning the aid contributed by power of irrigation in the Central Valley project of California stated (p. 75):

"* * * Mr. LEMKE. You have the Central Valley project, one of the greatest in the Nation. Are you in favor of that project?

"Mr. SHAW. Oh yes.

"Mr. LEMKE. Does it not rely on an interest component in connection with its repayment and in accordance with the Solicitor's opinion?

"Mr. SHAW. I do not so consider it. A report has been made, an allocation report by the Bureau, which has not been the subject of any action by the State of California that I am aware of, but that report is only a report. It is not according to my information that the interest component of the power rates be applied to irrigation repayment in order to sustain the feasibility of that project. That project was declared to be feasible and authorized by the Secretary in 1935 and reauthorized by the Congress in 1937.

"Mr. LEMKE. The interest component was in there at that time.

"Mr. SHAW. I am quite sure it was not in there at that time. It was first brought to public attention in a report which was made by the Secretary of Interior in December 1946.

"Mr. WELCH. May I ask a question Mr. Chairman?

"Mr. MURDOCK. Mr. Welch.

"Mr. WELCH. Would not the irrigation districts in the great Central Valley be in the same financial difficulties as the 20 districts referred to here a few moments ago, were it not for interest component derived from the sale of power?

"Mr. SHAW. That is not my information, Mr. Welch. It is my information that that application of the interest component is not necessary to sustain the solvency of the Central Valley project * * *" (P. 75).

This answer by Mr. Shaw is completely refuted by the testimony of Commissioner Straus at a later date in which Congressman Welch, of California questioned Mr. Straus concerning statements made by a witness appearing in opposition to the bill, to wit, Mr. Edward Hyatt, chief engineer of California. The pertinent testimony is as follows (Pp. 163–165):

"* * * Mr. WELCH. Mr. Chairman, it was impossible for me to be present on March 4, when Mr. Edward Hyatt, chief engineer of California and the executive officer of the water projects authority of California, made a statement. That statement read in part as follows:

"'The interest component of revenues including power revenues, should not be assigned or otherwise applied to repayment of capital or other costs, but should be accounted for and paid as compensation for use of the funds advanced. When costs allocated to irrigation have been assigned for repayment from net power revenues and net revenues from municipal water supply or miscellaneous purposes, such net revenues should be reasonably apportioned each year so as to apply to the annual payment required for such assignment.'

"May I ask of Commissioner Straus if this aid were removed and the irrigators in Central Valley were required to pay directly the full amount of the capital investment allocated to irrigation, is it not a fact they would have to pay approximately three times as much for water?

"Mr. STRAUS. I think the answer to that is generally "Yes," but I would like to explain the basis:

"There is before the Congress, and there has been since 1947, the allocations report of the Secretary of the Interior on the Central Valley project, known as House Document 146, Eightieth Congress. That clearly sets out the allocations to power, to irrigation, the amount that will have to be repaid by irrigation, the amount that the irrigators will be expected to pay directly and the amount that in behalf of irrigation will be repaid by power revenues in the Central Valley project, and that will be repaid by the application of the interest component in the Central Valley project.

"As I recall the document which I have not seen for some time the amount to be repaid directly by the irrigators for the irrigation features in the Central Valley project is approximately *$55,000,000 which is only a small part of the amount that will have to be repaid on the irrigation investment. The additional amount being repaid from power revenues.* [Italic supplied.]

"The additional amount to be repaid in behalf of irrigation by the application of the power interests component as set forth in the document submitted to the Congress 2 years ago is approximately $110,000,000, so power is paying through the application of the interest component, in behalf of the irrigators approximately twice what the irrigators are paying directly.

"If the power interest component was not so applied, the irrigators would still have to carry that additional burden which would mean that in their repayment of the capital investment allocated to irrigation they would have to repay directly a total of about three times as much as they do under the present allocation procedure and under the present law.

"Mr. WELCH. Mr. Commissioner, is it not a further fact that this is the first time that a high California State official has publicly recommended such an enormous increase to the water user and reclamation farmers in the Central Valley?

"Mr. STRAUS. I am not personally familiar, in any instance in the Central Valley or other places, or any other of the 17 Western States in the course of a good many negotiations, where any representative of irrigators has been desirous of paying a larger amount than required.

"Mr. WELCH. Commissioner Straus, Mr. Hyatt was addressing himself principally to the great Central Valley. That was the reason I applied my question to the Central Valley.

"Mr. D'EWART. Could I add one question to the point Mr. Welch just brought up?

"Mr. MURDOCK. Yes, Mr. D'Ewart.

"Mr. D'EWART. I would like to know how the irrigators of the Central Valley could pay three times as much under the reclamation law as they are now paying, when they are required right now by the law to pay according to their ability to do so?

"Mr. STRAUS. I do not think they could pay three times as much as they are now paying; that is why Congress has provided and the administration has

provided that they be relieved of this burden by application of the interest components from power and power revenues. Perhaps they could, but the rate now, on the Central Valley project at canalside, including the annual operation and maintenance charge is $3.50 per acre-foot. That is not a high charge compared to some existent charges, but I could not recommend, with respect to the congressional policy of not setting up projects that impose an intolerable or unbearable burden beyond the irrigator to pay any large increases. The policy of the Bureau of Reclamation of course is to figure the costs so as to provide the return that the law requires obtained, but not to operate it on a what-the-traffic-can-bear philosophy.

"Mr. D'EWART. You are saying that even though this interest component on power investment was not applied on irrigation, that they would not have to pay three times as much because it would still be based on their ability to pay.

"Mr. STRAUS. *I think you would just have an infeasible project.* [Italics supplied.] Of course, the other alternative is that you could extend the time a tremendous amount.

"Mr. D'EWART. But not under the present law?

"Mr. STRAUS. That is right.

"Mr. WELCH. Mr. Commissioner, if the aid were removed, is it not a fact that irrigators would either have to pay the price or go without water?

"Mr. STRAUS. Could I have the first part of that question again, Mr. Welch?

"Mr. WELCH. I say, if the aid referred to, as the interest component on electric power, were removed, is it not a fact that irrigators would either have to pay the price or go without water?

"Mr. STRAUS. That would be the end result because it probably would be an infeasible project."

