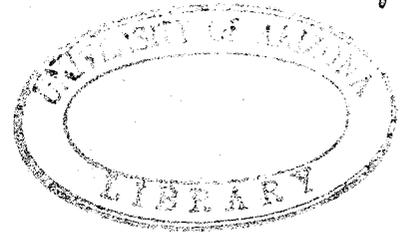


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Oct. 1938



PROCEEDINGS OF CONFERENCE

of

**Representatives of
Colorado River Basin States
(Arizona, California, Colorado, Nevada,
New Mexico, Utah and Wyoming)**

Held at Salt Lake City, Utah

October 6-7, 1938

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MINUTES OF MEETING OF COLORADO
RIVER COMMISSION COMMITTEE

Held in Governor's Board Room, State Capitol
Salt Lake City, Utah, October 6th, 1938

Meeting convened at 10:30 A. M.

Representatives of the various states included:

Arizona: Donald C. Scott
F. A. Mulcahy

California: Lewis A. Hauscr
Evan T. Hughes

Colorado: Byron G. Rogers
Clifford H. Stone

Nevada: A. M. Smith
C. F. DeArmand

New Mexico: Thomas W. McClure
A. T. Douglas
George Keith

Utah: William R. Wallace
Grover A. Giles

Wyoming: R. E. Lee
Perry W. Jenkins

Acting Chairman Clifford H. Stone, presided:

"Gentlemen, I am wondering if we can come to order. We are privileged to meeting in Utah, and we have with us this morning, Governor Blood, who has been so active in this work and who is Chairman of the Four Upper Basin States Committee. I am sure we should be glad to hear from Governor Blood before we proceed with this work." (Applause)

GOVERNOR BLOOD: "Judge Stone and Gentlemen, I suspect that the only thing you will want me to say is that the gates of the City of Salt Lake and the gates of the State of Utah are open, and you have come in, and that now you are in, we most heartily welcome you. We want to have you feel that in Salt Lake you are among friends. I am very glad that you have chosen Salt Lake for the common meeting ground and that this committee which, as I understand it, represents all of the States of the Colorado River Basin, are here to transact very important business connected with the comprehensive development, I think that is the word we have been trained to use, of the entire Colorado River Basin. I am intensely interested in the several matters that you will discuss and while I may not be able to sit with

you due to other important duties, my absence at times will be regretted because I would like to listen to all that will be done at these meetings. Judge Stone is Chairman of the Committee, as you know, that represents all the states, and I want to say for the Judge, that we have found him to be a very fine man to work with in the year or two that we have been working side by side. He comes to the conference prepared, and I think with a background and knowledge of the needs of the Colorado River Basin, so that, when I heard that he was appointed at Phoenix to occupy this position, I was very glad indeed. I am glad to welcome the representatives of the States and Mr. Debler of the Bureau of Reclamation, who, more than any other man in that organization, knows the needs of this very important drainage. I am also glad that we have Dr. H. A. Barrows, member of the National Resources Committee here and others that I see. I am not sure just who everyone is and his affiliation, but if I fail to mention the particular position you occupy in your own states, my welcome will extend to you just the same. I hope that we can work out a comprehensive plan for the development of the Colorado River; there seems to be a desire on the part of the Federal Government to grant assistance in developing power and irrigation projects, and I trust some time will be devoted to that particular activity. In Utah we need these things developed, and we are not wanting to take an attitude against the differences and necessities of other states or other parts of the basin. I think it has been announced by us that we were more for getting on common ground with the other states than we do for any minor controversies that may arise. If Utah and the Upper Basin States, if I may speak for them, can have facilities comparable to those that are provided in the lower basin states, both in power and irrigation projects, we shall feel contented. I don't care so much of the price anybody pays for power elsewhere so long as we in the Upper Basin States can have power at the same price, or approximately the same price, so that it all amounts to us getting together on common ground and working together. Judge Stone, that is all I want to say at this time because I want to find out where you are getting at; then, maybe I can say something more to the point, so I am going to limit my remarks to that, and to say that we have a friendly feeling for everyone of you here, and for all of the states you represent." (Applause)

JUDGE STONE: "Thank you, Governor Blood. Before we note the attendance it would seem advisable to refer to the resolutions passed at the Phoenix meeting, which gave rise to this meeting and which is the basis for the calling of this meeting. The matter was referred to again at Yellowstone National Park and the placing of meeting fixed at that time. At Phoenix a resolution was passed which I shall read:

"WHEREAS it appears desirable as speedily as possible to bring about a comprehensive development of the water resources within the Colorado River Basin, and

"WHEREAS to effect such purpose it is necessary for united action on the part of all of the states within the Basin to form an organization representative of the entire Basin, and

"WHEREAS this conference has been initiated by the Arizona Colorado River Commission with the help and approval of similar commissions in other states charged with the duty of formulating plans and policies with respect to the development of the Colorado River,

"NOW, THEREFORE, BE IT RESOLVED that the Commissions in the various states charged with the development of plans for the utilization of the water of the Colorado River effect a permanent committee of two members from each of the seven states within the Basin, and that until such committee is appointed and organized the present committee authorized by this conference be continued, and in order that said committee shall function as speedily as possible a meeting be held not later than the first of September of the present year to consider any problems that may properly come before it and specifically the problem of the legislation which may be proposed to the Congress of the United States to carry out a program of development within the Basin."

"Then, another resolution should be referred to regarding the question of a treaty with Mexico, and providing for the division of water:

"WHEREAS the question of a treaty with the Republic of Mexico providing for a diversion of the waters of International Streams is a matter of very great importance in which the seven states of the Colorado River Basin have a vital interest and concerning which full data are now available,

"NOW, THEREFORE, BE IT RESOLVED THAT THIS question be referred to the Seven States Committee, appointed under authority of this conference for a study with instructions to report its findings to the next meeting of the representatives of the Colorado River Basin States.

"BE IT FURTHER RESOLVED that, in accordance with the interests of the Colorado River Basin States and the policy of the State of Texas as expressed by its representatives to the Conference, the Colorado River Basin States oppose the exchange of water from the Colorado River for use of water in any other international stream."

"Following the adoption of that resolution, members of this committee were appointed and the record made to show that the personnel was to be suggested by the States themselves. It was later suggested that the names of the committee be sent to me and put into the record, and were, I believe noted and verified at Yellowstone National Park."

(Judge Stone read the list, which is as follows, of those representing the various states, requesting that the delegates verify or note any changes):

Arizona: A. M. Davis
J. A. Mulcahy

California: Lewis A. Hauser
Phil D. Swing

Colorado: Byron C. Rogers
Clifford H. Stone

Nevada: A. M. Smith
C. F. DeArmand

New Mexico: Thomas M. McClure
George Keith

Utah: William R. Wallace
Grover A. Giles

Wyoming: Ray E. Lee
Perry W. Jenkins

The list was corrected to read as above and verified by those present. In addition, Judge Stone listed the following in attendance:

E. B. Debler, Chief Hydraulic Engineer, Bureau of Reclamation
Dr. H. A. Barrows, Member of the Water Resources Committee
of the National Resources Committee
T. H. Humpherys, Utah State Engineer
William Peterson, Director, Utah Agricultural College
Experiment Station
Sumner G. Margetts, Director, Utah State Planning Board
John D. Quinn, State Engineer of Wyoming
Royce J. Tipton, Consulting Engineer for Upper Basin
Committee
M. C. Hinderlider, State Engineer of Colorado
A. E. Chandler of the Bureau of Water and Power, Los Angeles
F. C. Merriell, Member, Colorado Water Conservation Board
C. L. Patterson, Chief Engineer, Colorado Water Conservation
Board
Gay Hosea, Secretary, Colorado River Commission

JUDGE STONE: "One of these resolutions suggests a meeting which this committee under the provisions of the resolution, should consider at this time. In addition to that, it suggests an agenda should be adopted. It seems to me that the first should be the organization of this committee. You will observe that the committee formed at the Phoenix meeting was charged with the duty of carrying on this work until the new committee had been appointed, and that organization should not be effected. Secondly, there is the Mexican situation,

as directed by the resolution, which I read to you; and third, the matter of further consideration of a plan of comprehensive development of the Colorado River Basin. In that connection I call your attention to the fact that a Fact Finding Committee of the Upper Basin States, as you know, met at Green River, Wyoming, and made a report at the Yellowstone National Park meeting. At this meeting the plan of the comprehensive development is to be broadened over the entire basin. We have distributed here today the formal report and proceedings of the Fact Finding Committee of the Upper Colorado River States. Unfortunately, we did not have available at this time more than eight copies of this report, but there will be available, and in the course of preparation, 150 copies; however, we brought only eight copies for use of this committee because those were all we could assemble in time for this meeting. Another item to be included in the report is a general map which will follow the Bureau of Reclamation's maps contained in this report. That map contains a list of the projects proposed by the Reclamation Bureau, with an estimate of the cost. You will observe that although this is a report of the Fact Finding Committee of the Four Upper Basin States, yet the statement of Mr. Debler and the maps contained in this report covers the entire basin. You will also find that the report of Mr. R. J. Tipton, Consultant of the Upper Basin States, covers the entire basin and not merely the Upper Basin. At this meeting it is obvious that if we are to proceed with this work in the spirit that was expressed at Phoenix, there should be consideration of the plan of development in the Lower Basin as well as the Upper Basin. In other words, each state should be fully appraised of what the other state is planning, and this meeting on the plan of comprehensive development, no doubt, should consider the lower basin. I want to direct your attention to the statement in the preamble of this report;

"We desire it understood that this report does not constitute a definite or detailed plan of development. The committee has confined its effort to securing and submitting data for the purpose of initiating and eventually attaining a plan of comprehensive development. Insofar as that plan is capable of being outlined by the Upper Basin States and by the Reclamation Bureau at the present time, it is set forth in the Committee's report, but the report itself is simply a nucleus to formulate an outline for further investigation and construction work."

"I take it that any work of this committee or consideration of plans in any other states would be on that same basis. It is apparent that no complete plan can be considered, but out of this meeting their may evolve a plan of comprehensive development and Mr. Debler has expressed the view that any such plan may be considered by Congress. So that is the third item of business. In addition there is another matter which should be considered by this conference. That is the application of Arizona for a bill permitting the so-called 'Bridge Canyon Project'. In discussing this matter before the meeting, with Mr. Scott of Arizona, I told him that the Upper

Basin States who had received notice of this application had asked for and received an extension from the 30th of September to the 30th of October to make such comments that are more or less in line with our activities in attempting to work out these problems without difficulty, that the other States, the Upper Basin States, as well as the Lower Basin States, should have the views of Arizona concerning that project, and that we should openly discuss the project. We can't hope to accomplish a great deal through a committee of this kind unless major problems of this nature are fully and openly discussed. That attitude was expressed by Arizona at the Phoenix meeting, that the commission and their representatives recommended that spirit and agreed with us in the manner of approach on a problem of that kind, so that is a matter which we will consider. Then there, no doubt, will be questions or other items which should be included in the agenda. I understand that agenda is merely a suggestion which we have outlined for the approval of this committee, and if that suggestion is agreed to at the beginning of the meeting, we will then take those items up in their order. However, there is one item which must be considered before we take up the other items in the agenda, and that is the question of the organization. You understand that I am not now the Chairman of the Permanent Committee."

MR. GILES: "Mr. Chairman, I have pleasure in nominating the Honorable Clifford H. Stone for Permanent Chairman."

MR. LEE: "I take pleasure in seconding that motion."

MR. SCOTT: "It isn't clear in my mind whether that action should be temporary or permanent, because at the Yellowstone meeting Mr. Stone was made Chairman and Mr. Giles was named secretary of one committee."

MR. DAVIS: "I am of the opinion there were two separate committees, one is to deal with the matters of water, and the other had to do with the matters concerning power."

JUDGE STONE: "That was my understanding, Mr. Davis, the committee I was named Chairman of at the Yellowstone meeting was to deal with power."

MR. MCCLURE: "That committee includes representatives of the Bureau of Power and Light."

MR. GILES: "Are their further nominations? If not, all in favor say 'aye'."

(Judge Clifford H. Stone was unanimously elected Chairman.)

MR. GILES: "You are duly elected Chairman of this organization."

JUDGE STONE: "I am glad to serve you."

MR. JENKINS: "I would like to nominate Mr. Grover Giles of Utah as Secretary."

MR. LEE: "I second the nomination."

JUDGE STONE: "Are there any further nominations?"

MR. MCCLURE: "I move the nominations be closed."

JUDGE STONE: "You have heard the nomination, all in favor say 'aye'."

(Nomination carried unanimously)

JUDGE STONE: "The nomination is duly carried. I presume that constitutes the organization unless, of course, we find that other officers are necessary. Now, what action do you wish to take on the suggested agenda. Are there other items to be included for the consideration of this meeting?"

MR. WALLACE: "I move the agenda be adopted subject to the need of there being any need for alternates for adoption thereto."

MR. LEE: "I second the motion."

JUDGE STONE: "Are you ready for the question? Those in favor say 'aye'."

Motion carried.

MR. JENKINS: "I am wondering if we could have copies of the agenda prepared and laid before us?"

(Judge Stone arranged to have Mr. Jenkins' request taken care of; the agenda briefly):

- (1) Organization
- (2) Mexican Situation
- (3) Comprehensive Plan of Development
- (4) Arizona's Proposal in Bridge Canyon for Hydro-electric project.

JUDGE STONE: "Now, gentlemen, the order of considerations of this agenda are before you. Do you desire, first, to take up the plan of comprehensive development, the Mexican situation, or this Bridge Canyon matter. First, however, it occurs to me that the Bridge Canyon matter dovetails into the plan of development; but if you wish to consider the Mexican situation first, then we will proceed with that; however, the plan of comprehensive development is the one which will take more time than any other item of business."

MR. SWING: "Why don't you ask those present from Arizona whether or not they want to take their project up before noon or after."

MR. DAVIS: "It is immaterial."

JUDGE STONE: "We might proceed then with the plan of development and this Bridge Canyon matter might work into that. Mr. Debler of

the Reclamation Bureau is here; it would seem well for him to explain in a few terms, the presentation which he made at Green River, Wyoming, and follow that up with specific consideration of the Lower Basin. The Lower Basin, is of course, entitled to a full explanation and consideration of the work done at Green River covering this question of comprehensive development. Included in this report is the statement of Mr. Debler, the statement of Mr. Tipton, and each state made a rather extended statement of the state's plan of development; then there is included in this report of the Fact Finding Committee, an abstract of that plan of development. Now, if it is desired on the part of the lower states that those plans of development be reviewed by each of the Upper States then, that no doubt would be the proper course."

MR. SWING: "What time may we be expected to be supplied with the individual lists of projects that you referred to and that you said were omitted from this report?"

JUDGE STONE: "This report will be completed, with that list of projects, within a very few days."

MR. SWING: "Not in time to have it before this conference?"

JUDGE STONE: "No. We are having 180 copies of this report, so that there will be plenty for all of the states. Mr. Debler, are you ready for the statement?"

GOVERNOR BLOOD: "I just wish to present an invitation to all who are here to take lunch with me at the Alta Club tomorrow. It is just a little late to make the arrangements for today, but I shall be glad to have you join me tomorrow at 12:30."

JUDGE STONE: "Thank you, Governor Blood. Mr. Debler - -."

MR. DEBLER: "Governor Blood, Mr. Chairman, Gentlemen: the Bureau of Reclamation started about 1931 in a small way to develop the information which would enable the Department of the Interior to report, in accordance with Section 15 of the Boulder Canyon Project Act, on a comprehensive plan of development. It seemed desirable at the time to first examine the information on the location and extent of tillable lands not then under irrigation. That, of course, has been carried on but up to this time it is not yet complete. The field work is primarily completed now with the exception of a few small areas in Utah and a small part of Arizona. A lot of work has been done in Arizona; certainly far more than one-half of the arable lands have been mapped by reason of having mapped the Utah Valley and the Arkansas River. There remains, still, a large area to be combed over in Arizona and that will be done this winter. In California it would appear that the only lands which might be mapped are the lands for which a water allocation was made by the State of California, I think in 1930, and which have not yet been classified. This does not involve large areas. That work is now being followed up by those additional activities which are prior to the comprehensive plan."

