

*Appendix 204*

**THE COLORADO RIVER COMPACT:  
REPORT OF HERBERT HOOVER, REPRESENTA-  
TIVE OF THE UNITED STATES**

(H. Doc. 605, 67th Cong., 4th sess.)

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**COLORADO RIVER COMPACT**

LETTER FROM THE CHAIRMAN OF THE COLORADO RIVER COMMISSION,  
TRANSMITTING REPORT OF THE PROCEEDINGS OF THE COLORADO  
RIVER COMMISSION AND THE COMPACT OR AGREEMENT ENTERED  
INTO BETWEEN THE STATES OF ARIZONA, CALIFORNIA, COLORADO,  
NEVADA, NEW MEXICO, UTAH, AND WYOMING RESPECTING THE  
APPORTIONMENT OF THE WATERS OF THE COLORADO RIVER

DEPARTMENT OF COMMERCE,  
OFFICE OF THE SECRETARY,  
*Washington, March 2, 1923.*

The SPEAKER OF THE HOUSE OF REPRESENTATIVES,  
*Washington, D. C.*

SIR: The act of Congress of August 19, 1921 (42 Stat. L. 171), per-  
mitting a compact to be entered into between the States of Arizona,  
California, Colorado, Nevada, New Mexico, Utah, and Wyoming,  
respecting the apportionment of the waters of the Colorado River,  
authorized the President of the United States to appoint a repre-  
sentative who should participate in the negotiations as a representa-  
tive of and for the protection of the interests of the United States,  
and who should report to Congress the proceedings of the commission  
and the compact or agreement entered into. The President appointed  
me as the Federal representative under this act.

As directed by the act, I have the honor to report the compact and  
proceedings as follows:

The commission met for the first time January 26, 1922, in the city  
of Washington.

The following commissioners from all the interested States were  
present: W. S. Norviel, commissioner for Arizona; W. F. McClure,

commissioner for California; Delph E. Carpenter, commissioner for Colorado; J. G. Scrugham, commissioner for Nevada; Stephen B. Davis, Jr., commissioner for New Mexico; R. E. Caldwell, commissioner for Utah; Frank C. Emerson, commissioner for Wyoming.

An organization was effected by the election of myself as chairman and Clarence C. Stetson as executive secretary.

Subsequent meetings and public hearings were held in March and April 1922 in Phoenix, Ariz.; El Centro and Los Angeles, Calif.; Salt Lake City, Utah; Grand Junction and Denver, Colo.; and Cheyenne, Wyo. A trip was also made to the proposed reservoir site at Boulder Canyon. A large amount of testimony was taken and numerous statements received from officials and parties who were interested in various ways in the development of the river.

The final meeting of the commission was held in Santa Fe, N. Mex., beginning November 9, 1922, and continuing until November 24. On the latter date an agreement was reached and the compact signed by all of the commissioners and approved by me as the representative of the United States.

The original of the compact is filed with the Secretary of State of the United States. A true copy is submitted herewith.

The Legislatures of the States of California, Nevada, New Mexico, Utah, and Wyoming have to date ratified and approved the compact. Measures for its approval are now pending before the Legislatures of Arizona and Colorado, and a bill is pending before the Congress (H. R. 13480) looking to congressional approval.

Frequently in the past just such very serious conflicts have arisen on interstate streams resulting in prolonged and expensive litigation and causing long delays in development. This compact, when approved, will be a settlement of impending interstate controversies and an adjudication of rights to the use of the water in advance of construction, thus eliminating litigation and laying the groundwork for the orderly development of a vast area of desert land, estimated at some 4,000,000 acres; the utilization of river flow now unused in the generation of hydroelectric energy, the possibilities of which are estimated at 6,000,000 horsepower; the construction of dams for the control of floods which annually threaten communities in which over 75,000 American citizens now reside, with property worth more than \$100,000,000; the establishment of new homes and new communities, and the creation of a vast amount of new wealth.

The primary purpose of the compact is to make an equitable division and apportionment of the waters of the river. For this purpose the river system is divided into an upper and lower basin, following:

- (1) A natural division—the two basins varying in topography, and being separated by a thousand miles of deep canyon; and

(2) Economic lines—the climate, crops, and use of water being different. The lower river has immediate need of works for the control of floods, the development of power, and expansion of irrigation. It has concentrated blocks of irrigable land, while the upper basin, which is the source of water supply, will, because of its colder climate and more scattered acreage, probably be slower of development.