Interest in this legislation was emphasized by questions asked Mr. Shaw and other witnesses opposing the bill and in comments made by the committee members on various occasions, among these was a question asked by Congressman White and answered by Commissioner Straus concerning the Salt River Valley project of Arizona (p. 159):

"Mr. WHITE. In moneys received in taxes from the Phoenix district as mentioned by the chairman, as a matter of fact, it has paid out and reimbursed the Government in full, has it not?

"Mr. STRAUS. In that sense I think it has more than reimbursed the Government in full. Were it not for that project, there would not be possible the tremendous economic agricultural development in the area surrounding Phoenix, because it would be a desert.

California witnesses objected to the extension of time for repayment as provided in the bill. Some suggestions were made as to repayment period and finally Mr. Hyatt, differing with some of the other California witnesses stated (p. 112):

"Mr. BARRETT. I note in your statement Mr. Hyatt, that you are rather indefinite as to the period that the Congress should set as the repayment period. You say 'beyond 40 or 50 years and probably 60 years or perhaps longer'.

"Mr. HYATT. That is right.

* * * * * * *

"Mr. BARRETT. In Mr. Shaw's statement I note that he states that in the original Reclamation Act it was intended that they would repay these costs of construction over the first 15 or 20 years; and then it was enlarged to 30 or 40; and in the 1939 act 50 years was provided for, including the 10-year period.

"Now, you mean to extend that only 10 years?

"Mr. HYATT. Well, or perhaps longer. We are not giving a final answer on that. That is up to Congress. There is no magic in the figure 40 at all, or any other figure. It was 10 years first, then 20, then 40 and 50, and if conditions have changed, which certainly they have—costs have gone way up, and so forth, certainly—we think some liberalization is justified. But it should be, in our opinion, something we can explain with complete candor and honesty to the eastern part of the United States.

"If the Congress wishes to change that national policy, if there are different policies in effect in the different parts of the world—the British policy in the Nile Valley and in India is not the same—if the Congress wishes to change that policy, well and good, but under present existing policy we feel that there should be a definite guaranty the money will be paid back in some specific time. Whether it is 40, 50, 60, or 70 years is not vital."

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HEARINGS 934–935

In hearings before the Subcommittee on Irrigation and Reclamation of the Committee on Public Lands of the House on H. R. 934 and 935 (not yet printed) Mr. V. A. Lawson, engineer, Bureau of Reclamation testified in substance that the proposed central Arizona project power rate was fixed so as to provide for a subsidy for irrigation in the amount of 0.72 mill per kilowatt-hour; that in the Colorado-Big Thompson project that subsidy was 0.89 mill per kilowatt-hour; and in the Missouri Basin that subsidy was 2.47 mills per kilowatt-hour. In other words in the Missouri Basin and Colorado-Big Thompson the subsidy for irrigation carried by power exceeded the amount proposed in the central Arizona project.

S. 75

Senator Hayden in testifying before the Senate Committee on Interior and Insular Affairs on S. 75, submitted a tabulation entitled "Authorized Flood Control Projects in the State of California" and another tabulation entitled "Federal Reclamation Developments in California." The data discussed by those tabulations are as follows:

Authorized flood-control projects in the State of California

Project	Total estimated Federal cost	Amount appropriated to date
Bear Creek [1]	$503,000	$20,000
Black Butte Reservoir [1]	11,079,000	
Cherry Valley Reservoir [1]	6,200,000	610,000
Farmington Reservoir [1]	3,729,000	395,000
Folsom Reservoir [1]	50,792,000	1,582,000
Hogan Reservoir [1]	11,264,000	105,000
Isabella Reservoir [1]	14,300,000	3,858,000
Los Angeles County drainage area (exclusive of Whittier Narrows Reservoir)	301,605,600	89,231,200
Merced County stream group [1]	2,700,000	1,555,000
New Melones Reservoir [1]	38,127,000	100,000
Pajaro River	714,000	714,000
Pine Flat Reservoir [1]	51,121,000	6,700,000
Sacramento River and minor and major tributaries [1]	21,520,000	1,035,000
Salinas River	3,515,000	30,000
Santa Ana River Basin (including San Antonio Dam)	44,805,900	19,479,700
San Joaquin River and tributaries [1]	4,005,000	45,000
Santa Clara River	4,956,000	
Stewart Canyon debris basin and channel	880,000	36,000
Success Reservoir [1]	11,144,000	295,000
Table Mountain Reservoir [1]	55,229,000	645,000
Terminus Reservoir [1]	13,395,000	275,000
Ventura River	1,510,000	1,350,000
Whittier Narrows Reservoir	26,880,000	1,194,100
Eel River	280,000	
Napa River [1]	65,000	
Sacramento River flood control project [1]	42,600,000	36,195,000
Total	722,919,500	165,450,00

[1] These projects are identifiable with the Central Valley project of California service area and total $337,773,000 estimated Federal cost and $53,415,000 appropriated to date.

Federal reclamation developments in California

Projects authorized for construction	Estimated total cost	Funds appropriated through June 30, 1948
All-American Canal project	$76,448,670	$53,070,162
Central Valley project [1]	440,069,000	272,803,972
Central Valley project irrigation distribution systems [1]	72,500,000	
Klamath project (California portion)	5,873,583	8,155,000
Orland project	2,448,670	2,500,000
Parker Dam and power plant project	16,272,466	[2] 15,676,392
Santa Barbara project	34,189,000	[3] 1,000,000
Solano County project [1]	45,577,000	
Yuma project (California portion)	1,602,748	1,602,748
Total authorized	694,981,137	354,808,274

[1] These projects are identifiable with the Central Valley project of California service area and total $558,146,000 estimated total cost and $272,803,972 total funds appropriated through June 30, 1948.
[2] Exclusive of $7,256,553 of trust funds contributed by Metropolitan Water District of Southern California and transmission line system in Arizona.
[3] Contract authorization $1,600,000.