Among them is the engineering work of finding out how much water can be, within reason, conserved; what works can, within reason, be built; ways to irrigate the tillable lands; also the utilization of water on non-tillable lands which we have been calling 'pasture lands' and which have not been mapped anywhere. Then, the power prospects, the flood control requirements throughout the basin shows uses of water for industrial purposes, for municipal purposes. It shows utilization of water in some areas in connection with recreational uses; may even involve in some cases the boxing in of water supplies where the states prefer certain areas used for recreational purposes in preference to industrial purposes. The plan all the way through of the Bureau is one of cooperating with the states as we go along, of securing their view points at all times, with the view that when the work is done, it will receive the approval of the states. At this time the activities of the Bureau is centered on engineering surveys of the more important irrigation and power projects. In my estimate of the possible cost of finishing these investigations I have indicated a large number of projects, the estimate cost of which to complete the investigation is \$1,570,000, which includes not only the major projects, on which surveys are being conducted at this time, but also a great maze of small or unimportant projects, secondary uses in some areas, which of course, can't be listed; there are, I believe some 6,000 diversions in the Colorado River Basin today. I have no doubt that the comprehensive plan of development, when completed, will represent 15,000 diversions. It naturally becomes impossible at this time, and for many years it becomes impossible, to provide a complete list of all the ditches that will be built. We have on this work in the field at this time, approximately 150 men. That force will stay at about that figure until Congress makes its appropriations next spring. If Congress makes no further appropriations, the work will have to be suspended by July first, next year. If it makes large appropriations next spring, the force will be expanded and speed up the investigations. For the work up to July first we had \$195,000 for the Colorado River Basin; that money will all be spent at the close of the fiscal year. In the Denver office I have about six men working on this work alone. Their primary activity is that of assembling all available information, indexing it, and leading up to a practical report, or amassing a report out of what I have in the past described in the preparation, as the large plan for the development of the Colorado River. It has been my thought that this plan might be presented to Congress some time in this coming session, but as to that I am again deferring to the wishes of the seven states. If it is presented, it must, of necessity, be very sketchy. Now, at the Green River meeting, I presented what appeared to be the principal features of the comprehensive development for the entire basin insofar as our information is available at this time. The maps showed the arable lands that have been mapped; they showed a considerable number of reservoir sites to be developed; a considerable number of power dams to be build; they showed, substantially, all of the trans-mountain diversion possibilities; they showed, in a number of cases, what appeared to be the logical plan for the larger canals serving the larger areas - all of such plans are subject to revision as we

secure later information. The work is far more complete in the State of Wyoming than in any other state. One reason for that is, in the State of Wyoming, we are put under the necessity for stopping all field work in thirty days and it will not be practical to resume the same before late May of next year. In my opinion the status of the investigations will be on a par with other seven states by the first of July of next year."

MR. DAVIS: "You say it will be complete by July?"

MR. DEBLER: "The plan, all the way through, is based on two objectives; one, to develop the general plan including all projects with only such information and such detail as is necessary to be reasonably certain that the plan approximates the final plan. The other objective is the preparation of detailed reports on specific projects. The two objectives were adopted because each of the states desired to proceed with construction in some localities in the immediate future. We find, then, that we have the seven states interested in the comprehensive plan of development in order that they may plan their future, and each of the states interested in securing sufficient information on some particular projects, to proceed to development at the earliest practicable date. That covers the situation in general. Before proceeding with my detailed discussion of the lower basin states, it might be well to take up any question that any one desires to ask with regard to the general plans and I will be glad to answer them."

MR. TIPTON: "You have stated once or twice that the time required to complete the investigation provided sufficient funds are appropriated, would you repeat that?"

MR. DEBLER: "The minimum time, as I have said, is three years. Now, it may appear to some people that if we had the \$1,570,000 tomorrow, that we ought to be able to complete this work within a month. That is impracticable for several reasons. In the first place, we are not over a great part of the basin with a scarcity of stream discharge data and in order to be able to work out most of the projects, we will have to have better data than we have now. We have in the past ninety days purchased some 40 water stage recorders and have installed most of these and I expect to install fifty more recorders within the next four months. The installation of each recorder costs us somewhere around \$600.00 to \$800.00. We find this to be true, that as you take the more difficult projects the planning of them is a progressive game of trying one thing, and you run against a stone wall, and you try another scheme, and there are some projects which take considerable time to develop the best plan, even though that plan may not always be an economically feasible plan, but it is the best that can be prepared. Then, I find also that it is extremely difficult to secure the type of men who are needed for this work. We are very seriously hampered at the present time by reason of the change over from non-civil service employment to civil service employment. The Civil Service Commission is at this time announcing the grades of the men that took an examination just a year ago. When we ask for a list of men we can employ we have to wait for two or

three months to get the list. After we get the list we find that five men were already in our employ. In due time we get another list, so it is a slow process. I can't entirely blame the Civil Service Commission; they are badly under-manned; they have had a job of giant proportions thrown on them when Congress decided to put everybody under Civil Service so there are many things that come up to slow up this program. I would prefer to have five years if we could. I think it would be economical to have it that way. I realize that everybody in the basin wants to get this job done as soon as possible. I will assure you that if appropriations are made, I will do it as soon as possible."

MR. LEE: "The fact that it will take some time to complete the program to its full outline does not mean that all projects must wait until that work is completed before actual construction is begun."

MR. DEBLER: "As I stated Mr. Lee, as we go along, we are not only checking the general size plan of development, but also specific reports on specific projects, and the states may take what steps they want."

MR. SWANG: "How do you pick out those projects, by request of the state authorities?"

MR. DEBLER: "Yes, we are leaving it up to them. If there are no questions, then, on the basin programs in general... Was it your intention, Judge, that I should discuss the Upper Basin as well as the Lower Basin reports?"

JUDGE STONE: "It seems to me that this matter, as far as we have progressed cannot be properly understood unless we take those reports, with the maps included, and go over the different sections. As you explained at the Green River meeting you had divided the basin into certain areas, and those area maps appear in the back of this report, and I have handed to each of the states a copy of this report. It seems to me if you could take one of these reports and each state follow your explanation, there would be an understanding of the projects that are now under consideration. I believe that is what everybody would want. Am I correct in that? It was not fully considered at Yellowstone, only the general report which the Fact Finding Committee made. If that is agreeable with you, I believe you should proceed in this way."

MR. DEBLER: "I should like to call attention of those here to the middle of the report where there is a basin map which takes in the whole basin. You will also find an index preceding the tabular material in the back, just preceding the tabular map. On Page 171-c, you will find the small maps and the area maps. Immediately following page 171-c there is a basin map prepared for the purpose of showing the diversions of the drainage basin as a whole. Immediately following Page 171-c is a map of the Colorado River Drainage Basin with the basin divided into a number of sub-basins for convenience in submitting maps of a better scale than possible

on a single map. The sub-division of these basins has no other meaning than merely one of convenience and as Judge Stone says, we want to reconsider this sub-division at this meeting because what we are preparing we want in the shape the states desire and can best be used by the individual states. Taking up the individual maps I would like to start with the one on Upper Green River. (I always like to start at the upper end and work down stream). You will notice that in the Upper part of the map there are numerous dots showing a few of the many hundreds of lakes which occur on the watershed of the Upper Green River and it is this watershed which is the primary production area in the Green River Basin. The natural lakes that are formed there are the result of Glacial action. Almost, without exception, they can be reached to provide greater capacity. We have found one or two that cannot be so reached on account of leakage conditions. The plan there (pointing to the map) is a large reservoir on the Upper Green River known as the Kendal Reservoir site, a site that was surveyed some years ago. It is planned to carry water from that reservoir both along the east and west side of the Green River. The eastern side marked the Pinedale Project contemplates Green River water carried on the New Fork Drainage Area, and to make a diversion there. The local supplies are inadequate for that development. When we pass into an area from Pinedale southeasterly to Big Sandy Creek in which the runoff far exceeds the local possible uses. That water, with suitable regulation in excess of local requirements is to be carried forward into the Big Sandy Creek and then added to the water now in the stream for the development of the areas on the Eden Project. It is a possibility, a rather easy possibility, of carrying water from some of those streams into outside drainage areas. We have had a plan to carry those waters into the Sweetwater Basin, since that time, the available lands have been found to be greater than heretofore mapped-lands susceptible of development-particularly in the area east of the Eden Project and, as indicated on this map, it is likely that no diversions will be made out of the basin into the Sweetwater Basin. The divide into Sweetwater is on this map where the word 'Divido' is, above the word 'river' at the head of the Pacific Creek, and you will note there is a possible diversion indicated from Little Sandy Creek into a stream that flows southerly to Rock Springs. That creek is Kilpatrick Creek and that project is being investigated. There will be an enlargement, probably, of the Eden Reservoir and there will be a number of reservoirs around Pinedale. On the west side of the Green River, coming out of the Pinedale, the best plan of development from all our surveys is one of a high-line canal going as far as House Creek with some storage developments on the streams above that canal."

MR. SWING: "Up on the west side of the River?"

MR. DEBLER: "Yes. Then, a canal leading out of Horse Creek at a high elevation is intended to cover lands at the headwaters of Cottonwood Creek, I won't say at the headwaters, but at high elevations. A canal is to be taken out of the Green River near Daniels a little ways above Yellow Horse Creek, covering much of the Green River tributaries, various forks of the Piney Creek, and may be carried as far as LeBarge Creek. The objective of that canal is to release waters of

those streams for use on higher lands, and secondly to irrigate any lands in that area. And below the canal from Green River, a number of reservoir sites are indicated on those western tributaries of LeBarge and Ham's Creeks. In some cases they will develop to be rather inferior reservoirs, but as, in the last two months, we have located several reservoir sites which were not heretofore known or mapped by anyone else. Coming down the Green River you will notice the Fountenoll Reservoir site. That reservoir is intended to conserve the wastes or the unused flood waters and the return flow coming from higher land. That water will primarily be used for cultivation on each side of the river. There is also a possibility that that water may be carried to Ham's Creek, a canal is indicated, and possibly southerly to Muddy Creek. It is most likely there will have to be doubling or a considerable distance on that canal in order to command a large area of land, the objective being to irrigate a considerable area and to release Ham's Fork water for other uses, among which uses would be a diversion of Ham's Fork into the Bear River Basin, which lies in the three states of Utah, Wyoming and Idaho. The Bear River has its principal sources in Utah then flowing northward into Wyoming, back and forth across the Wyoming, Idaho and Utah border line, then for a long distance through Utah and into Great Salt Lake. There is also the possibility, if it should ever develop that the water was sufficiently valuable and if water is taken into that canal, it might be directly re-lifted near Kemmerer for diversion across the divide. We haven't indicated that plan on this map because it seems to be far-fetched; nevertheless, it hasn't been abandoned. Proceeding next southerly, there will be noted the Lyman Project. That project contemplates the utilization of the Black's Fork water and the waters of its tributaries. There are two or three small reservoirs in that area. This is one of the areas that should receive detailed consideration in order that construction may proceed in the immediate future if the project is adopted by the State and the Government. The reservoir sites shown on this map are almost entirely in Utah although the lands to be served on that stream are entirely in Wyoming. I might state, however, that additional reservoir sites have been found since this map was prepared, two in Wyoming, and they appear to have excellent possibilities-reservoir sites not heretofore known. Going to the East, you will note Henry's Fork Projects. It is similar to the Lyman project except it has more land than water, but as it is an inter-state project, it seems to me desirable that there be an agreement between the states of Wyoming and Utah before any construction is carried on, and presumably, that will be given attention when we proceed to the specific investigation of that area next year. Flaming Gorge Reservoir is indicated with a dam-site below the Wyoming State Line. There have been in the past, suggestion s that water of the Green River be diverted near Pinedale and carried in conduits to suitable places on the Bear River Divide and to be finally carried as far as Salt Lake City. It does not at this time appear to be practicable to be carried out. Such a project, by reason of cost and limited water supply, if any, that would be available for such exportation, after meeting the requirements in the Wyoming Area. Please understand, however, that I don't set the

Bureau up as the agency to determine whether, as a matter of policy, such diversions shall or shall not be made. That is one for the states to determine. Then, eventually, there is of course the first-class possibility of diverting water from Flaming Gorge into the Salt Lake Basin. It has been suggested but it takes a lift of approximately 2,000 feet, with friction losses in the conduit, so at the present time, it appears hardly practicable in that area. Are there any questions?"

JUDGE STONE: "May I suggest as we go along, if you are completed with that map, that General Lee or Mr. Jonkins have opportunity to make general statements?"

MR. JENKINS: "The plan outlined by Mr. Debler seems to be very comprehensive and seems to meet the approval in Wyoming very closely. As he says, since this was prepared, the engineers have discovered some very valuable reservoir sites that will impound water costing from \$10.00 to \$30.00 per square foot, and would be very valuable additions. There is also a possibility of watering considerable areas of land to the north and to the west of the Iden Project. Two have already been classified under the Government classification and also by our state, and we feel very much gratified in Wyoming because of the work that has been done and progress that has been made in the investigation. We feel that the important aspect has been placed upon some of the projects, beyond which of course should be in a very short time, these rare detailed investigations may be required, but at least we know where work should be begun and from now on we will carry out the general plan Wyoming started, a general incomprehensive plan for development so that we can center our efforts upon a definite goal, and as I say, we are very gratified to the Department for the work that has been done."

JUDGE STONE: "General Lee."

GENERAL LEE: "I might make just a brief statement. We of Wyoming endorse generally the plan as outlined by the Bureau, and we find that it is generally in harmony with our choice. Of course, we may suggest changes, alterations, and of course, we want to be consulted in the order of development, but generally speaking, we feel that the plan submitted by the Bureau is a fair and proper plan."

MR. DEBLER: "I might add that I have overlooked two points: we are giving consideration to the possibility of putting water onto the High mesa lands southwest of Pinedale. It is an isolated, high elevation, but excellent land, and generally been considered as non-irrigable by reason of its elevation, but we are finding that we may be able to reach it. In addition to that we are now considering to power development and have found two or three very attractive possibilities in the vicinity of Pinedale which will adequately serve the basin with power at an attractive cost. The projects which will receive detailed consideration are the Lyman Area, the area on the Piney, with a view of storage development, and the enlargement, particularly, of Brown's reservoir in the northeastern corner of the Basin to serve more immediate needs there, and I am

sure by next spring, when our office work will be completed on this work, that the state will be in a position to proceed to organize construction on some part of this development. The field forces there will be broken up with about 30 days by reason of snow and some of the men will be moved into the Denver Office to work on the report, the balance to work in areas and some parts of Utah. I think we want to recognize that Utah has some interests in this area that I have described, for their watershed is in Utah and Utah, as we know, has long hoped for transmountain diversions from the Green River Basin to the Bear River Basin. In fact, Utah was by far the largest contributor of funds which the Bureau used two years ago on this work before we had other funds available. I think it would be only proper if we asked the State of Utah to comment on this plan."

JUDGE STONE: "Mr. Wallace, Mr. Giles?"

MR. WALLACE: "I would like Mr. Humpherys to discuss that."

MR. HUMPHERYS: "Mr. Chairman, gentlemen, in general let me say, that we in Utah are in sympathy with the order of the investigation made by the Bureau of Reclamation in the Green River Basin. As stated by Mr. Debler we initiated and contributed to that investigation and naturally we hope that the results will be such that there will be ample water for the lands in Wyoming in the Green River Basin, and there will still be left over and above their requirements to be transported from the Green to the Bear River Basin for lands in the Bear River. Naturally, if we were in Wyoming's position, I think we would take the same position. We feel that if there be only sufficient to serve the needs of Wyoming, we can expect little or no water for exportation into the Bear River Basin. That I think is all."

MR. WALLACE: "I think that it should be understood that when this was done by the Governors of Wyoming and Utah, that nothing would be done until after the necessities of Wyoming were cared for, but we are still hopeful we can get some water where there is a real need, as in the north part of the State of Utah."

MR. SWING: "What is the estimated pumping lift to reach the lands up above Pinedale?"

MR. DEBLER: "There are no pump lifts whatever; the entire development in the Wyoming and the Green River Basin will be gravity except only for water that may be lifted for trans-mountain diversions."

JUDGE STONE: "Are there any other questions that any other state wishes to make?"

MR. DAVIS: "How many acres do you contemplate putting under irrigation? What do you consider your maximum in Wyoming?"

MR. DEBLER: "I suspect the additional area of arable lands not now irrigated would be in the neighborhood of 250,000 acres. I am unable

at this time, however, to say how much pasture lands will be brought in. A considerable part of the water supply will have to be used for supplemental water of the present areas."

MR. DAVIS: "Have you made any studies as to the acre feet?"

MR. DEBLER: "Generally speaking, the Wyoming requirement is that of consumptive use. You will note that this plan, to a large degree, contemplates redivision of return flow and waste. While it is the practice in that area to divert five or six acre feet to the acre, the consumption in that area will probably not exceed an acre foot, or one-half acre foot, including reservoir losses."

MR. DAVIS: "There will be about one-half more acre feet of water."

MR. DEBLER: "Probably, that is for the new developments, also, of course, there is the supplemental water for utilization. That is, after all, a preliminary estimate; we haven't completed our water supply studies."

MR. JENKINS: "Reports have not been made by your engineers yet on that land east of Eden project? You haven't received the reports on the amount of lands that will be covered by those diversions, have you?"

MR. DEBLER: "The only thing I have received, Mr. Jenkins, is a guess that there might be as much as 50,000 acres. Now, if there is that much in the new areas in the basin, everything considered may be more than 250,000 acres. I may be considerably off on that and, of course, we will know better in a few months."

MR. JENKINS: "I think the classification will show there will be at least 600,000 acres of good land when the plans are completed."

MR. DEBLER: "Well, I am hoping that you are right because you need it up there."

MR. DAVIS: "I heard you say that there is ample water in the streams there in Wyoming?"

MR. DEBLER: "It is my belief that the land and water resources in that area are on a very close balance. We have gotten sufficient information in that area to make a determination for the areas as a whole. Our difficulty is in the localized areas, as a result of which in the end, it may be necessary to modify the development plan quite a bit in order that the waters are stored in the right places."

MR. DAVIS: "Some localities may be short, and some may have an excess?"

MR. DEBLER: "Yes."

MR. WALLACE: "Your question leads to the point as to whether, basing on Flame Gorge, there will be any water leaving the State of Wyoming."

MR. DAVIS: "We would like to know if you have sufficient water available to cover these areas?"