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 river in perpetuity, and to the lower basin an additional million feet of annual flow, giving it a total of eight and one-half million acre-feet annually in perpetuity. There is thus allocated about 80 percent of the total natural flow of the river, leaving some 4,000,000 acre-feet unapportioned. While no other waters are definitely allotted by the compact, there is nothing which prevents the States of either basin from using more water than the amount apportioned, any rights to such use being subject to the further apportionment at a later date. This feature is covered by a provision for the creation of a new commission at the end of 40 years, which will have power to make a further apportionment of the water not now dealt with. The compact provides machinery for the settlement, without litigation, of disputes which may arise between the States; it gives agriculture preference over power in the use of the water; it makes navigation subservient to other uses; and it leaves open for international settlement any claims to the use of water in the Republic of Mexico.

I do not consider it either necessary or appropriate to discuss in any detail the provisions of the compact which affect only the States that are parties to it. Conclusions as to those matters must rest with the States themselves. As the representative of the United States, I am primarily concerned with the protection of its interests, which may be summarized under the following heads:

- (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.

#### THE EFFECT OF THE COMPACT UPON THE INTERESTS OF THE UNITED STATES IN THE COLORADO RIVER AS A NAVIGABLE STREAM

The only clause of the compact specifically affecting the navigability of the Colorado River is paragraph (a) of Article IV, as follows:

- (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 develop-

ment 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.

Many years ago the navigation of the Colorado River was possible and was actually carried on from the mouth of the river to points in what is now the State of Nevada. As late as 1904 there were still some boats engaged in transportation upon the lower reaches of the river. In 1901 the first large diversion from the lower stream system, that to the Imperial Valley, began, and this, with other developments in the basin, necessarily depleted the supply for navigation below that point.

In 1904 Congress passed an act (33 Stat. 224, sec. 25) authorizing the Secretary of the Interior to divert the waters of the Colorado River for the irrigation of lands now constituting the Yuma irrigation project. Under this authority there was constructed shortly thereafter what is known as the Laguna Dam, a large dam across the channel of the river a short distance above Yuma. This dam now effectually prevents any navigation of the river between points above and below.

Prior to the construction of this dam the operation of boats on the river had become unprofitable, there having been no navigation for several years. The boats then in service were old. They were purchased by the Government, used in connection with the construction of the dam, and then put out of service. While there is an occasional period of high water when navigation may be physically possible, this would continue for only a few months in ordinary years. There is no commercial navigation upon the river at present.

Gen. Lansing H. Beach, Chief of Engineers of the United States, War Department, in testifying before the commission, said:

While the lower Colorado did have some navigation on it in the seventies, there is nothing on it today to justify navigation being regarded as of foremost importance.

Later in his testimony he stated that he considered the river navigable as far as the mouth of the Gila.

These facts are the basis for the declaration in the compact that "the Colorado River has ceased to be navigable for commerce."

If navigation were to be considered as of paramount importance on this river, it would necessarily mean very serious interference with the agricultural and industrial development of the country tributary to it. Further dams across the stream must be constructed. Further water must be diverted, and a large quantity will be permanently lost to the volume of the river through evaporation, consumption, and diversion from the stream system. To render the river commercially navigable in fact requires a supply of water considerably greater in volume and more regular in flow than that now

available. The basis for the recital in the compact that "the reservation of its waters for navigation would seriously limit the development of its basin" is therefore apparent.

It is estimated by the Reclamation Service that some 4,000,000 acres of land at present arid, barren, unoccupied, and practically worthless can be irrigated from the waters of this river and made fertile and productive. Such development means population, prosperous homes, and thriving cities. There are power possibilities on the river involving the creation of millions of horsepower of hydroelectric energy with which to put into operation and maintain vast industries furnishing profitable employment. The possibilities of agricultural and industrial development are so great and their ramifications so far-reaching as to dwarf any values in the use of this river for navigation. Navigation and diversion for agriculture may not proceed economically together, for one necessarily impairs the other. These are the considerations which induced the declaration that the use of water "for the purposes of navigation shall be subservient to the uses of such waters for domestic, agricultural, and power purposes."

It has been suggested that the approval by the Congress of the paragraph as to navigation might be considered violative of the international obligations of this country toward the Republic of Mexico. Upon this subject I call your attention to some expressions of official opinion.

Hon. Albert B. Fall, Secretary of the Interior, in a letter to Hon. Addison T. Smith, chairman of the Committee on Irrigation of Arid Lands of the House of Representatives, discussed these international features and reached the following conclusion regarding this provision:

The said paragraph (a), Article IV, of the compact would, in my opinion, be regarded as a violation of the rights of Mexico and, to say the least, might be made the basis of a claim against the United States. I am clearly of the opinion that said paragraph should not be approved by the Congress of the United States.