It will be noted that apparently in the State of California there has been authorized for construction of flood-control projects the total amount of $722,919,500; that $337,773,000 is identifiable with the Central Valley project service area. This means that none of this money is to be repaid to the Federal Treasury and is in effect an outright grant. In the matter of Federal reclamation developments the total authorized for California is $694,981,137, of this amount $558,146,000 is identifiable with the Central Valley project service area. These Federal reclamation projects carry certain nonreimbursable items; the reimbursable costs, of course, will be repaid to the Federal Government by the sale of power, the sale of water for domestic irrigation and other purposes. Of this total amount invested in flood control and reclamation the Central Valley of California, to wit, $895,919,000, the irrigators are actually only repaying to the United States Government approximately $55,000,000, the balance of the reimbursable items will be repaid to the Government by power revenues. See the testimony of Commissioner Straus on page 164 of the printed hearings on H. R. 1770, heretofore quoted as follows:

"As I recall the document, which I have not seen for some time, the amount to be repaid directly by irrigators for the irrigation features in the Central Valley project is approximately $55,000,000, which is only a small part of the amount that will have to be repaid on the irrigation investment, the additional amount being repaid from power revenues."

H. R. 165

But this is not the whole story. Central Valley, Calif., project is only partially authorized, and the total project when fully authorized will cost many times more than that portion already authorized. There is now before this Congress for consideration H. R. 165 and similar bills seeking the authorization of the American River Basin project, a part of the Central Valley of California project. This bill was considered by the subcommittee of the Committee on Public Lands, March 1 and 2 of this year and a favorable report was sent by the whole committee to Congress for action. Some of the testimony offered in support of that bill might well have been offered in support of the Central Arizona project bill. For instance, Mr. S. A. Kerr, regional planning engineer, Bureau of Reclamation, testified as follows (pp. 16–17):

"Another very important reason for the Central Valley project is the condition which has arisen by reason of man's operations in the San Joaquin Valley. That valley is underlain by sands and gravels which have filled in many years past with water.

"The water is easily accessible to pumps. It has been estimated there are about 20,000 to 30,000 pumps drawing water from that great underground basin.

"That is such an easy source of supply that many of the farms in the San Joaquin Valley are served entirely from that underground basin.

"Pumping has been carried on and developed to such an extent that the ground water level has been drawn down materially throughout the whole San Joaquin Valley, particularly in the areas, say from Fresno to Bakersfield, along the eastern side of the valley, also on the western side of the valley opposite Fresno. It has become necessary if that intensive development is to continue to bring water into that San Joaquin Valley from some other source."

Again, in response to questioning from Congressman Murdock, Mr. Kerr said (p. 20):

"Mr. MURDOCK. The one-hundred-and-forty-odd miles of Friant-Kern Canal brings water into the upper part of the San Joaquin Valley. Is that designed to furnish supplemental water or will new lands be capable of being brought under it?

"Mr. KERR. There will be some new lands and there will be supplemental water for some lands. The water will be sold to irrigation districts. Some districts have maybe a 90-percent supply now and some have only maybe a 10-percent supply. It will be used by those districts to irrigate or to replenish their underground supplies which they have overpumped very seriously during these war years in particular, when prices have been high.

"Mr. MURDOCK. It has been in that area where the greatest amount of overpumping has been done.

"Mr. KERR. That is correct. That is in the southern portion of the San Joaquin Valley, particularly here in the vicinity of Delano, north of Bakersfield, and there has been a very severe overpumping on the western side of the San Joaquin Valley which we will not be able to supply from the present Central Valley project.

"It will require additions to the Central Valley project such as the American River and reservoirs on the Yuba and the Bear and other streams to bring water, additional water, into the San Joaquin River for San Joaquin Valley.

"Mr. MURDOCK. In the exchange of water will any Sacramento water be brought further south than the pool on the San Joaquin?

"Mr. KERR. Not under present construction. Under the final comprehensive plan water will be pumped from the Mendota pool and go on south still further. The extent of that will depend upon the cost and the demand and the crops that can be raised on that land."

Congressman Bentsen questioned Mr. Kerr as follows (p. 21):

"Mr. BENTSEN. What is the ratio of cost to the benefit on this project?

"Mr. KERR. I could not give that offhand. The comprehensive plan for the whole valley, assessed on the basis of benefits to whomsoever they might accrue you might say, are, as I recall it, about 2.7 to 1. Of course, as to the methods of computing benefits, everybody has their own method of computing.

"When you take into account the existing towns and the agriculture that has been established, the benefits from this imported water are extremely high. Without it they will be unable to continue farming. The water levels will go to such a point that they will not be able to economically pump to their lands, especially if crop prices return to something like they were before the war.

"Mr. BENTSEN. Do you mean they will be unable to continue farming or continue expansion?

"Mr. KERR. They would have to discontinue pumping on large areas. They actually would have to go out of commission without the Central Valley project and additions to it."

The use of power for the pumping plants of the proposed projects was discussed and Mr. Kerr on page 27 said:

"I would like to show now the relation of the Folsom Reservoir to the pumping plants at the intake of the Delta-Mendota canal near Tracy. The pumping plants which will raise water to the Delta Mendota canal from the delta will have a requirement for about 120,000 horsepower.

"The water will be lifted 200 feet. It will then flow south. At the present time transmission lines are being built from Shasta Dam to come down to the Tracy pumping plant. To insure a firm supply at all times it is proposed that a power plant be built at Folsom Reservoir to transmit power to the Tracy pumps. In other words there will be a grid so power could come in either way. You can imagine what a terrible situation would arise if the power should fail for any length of time on that enormous canal.

"Mr. MURDOCK. In that case the supply of power is next to the supply of water in importance. They must be linked together.

"Mr. KERR. In other words, if we do not have the power we do not have the water. The water is absolutely necessary.

"Mr. WHITE. You mean the power needed to pump the water?

"Mr. KERR. Power is necessary to pump the water. Otherwise we cannot make that exchange of water which makes possible the use of the San Joaquin River water down around Bakersfield."

Again in response to questioning by Congressman Murdock Mr. Kerr said (p. 28):

"It is extremely important that power be developed because it is necessary to assist agriculture to pay the cost of developing these water supplies. Just as an indication of how important power can be in a multiple-purpose project, the Central Valley of California which is now under construction, will cost over $400,000,000.

"The power facilities will pay for themselves and contribute $120,000,000 toward agriculture."

The coordination of the operation of the power facilities was discussed just as it has been discussed in the central Arizona project case. This time Mr. Engle was questioning Mr. Kerr such questions and answers are as follows (p. 30):

"Mr. ENGLE. It is a fact, is it not, that the integration of these projects, that is, Folsom, Shasta, Keswick, and Friant and the others which may come along later, gives you a higher efficiency of operation when integrated in their operation than you would get if you took each one separately and added up the separate benefits of separate operation."