MR. DEBLER: "In our development plans we have taken into consideration the availability of water. If there was far much more water we would, no doubt, try to work out some plans to irrigate more lands which we know to be of irrigable character but for which there is unlikely to be any water for the area which I have described in the general plans. The water is there, but I think if you would put an instrument on this map or on the arable area maps you would have an area very materially larger than the areas we are talking about. That is because, after all, the map was intended to cover about everything. Going to Mr. Wallace's question, I might say this, that the average flow of the Green River is slightly over 1,000,000 acre feet at Green River, and if, for instance, Mr. Jenkins is correct that Wyoming is going to irrigate 600,000 acres of additional lands with the use of 900,000 acre feet, and then we are also obligated to supply 300,000 acre feet of supplemental waters on projects already constructed, I am afraid we don't have very much water coming past Green River, Wyoming. Certainly the water possibilities for the Flaming Gorge Reservoir with full development of Wyoming's possibilities in periods of low run-off, are not going to be very attractive for power development."

MR. DAVIS: "Do I gather that the limit of development in Wyoming would be the amount of water development instead of the amount of land available?"

MR. DEBLER: "There are some parts of the basin where it will probably not prove practicable to utilize all of the local water, but that will be in the minor parts of the basin."

MR. DAVIS: "What I had in mind in determining these facts is that this is the very thing that will determine the policy of the basin-the amount of the water, and not the amount of the land."

MR. DEBLER: "We don't have the type of land in Wyoming that we have in Arizona and there are other economic limits in development in Wyoming beside the climatic limitations, so it becomes a question in the end, which will really be the final control, whether it is water, or whether it is land. At this time it is hard to tell which will be the final control-it is pretty evenly matched."

MR. JENKINS: "There is one phase of that economic plan that should be explained to these people, and that is that the watering of this area of land is not all with the virgin flow. We plan to catch the return flow and reuse it and in that way we will not draw on so much of the virgin flow as it would appear from the explanation you make. For example, in the canal that you described coming out of Daniels and irrigating a large area of land, that is practically all from return flow, and that will return to the Green River."

MR. MCCLURE: "If you increase your acreage you won't have that return flow."

MR. JENKINS: "We find that we have a good drainage and because of the cooler temperatures and other things that, on the 300,000 acres that are irrigated at the present time, the return flow is very large."

MR. MCCLURE: "I know, but that is all taken into account in the figures now."

MR. JENKINS: "Mr. Debler's figure includes the amount that I have placed in the last few years, that includes the 1934 period and the period just preceding, but the average flow that has gone out of the state has become over 1,800,000 acre feet."

MR. SWING: "Your position is that much of this water will be used three times?"

MR. DEBLER: "I think I can explain that. The average diversion is about five to six acre feet per acre, but the consumptive use would be 1.5 second feet per acre, including reservoir sites."

MR. JENKINS: "We are probably not using that amount under the present plan."

MR. WALLACE: "What will be your total irrigated area that you have for your development?"

MR. JENKINS: "It is just a guess, I will say about 800 to 900,000 acres of which 300,000 acres are already irrigated."

MR. DAVIS: "Mr. Debler, have you estimated how long it will take for this full development?"

MR. DEBLER: "Some people call me a pessimist and some call me an optimist, but I rather lean toward the idea that we could look forward to a three-fourths development in about fifty years. I might mention with respect to the Wyoming investigations that Mr. Quinn has throughout all of this work cooperated most heartily. Mr. Jenkins has used much of his time to help Mr. Quinn, and Mr. Quinn is having other state people help in a review of our land classifications of the State of Wyoming. We appreciate that very much. Mr. Quinn has already arranged for the loan to us of two survey parties and which has facilitated and expedited the work quite a bit. Our relations are the very best. We are receiving advice and counsel right straight through. It is, of course, what we want to know when we get through that they are willing to sign their name to the report without reading it over."

JUDGE STONE: "Are there any other questions? I observe that it is twenty minutes after 12:00. When do you say we reconvene?"

MINUTES OF MEETING, COLORADO RIVER WATER COMMISSION
held in State Capitol, Salt Lake City, Utah, October 6, 1938

Afternoon Session, 2:00 P. M.

JUDGE STONE: "Gentlemen: I presume we had better come to order. I think in our report we want to note attendance of those who were in here this morning. Mr. Debler has completed the first map and if there are no other questions we will pass to the other areas shown by the report."

MR. DEBLER: "I will take up next the map of the Yampa and White Rivers, it is the fourth of the detail maps, #246-D-104. The Little Snake River rises in the divide across from which is the North Platte River Basin, and is very much of an inter-state stream and at this time we have an engineer working on that area developing roughly what the investigation should cover. I have two survey parties engaged on surveys of tentative canal lines and reservoir sites other than information already available. The stream flow records indicate at the present time a usable surplus of about 150,000 acre feet per year. These waters can be used to some extent in Wyoming."

MR. WALLACE: "Where are your reservoirs?"

MR. DEBLER: "One Reservoir would be at the Yellowstone and Savoy Creek. There are two reservoir sites very close together marked 'Sheep Mountain' and 'Three Forks.' The supply for which would be derived in part from the Little Snake and part from Battle Creek and then there is a reservoir site on Slater Creek, then you will notice a long canal line starting at the extreme headwaters and going westerly very close to the divide between that water shed and the next water shed south. While that canal line is shown, I am very much in doubt that will work out because of the limited water available. The main diversion available for new developments will be a short distance east of Bags. However, that is very much as yet a guess because we are only now getting into that in a real way. The Yampa River and the Little Snake are streams with limited possibilities and stream flow. Tentative projects have been indicated but they have never; that is all projects above the Juniper Reservoir site, have never been investigated by the Bureau with the exception of the Gun Project at the extreme headwaters on which there is now a detailed report. You will note on this map a canal line coming out of the river near Maybelle, west of Juniper reservoir site and we find an irrigable area right near the state line and west into Utah. That is the Deadman's Bench Project which has in the past been investigated by the Bureau but not sufficiently to develop its full possibilities. It will be given further attention with the view of taking water out of Juniper Reservoir site. Immediately to the south of the Juniper Reservoir is the Yellowjacket Project with its water supply to be derived from the Hoget River, the storage for which was intended to be developed primarily at Trapper Lake or Marveen Lakes. It is my understanding that some Colorado interests are not too favorable with regard to the use of these lakes as reservoir sites."

MR. WALLACE: "Because of recreational interests?"

MR. DEBLER: "Yes, I am not at this time advised as to whether or not there are any alternative reservoir sites but that will be determined in the course of our investigations. The Yellowjacket lands are probably over too far to be served from Juniper Reservoir."

MR. WALLACE: "What is the elevation?"

MR. DEBLER: "Generally speaking, it is about 6,000 feet. I don't know that they would be reached with any reasonable lift in order to avoid the use of White River Water. The only other use of White River waters that we know of at this time is the Savannah Project, very close to the mouth of the White River Project of some 15,000 acres."

MR. WALLACE: "Would that require a lift?"

MR. DEBLER: "No, that is a gravity project. The northwesterly corner of this area is indicated by the Vermillion Project. I believe the possibilities of these streams, the Yampa River is a potential stream of considerable magnitude. The flow at the Juniper Reservoir Site is approximately 1,500,000 acre feet on the average and the possibilities for its depletion are not extensive. There is much fall from that reservoir site down to the Green River, and it is sufficiently attractive that the Utah Power and Light Company in 1922 filed applications for permits for the development of that stream."

MR. WALLACE: "Is the Echo Power site one of theirs?"

MR. DEBLER: "Yes, they had several sites indicated on that stream. The power development at Split Mountain site, also backwaters into Colorado which flows through the State of Colorado for some distance. Now, are there any questions on these drainage areas?"

MR. JENKINS: "I was going to ask about the Savory site, have you investigated that?"

MR. DEBLER: "We have made no further investigations or surveys of that site recently."

MR. JENKINS: "You have a crew up there?"

MR. DEBLER: "Yes".

MR. JENKINS: "Have you had a communication from them up there whether they want to include that in the state program?"

MR. DEBLER: "We have been determining in the last 10 days on the available water and outlining the needs to be considered immediately so that we can in the course of about a month outline the development very thoroughly and at the same time I plan to have a meeting with a representative of Colorado and Wyoming to discuss the development plan."

JUDGE STONE: "This involves largely Utah, Colorado and Wyoming. Now, as to Wyoming, is that the only comment you have to make, Mr. Jenkins?"

MR. JENKINS: "There are one or two sites and the Savory seems to be the best sit."

MR. DEBLER: "The Savory seems to be the best site, and that would be the logical site to use."

MR. JENKINS: "That is the only thing we are interested in, the selection of the site by the Bureau of Reclamation."

MR. SMITH: "Have you made your surveys on the Slater Creek in Colorado?"

MR. DEBLER: "None of these sites have been investigated individually; we are now developing the water supply the extent and yield that might be developed and conserved, and correlating that with the availability and the arrangement of the land so as to develop the best plan of development."

MR. HOSEA: "Did I understand you to say that your preliminary studies had developed figures so that you could discuss the prospective plan with the various states?"

MR. DEBLER: "Yes."

QUESTION: "A man came into my office the other day with application to divert water in Wyoming for use in Colorado; the plans sought that they be allowed lands in Colorado. In view of the compact on the Little Snake River I told him, however, that I was apprehensive that nothing could be done until your investigations had been substantially completed. He felt very bad about this, indeed and it draws down to this, that if we have thirty days or so that would lie between the initiation of your compact negotiations, we would want to plan the development to fit the compact on which the states could agree upon."

MR. WALLACE: "Where did you say the water would be used?"

MEMBER: "For use of water in Colorado, to be diverted in Wyoming, and this question of administration arises every year."

MR. HOSEA: "Mr. Debler, do you have estimates at this time of the acreages and of the estimated depletions on these various basins that we could use as we are talking about them?"

MR. DEBLER: "No."

MR. WALLACE: "I might say something about that power proposition at Split Mountain."

MR. DEBLER: "I think we will take that up next."

JUDGE STONE: "Are there any comments from Utah,"

MR. HUMPHREYS: "We will discuss Split Mountain at a later time."

MR. PATTERSON: "I am only concerned about those lands surveyed in that section, you know as the canal intending to come from way up the river; I suppose it is the Juniper Site."

MR. DEBLER: "The canal will also come out of the Juniper site; the river flows quite rapidly there."

MR. HUMPHREYS: "What about the Savannah Project?"

MR. DEBLER: "It is a very small project, mostly river bottom lands."

MR. HUMPHREYS: "Over-flown?"

MR. DEBLER: "Part of it is; the project was promoted privately about twenty-five years ago, and a little work was done on it."

MR. MCCLURE: "Is there any estimate of acreage in Colorado in this section? What is the estimated ultimate developments?"

MR. DEBLER: "It is not divided up by any particular section and we gave the total for all of western Colorado."

MR. HOSEA: "As to what phase?"

MR. WALLACE: "As to the total new land acreage?"

MR. PATTERSON: "Not in round numbers, but as to present irrigated acres--780,000 in all western Colorado, which it will take four of these maps to cover."

MR. WALLACE: "Is that the total final development?"

MR. PATTERSON: "The arable lands that have been thus far surveyed include about 685,000 acres."

MR. SWING: "That is new land?"

MR. PATTERSON: "That is the land classified by the Bureau of Reclamation. The estimates of the State Engineer of the land which is possible for irrigation, based upon extension of ditches, now projects and filings that have been recorded in his office as of 1929, showed nearly 1,000 acres more than this surveyed area now reported by the Reclamation Bureau and, as Mr. Debler explained this morning, there is a part of this survey of arable lands that is not complete and which does not support to cover pasture lands. Now, in answer to your question about water supply, I suppose the Reclamation Bureau did not go off to some impossible place to survey available lands, but the second phase of the study does involve such water resource study so that it may be possible when the project survey is worked out that some of these lands that are suitable for irrigation, we won't have water for. The answer to those things will be known when the project surveys are complete."

MR. SWING: "I presume these figures are subject to modification, but this morning we had a statement as to the Upper Green River, and I was trying to get a comparative statement for western Colorado. It is your belief that the entire 700,000 acres can be irrigated."

MR. PATTERSON: "Yes."

MR. DEBLER: "Our investigations are very much more completed in Wyoming at this time, and let me say this, that by next July they will be equally finished throughout the rest of the states; by that time we will have comparative data."

JUDGE STONE: "As I understand it, Mr. Swing, it is the belief, as to that 700,000 acres, that water is available for it."

MR. DEBLER: "I didn't go so far as to say that."

JUDGE STONE: "Your statement on that was what?"

MR. DEBLER: "My statement was that lands are classified here and there appeared to be a first-class possibility of securing water, but in many localities the classification wasn't limited to the area which we thought could be irrigated because we were pledged to have the best areas irrigated with a given water supply to the end that we could develop the best project, but there are instances where there is certainly more land classified than could possibly be irrigated."

JUDGE STONE: "Then, what is your estimate of the 700,000 acres that can be irrigated?"

MR. DEBLER: "I don't want to make any estimate whatever on that. You might say, by law of averages, we may have overlooked some areas that can be irrigated and have some areas in that can't be, but I am hoping that at least that much can be irrigated--of tillable lands, so again, I would like to be sure that we are speaking only of tillable lands."

MR. WALLACE: "Not including pasture lands?"

MR. DEBLER: "No."

JUDGE STONE: "Now, is there any further statement from the representatives of Colorado?"

MR. PATTERSON: "I might explain that the areas shown on the maps as arable lands, if you would add up those areas in all of western Colorado, you would arrive at the figure of survey and acreage, of 635,000. The State of Colorado, I believe, at Green River and at Yellowstone, offered the comment, after Mr. Debler completed his explanation of the various basin maps, one of which relating to Colorado is now before you, was to the general effect that the procedure followed by the Reclamation Bureau was in accordance with

the ideas of Colorado as to how best to proceed; Namely, to survey the lands now irrigated, and survey the lands which were designated as arable lands, and to follow that with a second study of the water supply available needed for the irrigation of those lands: and third, to make specific surveys to determine the cost and the economic feasibility of each of these numerous projects. That is substantially the same program that the state is attempting to follow. As I stated at Green Ricor, we have been engaged in field checking the survey work made by the Reclamation Bureau, both as to irrigated lands and arable lands, and up to the present time, in every basin where we have accomplished any of that checking, we have been gratified to find that the Reclamation Bureau surveys are both complete and accurate. Our program is substantially the same program as that which Mr. Debler is explaining, with very few possible exceptions. Where we are to promote some of these large reservoirs farther down the streams near the borders of adjoining states, it is a question. They have no particular value to the State of Colorado although they may have been considered valuable to down-stream areas. At the same time some of those sites destroy lands that we may have under irrigation and development so that question is one that the State of Colorado still is considering--weighing one-half against another. Our particular interest is in the higher reservoirs above our hill lands. I believe Mr. Debler that you did not mention the possibility of importation of water into the Little Snake from the headwaters of the Elk River, as a matter which I believe is a first class possibility."

MR. WALLACE: "Where is the Hinden Park Reservoir Site?"

MR. PATTERSON: "The Hinden Park Reservoir Site is in the neighborhood of the head of the Little Snake River. Over to the west the reservoirs are all within the basin, but I might state here, there are no exports to other basins on this particular map which we are now discussing. The reason, because there is an intervening basin and there wasn't any need or opportunity for exportations. We will encounter that in the other three maps which, I assume, Mr. Debler, will later discuss. This business of import and transporting water sheds is one that we are forced to undertake in order to bring our land and water resources together. A great deal of the development in western Colorado that has heretofore taken place will be with tributary water supply, as distinguished from main river supplies. Our two largest projects in the state are, more or less, main river projects, but the balance of the irrigated land, and to a large extent, the arable lands, are dependent upon water supplies of relatively small tributary streams in which, usually, the water supply is the limiting factor. I don't know if there is any other explanation here that would be of any value to the representatives. There is one matter regarding the Little Snake River Basin. Some months ago the Reclamation Bureau requested of the State of Colorado to furnish their suggestions as to what next might best fit in with our wishes as to work that they might take. Prior to that time, and under a special appropriation of \$150,000, the bureau had undertaken the investigation of ten western projects. In nine of those there was very little new land to be brought under irrigation. The problem was to supplement deficient

water supplies for lands already irrigated. The state reported to the Bureau that they would like to see certain further studies undertaken and pointed out certain inter-state projects where controversies might arise, one of them being this Little Snake Basin where the stream more or less straddles the state line. I presume that the explanation that Mr. Debler gave you as to the activities now going on, is the result of that suggestion that was made that we would like to try to work out constructively all of the inter-state problems which might become involved in the River Basin. As I recall, we have three areas of lands that straddle the interstate lines between Colorado and Utah where one project might serve lands in both states. It was our assurance to our neighboring states that we would hope to avoid any controversy or friction in working up such projects."

JUDGE STONE: "MR. Hinderlider, do you have any further comment?"

MR. HINDERLIDER: I may have understood him (Mr. Patterson) to say that Colorado has no interest in the development of large reservoirs on streams for agriculture or consumptive uses. Colorado is, of course, interested in power development.

MR. PATTERSON: I think your statement is well taken; I didn't mean to say that we didn't have any interest, but we are now attempting to outline a plan whereby the Bureau and the State Planning Board might be working side by side. My statement was prompted by this thought. Western Colorado is, more or less, filled with possibilities of power development while, at the same time, we have more or less limited markets for that power and our thought is to give primary consideration to irrigation uses, as opposed to uses for power and I rather felt that the lower states might not be interested in or directly concerned with those uses that might be considered consumptive. I don't mean to say that we are not interested, but they are not in the fore-front of projects that we could now undertake to finance and build.