Under date of December 30, 1922, Hon. Charles E. Hughes, Secretary of State, wrote Mr. Smith, in part, as follows:

I have the honor to acknowledge the receipt of your letter of December 21, 1922, transmitting a copy of the bill (H. R. 13480) granting the consent and approval of Congress to the Colorado River compact, and requesting me to furnish your committee such information and suggestions as may be proper regarding the proposed legislation.

The compact does not pertain to matters coming within the jurisdiction of this department, except insofar as the control and use of the waters of the Colorado River system may possibly affect the international relations of the Government. The fact that the Colorado River has international aspects and the possibility that questions of an international character concerning the use of the waters may arise, necessitating action by the Federal Government with respect to the distribution

of the waters, appears to be recognized and adequately provided for by Article III (c) of the compact.

On December 12, 1895, Hon. Judson Harmon, Attorney General of the United States, in a letter to the Secretary of State (21 Op. Atty. Gen. 274), discussed fully the obligations of the United States toward Mexico in relation to the Rio Grande, both as to navigation and irrigation, international rights on that river being governed by the same treaties as on the Colorado. He reached the conclusion that Mexico had no legal basis, either under the treaties or under general principles of international law, for complaint against the construction of a dam on the Rio Grande within the United States, irrespective of its effect upon the navigability of the river below the boundary line or upon the irrigation of lands in that country.

Should Congress take the view opposed to the policy of preferring reclamation to navigation and desire to leave navigation as a superior use, the purpose can be accomplished by a reservation or exception in the approving legislation under the last sentence of the paragraph quoted without affecting the balance of the compact.

#### RELATIONS WITH THE REPUBLIC OF MEXICO, EXCLUSIVE OF NAVIGATION

Some 200,000 acres of land in the Republic of Mexico are now irrigated by the waters of the Colorado River, and it is understood that there are additional lands in Mexico that might be brought under irrigation.

The compact does not undertake to deal with these lands nor with any rights which may exist to the diversion of water for their benefit. It was realized that this subject was beyond the powers of the commission as defined in the various legislative acts and the act of Congress, which authorized the apportionment of waters only among the several States interested, and that the question could be properly determined only by agreement between the United States and the Republic of Mexico, through the treaty-making agencies of the Federal Government. At the same time the commission realized that it was not beyond the bounds of possibility that, as a matter of international comity, a treaty or agreement might at some time be entered into by the two nations which would establish some valid rights to the irrigation of these Mexican lands, with a resulting obligation upon the United States to allow some quantity of water to pass the international boundary for their use, under such terms and conditions as might be agreed to. To provide for this possible future contingency, the terms of which cannot now be foreseen, the compact provides (Art. III, c) for the equal distribution of this burden between the two basins in the United States. By reference to the letter of the Secretary of State, already quoted, it will be seen that he considers this provision adequate to cover the situation.

THE INTEREST OF THE UNITED STATES AS THE PROPRIETOR OF PUBLIC  
LANDS AND AS THE OWNER OF IRRIGATION WORKS

A large part of the land through which the Colorado River flows, or which is adjacent or tributary to it, is public domain of which the United States is the proprietor. In the development of these lands the Government, through the Reclamation Service, has constructed several irrigation systems in connection with which large quantities of water are being taken from the river. The Salt River and the Yuma projects are examples.

Rights to the continued use and diversion of water for these projects are now vested either in the United States or in the individuals who are actually using it. In this respect the United States is in the same position as are thousands of appropriators whose diversions and use antedate the compact. An agreement entered into subsequent to the acquisition of their interests could not adversely affect them. The compact itself disclaims any intent to do so by Article VIII, which declares that—

Present perfected rights to the beneficial use of waters of the Colorado River system are unimpaired by this compact.

OBLIGATIONS TO INDIAN TRIBES

Because of its duties and obligations toward Indians, the United States has a special interest in certain lands within the areas affected by probable developments on the Colorado River. A considerable area of the lands is embraced within Indian reservations. Some progress in the irrigation of these lands has already been made.

The interest of the United States in this regard is recognized and protected by Article VII of the compact, which provides that—

Nothing in this compact shall be construed as affecting the obligations of the United States of America to Indian tribes.

INTERESTS OF THE UNITED STATES UNDER THE FEDERAL WATER  
POWER ACT OF JUNE 10, 1920

Under the Federal water power act, the United States provided a system for the granting of licenses for the construction of works for the development of power upon the public lands.

This act is applicable to the Colorado River and lands lying along it. There are numerous large power sites, and various applications for licenses for the use of its waters are now pending before the Federal Power Commission. The compact does not interfere in any way with the powers of the commission. The settlement of conflicting claims by the States, under the compact plan, should result in a more rapid development of the river possibilities as to power, as well as other purposes.