"Mr. KERR. That is correct. Sometimes you can pull from another reservoir that has a surplus and make use of that water in an area where its reservoir is down so that added all together you will get a greater output.

"Mr. ENGLE. You get an additional percentage of efficiency by the fact of integration.

"Mr. KERR. Yes.

"Mr. ENGLE. That is true also of power, is it not, because the power plant at Folsom had a tendency to firm up the power at Shasta, Keswick, and Friant.

"Mr. KERR. It would be operated in that way. As a matter of fact, we could quite often, by operating the Folsom power plant a little more, save some water up in Shasta Reservoir and get the level higher so that more power could be productd maybe throughout the rest of that year."

Congressman Welch in commenting on the proposed legislation had this to say (p. 40):

"It should be understood that money appropriated for reclamation projects is not a Government subsidy. *It is an investment in the future of America, every dollar of which must and will be repaid over a period of time.*" [Emphasis supplied.]

* * * * * * *

"We cannot run our airplanes with coal and wood. We have to run them with oil pumped from the ground until there is some other source of supply. Therefore let us develop, and I am not particular whether it is developed by private enterprise or public enterprises. But every acre-foot of water should be conserved and from it produced every possible kilowatt of electric power."

HOUSE DOCUMENT 146

Examination of House Document 146, Eightieth Congress, referred to by Commissioner Straus in his testimony, discloses some interesting and pertinent data. This document is a report by the Acting Secretary of the Interior, transmitting a report presented to Secretary Krug by the Bureau of Reclamation on August 6, 1946, on the Central Valley Federal reclamation project in California, by letter dated February 1947. The purpose of the report is explained in a letter from Secretary Krug to the President under date of December 3, 1946. The report and all of the allocations, determinations, and findings set forth therein are approved by Secretary of the Interior Krug under date of December 3, 1946.

The report presents an allocation of the estimated capital costs of the Central Valley project and the probability of repayment of the reimbursable costs. The document points out that the project considered in this report is confined to the features which are at present authorized by law and is not to be confused with the completed basin-wide development which was to be covered by a report not then completed (see par. 9, p. 9). The complexity of the undertaking is pointed out in paragraph 10, page 9, as follows:

"10. The very complex nature of the project, caused by the interrelationship of the authorized features, and the effect of other existing and proposed irrigation development makes necessary a high degree of flexibility with regard to water and cost allocations, operations, and contracts. Because of the complexity of the water exchange plan which forms the basis of the project, there cannot be any direct, exclusive, and unaltering relationship between individual water users or individual contracting organizations on the one hand, and all of the integral project features involved in the supply of water on the other hand. The fact that one of the most important functions of the project is the provision of supplemental water for the recharge of badly depleted ground-water supplies illustrates again the necessity of flexibility in all allocations and contracts, as adjustment of the amounts of water required will be necessary from time to time to achieve complete utilization of water supplies. * * *"

The items, features and their costs as of January 31, 1946, as shown in section 14, page 12, of the report, shows a total of $384,314,000. The report describes in detail the character and functions of each of the features listed in said paragraph 14 and the costs thereof. The question of allocation of costs is discussed in detail beginning on page 15. Probability of repayment is discussed with the introduction and explanation in paragraph 21, page 17 of the report, as follows:

"Irrigation water from the Central Valley project will serve a wide variety of agricultural purposes. Some will go directly to lands not previously under irrigation, some will serve as supplemental surface water to lands now irrigated, but with inadequate or precarious supplies; some will be used mainly to replenish lowering ground water tables in areas largely or exclusively dependent on ground water for irrigation. The products from the land receiving water will cover the entire range of a remarkable diverse agriculture in the different

sections of the valley, from citrus deciduous fruits, and truck, hay, dairy and livestock. Benefits from the use of irrigation will therefore vary greatly from area to area, and from one use to another; the cost of delivering water to different areas will likewise vary greatly."

The report then proceeds by pointing out the fact that this development contemplates authorization for construction of additional projects (par. 28, p. 19) the projects in question there being enumerated, the statement is made:

"Early requirements for the additional water are evident and authorization to construct the necessary reservoirs is expected in the near future * * *."

Just as in the central Arizona project, the necessity for additional power development leads to the inevitable conclusion that in the not too distant future the construction of Glen Canyon Dam will be authorized.

The rate to be charged for power is discussed in paragraphs 29 and 30, pages 19 and 20. It is pointed out in paragraph 30 that the interim power rate scheduled for the project and approved by the Secretary of the Interior March 7, 1945, is estimated at 5.137 mills per kilowatt-hour .

The aid from the power revenues that will be applied to irrigation set forth on page 21 subsection (h) of paragraph 31 as follows:

"(h) All net revenues, including both capital and interest components received in accordance with the repayment procedures outlined above will be credited to the reclamation fund, pursuant to the act of May 9, 1938 (52 Stat. 291, 318), until the accumulation thereof equals the actual construction cost of the project. As a result, while as pointed out in subsection (d) and (g) of this paragraph, the rates for the sale of electric energy not required for project uses and the rates for the sale of water for municipal supply purposes, including domestic and industrial uses, will include an interest component, the revenues derived from the interest component so included in the rates will be applied against project costs allocated to *irrigation but beyond the ability of water users* to return * * *." [Italics supplied.]

The report contemplates the completion of water-supply features by 1950 and a full utilization thereof by 1955; installation of all authorized generating capacity by 1951; and a completion of the power facilities by 1955.

In paragraph 33, on page 22, it is pointed out that the amount available for repayment of construction costs will probably not be sufficient to repay the same by the year 2004, which would be the 50-year period in the 1939 act; and it will probably be necessary to continue these payments until the year 2009; or a total repayment period after full construction of 55 years. A summary of the amounts to be repaid through the year 2009 is as follows:

"The total amounts repaid, through the year 2009, for all functions, will be by commercial power $227,757,693, by irrigation $55,470,875, by municipal and industrial water $29,667,932, and by the Contra Costa distribution system $3,074,600, leaving a surplus in that year $2,068,694, from net revnues from commercial power and municipal and industrial water."