MR. HINDERLIDER: The only reason I raised the question was because power development has been raised in connection with the Wyoming and Utah possibilities. I don't believe Mr. Debler has completed his statement.

JUDGE STONE: Mr. Debler's statement is confined to what is shown on this map. Mr. Merriell, do you have any comment to make with respect to the Yuma and White Rivers?

MR. MERRIELL: No.

MR. DAVIS: In this construction shown on the map have you included irrigation and power?

MR. DEBLER: Yes.

MR. DAVIS: In your studies of the cost of irrigation, have you taken into consideration that the irrigation structures will be partly repaid by power revenues?

MR. DEBLER: It will be taken into consideration on many projects where power development is involved and, in the same way, we are also taking into consideration any flood control values of reservoirs built for other purposes. We intend to get for your consideration all of those features--the value of any structure--for irrigation, flood control, power, silt control and any other purposes that come to the front.

MR. DAVIS: Then the entire load would not be borne by the acres.

MR. DEBLER: Not necessarily. I wish, however, to say at this time, that the report that we will present when we conclude will be one of factual findings. I don't think that we will have in that report a single finding with regard to feasibility. Feasibility depends on so many factors; not only crop values and costs, but on matters of policy with respect to the States and with respect to the Federal Government, none of which we can forecast for even ninety days. Consequently it is not practical to say whether a project advisable or not.

MR. DAVIS: This map does not in any way disclose the feasibility of the projects?

MR. DEBLER: Neither does our report. I would like to take up the next map on the Middle Green River, No. 246-D-106. Probably your major interest on this map is the Green River itself. On the forebay of Flaming Gorge Reservoir to Green River City there is a fall of approximately 2,000 feet. Probably 1600 feet of that fall can be used for power head, the balance being lost by reason of fluctuating reservoir levels and by reason of certain areas that cannot be practically worked out for power purposes. The flow of the stream through that area averages from in the neighborhood of probably 3,000,000 acre feet. What it will be in the future, I am not prepared to say, and to many it is regarded as a power resource of no mean proportions, and when considered together with the Yampa River below the Juniper Reservoir site, it is the logical source of power for the populated areas of Utah. The information with regard to these streams is rather extensive by reason of river profiles, surveys made by the United States Geodetic Survey and by surveys made by the Utah Power and Light Company and the investigations, primarily of Flaming Gorge, by the Bureau. At this time by request of the State of Utah the Bureau is particularly engaged on the Split Mountain development. This is a combination project for irrigation and power. The map shows a relatively small area of irrigable land not yet developed; the project has been claimed to be one of the 12,000 acres; just what the outcome of our investigations will be, I am not prepared to say because we are giving consideration not only to gravity diversions but also to pumping diversions from that reservoir, if there are any lands worthy of such development.

MR. SWING: Up to what height?

MR. DEBLER: I am not prepared to say, Mr. Swing. The survey of arable lands in that particular area did not take into consideration pumping lifts. The height to which pumping possibilities will be considered will depend very much on the power available and whether or not power can be used for irrigation purposes, particularly power which might not have a great deal of value for any other purpose. We do have in lots of localities projects that produce much dump power the use of which, for irrigation, does not detract from the value and those projects have the production of consumer power. I am not prepared to say that that is the situation in this case because we are just now taking up the intensive investigations of that project. The major agricultural area is the Uintah Basin, drained by the Duchesne River, the Uintah River and tributaries, and a few other small streams. Land possibilities in that basin are limited by poor soils. There is much land of good topography, but the soils cannot be considered for use by irrigators, as in many cases these soils would probably stand irrigation for a few years, but not thereafter. There are, however, extensive requirements for supplemental water.

MR. PATTERSON: Just what did you mean by that last statement--it will stand irrigation for a few years, but not indefinitely?

MR. DEBLER: You will find a few areas of relatively shallow shales, underlain with alkalis, shales that will stand irrigation for a year or two, or three, and there will again, through the accumulation of alkalis, fill up to the soil surface.

MR. PATTERSON: You refer, especially, to the Green River shales and Marso Shales?

MR. DEBLER: I do not refer to any particular shale but that condition does now exist in some parts of eastern Utah and we have reason to believe will be repeated on many areas that are not now irrigated.

MR. GILES: What is the estimated power capacity?

MR. DEBLER: I can't tell you. We have some old estimates made by various parties. I remember one made by Weymouth in 1923, 'Water Supplies Study #617', and one by Mr. Woolley; they are based on certain assumptions with regard to dams and reservoirs, and what the outcome of this investigation will be as to those features, I can't say. Now to come back to this irrigation development. I would like to have it understood that the reservoir possibilities shown are by no means the limit of possibilities--I am sure as we proceed with our investigation we will find other reservoir sites than those up to this time. At this time Mr. Nielsen, who is in charge in this area now for the Bureau, taking the place of Mr. Larson in that respect, is ascertaining what investigations should be made in the Uintah Basin. I think with a view of plans for ultimate development that will then be followed by the regular investigation work and, of course, when that is completed, we will be able to say more about what can be done. Now, I would like at this time to call attention to the area indicated Cat's Back

Project. That was considered one of the largest, some years ago, in that region. The land classification has reduced that area to something like a one-quarter of what was considered larger, and it merely is one instance of what is being found in many localities--that areas which it is hoped to be irrigable and in time irrigated, were found by the land classification to be unsuited for irrigation and for cultivated land. I am not prepared to say, however, that much of the discarded area may not come in as pasture land, and the same is true of much land which I explained a while ago--it may not be suitable for irrigation by reason of rising alkalies, but which may be suitable for irrigation as tillable land, because I do know that in many localities, lands of that kind can be leached sufficiently to be useful for pasturage purposes--even if they can't be restored to use for cultivating crops. At the head of the Duchesne River, you will find the Duchesne-Provo River Diversion tunnel marked, and immediately adjacent to that, an even longer tunnel leading from Duchesne River to the Granddaddy Lakes' area. The shorter tunnel is part of an approved project now under construction. The Provo River Project--the longer tunnel, is an extension of that project which is under consideration to be constructed some time in the future when the situation with regard to cost and returns justify the construction.

MR. JENKINS: Where will that tunnel be located? Where is the prospective longer tunnel?

MR. DEBLER: Looking on the map to the south, going further south, you will find the Strawberry Diversion, which has been in operation for some twenty-five years. Additional canals are proposed to divert water from the headwaters of Strawberry Creek into the Strawberry Reservoir for transmountain diversion. The Strawberry Project with the help of W.P.A. built a small part of this diversion a few years back, and there has now been a request for the longer diversion to be built. A little farther south is the Soldier Pass Project, a small project which has been in operation for a number of years, and a more ambitious one is now proposed. We are also, at the request of the State of Utah, investigating a proposal to make a trans-mountain diversion from the Scofield Reservoir by tunneling into the head of the Spanish Fork River. It is no means a very difficult project. It is not indicated on the map, however, if I am not mistaken, that takes about a seven mile tunnel. Is that correct, Mr. Humphreys?

MR. HUMPHREYS: Yes.

MR. DEBLER: The Gooseberry Reservoir at the head of the Price River, is now in the final stages of detailed investigations that include a 4,000 foot tunnel into the watershed of the Sevier River.

MR. SWING: This last one--it would not take water out of the Colorado River?

MR. DEBLER: Yes, out of the Price River. You will note on the Price River some rather extensive areas of arable land are not as yet developed. Investigations are under way to determine the course of irrigating these areas and the results thereof will be available at the time that the Goosberry-Price River report is completed which will be within the next sixty days, I am sure. Are there any questions with regard to this area?

MR. DAVIS: There are a number of power sites shown. Are those filed on at the present time?

MR. DEBLER: I don't know if they have been filed upon under the State Laws; I do know that these are covered by power applications in the past--mostly in 1922.

MR. DAVIS: By the state or by private interests?

MR. DEBLER: By private interests. I believe that the filings by the state are limited to two or three trans-mountain diversion. Is that correct Mr. Humphreys?

MR. HUMPHREYS: The law covers the entire water supply for the state's withdrawal.

MR. DEBLER: I was thinking of the more specific filings that were made back about 1916.

MR. HUMPHREYS: The filings made by the Utah Water Storage Commission and also by the Land Board covered all of the available waters of the Uintah Basin, and areas of the Price River and in connection with those that obtained before filings were made.

MR. DEBLER: A blanket law covering substantially all of the waters in this whole area?

MR. HUMPHREYS: Yes.

MR. DEBLER: But the filings were not of utilization sites; they were withdrawals of water, were they not?

MR. HUMPHREYS: No, they were actual sites and I should say in connection with your statement on Price River, that the diversion proposed; namely, San Pitch and Sevier to the Spanish Fork Canyon, by tunnel, contemplates water that has been filed upon by application and the storage, by reservoir of 64,000 acre feet and, in effect, that is all that is now available so that the water proposed for the Gooseberry and the Spanish Fork diversions, takes up only that water in excess of that required for the Price area.

MR. DEBLER: The Scofield Reservoir is one that was constructed some years ago by private interests and which failed.

MR. HUMPHREYS: Only partially.

MR. DEBLER: The Scofield Reservoir was constructed and partially filled; it is limited in capacity.

MR. DAVIS: I was interested to know what your plan of power development-- whether it would be in connection with your irrigation development or whether it would be separate.

MR. DEBLER: We are advancing no plans as to whom the constructing agency will be; our report will be limited to amount of power that can be produced, and so forth, it will not go into the matter of economic feasibility; it will not make any recommendations as to the kind of construction nor as to who is to furnish the money used.

MR. DAVIS: Are these power sites already filed upon?

MR. DEBLER: They have evidently been filed upon by the state and in the past by the Utah Power and Light Company.

MR. JENKINS: What is the un-depleted flow of the State of Utah into the Colorado River?

MR. DEBLER: I couldn't tell you.

MR. HUMPHREYS: I can't either.

MR. JENKINS: Then I would like to know what you considered the depleted flow--what your contributions to the stream are after your use has been made of the water.

MR. HUMPHREYS: I think that hasn't been determined.-- certainly not by Utah.

JUDGE STONE: Now is there any other statement you would like to make on this map?

MR. DEBLER: Under the circumstances I will take up- - -

MR. PATTERSON: May I suggest that you show the Sevier River down in Utah in connection with the White and Yampa Rivers?

MR. DEBLER: Well, because those maps are basin maps.

MR. PATTERSON: When you made segregations and reported acreage were they sub-divided this same way or do they consult state lines? Is that the way those figures were assembled?

MR. DEBLER: I believe I assembled them by state lines. I think it might be well to take up the next map, Map No. 246-D-108, Middle Green and Lower Green: This map takes up the southeastern part of Utah and the dominant feature of the area is, of course, the Colorado River itself.

At the upper right corner (pointing to the map) is the Dewar Reservoir Site, considered many years ago, with a capacity of 2,000,000 acre feet as a part of upstream storage development for the regulation of the Colorado River which was later displaced by Boulder Dam. At this time we are giving consideration to that reservoir on a very much larger scale for the dual purposes of power protection and of flood control. Flood control, not for the protection of new areas in Utah, but for the replacement or transfer of part of the Boulder Canyon Flood Control capacity by reason of which the active storage capacity of Boulder Dam is increased and the power protection is correspondingly increased. The large storage capacity of the Dewar would then also be useful in connection with any power dams built above Boulder Dam. The construction of that reservoir will involve considerable railroad re-location of the Denver and Rio Grande, Western Railroad. There is some arable lands shown on that map marked 'Cisco Project'. We don't know as yet whether or not any practicable means of irrigating those lands will be found. They are good lands but they are at a high elevation--some 5,000 feet above the Colorado River, immediately opposite the Green River.

MR. PETERSON: Was it not intended that the canal take water to the lands at Grand Junction and at Fruita and could be projected on to water these lands at Cisco?

MR. DEBLER: That has been proposed a number of times and we are giving consideration to it. I don't know how well it will work out because such a development means a main canal at least 200 miles long, much of it through a very difficult country and it will require storage development on the Colorado River above Grand Junction. We are considering it, of course. The Lower Green River will be flooded by the Dark Canyon Dam, as a part of the power development of the Colorado River. I might at this time point out that throughout that region, the Colorado River flows through relatively weak rocks and that high dams will be very, very carefully scanned before they can be recommended.

MR. WALLACE: What do you mean by that?

MR. PETERSON: The rock on the vicinity of Cataract Canyon is very thin and has open joints. I think what Mr. Debler means is that you have got to examine your dam site and see, not only if the bed will hold water, but also the walls themselves.

MR. DEBLER: They wouldn't serve for concrete abutments and you would have to use cellular blocks and that becomes a very expensive type of dam when you go to any height.

MR. PETERSON: The proposed dam at Dark Canyon is a high dam, is it not?

MR. DEBLER: Yes.

MR. DAVIS: What dam is that?

MR. WALLACE: Dark Canyon.

MR. DEBLER: You will note at the westerly side of this map are small areas at the heads of the western tributaries. The irrigation possibility is limited to the headwaters of those streams as all of them enter the canyon shortly after leaving the mountain and the canyon is so steep that it will be impracticable to take any water out of the streams. The more useful use that can be made of those waters are transmountain diversions for the reason that the land is west of the divide and there are settlements of long standing there and are badly in need of supplemental water and that water has a higher productive value on that side. The Gooseberry diversion shown on the extreme north end of this map, I discussed in connection with the project map. The next is the Spring City diversions, a tunnel 5,400' long, now under construction. Immediately south in the Ephraim diversions, a tunnel 7,000 feet long, completed last winter. A diversion at Fish Lake is indicated but I am not prepared to say that that is practicable or that it will be included in the final plan. Investigations are to be made at the headwaters of each of these western tributaries to ascertain the possibilities of further development. I think our present interest will be primarily with only the water that cannot practically be diverted across the divide and that is all I have at the present time on this map.

MR. SWING: What is the Tropic Diversion, over on the left hand side of the map?

MR. DEBLER: It is a small transmountain ditch.

MR. WALLACE: There is nothing in the southeastern corner?

MR. DEBLER: Not at the present time.

MR. SWING: How long did you say those tunnels were?

MR. DEBLER: Ephraim is 7,000 feet and Spring City 5,400 feet long.

JUDGE STONE: Now, Mr. Wallace, I believe this completes those two maps.

MR. WALLACE: There is another one--it is the Virgin River.

MR. DEBLER: I think it might be well for Mr. Humphreys to make his statement now.

MR. HUMPHREYS: At the Green River Conference a statement was made that after ninety years of building, Utah had only 1,324,000 acres of land cultivated and under irrigation. This is only 2.6% of the State's area. It is only natural, therefore, that the people of Utah have been anxiously looking to the Colorado River as it is the last natural resource for extending irrigation and agriculture of this state. Utah is looking forward for the time to come when a comprehensive plan of development of the Colorado River Basin to be undertaken so that the state might benefit and at the earliest possible moment the Utah Water Storage Commission undertaken investigations which will form an integral part of the investigations when ultimately made by the Bureau of Reclamation.

With the standard as used by the Bureau, 257 small reservoirs within the Colorado River Basin have been surveyed and this has been done particularly to assist communities. At one time these communities were adequately supplied by the spring flow--they had established homes, schools, churches, sewers, water systems and naturally, as we had expected they have grown and to such an extent that now, by reason of the lack of water, they must either move out, or find new homes and they must have an increase of supplemental water supply. At this time they are able to grow a crop of alfalfa, a crop of grain, berries and some roots in years of a maximum run-off. However, in many years, they are reduced only to the first crop of alfalfa. Now, I say those people must either move out or else they must get a supplemental water supply. The Utah Water Storage Commission has undertaken this campaign of surveying of small reservoirs to supply that need to keep those people in their homes so to hasten this work, even at any price. If it is stored water it must necessarily be done with subsidy, part by some agency--private, state and Federal. These 257 reservoirs have been surveyed and the state is ready to turn these over to the Bureau of Reclamation. These are feasible or nearly feasible so that construction can be undertaken. Now, with respect to the land classification. Those made gives in Utah 741,000 acres of land which can be irrigated in excess of that irrigated. I call to your attention the fact that there is yet a considerable area that is yet to be classified, as referred to by Mr. Debler and in that particular matter, let me say, the area will be considerably increased by reason of those small areas that have not been taken into consideration or been classified as irrigated areas within the fields or bounds of those small towns. In addition to that there will be the pasture lands and, as in Wyoming, this is a very important matter for these small towns. They have encroached upon their range land by forestation and by other means and they are restricted in their growth of cattle so that with the new classification of the lands and those pasture lands added, the area irrigable in the Colorado River will undoubtedly greatly exceed 1,000,000 acres; whereas, now it is listed as 741,000 acres. I want to call the attention of the group here particular to what is called the Bear River Area. We have an area up there in the northern part of the state, including an area in southern Idaho and Western Wyoming, involving about 40,000 people, and an irrigated area in excess of 285,000. Those people have lands probably equal to anything in the state, they have seven sugar factories; they have numerous pea factories, tomato factories, which produce cash crops and that, together with their grazing and stock-raising, has produced a civilization that is second to none in the state. Unless those secure supplemental water for that 250,000 acres and have a further growth, making a total of 500,000 acres, much of the land now irrigated and furnishing that civilization, will go back to the marginal lands. Well, those people will have to hunt new homes. It is the hope of Utah to enable those people to secure supplemental water from the Green River, to permit those people to maintain their homes and civilization and have a natural growth. That will require a transmountain diversion or importation of water from Green River and it is for that reason I said this morning that if there be water in excess of that required for the Wyoming lands in the Green River Basin, it is our greatest hope that that water can be feasibly imported and permit those people to enjoy a wholesome and natural growth. We in Utah have developed our irrigated land practically to a limit except for the Colorado River and for some pumping areas. We have in Utah about 139,000 acres of land that is well

located, and much of it is contiguous to the faster growing towns in the State, but it requires a pumping lift, but with the power rate now obtaining, it is hopeless and for that reason it is Utah's hope that they might use the Colorado River developed power plants that will produce 400,000 horse power so that it might to these 139,000 acres of land for the development of these lands, and Alunite and fertilizers, and that was one of the requests that was made at Yellowstone, and particularly that power might be developed and furnished to Utah at a like figure that it is furnished in Los Angeles. Utah, with that hope, has asked for an investigation of the power possibilities on the Colorado and Green River and in answer to that request, the Split Mountain and Dewey projects are being investigated and it is our hope that if they don't furnish the power desired, or the necessary figure, that the investigations will proceed until every investigation has been made to determine what will be necessary to fit Utah's needs.