The Federal Power Commission, through its chairman, the Secretary of War, on December 29, 1922, addressed a letter to the chairman of the Committee on Irrigation of Arid Lands, expressing approval of the compact, as follows:

FEDERAL POWER COMMISSION,  
Washington, December 29, 1922.

[Secretary of War, chairman; Secretary of the Interior; Secretary of Agriculture; O. C. Merrill, executive secretary]

Hon. ADDISON T. SMITH,  
Chairman, Committee on Irrigation of Arid Lands,  
House of Representatives.

DEAR MR. SMITH: In reply to your request for information and suggestions on H. R. 13480, granting the consent and approval of Congress to the Colorado River compact, I have to inform you that practically all development on the Colorado River is suspended pending the acceptance by the interested States and the United States of some compact to apportion the waters equitably among the States.

There are several developments now under consideration which have merit and a fair chance of success, and in the interest of that region they should be permitted to proceed.

The compact quoted in H. R. 13480 is the result of many conferences and discussions; it has been agreed to by the representatives of all the interested States and offers the best, if not the only, chance of terminating an obstructive controversy. It is believed, therefore, that H. R. 13480 should receive favorable action.

Very truly yours,

JOHN W. WEEKS,  
Secretary of War, Chairman.

In my opinion, the compact does not adversely affect any interest of the United States. If it is approved by the two States which have not yet acted, the consent of all the signatory States will have been given.

If the approval of all the States is obtained, I recommend that the compact be also approved by the Congress.

Faithfully yours,

HERBERT HOOVER,  
Federal Representative on and  
Chairman of the Colorado River Commission.

(A certified copy of the compact was printed as part of H. Doc. 605. It is omitted here to avoid duplication.)

*Appendix 205*

**THE COLORADO RIVER COMPACT:  
ANALYSIS BY HON. HERBERT HOOVER**

(Extract from the Congressional Record, January 30, 1923, pp. 2710-2713; part of extension of remarks of Hon. Carl Hayden, Representative from Arizona)

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DEPARTMENT OF COMMERCE,  
OFFICE OF THE SECRETARY,  
*Washington, January 27, 1923.*

HON. CARL HAYDEN,  
*House of Representatives, Washington, D. C.*

MY DEAR MR. HAYDEN: Referring to your letter of January 9 addressed to the Secretary, inclosing questionnaire on the Colorado River compact, I am requested by Mr. Hoover to forward to you his answers to the questions which you propounded.

Very truly yours,

CLARENCE C. STETSON,  
*Executive Secretary, Colorado River Commission.*

*Question 1. What was the reason for dividing the drainage area of the Colorado River and its tributaries into two basins, as provided in Article II of the Colorado River compact?*

The reasons were:

(a) The commission, upon analysis, found that the causes of present friction and of major future disputes lay between the lower basin States and the upper basin States, and that very little likelihood of friction lay between the States within each basin; that the delays to development at the present time are wholly interbasinal disputes; and that major development is not likely to be impeded by disputes between the States within each basin. And in any event, the compact provides machinery for such settlements.

(b) The drainage area falls into two basins naturally, from a geographical, hydrographical, and an economic point of view. They are separated by over 500 miles of barren canyon which serves as the neck of the funnel, into which the drainage area comprised in the upper basin pours its waters, and these waters again spread over the lands of the lower basin.

(c) The climate of the two basins is different: that of the upper basin being, generally speaking, temperate, while that of the lower basin ranges from semitropical to tropical. The growing seasons, the crops, and the quantity of water consumed per acre are therefore different.

(d) The economic conditions in the two basins are entirely different. The upper basin will be slower of development than the lower basin. The upper basin will secure its waters more by diversion than by storage, whereas the development of the lower basin is practically altogether a storage problem.

(e) The major friction at the present moment is over the water rights which might be established by the erection of adequate storage in the lower basin, as prejudicing the situation in the upper basin, and regardless of legal rights in either case. The States are now divided into two groups in opposition to each other legislatively, with little hope of the cohesion that is necessary before Federal aid can ever be secured.

The use of the group method of division was therefore adopted both from necessity, as being the only practical one, and from advisability, being dictated by the conditions existing in the entire basin.

*Question 2. Was the apportionment in Article III of the compact between the upper and lower basins arbitrary or was it based on the actual requirements of each basin?*

The apportionment was not arbitrary. It was based on a careful consideration of respective needs of the two basins. The data available was the estimates provided by the Reclamation Service, which follow, showing the total new and old acreage in the two basins, including not only all existing projects but all projects considered economically feasible and also those of doubtful feasibility and intended to cover every prospective development during the next 75 years. The commissioners and engineering staffs of the different States varied somewhat from the basic estimates of the Reclamation Service, and some compromise from these figures was agreed to by the commission to compensate in different directions. This was particularly the case with regard to the estimated consumption of water per acre. It will be noted that the total acreage in the lower basin, present and prospective, is given as 2,127,000, whereas that in the upper basin is given as 4,000,000. Therefore the amount of water depends partly on the consumption assumed per acre, and after general consideration an addition was made in each case to cover any possible mischances of calculation, the general addition being about 30 percent more than the probable use.