It will be remembered that this report deals only with reclamation faetures and not with any facilities constructed under the provisions of the Flood Control Act, therefore the final conclusion is that when all of these project features have been constructed, both by the Army engineers, and the Bureau of Reclamation, the irrigation users will only pay $55,470,875, which, of course, is an insignificant portion of the total amount that the Government will have advanced for this project; and as we have heretofore pointed out, this is only a portion of the over-all proposed project.

H. R. 163

On May 4 of this year, the Subcommittee on Irrigation and Reclamation of the Public Lands Committee of the House held hearings on H. R. 163, a bill to authorize Sacramento Valley Irrigation Canals, Central Valley project, Calif. Apparently the proposed project will furnish supplemental water for some land presently irrigated and bring under irrigation some additional land.
concerning the 160-acre land limitation and the extent ow presently owned land in the affected area. Vann testified that he now owned 1,200 acres (p. 16 of the transcript). The same testimony is almost parallel with that of central Arizona project case.

P. V. Harrington, a witness, testified that he was secretary of the Glen County unit of the Sacramento Valley Irrigation Committee; that the purpose of this committee was to find ways and means to make available water to irrigate 80,000 acres of land on the west side of the river. He testified that there was no power connected with the irrigation project (p. 30).

A witness, Thomas B. Kees, supervisor, district No. 5, Tehama County and chairman of the Tehama County unit, Sacramento Valley Irrigation Committee, Corning, Calif., testified that the water table in his county was gradually going down; and a large part of the irrigation in his county was by pumps; that in a few years it would not pay to pump water (p. 36 of the transcript). This witness emphasized that his county was the first county next to Shasta County and that in that county they thought that they were entitled to whatever water they needed for their purposes before it was taken into San Joaquin, or even into other portions of the Sacramento Valley. So apparently there was some doubt in this witness' mind as to the water rights in this proposed project being settled. It is significant to note that the California advocates of this legislation promptly passed over this question, stating that it had been settled at a state level, and that the State said, through its official water agencies, what the priorities are (pp. 42–43).

In response to a statement by Congressman Murdock (p. 43), to the effect that the Central Valley project would be about 600 miles long, and that the Federal Government was being asked to invest hundreds of millions of dollars, consideration should be given to all the factors involved, the witness agreed and went on to say:

"Mr. KEES. I believe that the Reclamation Service will probably see that that answer to your question is worked out, and that that is done on a basis of covering the entire Sacramento and San Joaquin Valley on an equitable basis because the cost is being borne by the people of the United States instead of by the people of the State of California. Probably it would be paid back over a number of years, but we certainly could not stand the cost at the present time" (p. 44 of transcript).

The plan of the proposed project was presented to the committee by James K. Carr, District Manager, Sacramento Valley District, Bureau of Reclamation. Mr. Carr explained the project in very general terms, disagreeing with the farmer witnesses as to the acreage to be served, stating as follows (p. 56 of transcript):

"I would like to point out that in our studies we disagree somewhat with two of the witnesses that you heard earlier, in that of this whole service area now we have about 46,000 acres under irrigation by pumping, or, to be exact 46,500, there are 293,000 acres in the service area * * *."

Mr. Carr went on to discuss the water requirements, stating that under full development they estimated there would be about 195,000 acres irrigated with an annual diversion of 700,000 acre-feet. Further he stated (p. 59 of transcript):

"Sufficient water is now available from Shasta Reservoir to meet the initial requirements of these canals. An allocation of 300,000 acre-feet of water for irrigation of Sacramento Valley lands was made in the official cost allocation report for the Central Valley project, which is House Document 146, Eightieth Congress, first session. This water could be used to supply part of the demand of these canals or possible increases in the water requirements of existing irrigation districts.

"The Folsom Reservoir on the American River which has been approved by this committee could make available by exchange an additional 300,000 acre-feet to other areas in the Central Valley. If Sacramento Valley areas require that water it can be added to the allocation from Shasta Reservoir to meet Sacramento Valley needs."

All during the hearings on the central Arizona project bill the cry has been raised that the report in many particulars is indefinite. Could there be anything more indefinite than the report on this project? The source of their water supply is indefinite in that they apparently will have to exchange water and hope thereby to use water from the Folsom Reservoir, the construction of which is predicated upon either flood-control allocations or a reauthorization under the Reclamation law pursuant to the bill now before Congress. Of course these things will be done. They are all a part of the general plan of the development of the basin, just as much as the Glen Canyon Dam is a part of the development of the Colorado River Basin.

Upon the question of repayment, Mr. Carr again was very indefinite. About all, apparently, they had figured out was the ability of the farmer to pay for irrigation water at a rate which he estimated at either $2 or $2.50 per acre-foot. The rest of the cost of the project was supposed to be paid by power, it was developed by questions from Mr. D'Ewart, in answer to which Mr. Carr stated that the proposal was to take part of the subsidy for irrigation by power in the over-all Central Valley project and use a part of that subsidy to help build these canals. Finally the witness testifying said (p. 64 of transcript):

"Mr. CARR. That is a final price that has not been set, and it would require that we make a complete analysis of the cost. Inasmuch as there has been no price set, I have assumed one at $2 and assumed one at $2.50, to give you an idea of repayment. I believe that the fair and equitable price would be closer to the $2 figure for this area.

"Mr. D'EWART. This bill requires integration of the whole Central Valley project?

"Mr. CARR. Yes.

"Mr. D'EWART. In other words if we pass this legislation these people have no choice?

"Mr. CARR. They would be benefited by going into the over-all project because the irrigators would receive the benefits of the power sales similar to the irrigators on the other canals. That would be in favor of them. * * *"

In response to a question by Congressman Murdock Mr. Carr stated that the way the Central Valley project is set up, power bears about 60 percent of the project cost over the entire repayment period (p. 72 of transcript):

POWER REVENUE USE IN AID TO IRRIGATION

It is apparent that in all of the Central Valley projects of California, irrigation is receiving tremendous aid from power, both by reason of the direct subsidy included in the power rate of commercial power and also by use of the interest component. At the conclusion of the hearings before the Senate committee on S. 75 there was introduced into the record by Senator McFarland, of Arizona, an interesting document on the subsidies included in various power rates to aid irrigation. That document is as follows:

DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Washington 25, D. C., May 11, 1949.

Hon. ERNEST W. MCFARLAND,
United States Senate.