MR. PETERSON: There is one point, there is a possibility as the result of our growth in Utah, on these mountain streams of high gravity of developing plants. Most of the municipal and private plants have developed a water right which permits them to run during the entire year which means that on those particular streams reservoiring is possible because they have the full flow of the stream during the entire winter and a large portion during the flood season and, of course, the water is used for irrigation after it has been used for power. We see in this the possibility of using one-half million acre feet and carrying it from the Colorado River, on a higher elevation, by having power available during the winter flow and flood season and then using that same power for pumping during the irrigation season. This would permit reservoiring on the small streams during the winter and flood waters, and it would utilize the balance on the higher lands.

MR. JENKINS: What do you say as to the available reservoir sites on the headwaters of the streams?

MR. PETERSON: That has been mentioned by Mr. Humphreys.

MR. JENKINS: You estimate that that would mean a saving of 5,000,000 acre feet?

MR. HUMPHREYS: That is approximately about what the figure would be.

MR. SWING: Does that include those 257 reservoirs?

MR. HUMPHREYS: No, that means that water, after passing through power plants, runs into Great Salt Lake and is wasted. If and when power can be gotten from the Colorado River and substituted for the waters now used to generate power, that water can be saved in winter from Colorado River, by watering in the Great Basin.

MR. WALLACE: May it be understood that Utah would like to have the study completed covering the matter to which these gentlemen have referred, and that the report will include all of the small reservoirs, 257 of them, mentioned by Mr. Humphreys.

MR. DEBLER: We certainly will be glad to get all of the data we can so that we can show how much power can be produced in the Colorado River Basin.

MR. WALLACE: And you could make a statement as to the beneficial use which can be made of it.

MR. DEBLER: We could make some general statements; I don't believe we could go into detail or great detail where this water could be saved by power substitution. We worked several years on the Provo River Project in order to gain the use of about 45,000 acre feet. The work could not be done, of course, and charged to the Colorado River Appropriation, but we can certainly consider it in a general way in order to show the possible uses of power that can be produced in the Colorado River Basin.

MR. WALLACE: We are very anxious to coordinate the work of the Bureau of Reclamation with the State of Utah, and include in that report the information that comes about through the coordination of these two studies.

JUDGE STONE: That would be possible, would it not, in this report to coordinate this information and present it in the report as it is prepared by Utah?

MR. DEBLER: We will use every scrap of information we can get. We will certainly use all of the 257 reservoirs. I might at this time say this. They have probably at least up until a year ago or so, have had relatively more valuable information on the possibilities of development in Utah in the Colorado River Basin than we had in any other state for the simple reason that we have this cooperative contract with the State which has been in operation for eighteen years, and we have made a number of detailed investigations of projects in that area.

JUDGE STONE: Mr. Wallace, do I understand that you have in mind that these small reservoir developments are not shown on these maps but as to the major features of this proposed development, as explained by Mr. Debler, that that is substantially in accordance with the Utah Plan?

MR. WALLACE: The point that I am making, is when this plan is finally put into production is that we want it to give the same value to the possibilities on the small streams as to the possibilities on the big streams--they should receive the same benefit on the small streams and I am anxious to include all of these small reservoirs.

MR. DEBLER: It wouldn't be a comprehensive plan without them.

MR. TIPTON: Your statement implies that a number of these are in this basin, is that correct?

MR. HUMPHREYS: No, there are 690 all told. At the time the Green River investigations were taken up, the State of Utah turned over to the Bureau of Reclamation topographic surveys and other information on sixty-two reservoir sites or dam-sites, so that the Bureau of Reclamation is cooperating with that work as its own and using it.

MR. WALLACE: The point is this, then, when the comprehensive report is finally completed, we want the possibilities of every stream shown.

MR. HOSEA: What is the combined classification of those 257 reservoirs?

MR. HUMPHREYS: I would be glad to give them to you if I had it right now.

MR. QUINN: Aren't some of those included in those maps?

MR. HUMPHREYS: There are about 15 included.

MR. DEBLER: It is impossible to show all of those on this report; it may be done in the final report.

MR. PETERSON: I think we should have this thought too: if Utah is going to grow at all, it will be on the basis of complete economic use of all available water and power on the Colorado which will take no water of the Colorado, but will permit the utilization of a lot of water in the basin which can't be used without that power.

MR. DEBLER: That is right; in fact, you may recall on the Bear River Scheme on which we are working, takes into view the use of a lot of power.

MR. PETERSON: You will need that power all year around.

JUDGE STONE: If there is nothing more on the Utah Maps, perhaps the reporter would like a rest.

(Recessed for ten minutes, 4:00 to 4:10)

JUDGE STONE: We will proceed with the work.

MR. DEBLER: I will now take up the Colorado River in Colorado which is the first of these series of detailed maps. This map covers that part of the State of Colorado lying immediately south of the Yampa and White River Basins, drained by the main stem of the Colorado River and its tributaries, exclusive of the Gunnison. The map is the 'Colorado River in Colorado', #246-D-98.

MR. DAVIS: Is that the Green River Basin?

MR. DEBLER: It is the first folded map. Probably the most interesting feature of this drainage area is the number of transmountain diversions. Starting at the extreme north end there is the Grand River Ditch, first of the larger trans-mountain diversions in the entire basins, constructed, I believe, about 1891 or 1892, and then gradually extended with the last extension only now being completed.

MR. SWING: How many acre feet?

MR. DEBLER: About 14,000 acre feet.

MR. TIPTON: Including the extension?

MR. DEBLER: With the extension, I believe it is about 21,000.

The next is the Colorado-Big Thompson Diversion, part of the project now under construction, is a tunnel 13 miles long and diverting an average of 300,000 acre feet a year and requiring for its services, on the western slope the Shadow Mountain Reservoir, which is an extension of Grand Lake. Then, the Granby Reservoir immediately below, with a capacity of 462,000 acre feet from which the water will be pumped into the Shadow Mountain Reservoir.

MR. PETERSON: What lift?

MR. DEBLER: The average lift is about eighty feet. In addition, the project includes some small collecting canals delivering water to the Granby Reservoir and the Green Mountain Reservoir on Blue River which is being built for the purpose of proving exchange storage so that rights down stream may not suffer by the withholding of water at the Granby Reservoir. Next, south, is the Moffat Tunnel, a diversion constructed by a district, of which the City of Denver is the largest interests. Various estimates have been made for the ultimate diversion of this project. I believe our estimate now is 81,000 acre feet. It includes, as you will notice, a number of collecting canals which intercept a number of streams, in both directions. Next is, by the way, that project is now complete as to the tunnel except as to approximately one-half of the diversion canals, with the remaining one-half gradually being added under a policy with which I am not acquainted, but apparently one of extending as monies become available from time to time.

MR. SWING: Is the entire project about 3/4 developed?

MR. DEBLER: I would say that it is now about two-thirds of its ultimate yield, although the collecting canals are not over one-half done.

MR. TIPTON: I believe that is a little bit high-- it would probably be not over one-half of the water.

MR. DEBLER: I see. Well, that is just about half. The Berthoud Pass Diversion is an old constructed diversion and I have completely forgotten what it might divert, but it is probably in the neighborhood of 1,000 acre feet. Next is a small indicated diversion, apparently at the head of Hiskiss Creek. I think that is intended to be the Berthoud Pass Diversion. Next comes the Jones Pass Tunnel which is about 3 miles long, being built by the City of Denver and with which there is associated the Henry #1 Reservoir for exchange purposes on William's River, with a capacity of 5,000 acre feet. The yield on that river is to be about 22,000 acre feet. Right immediately under that there is a much longer tunnel which is the Blue River Diversion, consisting of the Dillon Reservoir site on the Blue River, a canal and a tunnel to carry the water to the Williams Fork and then a seventeen mile canal to the William's Fork under the Jones' Pass into Clear Creek.

MR. WALLACE: How long is the tunnel?

MR. DEBLER: Seventeen miles for the longer, and the shorter one is about six. That project will divert about 450,000 acre feet per year, including, however, the water that the present Jones' Pass projects takes over is some 20,000 acre feet.

MR. SWING: You say it is under construction?

MR. DEBLER: No, it is under investigation. An appropriation was made for that purpose and the detailed report will be out soon.

MR. SWING: Appropriation for construction?

MR. DEBLER: Appropriation for the investigation only. Next south comes the Boreas Pass Project, there are only a few hundred acre feet a year here. Next the Hoosier, which is the same type, with some possibilities of enlargement. Then comes the Columbus Diversion, also one of a few hundred acre feet.

MR. SWING: How many of those are completed?

MR. DEBLER: The Boreas, the Hoosier, and the Columbine are completed. The Ewing Ditch and the Wort's Ditch are also complete.

MR. SWING: How much is the Wort's Ditch?

MR. TIPTON: About 1200 acre feet; the Ewing is about 1800 acre feet.

MR. PATTERSON: MAY I suggest that you didn't show on this map the Fremont Pass Ditch?

MR. DEBLER: How much does that divert?

MR. TIPTON: About 1,400 acre feet during its 3 months' operation. I think the reason it wasn't shown was because it was purchased by a private interest. However, it is about to be repaired for the use of the company.

MR. SWING: Where would it be located on the map?

MR. DEBLER: Just east of the Columbine project.

MR. WALLACE: Which way does the water go after it leaves the mine, down the Colorado?

MR. DEBLER: It goes down the Ten-mile Creek, that was the original idea, but the theory now is, and it is a rather complicated one, is to have intercepting canals to keep the natural drainage from running into the dammed portion. Now, the location on the map, is immediately north of the letter 'R', on the word 'River' which is above the word 'Columbine'. Here, you will note, a little stream having two diversions--that is 10-mile Creek. Coming next south, there is the Busk--Ivanhoe Ditch and tunnel. It is both an operating diversion and a proposed diversion. The operating diversion is a flume through the two mile

tunnel through the Colorado-Midland Railway formerly passed. That diversion will average approximately 5,000 or 6,000 acre feet per year. The longer tunnel, also shown in that location, is about 5 miles long with two canals intersecting. That would have a diversion capacity of 30,000 or 40,000 acre feet per year.

MR. PATTERSON: That has not been investigated as yet.

MR. DEBLER: No, not yet. Next, South, is the Twin Lakes Diversion. That tunnel is under construction, and I think substantially completed. Isn't that correct, Mr. Tipton?

MR. RIPRON: Yes.

MR. DEBLER: A main tunnel, 3 miles long with collecting canals, including some tunnels; then the diversion possibilities, I believe, are about 50,000 acre feet per year?

MR. TIPTON: That is substantially correct.

MR. DEBLER: Going back to local development, there are several areas shown on the upper part of the basin, two of which are under detailed investigation by the Bureau at this time, the others will be ready when we get additional funds for such investigations. Those under investigation at this time are the Troublesome and Muddy Creek Project. In past years, the Gore Canyon Reservoir Site was considered as one of the major storage features of the Colorado River Basin. That, however, does not longer appear to be so attractive because of the extensive diversion of water that will be needed away from that reservoir site, leaving a relatively small supply. The Parcel Reservoir site is one that can be built to about 50,000 acre feet without interfering with existing railroads and would be useful to avoid damaging existing power plants and existing irrigation diversions through the trans-mountain diversions. A little farther down-stream is the Yampa Project which is probably a project of the Yampa Basin, although there are now some diversions of water of Adjournal Creek which is a tributary to the Colorado River. We come next to two very important streams from the standpoint of water production. The Eagle Rock and the Roaring Fork, with limited possibilities for irrigation development, but with rather extensive possibilities for power development. Probably the main reason that power projects are not shown on these streams is that the Colorado has a heavy surplus of power possibilities more attractive than the possibilities on these two streams. The by-products of the major trans-mountain diversions are large quantities of power developed on the eastern slope as the waterfalls from the diversion of elevations of 8,000 and 11,000 feet down to the irrigated plains that have an elevation of 5,000 feet. Below Glenwood Springs, both along the Main River and on the Plateau Creek and other tributaries of the Colorado, the major problem is one of securing supplemental water for existing developments. The possibilities of extension are very

strictly limited. Under the Grand Valley Project there will be some development by pumping and consideration will be given to the possibilities of extension so that a main canal or some coordinating canals to irrigate lands in Utah. Are there any questions as to this drainage area?

MR. PETERSON: Do you have combined the total acre feet you anticipate diverting from the basin?

MR. DEBLER: The Bureau has prepared a map, now four years old, which shows the trans-mountain diversion possibilities on both sides of the basin, with an 'official guess' of what might be diverted; I believe it totals a little over 2,000,000 acre feet.

MR. HOSEA: That is in this one particular division or basin?

MR. DEBLER: No, that is everything, in all states and on both sides of the basin.

MR. SWING: Have you gotten up a recent list of trans-mountain diversions proposed and the estimated amount of water?

MR. DEBLER: No, we never could do that because we haven't got the information.

MR. SWING: I say a list of such projects.

MR. HINDE LIDER: I believe you didn't mention the Wort's Ditch.

MR. DEBLER: Yes I did.

MR. TIPTON: I don't believe you included the Tennessee Pass, which has about 16,000 acre feet with a three mile tunnel?

MR. DEBLER: Yes, I left that out. We will take up next the following map: The 'Gunnison and Lower Dolores Rivers', Map #246-D-100. This map covers the Gunnison River Basin and the Lower Dolores. You will notice at the upper right-hand corner, the Grand Valley Project which is on the Colorado River proper and which was rightly placed on this map to enable the relation to other areas to be recognized. It does not cover the Upper Dolores because that is intimately connected with developments on tributaries of the San Juan River. Proceeding again to the trans-mountain diversion, we find the Gunnison-Arkansas Tunnel, with a length of 16 miles indicated, with collection canals in both directions and with a diversion possibility as high as 500,000 acre feet, but probably materially less. I make that statement because this is one trans-mountain diversion where there is neither a survey by the Bureau or anybody else and we know very little about this trans-mountain diversion. So far as we know there hasn't even been a transit road run

over that mountain range. Now, that diversion, because of its extensive character it necessitates extensive exchange storage to care for the heavy diversions that are needed for the Uncompahgre Project which will be in the neighborhood of the Sapinero Site. Above that reservoir there is a considerable area of irrigated meadows. There are some possibilities for rather small extensions but the development of arable or tillable lands, there might be possibilities for extension by means of pasture lands, but the lands will be very largely on the tributaries. In connection with the Uncompahgre Project, there is the necessity for flood control on the Uncompahgre River, near the town of Colona just at the head of the irrigated area. I believe that this particular area suffers more from flood damage than any other flood area in the Colorado River Basin by reason of quick summer floods which do extensive damage to bridges, roads and canals. You will note there are indicated at the head of the Uncompahgre River several small tillable areas and some possible canals. The aggregate of such development cannot be very large as to tillable lands. I rather believe that there will be a considerable area of pasture lands developed, not only along there, but also on other western tributaries of the Gunnison River. North of the Gunnison area is an aggregation of irrigated areas, irrigated almost entirely by tributary streams. The North Fork itself is a major stream, yet its water can be utilized only to a small extent to water. The irrigable lands are largely high above the stream and must be served from tributaries on which the storage possibilities are not very promising and where the run-off is particularly flashy. The exception to that is the Grand Mesa River, where there are numerous small lakelets and there are several hundred small reservoirs which have over 1200 acre feet in capacity, and going far to the right, and very close to the Continental Divide, is the Taylor Project.

MR. APPTERSON: You didn't mention the fact that the large Uncompahgre Project derives its major supply from a tunnel from the Gunnison River.

MR. DEBLER: The diversion for the Uncompahgre River immediately to the right of the word 'Montrose'. It is a six mile tunnel built thirty years ago and now being enlarged as to capacity by lining.

MR. JENKINS: How much of a flow is there?

MR. DEBIER: The tunnel's capacity will be about 1200 second feet and after this lining is put in, the irrigated area is about 65,000 acres and will probably increase to about 75,000 or 80,000. This region, and particularly above the Gunnison Tunnel, has extensive power possibilities but it is rather distant from power markets and while their report will show these extensive power possibilities, I don't believe they are likely to be developed in the near future except as they may be used in local developments--in the development of mineral and metals. The San-McGill River is indicated as a tributary of the Dolores with a very large area

of tillable land. I am certain that the possibilities are very heavily over-drawn on this map but the reports showed that and we are accepting it until such time until our work of land classification is finished in this particular area. There is much water in this area which might be utilized but the main problem is suitable land and works within a reasonable cost. To the north of the Dolores River there is a similarly indicated extensive area of land called the 'Disappointment' Project. The flow of that stream will not support irrigation for an area that large. The Tarbell diversion which is from the Cochetopa Creek to the Sawatch, entering the San Luis Valley, which has been under operation for many years and which, in time, will be extended. I don't recall the diversions of that ditch; they are relatively small.