*Table of Colorado River acreage*

|                 | Acreage<br>irrigated<br>1920 | New<br>acreage | Total<br>acreage |
|-----------------|------------------------------|----------------|------------------|
| Lower basin:    |                              |                |                  |
| Arizona.....    | 507,000                      | 640,000        | 1,147,000        |
| California..... | 450,000                      | 490,000        | 940,000          |
| Nevada.....     | 5,000                        | 35,000         | 40,000           |
| Total.....      | 962,000                      | 1,165,000      | 2,127,000        |
| Upper basin:    |                              |                |                  |
| Colorado.....   | 740,000                      | 1,018,000      | 1,758,000        |
| New Mexico..... | 34,000                       | 483,000        | 517,000          |
| Utah.....       | 359,000                      | 466,000        | 815,000          |
| Wyoming.....    | 367,000                      | 513,000        | 910,000          |
| Total.....      | 1,500,000                    | 2,500,000      | 4,000,000        |

*Question 3. Why was 40 years fixed as the time for a future apportionment of the surplus water of the Colorado River?*

There was a decided conflict between the States over the period to be fixed in this paragraph, based chiefly on their ideas as to rapidity of development and actual use of the water. Some desired a shorter and some a longer time. Suggestions were made varying from 20 to 60 years. The 40-year period was finally arrived at as a common point of agreement. Judging by experience under other projects—the Imperial Valley and Salt River Valley, for instance—the full development of contemplated construction, as shown in the table following question 2, will take a much longer time than the one fixed.

*Question 4. Why was the term "Colorado River system" used in paragraph (a) of Article III, wherein 7,500,000 acre-feet of water is apportioned to the upper and lower basins, respectively?*

This term is defined in Article II as covering the entire river and its tributaries in the United States. No other term could be used, as the duty of the commission was to divide all the water of the river. It serves to make it clear that this was what the commission intended to do and prevents any State from contending that, since a certain tributary rises and empties within its boundaries and is therefore not an interstate stream, it may use its waters without reference to the terms of the compact. The plan covers all the waters of the river and all its tributaries, and the term referred to leaves that situation beyond doubt.

*Question 5. 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?*

(a) 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. 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 use of this term makes it plain that the 75,000,000 acre-feet are to be delivered in the main channel of the river above the various tributaries which contribute water below.

(b) The agreement as to the flow of 75,000,000 acre-feet at Lee Ferry during each 10-year period fixes a definite quantity of water which must pass that point. Under III (a) each basin is entitled to the use of 7,500,000 acre-feet annually. Judging by past records, there will always be sufficient flow in the river to supply these quantities, but in the improbable event of a deficiency, the lower basin has the first call on the water up to a total use of 75,000,000 acre-feet each 10 years. While there was in the commission a firm belief that no such shortage will ever occur, still this provision was adopted as a matter of caution. The period of 10 years was fixed as a basis of measurement, as being long enough to allow equalization between years of high and low flow, and as representing a basis fair to both divisions.

*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 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?*

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 can not 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 I find nothing in the compact which modifies this obligation, except the general limitation as to use, which is hereafter referred to.

*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?*

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.

*Question 9. Does paragraph (c) of Article III contemplate a treaty between the United States and the Republic of Mexico under which one-half of a deficiency of water for the irrigation of lands in Mexico shall be supplied from reservoirs in Arizona?*

No. Paragraph (c) of Article III does not contemplate any treaty. It recognizes the possibility that a treaty may, at some time, be made and that under it Mexico may become entitled to the use of some water, and divides the burden in such an event, but the quantity to which that country may become entitled and the manner, terms, and conditions upon which such use may depend, cannot be foreseen. It is a certainty that no such treaty will be negotiated and ratified which is unfair to the United States or any State or detrimental to their interests. To discuss whether or not a treaty might be made under which Mexico might be permitted to receive water impounded in a reservoir which may be constructed, is to indulge in speculation, but it is safe to say that if such a situation should result it will be only under conditions fair and satisfactory to all parties concerned.

*Question 10. 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?*

(a) 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.

(b) 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, or which recognizes any Mexican rights, the only reference to that situation being the expression of the realization that some such rights 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.