MY DEAR SENATOR MCFARLAND: In reply to your telephone request with regard to the central Arizona project, a comparison with several other projects has been made of the effect of the subsidy to irrigation on the average power rate required in order to accomplish repayment of that part of the reimbursable investment which, it is estimated, must be repaid by power.

The following comparison includes several of our more recent and larger multipurpose projects in which power revenues contribute substantially to the aid of irrigation.

Project	Estimated average firm power rate to accomplish required repayment assigned to power (mills per kilowatt-hour)	Portion of average rate required for irrigation subsidy (mills per kilowatt-hour)	Ration of subsidy component to the average firm rate (percent)
Central Arizona	4.82	0.72	15
Central Valley	5.30	.68	13
Colorado-Big Thompson	5.10	.89	17
Columbia Basin	1.00	.36	36
Missouri Basin	5.50	2.47	45

It should be noted that the rates given in the first column are the average firm power rates estimated as those necessary to produce the revenues from the sale of firm power to accomplish the necessary payout. The individual power rates for different load factors, or interim rates later to be superseded by permanent rates, will differ somewhat from these average rates. The summation of all estimated revenues from the sale of firm power, divided by the number of kilowatt-hours, however, will result in the average rates above indicated.

I trust that this gives you the information desired. If I can be of further assistance in this matter, please advise.

ITEM 5

CONGRESS OF INDUSTRIAL ORGANIZATIONS,
Washington 6, D. C., March 18, 1949.

Re National CIO position on Bridge Canyon bills S. 75, H. R. 934, H. R. 935.

Congressman ANDREW L. SOMERS,
Chairman, House Public Lands Committee,
House Office Building, Washington, D. C.

DEAR CONGRESSMAN SOMERS: The CIO is interested in the project whereby water will be carried from the Colorado River into the Gila River-Salt River Basin in the Phoenix area in Arizona and whereby a dam and hydroelectric-power facilities would be installed on the Colorado River above Boulder Dam for the purpose of pumping the water in question. Our position is as follows:

We feel that pending legislation should be amended to include a clause fully protecting the Hualapai Indians. This is not to be accomplished by any vague agreement with the Interior Department or the Indian Bureau whereby the Hualapai might be compensated in some indefinite manner at some uncertain time. We cannot support this legislation unless it is amended before being reported out from committee to include adequate guaranties. Enclosed is a draft of amendment which we feel would accomplish this purpose. If the bills are amended to include these provisions, we shall be very glad to lend them our full support and we would urge that they be reported out and passed promptly by the Congress.

It appears to us that the needs of the State of California are problematic and prospective only, whereas those of Arizona are immediate and very real. We assume that Mexico will continue to be guaranteed its full supply of water from the Colorado pursuant to treaty. It is our understanding further that the customary 160-acre limitation on irrigated land will remain in effect in the area served, pursuant to the reclamation laws. Finally, it is our understanding that there will be no substantial affect on Grand Canyon Park or other significant recreational features. Our endorsement is given with the reservation that the facts on all these points are as stated.

We do not think that it would be desirable to attempt a settlement of the differences between California and Arizona by judicial methods, because we feel that the rights and issues involved, with the exception of the Indian rights referred to, and subject to the foregoing reservations, have been sufficiently clarified.

The CIO stands consistently for the rights and interests of those whose just claims are frequently ignored and neglected by the wealthy and the powerful. In line with this position you can expect us to lend continued support to our American Indians in situations of this kind.

Sincerely yours,

ANTHONY W. SMITH,
Assistant Director, Industrial Union Councils and CIO Representative on Conservation.

PROPOSED AMENDMENT TO BRIDGE CANYON BILL (H. R. 934, H. R. 935, S. 75)

Add to section 2: "*And provided, further*, That the Secretary is hereby authorized to purchase or lease from the Hualapai Tribe of Arizona lands, rights-of-way, and other property belonging to the said tribe which are to be flooded by the Bridge Canyon Dam, or which may be needed for other purposes authorized by this Act, and the Hualapai Tribe of Arizona is hereby authorized, notwithstanding any provisions of existing law to the contrary and notwithstanding any limitations of existing law contained in the constitution and corporate charter of the said tribe, to sell or lease, for any period of time, any such lands, rights-of-way, and other property to the United States. The Secretary is directed to make every reasonable effort to negotiate such a contract of sale or lease upon reasonable terms, and if he is unable to do so he shall report the facts to the Congress. Pending such report and action thereon, this Act shall not be deemed to authorize the institution of any condemnation proceedings against the lands or other property of the Hualapai Tribe."

ITEM 6

UNITED STATES SENATE,
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
July 13, 1949.

Hon. TOM C. CLARK,
The Attorney General, Department of Justice,
Washington 25, D. C.

DEAR MR. ATTORNEY GENERAL: I am in receipt of the Department's letter of June 30, 1949, transmitted by Mr. Ford, the Assistant to the Attorney General, setting forth objections to the then proposed amendment to S. 75, which amendment was submitted by Senator Millikin and myself under date of June 20.

It is thought that the following language encompasses the desirable objectives and meets the criticisms expressed in the Department's letter:

"SEC. 12. If any State or States within six months after the effective date of this Act shall begin a suit or suits in the Supreme Court of the United States to determine the right to the use of water for diversion from the main stream of the Colorado River through aqueducts or tunnels to be constructed pursuant to this Act for beneficial consumptive use in Arizona, and to adjudicate claims of right asserted by such State or States or by any other State or States, under the Colorado River Compact, the Boulder Canyon Project Act (45 Stat. 1057), the California Self-Limitation Act (Cal. Stat. 1929, ch. 16), and the Boulder Canyon Project Adjustment Act (54 Stat. 774), consent is hereby given to the joinder of the United States of America as a party in such action or actions. Any State of the Colorado River Basin may intervene or be impleaded in such suit or suits. Any such claims of right affected by the project herein authorized and asserted by any defendant State, impleaded State or intervening State under said compact and statutes, or by the United States, may be adjudicated in such action. In any such suit or suits process directed against the United States shall be served upon the Attorney General of the United States."

It is therefore requested that the foregoing language be considered by the Department and that, if agreeable, an expression of your approval thereof be given at your early convenience.

Thanking you in advance for your courtesy and cooperation, and with every good wish, I am

Sincerely yours,

JOSEPH C. O'MAHONEY.