MR. TIPTON: About two or three hundred acre feet subject to extension of about 2,000.

MR. DEBLER: The Tabor diversion, I think, was a proposed tunnel. I don't think it is operating.

MR. TIPTON: It is operating; it is smaller than the Tarbell. I think it is about 200 acre feet.

MR. SWING: Will someone say what the 'Monarch' is in the way of diversion?

MR. DEBLER: That is a road.

JUDGE STONE: Before there is any statement from Colorado or anyone else, I believe we ought to complete the Colorado Area. There is another map, isn't there?

MR. DEBIER: Yes, it is the San Juan and the Upper Dolores Rivers Map No. 246-D-110. Again we will proceed with the trans-mountain diversion possibilities. The first one is from the Howardsville Reservoir site, one of the diversions that was investigated in connection with the Rio Grande Joint Investigation, with diversion possibility of 130,000 acre feet per year, including the collection canals on the Animas Side.

MR. WALLACE: How long is the tunnel?

MR. DEBIER: The tunnel is about 13 miles, I think.

MR. HINDERLIDER: That is correct.

MR. DEBLER: Next comes the Weminuche diversion. The tunnel is right at the head of the Pine River. The best plan there is a short tunnel, one of three to four thousand feet in length, with collection canals. I think the diversion possibilities average 25,000 acre feet per year. It so happens that in low water years no water can be taken. Next comes the San Juan to the Couth Fork Diversion, from the West Fork of the San Juan to the South Fork of the Rio Grande, I believe there is nine miles of Tunnel on that, and the diversion possibility is 52,000 acre feet per year.

MR. SWING: None of these are completed yet?

MR. DEBLER: No. Going south there is the San Juan Chama, with a diversion possibility of 350,000 acre feet per year including, however, the 52,000 acre feet which the San Juan South Fork Diversion could take. It is duplication to that extent. That diversion; that is, the San Juan Chama Diversion, requires the necessity of four reservoirs and a diversion approximately 100 miles long, including some twelve miles of tunnel for local development. As we go down the main river from those eastern diversions, we find several proposed reservoir sites along the main stream, which are, the Arboles and the Turley. The Bureau had never investigated those thoroughly. They have been surveyed a number of times and there has been some geographic reports on them and they are none too feasible. Their use would come primarily in the development of the Turley Project which will be, in any event, very expensive.

MR. WALLACE: How long is that tunnel?

MR. DEBLER: Surveys which we have made are not sufficient to make any statement on that. The map shows those tunnels, but I don't remember what those lengths were, but what is shown there is the result of an Altimeter Reconnaissance. Although it is very difficult to reach, the best part of the area is one of about 50,000 acres, very close to the San Juan River and designated the Sheep's Rock Project. That area can be reached by a canal starting about Farmington and building a direct pumping plant.

MR. WALLACE: How high?

MR. DEBLER: It isn't over 100 feet. Now, to a certain extent, the Turley Project and the San Juan Chama are competitive. If the San Juan Chama Project is built there will, of course, be far less water for the Turley. On the Los Pinos River at Balliseda, a reservoir is now under construction to provide supplemental water for 35,000 acres, to enable 34,000 additional acres to be irrigated.

MR. SWING: Where is the Los Pinos River?

MR. DEBLER: Los Pinos is Pine River on the Map. The Bureau is conducting an investigation on the Florida River and will shortly issue a report thereon. The possibilities for extension on that stream are very minor. There is a large irrigable area on the La Plata. It is designated the La Plata Project. This land lies at a high altitude. Much extension surveys are under way to ascertain the possibilities of bringing Animas River water to that territory and also from the east Fork of the Mancos River. The prospects for such a diversion from the Animas River are not very bright. The prospects are that they will have to fall back on their own water entirely, which will necessitate one or two reservoirs to enable the New Mexico area to be irrigated without calling

upon the Colorado areas for specific releases. I mention that because that stream is covered by a compact. On the Dolores area or rather the area at the head of Elmo Creek, the main water supply is derived from the Dolores River and extensions have been proposed not only on that project but also for the irrigation of the Dolores Project where there is a large area of tillable land reaching into Utah. This area, as a whole is an inter-state area. You will notice the San Juan and its tributaries cross the New Mexico line. Naturally before the development plan can be completed, there must be an understanding between these states with regard to a plan that they both can support. As soon as we have developed additional information and sufficient information for an intelligent discussion of these problems, it is expected to arrange for such an inter-state conference and it is not unlikely that there will be a series of conferences since inter-state projects are receiving preferred consideration to prepare them for construction, but there will have to be a settlement as to those problems before the rest of the area is given consideration. The Dolores Project straddles the Colorado-Utah line but until we know more about the water supplies available and the possibility of their conservation, we are not in a position to suggest a conference on that project. It is possible that there will not be enough water there to justify the construction of any part of that project.

MR. HUMPHREYS: Do you mean any part of the project in Utah?

MR. DEBLER: In any state.

MR. PETERSON: Is there any tunnel there, or the necessity for building one?

MR. DEBLER: I think it is only two or three miles long, the diversion is about 300 feet above the river. We have not indicated on this map very much in the way of development possibilities in south-eastern Utah on Montezuma Creek and Monument Creek. Minor investigations have been made there and I have no doubt that additional investigation will be against the possibility of numerous small reservoirs. I rather suspect that some of Mr. Humphreys 257 reservoirs are in this area. Now, the Bluff Reservoir Site shown there in southeastern Utah, is a very attractive reservoir site. There is a heavy run-off. However, when built, its principal position will be that of silt detention and flood control, but primarily silt detention, to lengthen the life of the Boulder Canyon Reservoir Flood Control--to enable the flood control capacity reserve at Boulder Canyon to be decreased to some extent, and to be able to increase its power protection, but primarily silt control. If we can develop storage there, probably it is better to use it at this out of the way place rather than to use it at Boulder Canyon where the storage capacity is much more valuable. The Town of Bluff has already sent us a letter protesting that it would cover their townsite.

MR. PETERSON: There is a splendid bench just north where they could build, towards Balnding.

MR. DEBLER: I am glad to hear that. That concludes this map.

JUDGE STONE: I believe, then, in accordance with our procedure, it would be in order for any further comment from any representatives of Colorado, New Mexico, and Utah. Mr. Patterson made a statement at Green River, Wyoming, and without the necessity of repeating that full statement, he will refer to certain appurtenant pronouncements of that statement.

MR. APTTERSON: Regarding these exportation projects and leaving out for the moment those that are shown on this map that Mr. Debler has just been discussing, that are designed to carry water to the Rio Grande Basin, the remaining trans-mountain diversion projects that have been mentioned are designed to furnish water to the Arkansas Valley and the South Platte Valley in Eastern Colorado. That portion of Colorado has a total area of about 40,000 square miles, or about 40% of the total area of the State. Within that territory there are approximately 20,000,000 acres of land, which the land classification and soil surveys has classified as being suitable for irrigation. Less than 2,000,000 acres of this 20,000,000 are now irrigated and yet, for at least thirty years, the water supplies of those two stream basins have been largely over-appropriated so that we are confronted with this practical phase that approximately 18,000,000 acres of good land appears destined to remain without irrigation and for the 2,000,000 acres we find now that this trans-mountain diversion water is required, for supplemental irrigation supplies take up existing deficiencies. Now, with respect to the trans-mountain diversions on the map which Mr. Debler has just been referring to: I don't know whether he directed attention to this phase that in a few instances there is a conflict in the sense that two diversions are proposed for the same water and he has given you the possibilities of each supply, and if you will add them all together, you will get more than the total of both; that is the Chama and the South Fork of the San Juan. The other point that I want to explain is the present policy of the State of Colorado with respect to the rights of these proposed trans-mountain diversion projects. As I recall the statement that was made at Green River, which was following the statement from Utah, that they had a definite state policy. Ours goes to this effect; that the water produced in the Colorado River Basin is to be used within that Basin for the irrigation of lands that are now irrigated, and conserved for the use of arable lands that are to be irrigated in the future, and that the rights of a trans-mountain diversion project are not arranged strictly in order of priority but are subservient to the rights from the basin in which the water is to be taken. I recall this, also, that under the Big-Thompson Project, an agreement was entered into between the inter-states of the Colorado River Basin and the project in the South Platte Basin was proposed, and which agreement was later turned into a document, known as Senate Document #80 which provides for the features of operation of that project after it is constructed and in substance, provides that the uses of

water on the western slope shall be considered superior to those of the trans-mountain diversion projects; that there are certain benefits accruing from water other than its diversion use; benefits that must be preserved. Those phases, to some extent, are under the discretion of the Secretary of the Interior, or, if at any time, the obligation of the Upper Basin States and the State of Colorado is such that restrictions must be imposed on someone, then the trans-mountain diversion project, regardless of its date of priority, must first find way. We make that statement as to the stand of the State of Colorado. I believe Mr. Debler has covered the other phase, covering reservoirs to protect the western slope and inter-state problems that are constructed at the expense of the sponsors of the trans-mountain diversion project.

MR. WALLACE: That does not go so far that if new projects were developed on the western slope, that the Eastern Slope still has a priority?

MR. PATTERSON: Yes, I am talking about entirely new projects.

JUDGE STONE: I think that could be explained in a supplemental statement. Mr. Patterson remarks in this way: That the primary principle is that present and future uses of water are to be protected in the event of a trans-mountain diversion. Now, the question may be asked if that is done. Under this agreement, the land classification surveys of the Bureau of Reclamation were consulted and the needs of water for those lands considered and not claimed in the reservoirs. Storage capacity was provided for two purposes, first for presenting fixed rights to maintain a stream flow, and water stored sufficient to maintain a flow at the diversion point which, at the Grand Valley Project is 1800 second feet and at the Shoshone Project, 1250 second feet. That flow of water, after a careful consideration of the lands to be developed or already developed, was estimated to be sufficient to make that statement.

MR. WALLACE: Mister, you made a mistake in your estimates.

JUDGE STONE: I don't believe that we made a mistake when we made those estimates up, since we made them up on the principal that first use of water should be for the Colorado River Basin.

MR. HINDERLIDER: I got the impression that, Mr. Patterson, covered all trans-mountain diversions and, of course, those that are contemplated.

JUDGE STONE: Those that were already under construction prior to the time this policy was formed were all small reservoirs.

MR. HINDERLIDER: But the diversion by the City of Denver contains similar provisions but it is covered by an agreement made at a public meeting in Denver and the agreement made at that time was for the domestic use for the City of Denver--no replacement or exchange storage was claimed.

JUDGE STONE: Is there anything futher you want to bring up?

MR. HINDERLIDER: I think not; I was very much interested in Mr. Debler's analysis of Colorado's needs, and it occurs to me that our policy is in complete harmony with what they are attempting to do. As Mr. Patterson brought out, we are very much interested in the developing of small up-stream reservoirs, and as brought out with regard to Utah's Views. Also, there is a great need for supplemental water supplies on tributary streams in Colorado. There is a great need for increasing the existing ones.

MR. DEBLER: I might say that so far as I know, our activities in Colorado will be almost entirely of that character for the next year or two.

MR. HINDERLIDER: I would like the record to show that we are very much interested in the same kind of a program that Utah announced.

MR. DEBLER: I think your case is a little different. Utah reservoirs are only about 1,000 acre feet, while yours are about 5,000 to 8,000 acre feet. The Colorado program will be of that type of investigation for the next year or two.

MR. WALLACE: Well, we will all be very much interested in planning.

MR. DEBLER: I might ask Judge Stone to speak on this program in Colorado.

JUDGE STONE: I might say this for those who are not familiar with it. The Colorado River Conservation Board is, of course, working to a large extent as a coordinating board for the promotion of water development and diversion needs and on that board we find the Chairman of the Planning Commission, the State Engineer, the Attorney General; the Governor is the Chairman of that Board. The State has been active with the board of this kind (consisting of seven members), in developing a definite plan and the Board expects to follow up this plan of comprehensive development with a report showing the plan of developing including the small reservoirs. That will be worked out after careful study and investigation with the Board Members. I might at this time also mention, we have the Colorado River Conservancy Board. Mr. Frank Merriell is in charge of that Board. This Conservancy Board is authorized, by statute, and when that board is set up, as it comprises seven counties, we hope or expect to work out difficultues between the two slopes and, in a sense, other basin problems and particularly the Lower Basin States may be assured that the basin water will be amply taken care of through activities of the Colorado River Conservancy Board, and the Colorado Water Conservation Board. Colorado has submitted to Mr. Debler a statement as to what areas and projects it hopes will be investigated first. We expect to follow that up with a more complete and definite statement. Mr. Hinderlinder has brought out in the statement he made a moment or two ago as regards Western Colorado, and that is the small reservoir development. If they (Western Colorado

are to receive proper treatment and full development, these will have to be built. It is something, too, under the present policy which will have to be considered before other large trans-mountain diversions are finally consummated; at least there must be a view on the part of the Western Slope people that these small reservoirs will work out and that these trans-mountain diversions will not effect them. As a matter of fact, these trans-mountain diversions will not effect these small reservoirs, as was shown by a paper which was recently worked up. Then, the pasture land development is one of great importance to the State. Outside of the fruit country near Grand Junction, there are livestock areas which are dependent upon the pasture land development because the winter feed is out of balance with the pasture land for the summer, and the only way to correct that is to increase the carrying capacity of those areas. It was estimated, recently by a representative of the Taylor Grazing Service that proper irrigation of some of these pasture lands would increase the carrying capacity about ten times. I imagine, Mr. Debler, that is what you had in mind. I would like to call now on Mr. Merriell.

(MR. Merriell told a story and which he requested to be kept off the record.)

JUDGE STONE: The fact remains, that I think in Colorado these problems will be worked out very satisfactorily. Is there anyone else?

MR. MCCLURE: I would like to say that New Mexico's policy in regard to trans-mountain diversions is very similar to that of Colorado. We are expecting to develop San Juan County Area, using all of the surplus water available. We realize that we are limited in the amount of lands, however, we would like to keep our whole development in Northwest New Mexico in the picture and that is what we are asking for. We do have more particular interest in our wheat lands at the present time than what we call 'Indian Lands'; nevertheless, there is a large area in Northwestern New Mexico that are Indian lands, and they have received quite a lot of development.

JUDGE STONE: Has the State of New Mexico ever developed a policy as to the Turley Project?

MR. MCCLURE: It has not, except as to the standpoint that they do want to develop on the San Juan Area and let the trans-mountain diversions take what can be had after the prospective development of the land in San Juan County has been made.

JUDGE STONE: Do any of the other states have anything else to ask? I notice it is fifteen minutes to six, and we still have left the three states of the Lower Basin. We can take that up in the morning--any time you want.

MR. SWING: I was in hopes we could meet with Mr. Debler today. So far from the amount we have heard, I think there should be some appropriate interval for thought and contemplation preceding the decisions. I hope they are not written out already.

JUDGE STONE: I do realize: That we do have two other important matters to consider before we adjourn; so would you gentlemen be agreeable if we were to come back here at either 7:30 or 8:00 tonight and clean up Mr. Debler's statements. I am glad to hear you say that at conferences of this kind, you are here to work and are really getting down to a discussion such as that discussed today. If it is agrable we will recess until 8:00 this evening.

Meeting recessed until 8:00 P. M.

MINUTES OF MEETING

COLORADO RIVER COMMITTEE OF FOURTEEN

OCTOBER 6, 1938 Evening Session

JUDGE STONE: The meeting will come to order. There are some who have said it will be impossible for them to be here. They will give their excuses tomorrow morning. Mr. Debler, I presume the order of business is to proceed with those other maps.

MR. DEBLER: The next map, is the 'Little Colorado River', Map No. 246-D-112. In discussing this drainage area, I wish to start with the statement that we have not as yet made the land classification survey in this basin and have not made any investigations in the basin with any 'Section 15' money. What work has been done there was done some years ago. However, we will be in this area this winter, and next spring. The Basin reaches into New Mexico although the greater part is in Arizona, and I have indicated here only the areas now actually irrigated, since we do not have information on additional possible developments. There are--can be no large developments in the New Mexico area as the water supplies are very limited. The run-off being very largely 'flash' floods and rather difficult to capture and they have so much silt in them there is some question that much can be done with the exception of small reservoirs for stock-watering purposes. Coming into Arizona, the numerous tributaries of the stream finally result in a much better suspended flow in the Holbrook group vicinity, all told forming an attractive stream in that respect. What is indicated as the Winslow Project was given some consideration about fifteen years ago. What the present day records will show for run-off, I do not know, but it is to be expected that this area, along with others, will present less practical value than was presumed in years back. The Woodruff Reservoir site is also one to be considered and we know that there is need for supplemental water on a number of the tributaries coming from the west into the Little Colorado. The developments are very minor at this time and storage is needed, but we do not at this time have the information in sufficient detail, and unless we have it in more accurate form, it cannot be considered at this time. One thing is reasonably certain and that is the Tolcheeko Reservoir Site, indicated on the map, and which is located immediately above the point where the Little Colorado starts its rapid descent into the Canyon, will be a desirable development for the retention of silt. Storage capacity at that point will apparently be very cheap. It does not appear to be particularly desirable for any other purpose.