*Question 11. Is there any possibility that water stored by dams in the tributaries of the Colorado River in Arizona, such as the Roosevelt Reservoir, on the Salt River, or the San Carlos Reservoir, on the Gila, might, under the terms of such a treaty, be released for use in Mexico to the injury of the water users of the projects for whose benefit such dams were constructed?*

I cannot conceive of the making or the ratification of a treaty which would have such an effect. If it were possible to believe that the Federal Government would treat its own citizens with such absolute disregard of their property and rights, I presume that they would receive ample protection even as against the Government, under the provisions of the Federal Constitution.

It must be remembered that the United States now has a large financial interest in the projects already constructed. It is not to be presumed that action will be taken detrimental to these interests. Furthermore, each of the seven States directly concerned has two

Members of the Senate, by which any treaty proposed must be ratified.

*Question 12. Is it true, as has been asserted, that, if the Colorado River compact be approved, the water which should reclaim 2,500,000 acres of land in Arizona will go to Mexico and there irrigate a vast area owned by American speculators who will cultivate the same with Asiatic coolie labor and raise cheap crops in competition with Arizona and California farmers?*

If such assertions have been made, there is absolutely nothing in the compact upon which they can be based. They are the result solely of unrestrained and unfounded imagination. As already stated, there is no reference in the compact to any rights of any persons in Mexico; none are created and none are recognized. That entire question, if it ever arises, must be dealt with by the Federal Government in the exercise of its treaty-making power. Such a subject was beyond the purview of the acts creating the commission, and it was intentionally omitted from the compact.

*Question 13. Objection has been made to paragraph (d) of Article III in that it authorizes the withholding of an indefinite amount of water by the States of the upper division during a drought which might extend over two or three years. If the drought should be broken by heavy rains the ensuing floods would provide the total of 75,000,000 acre-feet within the 10 years, but water would be denied to the lower basin when worst needed and oversupplied when not needed. In your opinion, does this provision of the compact seriously menace the proper and maximum development of irrigation projects in the lower basin?*

In my opinion, the provision about which you ask does not menace the proper and maximum development of irrigation projects in the lower basin.

The future development of the Colorado River Basin is dependent wholly upon the creation of storage. The lower States have certainly reached the limit of development by the direct diversion of the flow of the river. Reservoirs are imperative. They must be of sufficient size not merely to equalize the annual flow, but to impound the excessive floods of one year to supply a deficiency resulting from a following lean year. Such construction will obviate, to a great extent, the likelihood of the situation you suggest. Furthermore, there cannot be a drought or lack of water in the lower States without a similar condition in the upper. A shortage of water below can only be caused by lack of rainfall above. It is inconceivable that any upper State would attempt to store and withhold water it did not need. Such action would not be permitted under the ordinary rules of law and is prohibited by the compact itself. If the water is used in the

upper States, the return flow, ultimately large in quantity, necessarily runs down the stream. The large reservoir sites capable of impounding the flow for more than one year are in the lower, not the upper, basin, and it would be a physical impossibility for the upper States to withhold all the flow of the river for any long period, even if they desired to do so. For these reasons, I answer this question in the negative.

*Question 14. Can paragraph (d) of Article III be construed to mean that the States of the upper division may withhold all except 75,000,000 acre-feet of water within any period of 10 years and thus not only secure the amount to which they are entitled under the apportionment made in paragraph (a) but also the entire unapportioned surplus waters of the Colorado River?*

No. Paragraph (a) of Article III apportions to the upper basin 7,500,000 acre-feet per annum. Paragraph (e) of Article III provides that the States of the upper division shall not withhold water that cannot be beneficially used. Paragraphs (f) and (g) of this article specifically leave to further apportionment water now unapportioned. There is, therefore, no possibility of construing paragraph (d) of this article as suggested.

*Question 15. Does paragraph (d) of Article III in any way modify the obligation of the States of the upper division, as expressed in paragraph (c), to permit the surplus and unapportioned waters to flow down in satisfaction of any right to water which may hereafter be accorded by treaty to Mexico? Within any year of a 10-year period, could the States of the upper division shift to the States of the lower division the entire burden of supplying such water to Mexico?*

(a) No. It is provided in the compact that the upper States shall add their share of any Mexican burden to the delivery to be made at Lee Ferry, whenever any Mexican rights shall be established by treaty. By paragraph (c) of Article III, such an amount of water is to be delivered in addition to the 75,000,000 acre-feet otherwise provided for.

(b) In the face of the specific provision of Article III (c) that the burden of any deficiency must be "equally borne," I can see no possibility of placing upon the lower division the entire burden. If the surplus is sufficient, there is no burden on anyone. If it is insufficient the plain language is that it must be equally shared, with the equally plain provision that the upper division must furnish its half.