ITEM 7

DEPARTMENT OF JUSTICE,
OFFICE OF THE ASSISTANT TO THE ATTORNEY GENERAL,
Washington, July 21, 1949.

Hon. JOSEPH C. O'MAHONEY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

MY DEAR SENATOR: This is in response to your letter to the Attorney General dated July 13, 1949, in which you request the views of the Department of Justice on a proposed substitute for section 12 of the amendment to S. 75 submitted by Senator Millikin and you and designated Committee Print No. 1 of June 20, 1949.

The language of the proposal, which is intended to encompass the objectives and to meet the criticisms expressed in the letter of this department dated June 30, 1949, has been considered as requested by you, and you are advised that the Department of Justice is of the view it is in accord with the suggestions made in the letter of June 30.

Yours sincerely,

PEYTON FORD,
The Assistant to the Attorney General.

ITEM 8

AUGUST 1949.

COMMITTEE MEMBERS, IRRIGATION AND RECLAMATION SUBCOMMITTEE,
House Public Lands Committee, 1324 House Office Building,
Washington, D. C.

MY DEAR COLLEAGUES: In view of the fact that the voluminous hearings on H. R. 934 and H. R. 935 have been so long drawn out and we now approach the end

of this session, I feel constrained as author of H. R. 934 and as chairman of the subcommittee holding these hearings to furnish this letter to the members of the committee in order to refresh your minds on these complicated matters. I want this letter to consist of two parts, the first part being a brief analysis of the bill and an impartial summary of the arguments for and against it, as found scattered through the 1,400 pages of hearings now going to press. The second part of the letter, unlike the first, is not a disinterested inspection of the evidence and testimony, but instead consists of an all too brief statement of my own views concerning arguments pro and con. This second part is intended to present to the committee some of the arguments and facts in favor of the bill which I did not have opportunity, as presiding officer, to place in the record except in a very sketchy and condensed way during the hearings.

Of course, it is hardly proper for a chairman to enter into arguments with witnesses extensively during the hearings even on his own bill. But parliamentary procedure certainly does not require a chairman to be silent if the merits of his own measure are belittled by highly paid lobbyists, or to sit silent when fallacious arguments are presented by the opposition. Of course, I shall have much to say, as author of the bill, when we go into executive session where it can be considered more fully. However, executive sessions are off the record. What I have to say in this letter I want on the record and for other colleagues as well as for members of the committee. I have a solemn duty to perform to my State and Nation in presenting this to the Congress.

THE ISSUES INVOLVED IN H. R. 934

This bill to authorize the central Arizona project has been reintroduced in both Houses of the Eighty-first Congress. In the Senate it is S. 75 sponsored by both Arizona Senators and in the House, identical bills, H. R. 934 and H. R. 935, were introduced by both Congressmen from Arizona. These original bills are all identical as considered before amendment. The bill authorizes the building of a high dam on the Colorado River at the head of Lake Mead at the Bridge Canyon site. Certain other dams and structures on the tributaries of the Colorado River are contemplated, but the second main structure is an aqueduct to carry water from the Colorado River into the Phoenix area and beyond into the central Gila Valley and into the Santa Cruz flood plain. The aqueduct will take water out of the lake above Parker Dam and raise it to an elevation of 985 feet in a series of four pump lifts which will then enable the water to flow by gravity into the Phoenix area. The power needed to lift the water to required height is to be generated at the Bridge Canyon power plant, about one-third of the total power output being required for the pumping operation. The bill calls for a diversion of 1,200,000 acre-feet of water annually out of the main stream of the Colorado River. The engineering studies have been carefully done by the Bureau of Reclamation and the estimated cost will be $738,000,000. This authorization, although large, is not out of line with other authorizations for reclamation voted freely by Congress in recent years. This is especially true because this authorization provides a long-range comprehensive plan to stabilize and to guarantee the economy of the entire State of Arizona and also beneficially affect the neighboring States, especially New Mexico and Utah. The water and power are both desperately needed in this large area. Without some such legislation a large part of Arizona's taxpaying and income-producing wealth will be destroyed and probably 150,000 of her present population must move out.

What opposition appears to this bill? First, there is the general opposition to the authorization of so large and expensive an irrigation project at this time constituting a heavy financial burden on the United States Treasury. Second, there is opposition from the State of Nevada on the ostensible ground that the completion of this project would adversely affect Nevada's water and power rights on the Colorado River. However, most of the objection is offered by the Colorado River Board of California. These men speak in the name of the State of California but specifically in the interest of water agencies in southern California who have contracts with the Secretary of Interior for water out of storage in Lake Mead. These California agencies contend that the 1,200,000 acre-feet called for in this measure cannot be furnished Arizona without depriving California projects of their water. They further claim that they have a legal right to a certain quantity of water asked for in the bill and should Arizona get it, they say it would infringe upon their water rights.

It has been repeated in the testimony of the California opponents that the long controversy between California and Arizona, not having been settled by a com-

pact or by arbitration, should be settled by litigation and a final decision from the Supreme Court in the controversy before any authorization bill is passed by Congress. The opposition has indicated in the hearings that some of the proposed dams ought to be built and to those they would raise no objection. Also the opposition has freely admitted the need of Arizona for this great project but declares that California's need is greater and that Arizona's title to the water called for is not clear.

AS THE AUTHOR SEES IT

To my mind many of the arguments of the opponents are either very weak or fallacious. The contention that there must be a lawsuit and a judicial decision, while desirable and perhaps ultimately necessary to determine details in this dispute, is not possible now under existing conditions without some such authorization bill as H. R. 934. Under the time-established procedure of the Supreme Court it is not possible now without an authorization to get a declaratory judgment from the Supreme Court as to how much water Arizona may have or California may take out of the main stream of the Colorado River. Years ago Arizona asked for such a declaratory judgment as to her quota of water and the case was dismissed without such a judgment being rendered. Neither is it possible for either Arizona or California to get their water controversy effectively into the Supreme Court unless one State can sue the other State alleging injury or threat of injury. At the present time and under present conditions neither State can allege injury or threat of injury—in the absence of an authorization for such a project—and therefore the court will not take jurisdiction under existing law and circumstances.