In connection with flood control, the floods of the Little Colorado do not coincide with the floods from the Upper Basin. Consequently there is nothing to be gained at Boulder Canyon by securing flood control storage at this point. The site was covered by an application before the Federal Power Commission some fifteen years ago, but I do not believe that there is enough water at that point to warrant power development. There will, of course, be less when the water developments are completed up-stream. I am sure that throughout this area there are numerous opportunities for small storage developments--small reservoirs,

but my understanding is that, between the Indian Service and the Soil Conservation Service, these possibilities will probably be fully utilized long before they are elsewhere in the basin of the Colorado. That is all I can tell you about this basin.

MR. PATTERSON: Where does it enter with respect to Lee's Ferry?

MR. DEBLER: It comes in some seventy-five miles below and just at the upper end of the Grand Canyon National Park.

MR. SWING: How big is this Winslow Project?

MR. DEBLER: It was, at one time, estimated to be about 40,000 acre feet, but I doubt this very much.

MR. JENKINS: You say the waters for the Winslow Project comes out of the Little Colorado?

MR. DEBLER: Yes.

MR. JENKINS: I just didn't understand how it would reach Winslow.

MR. DEBLER: There will be storage at Winslow and several other sites.

JUDGE STONE: Mr. Davis, do you have a statement to make concerning that area?

MR. DAVIS: In connection with the Tolcheeko Reservoir, we couldn't see any need for that as far as irrigation was concerned, but I might say that the Army Engineers for the last year or so have done a great deal of work in that section and the report got out that they gave out the information (we can't verify it because they have not released their findings) but they said at Negross Springs and San Juan that they could be diverted into the headwaters of the Little Colorado.

MR. DEBLER: You say that those people had gained the impression from the army engineers that the water from the San Juan instead of being diverted into the Chama, could be diverted into the Little Colorado?

MR. DAVIS: Yes

MR. DEBLER: You will notice that high canal covering the Turley Project (pointing to the map). Now, if you can envision a similar canal lying to the right and passing through that New Mexico country . . .

MR. SWING: How many miles?

MR. DEBLER: Well it would take at least 400 miles of canal from the place you left the San Juan River because that is extremely rough country.

MR. DAVIS: Their contention was that it would be entirely gravity.

MR. DEBLER: It would be all gravity, but it would be over very difficult country. Approximately east of where the name 'Turley Dam Site', (pointing to the map) if you go over there in that Indian Reservation country, you will find it is a country of extreme relief, and there are ledges there anywhere from 1,500 to 2,500 feet, then the bottoms of the canyons themselves are very deep. We attempted to find a better line from the San Juan River to the lands lying above that; we attempted to find a way to get into that country, but we just had an awful job, and I think the best way to get water over there is to have a bird carry it with its legs.

Mr. Jenkins: You can't water that by diverting from around Lee's Ferry, could you?

MR. DEBLER: At Lee's Ferry the top of the canyon wall is at an elevation of about 3,900 feet; Albuquerque is about 6,000 feet, and Winslow is about 6,000 feet; there is a fall of about 3,000 feet down to Cameron, and at Winslow the town is at least 3,000 feet higher than the river is at Cameron.

MR. DAVIS: The day that the Army Engineers released their survey work they were going to submit it to us, but they haven't been able to do that yet.

MR. DEBLER: We are giving it enough consideration so as to show what a tough job it is; a very extensive survey is a waste of time because of the land.

MR. DAVIS: Of the investigation that was made from the contour lines and the maps sent you, did they indicate that it could be done?

MR. DEBLER: Well, the difficulty with those contour maps is because they are old maps with contour intervals every 250 feet and they are drawn rather roughly.

MR. DAVIS: But there does seem to be some development on the Little Colorado River?

MR. DEBLER: Well, I don't know.

MR. DAVIS: How much flow goes out of there--I heard it was about one-half million acre feet?

MR. DEBLER: I think the average of this stream may be up just a little. I was thinking in terms of dam-sites--about 150,000. By the time you take that out for the upper developments and flood water diversions and so forth, it is going to come down to a stream that is not very useful for anything that we can think of.

MR. DAVIS: It would take storage on that to make it worth anything?

MR. PATTERSON: Did I understand you to say that the Army Engineers have been surveying up in the San Juan Country, in Colorado?

MR. DAVIS: Not in Colorado, I don't believe. All I know is what these people have come down and told us. They said they had information that the San Juan could be diverted into the Little Colorado without much trouble. That is just a broad statement; we haven't been able to determine just exactly the truth. They have promised to get us the surveys but they have not done so yet.

MR. PATTERSON: The Army Engineers held a hearing in Colorado just last month and I attended that hearing and I believe I was present every moment and I didn't hear of any such mention of any project like that.

JUDGE STONE: Any further comments?

MR. DAVIS: No, I just wanted to mention that.

JUDGE STONE: Any others? If not, Mr. Debler, let us go ahead.

MR. DEBLER: The next is the Virgin River Basin. This is a real problem area. The Virgin River starts among the rather thinly forested areas around the Zion National Park and in a very muchly scattered watershed with a flow becoming of some proportions only after the headwaters are left, but at that time the stream is very heavily silt laden. The proposals for development have, in some instances, contemplated 'empires', but the stream has a relatively little low run-off; I believe it is in the neighborhood of 2,500 acre feet per year. Above the point where it joins the Muddy Creek that run-off has been as high as 1,500,000 acre feet and, of course, almost a dry stream in occasional years. However, our attentions in the past have been directed to what is indicated as the Dixie Project. Unfortunately the only reservoir site available for its development has got better land in it than you can irrigate with the water you can develop. What is desired at this time is some means of providing supplemental water supplies for areas already under irrigation, and this, in turn, seems to require storage at the extreme headwaters in order to avoid the silt problem. That, in turn, means scattered storages. We are not prepared to say what is a feasible development. I believe Mr. Humpherys has given it far more attention than we have. We hope to get into that area probably in the spring because the extreme headwaters of the drainage area are snowed in in the winter. I will ask at this point that Mr. Humpherys tell us a little more about it because he is better acquainted with it than I am.

MR. HUMPHERYS: The Bureau of Reclamation, in cooperation with the Utah Water Storage Commission, investigated the so-called Dixie Project for its probable irrigation of approximately 4,700 acres in and about Hurricane, contemplating the making over of an existing canal and storing water in the amount of 26,000 acre feet in the Bench Lake Reservoir. The cost was in excess of \$300.00 per acre and, of course, at this time, is apparently out of the question. At the conclusion of that

investigation, the State began examining small reservoirs and up to this time about twenty have been investigated, three of which offer some promise of furnishing water free from silt or almost free, for irrigation of probably 2,500 acres in and about Hurricane. The most feasible reservoir perhaps, is the "Big Creek Reservoir" site, which is shown on the Bureau Map below the word "River", on the Upper edge of the map. There is a like or similar reservoir on North Creek. The two of them will provide approximately 5,000 acre feet. Unfortunately the North Creek Reservoir, which is now shown here, is in a National Monument, with no provision in its creation for the building of a reservoir.

MR. DEBLER: You mean a National Park?

MR. HUMPHREYS: It is a National Monument. This is a supplemental tract or area that has been added to the Park. In addition to that, another reservoir is located on East Fork likewise appears to be feasible. There are three other small ones, the combined capacity of all will not store what the Bureau of Reclamation felt was available; namely, about 26,000 acre feet over and above all rights involved in connection with other tracts; namely, the St. George Field, as it is called. On the Bench there are about 4,000 or 5,000 acres, part of which is now irrigated partially. There are four reservoir sites available but the silt problem is a menace, probably, to their successful building. The State has established gauging stations on practically every stream in Washington County having to do with the arable lands, so that in addition to the study on small reservoirs which will have been completed by the time you are ready to go in, we also have very much data on stream flow and will turn it over to you for your use.

MR. DEBLER: Now, you will notice that the map next passes into Arizona.

MR. PETERSON: I believe that a word should go into the record regarding this: this is the most saturated population we have had in our western area. There is a large number of people dependant entirely on agriculture. They have a 180-day growing season, with high average temperatures, but the water is needed very late in the season, and the Virgin River itself, with the silt, is going to be quite a problem.

MR. DEBLER: I can recall this: that on one man's place, at Hurricane, I have seen growing on one place black grapes, concord grapes, pears, figs, apples, and small fruits.

MR. PETERSON: The average area there is just a trifle over one acre to the next person, and there is no place where additional water is needed like it is here.

MEMBER: How did they happen to settle there?

MR. PETERSON: The small tracts were exceedingly promising and to begin with they lived on the range, and which brings up a problem as to State lines. The winter range is in Arizona and the summer in the mountains near there, but the grazing now is gone.

MR. JENKINS: Is that the Orderville area?

MR. PETERSON: Yes, but the Orderville area is not as bad a condition as this.

MR. MARGETTS: Looking to the improvement of that watershed area, the state has recently organized practically all of the areas shown on the map into soil conservation districts, the objective being to prevent soil erosion and flood damage by possibly reseeding, reforestation and some projects in the water-ways which, under the terms of this Flood Control Act, would involve the Army Engineers as well as the Department of Agriculture.

MR. DEBLER: Continuing the stream then passes into Arizona and in that area, and in that area I might say, straddling the Arizona line there is what was called the Littlefield Project which was investigated in 1923. There is plenty of water in that area but the water supply is extremely limited. It is dependent entirely on the development of reservoirs at either the Bloomington or the Big Basin Site, which are just above there. The Bloomington site is a very, very narrow canyon where a dam could be built to a height of very, very many hundreds of feet and secure a good-sized capacity, but again the silt problem is such that it seems evident that even a capacity of 1,000,000 acre feet would be lost within a period of sixty to seventy-five years and it just isn't possible to seriously suggest such a project. There are, however, some possibilities in there which must be looked into. Immediately below that canyon and starting near the Arizona line and working down through those little tracts that are shown there and which are now largely irrigated above the headwaters of Lake Meade, that is the Mesquite and Buckheart area mainly, and we find there is quite a little water originates above those tracts in the form of springs, and the development of those spring waters is a matter which will be given consideration. The Meadowvalley is a flood control area, primarily. That stream has a small, more or less dependable flow, near its upper reaches which irrigates some small tracts. There is a reservoir at the Dalmue site which will be given consideration below that point. It is a flood control stream and will be considered as such. When you get to the Meadowvalley Reservoir Site, again there is need for flood control for the protection of the irrigated area above the Lake Meade backwater. The Arrowhead site, shown on the map, is also primarily a flood control site, since for years at a time there is no water whatever coming through there. I have nothing further to offer on that area.

JUDGE STONE: Mr. Humphreys, is there any further comment?

Mr. Humphreys: No.

JUDGE STONE: Mr. Davis?

MR. DAVIS: Well, there is something I think we should consider in this area and that is where the policy of the National Government as to such

things as this reclamation. Just about a month ago there was a hearing held at St. George, Utah, of the Army Engineers and the National Resources Board and this was put forcibly: that this area illustrates the need in handling such problems and they said in their opinion there was a direct swing in the national policy toward the handling of these problems. Now, in this area the mountains are steep and the fall is so great, that in every cloudburst or rain, it does a tremendous amount of damage there, which isn't the reclamation of the land altogether, but the new viewpoint is that the national welfare depends upon preserving the national wealth. It is the theory that it is the national welfare in the eastern states, where flood control is very vital and that the government is taking the stand in the eastern section of the United States that the Government should concern itself in the protection of its national wealth; that there is a value, and beyond the mere value of acres is a dollars and cents value in the national assets. It was brought out there that ten or twelve years ago it washed out the railroad and it would take them five or six months before they had train service going. The same thing happened last March and it was several weeks -- three weeks that they were out on the Union Pacific. Now, the towns are almost wiped out, crops are lost, and much fertile land is simply washed away. Now, their plea was to regulate that as a matter under our Flood Control and silt control in these steep runoffs and washes that come down. They have taken samples and it runs as high as 65% silt material. That is thick enough to cut. They think that the United States Government should invest money there not by the cost per acre, but for the national welfare and that the national government should not expect to have that money returned to them. They told of the time to come when there would be a change in the national policy and these things will be considered. I think it is a point we ought to consider.

JUDGE STONE: Apparently some of the considerations submitted there and policies were simply some of those that were urged at the hearings of the Upper Basin. The Upper Basin recently had flood control meetings in Colorado and there were several in Utah. I don't know what was brought out there, but matters of that kind were urged at the Colorado hearing by stressing flood control, silt control and the destruction of property, leaving irrigation but incidental.

MR. DEBLER: If I haven't made myself clear that when I speak of flood control, I don't mean a reservoir would be paid for by any amount of land. When I speak of reservoirs, I mean storage capacity that are used for flood control purposes so that you might say it is "earmarked" for flood control storage does not involve addition to any land. It is "flood control" and not irrigation storage. We may have protection in numerous reservoirs, as we have in Boulder, but it is nevertheless flood control. It is our plan all the way through where there is flood control incidental to irrigation, to bring out the benefits and the effects of its use and also, where there is to be storage capacity to be provided which is primarily flood control but which may on particular occasions or under certain circumstances be used to some extent for irrigation, to show that the irrigation is incidental, with flood control being the

major purpose, so that, of course, there is finally storage capacity provided for flood control and that naturally will not show any use for irrigation purposes whatsoever. It is strictly flood control.

MR. PETERSON: The hydraulic gravel on this stream shows that on an average of one, two and three times a year the flow will pump from one hundred to 2,500 second feet in an hour or so. I saw it dig a cement bridge out down by Littlefield.

MR. DEBLER: It is a situation, Professor Peterson, that where the stream bed had been unable to carry extreme flows, it is just a case of the water going wild when that happens.

MR. PETERSON: I think this might have been aggravated by the use of the range, but there is a story told: (Mr. Peterson told a story in connection with the naming of the Virgin and Muddy Rivers).

JUDGE STONE: Mr. Smith, do you have any comments to make?

MR. SMITH: I believe the Soil Conservation Service has just within the last few days, approved a study and a proposed project to divert water, to put in a new diversion for water, to water areas shown in Nevada, near the towns of Bunkerville and Mesquite. Those towns are not shown on the map. They contemplate conservation of water by this diversion, making one diversion in Arizona, bringing it into the Nevada area between the town of Mesquite to the north of the Virgin River and crossing a canal where the highway is not located -- crossing the river with a canal and in that way irrigating the land which is not shown on this map, on the south side of the river in Nevada as well as the land that is shown, and some additional land on the north side of the River. The Soil Conservation Service are undertaking this study and they probably will approve the project. There is about \$50,000.00 available for Nevada, and it was agreed at a recent meeting in Sacramento, that of several proposed projects in Nevada, this was the most feasible.

MR. PETERSON: Was that made available under the Water Facilities Act?

MR. SMITH: Yes. The drawback to this area in the past was that there has never been a good diversion. The periodical floods have repeatedly destroyed the diversions which irrigate the Nevada land on the south side of the river and also on the north side, but there is a site in Arizona where a good diversion can be made, one that can be protected and which would serve the entire valley.

MR. PETERSON: Did I understand you to say, Mr. Smith, that land classification maps of the Virgin River had been made? Are they complete?

MR. DEBLER: No, they are only partially complete.

MR. PETERSON: The soil land classification in Washington County has been completed for a year.

MR. DEBLER: Yes, it is complete in Utah, but not in Arizona.

MR. PETERSON: The water studies are also complete.

MR. DEBLER: I don't believe so--not as to the development of the small reservoirs.

MR. PETERSON: The water rights have been coordinated with all the parcels of land.

MR. DEBLER: I don't know what you mean.

MR. HUMPHERYS: These studies were made by the Utah Extension Service several years ago.

MR. SMITH: May I add that the same condition exists in this valley that Professor Peterson brought out in regard to the St. George area in connection with the over-population. There is a very great percentage of industrious, fine people living there, and the amount of land is limited, the temperatures high, but the climate very feasible. There is a wide variety of crops which can be produced and the desirability of doing something to help these people and protect their present holdings is apparent.

MR. PETERSON: In connection with that area, in addition to the land and water studies down there, the complete economic analysis has been made of this county both as to range availability and other economic resources, and that has been carefully prepared.

MR. DEBLER: We will be glad to have that.

MR. PETERSON: I would also like to emphasize use in the Bloomington area; certainly you should utilize that rock gorge or there won't be enough water down there ----

MR. DEBLER: The difficulty about that reservoir is, of course, its inability to retain its capacity. I think the studies will have to be devoted more to the possibilities of off-stream storage in order to preserve capacity. It is just too costly to attempt to outlast the river in filling up a reservoir.

MR. PETERSON: Well, the rains that give us these storms don't always occur on your present river streams. I think one of the largest streams comes out of Ash Creek which is normally dry.

MR. DEBLER: The streams that are filled continuously adapt themselves by vegetations and growth to a protection from floods; it is the streams that are dry that are most injured by these floods. If there are no further questions I would like to go on with the Gila River. No. 246-D-115. Now, the Gila River rises in New Mexico, and on this map there is indicated, north of Lordsburg, the Hooker Reservoir site . . .

MR. SMITH: I might also add in connection with the Virgin area, there is definite possibilities of irrigating more land in that area by pumping from Lake Mead, or from the river.

MR. DEBLER: That comes in in another map.

MR. SMITH: In this particular area we are referring to the Virgin River.