*Question 16. Why is it that provision is made in paragraph (f) of Article III for a further apportionment, after 40 years, of the waters of the Colorado River system unapportioned by paragraphs (a), (b), and (c),*

*but that no provision is made for a revision of the terms relating to the flow of the Colorado River at Lee Ferry, as set forth in paragraph (d)?*

No such special provision was necessary. All that the present commission has done has been by virtue of its power "to divide and apportion equitably" the waters of the river. By specifying in this compact the powers of the second commission in identical language the same powers are necessarily granted, and that commission may do whatever this one could, subject only to noninterference with individual rights which may have become vested under this agreement. It was therefore not considered necessary to specify powers in detail, since the grant of the general power includes the particular.

In this connection it must be remembered that the further compact at the end of 40 years can be entered into only by unanimous agreement of the States. Given such unanimity, anything desired may be done and any existing provisions modified or annulled.

*Question 17. In your opinion, will the States of the upper division or the States of the lower division benefit most by the terms of paragraph (e) of Article III when the same are in actual operation?*

This paragraph applies only to an unreasonable or arbitrary withholding or demand. I do not anticipate either arbitrary action or unreasonableness on the part of any of the States concerned. The upper States can gain nothing by withholding water not needed, nor can the lower States gain by demanding water for which they have no use. The paragraph is of value as an expression of the prohibition of such action, but I doubt if it is ever called into practical effect.

*Question 18. Why is the use of the waters of the Colorado River for navigation made subservient to domestic, agricultural, and power uses, as provided in paragraph (a) of Article IV?*

This article is an expression of the views of the commission as to the relative importance of the uses to which the waters of the river may be devoted. It is recognized that on many streams navigation is a paramount use, but on this particular river navigation is negligible in fact. As expressed in the language adopted, the river "has ceased to be navigable for commerce." This is a true statement of the existing situation. Below Yuma there is but little water in the river bed. The Laguna Dam, above Yuma, has made navigation between points above and below it physically impossible, and the construction of further dams in the development of the river will prevent navigation at other points, even if it were now physically possible. Power structures, irrigation dams and navigation cannot conveniently exist together. It was therefore felt that the very great possible use of this water for power and irrigation far outweighed in economic importance

the very slight and largely theoretical use which might be made for navigation, and this paragraph was drafted accordingly.

*Question 19. Why is the impounding of water for power purposes made subservient to its use and consumption for agricultural and domestic purposes, as provided in paragraph (b) of Article IV?*

(a) Because such subordination conforms to established law, either by constitution or statute, in most of the semiarid States. This provision frees the farmer from the danger of damage suits by power companies in the event of conflict between them.

(b) Because the cultivation of land naturally outranks in importance the generation of power, since it is the most important of human activities, the foundation upon which all other industries finally rest.

(c) Because there was a general agreement by all parties appearing before the commission, including those representing power interests, that such preference was proper.

*Question 20. Will this subordination of the development of hydro-electric power to domestic and agricultural uses, combined with the apportionment of 7,500,000 acre-feet of water to the upper basin, utterly destroy an asset of the State of Arizona consisting of 3,000,000 horse power, which it is said could otherwise be developed within that State if the Colorado River continues to flow, undiminished in volume, across its northern boundary line and through the Grand Canyon?*

(a) The subordination of power to agriculture will only diminish power in the case that it is necessary to stop the entire flow of the river at some lower dam at some particular season of the year in order to create reserves for the agricultural community. The normal engineering development of the river will proceed by various dams, of which the dam lowest down would be the only one where there would be the remotest probability of a complete stoppage of water flow. Indeed, this could not happen for at least a hundred years, as it would contemplate a development of acreage in the Lower Basin far beyond anything now dreamed of.

(b) The adequate development of power can only be obtained through the erection of storage and through the irrigation of the Upper Basin. Storage dams can be erected both in the lower and upper canyon in such a fashion as to secure an average flow of the water throughout the entire year, and thus the maximum power developed. The irrigation of the Upper Basin, as explained above, acts itself as a reservoir regulating the flow of the river, increasing the minimum flow, and thus increasing the average power.

(c) Obviously, the use of the water for irrigation in the upper basin must in some degree diminish the volume of power in the lower basin, even though the lower river were entirely regulated to secure an even

flow of the water. But it can not be pretended that the upper basin is to be denied the right to the use of the water for agricultural purposes because of power demands in the lower basin. Such a pretension would not be supported in any of the courts, and if set up in the lower basin would mean that the basin will not be developed so long as the upper States can exert any legislative influence whatever. As a matter of fact, the power possibilities of the river are in no way diminished by the compact, unless it is to be assumed that there is not to be an equitable division of water.