Regardless of the motive which prompts the opponents to demand a court suit I am convinced that for us to take the road of litigation would lead to a very long delay and such delay would work in California's favor and to Arizona's destruction. California has guaranteed to her and is assured of a gross of 4,400,000 acre-feet of water out of Lake Mead. Arizona officially recognizes that legal fact, and furthermore we know that 4,400,000 acre-feet, which is unquestionably California's water, with a certain small plus quantity, is amply sufficient to meet California's needs and that supply is not jeopardized in any way by Arizona's call for 1,200,000 acre-feet. Both quantities, the one for Arizona and the other for California, are physically present and available in the river, and this is true under the terms of the plain, clear, unambiguous language of the fundamental law of the river now existing.

The demand of the opposition, that before there is an authorization there must first be a court suit in our highest court, would be not only unnecessary but would lead to a miscarriage of justice by giving to California water which belongs to Arizona and other basin States. This is evidently the view of the four different committees of the Eightieth and Eighty-first Congresses which considered suit resolutions and rejected them. This would be true because it would stymie legislation necessary for those other States to obtain their water. This miscarriage of justice might be mitigated and a little more tolerable if it meant that additional water supply would go to the crowded west coast cities of southern California. However, such would not be the case, for the Los Angeles aqueduct is amply assured all the water which it can carry to Los Angeles and that supply is ample for any and all municipal requirements for an indefinite period. No responsible official has even suggested doubling the Los Angeles aqueduct, much less trebling or quadrupling it. Remember, California is assured four times the water the Los Angeles aqueduct can carry.

Possession is nine points in the law, and in the absence of any legislative disposal of the waters of the lower basin flowing between Arizona and California, the All-American Canal from the Imperial Diversion Dam to the Mexican border is large enough to divert into California and carry all the water which passes Parker Dam and could do so if Congress does not decree otherwise. While the 11,000,000 acre-feet which the first section of the All-American Canal can carry to the Mexican border is nearly three times the amount which California is legally entitled to divert through it for use in California yet that larger quantity of water would not be carried to cities or farms in California. It would be carried to a foreign country and would profit a few Americans at the expense of the American people.

One of the most reprehensible features of the propaganda emanating from southern California against H. R. 934 is the implication that the city water supply of Los Angeles is jeopardized by Arizona's move and that its future is

threatened. That charge which has been so frequently made by irresponsible persons has no foundation in legal or physical fact. Those individuals and organizations in southern California most anxious to defeat this Arizona project are not doing so in this interest of assuring an ample water supply for the west coast cities and they are not even attempting to assure an adequate supply for California farms, but instead are striving to keep as large a volume of water flowing in the river between Parker Dam and Imperial Dam—which water they improperly classified as surplus water—in order that they may use that water to produce power and then to carry it to lands in Mexico at a profit. I am convinced that this explains most of the opposition to my bill.

These spokesmen for the half-dozen water agencies in southern California talk about their contracts with the United States Government, totally ignoring the fact that Arizona has the same type of contract with the United States Government for a gross of 2,800,000 acre-feet of water but which these opponents do not recognize as valid. All of these contracts are legally on a par, and they are phrased in the same language. They are not firm contracts, but they specify that they are subject to "the availability of the water." Arizona's contract is just as good as any of the California contracts, and no better, except that Arizona's contract is in conformity with the Boulder Canyon Project Act and the Santa Fe compact, whereas the California contracts total an amount for California greater than is specified in the Boulder Canyon Project Act and the Santa Fe Compact Act. The California contracts are senior in time, but not senior in right, to Arizona's contract.

The half-dozen contracting agencies in southern California were able to wheedle out of a kindly disposed Secretary of Interior a far more favorable contract for themselves than any Secretary of Interior ever should have signed, and furthermore the witnesses have cried out bitterly against the present administration—which is the only protection that Arizona has—and have indicated quite plainly what they would expect from a more favorable and friendly administration sometime in the future. Well, what would they expect from a future friendly administration?

Obviously, if Congress does not authorize Arizona to take from the main stream of the Colorado her gross amount of 2,800,000 acre-feet annually, her share will go down the river past Parker Dam, for let it be remembered that Arizona can get no water out of the Colorado River except by an act of the Federal Government authorized by Congress. Throughout a long future, and possible forever, under existing law, and without some such authorization as H. R. 934, there would be about 7,000,000 acre-feet of water annually flowing down the river past Parker Dam, and that would be after Los Angeles has taken all that her great aqueduct can possibly carry for the west coast cities. Does anybody want 7,000,000 or 8,000,000 acre-feet of water to flow forever in the river past Parker Dam? Yes. It is my firm conviction that the very men who have appeared six different times before six different committees of Congress during the last 3 years in opposition to Arizona's water bills really do want 7 or 8 or more million acre-feet of water to flow forever in the Colorado River between Parker Dam and Imperial Dam, and that, in my opinion, explains and motivates the chief opposition to the central Arizona water bill. If they can kill this bill, they will have obtained that objective. One question for Congress to decide now is, "Would that be in the public interest?" I am convinced that is not what Congress intended in the Boulder Canyon Project Act of 1928 and it should not be our intent today.

Having taken most of the space in this letter to answer claims and arguments of the opposition, and to point out a cruel alternative to the enactment of such an authorization bill as H. R. 934, I will close with this all-too-brief conclusion: Arizona's remarkable agricultural development during the past 4 decades has conclusively proven her rich soil and ideal year-around climate to constitute this area one of the most favorable garden spots of the West, producing high value, specialty crops, not of a general competing variety. The Nation's investment in this first great reclamation project under the law of 1902, initiated by the Roosevelt Dam in the days of Theodore Roosevelt, has amply demonstrated the wealth-creating power of such an investment. This early Federal reclamation investment in the valley surrounding Phoenix not only has never defaulted, but instead has proven to be an astonishingly profitable investment, which is merely indicative of what a larger-scale investment as proposed by H. R. 934 would mean for the Nation through a much longer future. Contrary to the calamity

howlers and the not disinterested critics, the enlarged proposal under H. R. 934 is economically feasible and will assuredly repay, according to the judgment of the best engineers of the Reclamation Service. Larger authorizations have been made for much less prospective utility for the Nation than that called for in H. R. 934. However, today is the critical time for such an authorization to be made. A long delay in its enactment would be fatal to Arizona and an incalculable loss to the Nation.

Sincerely yours,

JOHN R. MURDOCK.

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