(d) The compact provides that no water is to be withheld above that can not be used for purposes of agriculture. The lower basin will therefore receive the entire flow of the river, less only the amount consumptively used in the upper States for agricultural purposes.

(e) The contention that the Colorado River is to continue to flow undiminished in volume across the northern boundary line of Arizona is a contention that the upper States shall have no rights to irrigation. It is a direct negation of both equity and human rights.

*Question 21. Paragraph (c) of Article IV states that that article shall not interfere with the control by any State over the appropriation, use, and distribution of water within its own boundaries. Does this imply that the remainder of the compact may interfere with such intrastate control?*

This article seems the only one of the compact which might affect the relations of citizens of one State with each other, and it was therefore considered advisable to add the clause to which your question refers. I do not believe, however, that its insertion in this article would, by implication or otherwise, preclude the complete control by each State of its own internal affairs.

*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.

*Question 23. In case of disagreements between the States of Arizona, California or Nevada as to a division among them of the waters of the Colorado River system apportioned by the compact to the lower basin, what procedure will be followed and what rules will govern the settlement of such differences?*

This situation would be covered by Article VI. If its provisions are not sufficient or not satisfactory, then the dispute would be settled in the same way as other interstate conflicts now are, either by negotiation or agreement or by litigation.

*Question 24. What was the necessity for Article VII relating to the obligations of the United States to Indian tribes?*

This article was perhaps unnecessary. It is merely a declaration that the States, in entering into the agreement, disclaim any intention of affecting the performance of any obligations owing by the United States to Indians. It is presumed that the States have no power to disturb these relations, and it was thought wise to declare that no such result was intended.

*Question 25. Article VIII is somewhat confusing to me and I would like to have your interpretation of its meaning. Why is the term "storage capacity" used? Does the capacity of a reservoir to hold water necessarily mean that it will be filled? If this "storage capacity" is destroyed by the reservoir filling with silt, are all rights to the use of water in the lower basin likewise destroyed? Why was so small a figure as 5,000,000 acre-feet agreed upon as the measure of this "capacity"?*

(a) The first sentence of this paragraph is a recognition of the validity of present perfected rights to the use of waters and is inserted to obviate any fears on the part of present users that their rights might be impaired by the compact.

(b) The second sentence covers the situation now existing on the lower river. It is claimed that the entire low-water flow of the river has now been appropriated by users in California and Arizona, that rights to its continued and unimpaired flow have vested, and that any interference with these rights by attempted appropriation in the upper States could be prevented by appropriate legal proceedings. If such rights do exist, under the provisions of this paragraph they continue unimpaired until the use of water by direct diversion is substituted by its use through storage, at which time the enforcement of any rights to low-water flow for direct diversion obviously becomes unnecessary. When adequate storage has been provided, disputes over low-water flow necessarily cease. Five million acre-feet of storage is ample to provide water for all existing appropriations in the lower basin, and since it was intended only to meet the situation there it was agreed to. It is in no sense a limitation upon the size of the works to be built nor even an expression of opinion of the capacity to be adopted.

There can be no reasonable doubt in the mind of anyone as to the supply of water for a reservoir of this capacity. Given the capacity, the filling of the reservoir will result as a matter of course and physical necessity.

The rights to the use of the water in the lower basin are in no way dependent upon the construction of this or any other storage. The clause in question affects only rights to the direct diversion of low-water flow. The apportionment of water between the basins and the

guaranty of quantity by the upper States have no relation to this situation, and whether storage is or is not provided, whether or not reservoirs fill with silt, the apportionment and mutual obligations as to division of water remain unaffected and unimpaired.

*Question 26. All of these questions have been asked primarily with a view to obtaining first-hand information for the benefit of the Legislature of the State of Arizona, which now has the Colorado River compact under consideration. Any further observations that you may care to make will, therefore, be appreciated.*

It seems to me a primary fact that the legislative action necessary for appropriations from Congress cannot be secured nor construction work established at any point unless an equitable division of the waters of the Colorado River is first accomplished. There are only two methods of doing this; one is by compact and the other is by litigation. If this compact is not ratified it is necessary to start the process all over again, and I can see little hope of any more constructive basis of handling the problem than this compact already embraces.

The minor objections to the compact are generally based on exploitation of theoretical figures, without a full appreciation of the physical facts that govern the flow of the Colorado River. I have found that careful consideration of these physical surroundings of the river dissipate fear whenever they are carefully inquired into.

It is to be remembered also that until the dams are constructed the present flood menace will continue to threaten the Yuma project, the Imperial Valley, and other Arizona and California territory adjacent to the river on its lower reaches.