MR. DEBLER: You mean from the Virgin River sands.

MR. SMITH: Yes. There will be power available very shortly. . . .

MR. DEBLER: There is no doubt a very good chance of recovering underground flows in that territory, but if you attempted it above those present diversions you will deprive them of that water, but there are those possibilities below the last gravity diversion in that area and from there on down to the reservoir, with the river gravel~~s~~ acting as a natural reservoir.

MR. PETERSON: You don't consider Las Vegas on the Virgin drainage?

MR. DEBLER: No, I believe they are thinking of reclaiming only the return flows and wastings below the Gransvell and Mesquite lands, which offers opportunities for limited development to provide supplemental water for some 2,000 acres now irrigated. Then, there is the Cliff Site shown on this map and as I recall, there may be some few thousand acres of additional land that can be reached there. However, that project is in the doubtful class by reason of the upper claims to the water of the Gila, and it seems that the Gila River is already in a highly developed state. If such a project is developed it will have to be preceded by a compact between the states of New Mexico and Arizona. At the Hooker Reservoir site there are limited possibilities for power development with the output readily usable in the Silver City area. The Cliff Reservoir site is useful as a power or flood control development. It is practicable to build a very high dam but there is a considerable silt load. Storage capacity can be secured very probably at the higher reaches so that there is a possibility of development at that point. Power alone will not pay for the project. What is needed is flood control. The valley which originally had some 5,000 acres of irrigated land now has a little less than 3,000, and even that is eaten up by these floods. Below that is Duncan Valley. Again, an area which needs flood control protection but it also needs supplemental water. The Cliff Reservoir site could provide that but it means a reduction in stream flow into Arizona and if it is to be developed, it requires a compact that will permit it to go ahead. Then, in the Clifton area, there is the San Francisco River coming in and the opportunities for development are negligible. I might state that this stream is somewhat different from the ordinary streams, in that flows at the headwaters are very small, the stream flows being dependent upon the gradual accumulation of floods first one stream and then another. At Alma there is a site but it does not appear to have a great deal of

practical value. The Safford Valley is another one that is being constantly rendered unlivable by reason of flood damages, the river taking more land every year. In the valley, which is very densely populated, there is lots of cotton grown, and it has a relatively large population. We investigated some areas for flood control dams immediately before that valley but found the foundation conditions very unsatisfactory due to rock and coarse materials in the river bed which appear to make it necessary to carry cut-offs to the extreme bottom.

Then, you have sizeable silt load; however, the information on that is still insufficient. Below that you will see the San Carlos Reservoir which is held back by the Coolidge Dam with the major irrigation being around Florence, Arizona. There is more irrigated area in there than this map shows, particularly down stream, and there is a very extensive ground water development in that area. Possibly it has been over-developed, but at any rate that stream is pretty largely utilized. There are possibilities for groundwater development along the Santa Cruz River - ground water possibilities by means of pumping. We have made no investigations to ascertain the possibilities or extent thereof. On the extreme headwaters of that stream, which really lies in Old Mexico, we find that the possibilities of local development are small by the fact that the Santa Cruz River seldom carries any water, and the possibilities are strictly limited. The San Pedro River coming in up stream a little ways farther up also rises in Old Mexico and the Charleston Site has more than once been proposed for development. I am not prepared to say whether that is a useful project. I am certain there are some additional chances for water development on the stream, and I do not believe that development on that stream or the Santa Cruz either, will come up to the San Francisco or Gila Rivers. I believe there are some possibilities of ground water development on the headwaters of the San Simon Creek which enters at Safford. There are possibilities of small stock-watering storage developments throughout the whole area. I don't think that most of them will develop enough water for irrigation. The Salt River, with the completion of the Bartlett Reservoir, which will be completed within a very few months, presents a situation where the useable water is limited to the peaks of floods. On the Verde River (above the Salt River's junction with the Verde,) is so completely controlled that there has been nothing from that stream in the last eighteen years. The Verde isn't that far toward complete utilization, but it will soon be. There are minor possibilities of combined irrigation and flood control projects on the northern tributaries of the Gila River, and there is some on the Hasayampa River. If I recall rightly, there is a rather large reservoir built on that stream which was lost in the early nineties and no doubt further investigation will bring about a real development on that stream. Going down-stream the next development is the Sentinel Reservoir site, which is purely for flood control purposes.

MR. PETERSON: Is that at the Gila Bend?

MR. DEBLER: No, it is below. The Gila project will receive no water from it but the reservoir is needed to prevent the extensive loss of land in that project with the rare floods that will come down the Gila River. They will come possibly once in twenty-five years but when they do come they will be in the nature of 200,000 second feet into the Gila development, so that the development must be protected against these floods.

MR. PETERSON: Does the Gillespie dam help to protect against these floods?

MR. DEBLER: No, it primarily is dependent on the return flow about it.

MR. WALLACE: What will you do with the Sentinel Reservoir water?

MR. DEBLER: It will be so small it will have no great value. There is another problem in that area which must be met; the waters which the Gillespie Dam will use are unfit for use because they are so heavily filled with salt. What will have to be developed in this area and in similar areas where you are dealing with water that will run 3,000,000 parts is to run them out on the desert and evaporate them.

MR. PETERSON: Can't you maintain a channel down in the Colorado?

MR. DEBLER: That would be quite a job. If we had that we might just as well turn that water over to Mexico. I think it would be cheaper to put it out on the desert and evaporate it.

MR. PETERSON: That probable could be done best on the north side of the river.

MR. DEBLER: That Sentinel Reservoir site is one that will be investigated in the course of the next year to get the information required. We have some information but not enough.

MR. SWING: Have you gotten any further information since that made back in 1919?

MR. DEBLER: No. Continuing, the Gila Project needs no explanation, Now, in this area (pointing to the map) I am of the belief that there are probably some possibilities of ground water developments north of the Gila project. I don't know how extensive they may be, but they undoubtedly warrant consideration.

MR. PETERSON: You have quite a large tract there that is being watered.

MR. DEBLER: Yes. Are there any questions on this drainage area?

MR. WALLACE: In this first unit you are presenting on the Gila, is that a complete unit? What lifts do you have there?

MR. DEBLER: The maximum left for that unit is about 400 feet. There is a very, very, narrow strip along the Forteneau Hills that would take about that lift.

MR. SWING: He asked you about the first unit.

MR. DEBLER: The maximum left on the first unit is about 400 feet. The first unit itself is composed of about 140,000 acres. At least 100,000 acres of that has a lift of less than 150 feet; then the remaining 40,000 acres or so begins to step up until the last takes about a 400 foot lift, which looks pretty high and it may never be built. We are not putting the high lift structures in first, and what the top lift will be is something to be found out.

MR. SWING: Have you got any other project in the basin that is comparative to that?

MR. DEBLER: No, we haven't investigated any others that have that great a lift.

MR. WALLACE: What about the other two units?

MR. DEBLER: Well, there are really more than two units. If ever the project is developed to the full area of 500,000 acres it necessitates lifts of 400 to 450 feet.

MR. WALLACE: Is that land fairly uniform?

MR. DEBLER: No, it varies.

MR. HOSEA: Do you know if the Army Engineers are investigating the Sentinel Site?

MR. DEBLER: No, I do not.

MR. HOSEA: In Yuma they had a meeting with particular reference to the Sentinel site and the Regional Engineer testified that there had been floods in the lower Gila, reach 350,000 acre feet.

MR. WALLACE: What will the highest indications of floods show on the main Colorado?

MR. DEBLER: About 250,000 acre feet.

MR. SWING: The ancient Indians left signs on the walls showing where it had reached 500,000 acre feet . . .

MR. DEBLER: We know that the river above Phoenix has reached a discharge of 300,000 acre feet but that was before there were any storage dams built on that river. The possibilities for those high streams have been very materially reduced, both the Gila and the Salt.

MR. WALLACE: What length of time have those floods run?

MR. DEBLER: Never over a day or two. One thing that is certain to check those floods a great deal, while they ran a few days formerly, they now lose so much of their water filling up the reservoirs that the water which gets away from the Upper country is much reduced. It takes something like 200,000 acre feet to wet the bed of the river, so that even with a flow of 200,000 acre feet at the headwaters it will not reach the Colorado River. I remember a very vivid instance in the past, wasn't it Mr. Davis, that it was believed a flood was going to flood out the Yuma Valley, and by the time it reached there, there was hardly anything left.

MR. DAVIS: I would just like to say here that those people in the Safford Country have long dreamed of these dams and reservoirs. They have been hoping that they would be built. However, since the Army Engineers have come in, they have done a great deal of work in the last two or three years, and those lands in the Indian Reservations were taken into Court by the Indian Service to determine the water rights. They were fearful that if they constructed dams now there they would take water from the Coolidge Reservoir, and the Court ruled that all the water above the Gila had the prior right, but all the flood waters belonged to the Indian lands below, and it has changed the picture up there.

MR. DEBLER: I think, nevertheless, these flood control dams will be built.

MR. DAVIS: They probably will be but it won't give down any more available water supply.

MR. DEBLER: They are not supposed to, but it will give them a little more.

MR. DAVIS: To show you how it effects on the Gila, that when the floods came, it took every bridge out on that river from one end to the other. It raised the Gila above seven feet in thirty minutes.

MR. DEBLER: There is no doubt but that those streams will have to have stream control.

JUDGE STONE: Mr. Davis, is there any comment or statement you would like to make concerning this area before we leave this map?

MR. DAVIS: I would say this: practically all of the water is appropriated and put to beneficial use. Now, the waters which come in those streams below the Coolidge dam come down in large floods and are wasted.

MR. PATTERSON: Are the land classification surveys on the Gila River about completed?

MR. DEBLER: We haven't had in mind making any separate surveys. There

are chances for building a reservoir don't seem to justify the classifying of millions of acres lying east and west of Phoenix.

MR. DAVIS: The Reclamation report in this section of the state now is to develop the underground water supply.

MR. DEBLER: That is correct.

MR. PETERSON: Have the irrigated lands been accurately surveyed?

MR. JENKINS: Does the pumping from the water table to higher reaches endanger or impare the reclamation work. In the Gila River valleys has it had a tendency to lower the table to a point where irrigation is endangered?

MR. DEBLER: Well, there was no complaint that there was actually recession in the water tables in the area immediately west; there has been considerable recovery in the last two or three years, but just at this particular time the Salt River project is in about as serious a situation as it can be.

MR. JENKINS: Has there been any attempt on the part of the state to prevent this?

MR. DEBLER: I am unable to say whether it took any part in this or not.

MR. DAVIS: This is a very serious fault. The water users themselves have put in pumps all over the project and they have lowered the water project, which was a drainage to begin with, to probably sixty or seventy feet where it was probably twenty-five feet at one time, and where there was water along the Salt River, it is now just a big dry wash, and even the yellow weeds down there have gone.

MR. WALLACE: What is the salt content of the water in the Gila River in the lower end?

MR. DEBLER: It is pretty heavy.

MR. PETERSON: Some places there are 1,000 parts to a million.

MR. SWING: What is the significance of the expression "5,000 parts to a million"

MR. PETERSON: That is the way we have of expressing the amount of shales in the water.

MR. SWING: What is the effect of it?

MR. PETERSON: 5,000 parts is probably the limit in which plant life can survive.

MR. SWING: What is the breaking point?

MR. PETERSON; That is about the breaking point.

MR. DEBLER: It would depend upon the character of the salts, but as Professor Peterson says, I think that 5,000 parts is probably well up to the limit.

MR. JENKINS: It seems to me that about the most important problem you have before you at the present time, is to maintain the water table.

MR. DEBLER: Well, the ideal situation is to use the ground water reservoir in the same way you use a surface reservoir and to substitute ground water storage for surface storage. Consequently, it isn't a problem of regulation, but it is one, rather, of so coordinating your development and your surface and your groundwater storage that over an extremely long period of years, you will just come out even. The tendency of many, however, is that so long as it is apparently a profitable thing to do, to keep expanding and even over the protests of the Bureau of Reclamation has been expanding--to their sorrow.

MR. DAVIS; I would just like to add, around the Roosevelt project, the limits of the project is limited by the water supply and not by land.

MR. DEBLER: I mentioned that there were millions of acres of land in that country. The next map is the "Lower Colorado", Map No. 246-D-117. At the northerly end of this map we find a little piece of Utah in this area drained by the Paria Creek and Kanab Creek. Both are streams that have a small and checkered flow; they both have possibilities in some degree of storage development. I am not familiar with the area around the Pariah but it is my understanding that there is plenty of soil up there to be developed.

MR. PATERSON: The chances for development are small.

MR. DEBLER: Yes, we are letting it stay at 10,000 acres. The stream has a very considerable flow as it reaches the Colorado but it isn't so good near the headwaters. The Kanab has a better flow.

MR. PETERSON: In that section there are a few ranches that have been completely fenced with just a few rods of fence at each end. It is very narrow. I think there wan't a place along the whole river that is a mile wide. Pasture is an important thing there if they can get enough growth to winter the stock.

MR. WALLACE: Is there a place there where you could put a reservoir?

MR. PETERSON: Yes, there is one.

MR. DEBLER: I don't know about the reservoir sites as yet, but there is plenty of land. There is a broad valley that goes east and west through this territory around Kanab Creek. Now then, in that general area there is no further development possible on the north side because the streams all quickly enter deep canyon and are lost to use. South of the Colorado River is the high central Arizona Plateau which

produces no surface run-off of importance, and that country has an average rainfall of twenty to twenty-four inches a year and produces no surface water. The only conclusion to be reached is that there must, in some of those areas, be some ground waters, but to what extent, I have no idea.

MR. WALLACE: What is its vegetation?

MR. DEBLER: Trees and grass. Let me first take up the tributaries. The next tributary is the Las Vegas Wash where we have made several surveys to ascertain the possibilities of pumping from Lake Mesa. They were made with the cooperation of the Nevada interests. (A general Discussion ensued concerning pumping depths and land classifications around Lake Meade and Las Vegas territory which was requested be omitted from the record). Then, coming south along the Colorado, there are lands on both sides of the river to where the California and Nevada boundary line comes to the Colorado River. They require, on the river side, a considerable pump lift. It is not as high as some of these lifts that have been discussed around Las Vegas, but I think they are still too high for a reasonable cost. The area in there, I think, is a little less than 15,000 acres. Then, there will be some possibilities of diversion at relatively high points out of the Bulls Head Reservoir site covering the Mcjave valley, and by pumping. But, if I am not mistaken, our land classification there has not been carried as far as it should be in that area.

MR. WALLACE: That Bullshead Reservoir is more for equalization, is it not?

MR. DEBLER: Yes.

MR. DAVIS: Most of the land classification has been made in the interior.

MR. DEBLER: Yes, I am thinking of the land classification by the Bureau. We didn't get quite enough information there. Then, there are some small areas that may be irrigated by pumping from the Parker Reservoir; they have not yet been mapped. The Parker Dam project is gradually being developed by the Indian Service. They are proceeding to build the dam for diversion purposes. I do not know to what extent they expect to pump water; there are only limited possibilities for large land use, with reasonable lifts.

MR. SWING: Will you state what they are?

MR. DEBLER: I think with a 100 foot lift they could gain only 6,000 acres.

MR. SWING: The Stevens-Jacobs report shows 100,000 acres in it.

MR. DEBLER: I think the 100,000 acres may have included this 100 foot pumping lift. I had no connection with the preparation of that report, however, The next area downstream is the Palo Verde Valley, already irrigated, and the Palo Verde pumping area which, I think, includes irrigable lands.

MR. SWING: What is the pumping lift?

MR. DEBLER: I think it is about 80 feet. Then, it is understood that there may be some minor extension of that area with additional lift although we haven't looked into that yet. The map indicates a development called the Sabola Valley Project. In the earlier days that was largely supposed to be a 16,000 acre project but will undoubtedly be materially reduced by reason of the backwater from the Imperial Dam.

MR. HOSEA: There is a lot of soil erosion around there.

MR. DEBLER: That is right, a very large portion of that valley has been lost, just in the last year or two. Going down next, of course, to the eastern side, we find the Gila project which I have already discussed to some extent, and to the west is the Imperial Valley and the Chochilla Valley development, which is covered by published statements and probably needs no additional explanation since the project is now under construction. Coming back now to the plans for development along the river channel, we find above the Grand Canyon National Park, the Red Wall Reservoir site indicated. It is one of the dam sites which is shown as a part of the proposed development in the 1923 report of the Geological Survey as a result of the Birdseye topographic work. There has been an investigation in that area, but just to ascertain the advisability of that dam site or any alternative thereto and of course, there is no immediate need for its construction. It is not a site that is likely to be developed very quickly. Below the Grand Canyon National Park is the Bridge Canyon development. The dam site is in the back waters of the Boulder Canyon Reservoir, Lake Meade. The river level at the dam site is at 1207 feet for low water; The Boulder high water is at 1229. As a result, Bridge Canyon site will experience backwater when Lake Meade is very high. Of course, Boulder will very seldom rise above the elevation of 1200 feet, so that normally Bridge Canyon will not experience water from Boulder. Bridge Canyon, if built to what we expect, will carry it up to elevation 1,784 feet, which is the western boundary of the Grand Canyon National Park as it stands today. Since our work was done in 1923, the Grande Canyon National Monument has been added to the western end of the park and there is some talk of making that park as a part of the rest, and if that is done without any reservation for that purpose, it will mean that Bridge Canyon will have to be built approximately 100 feet lower. The capacity is about 2,000,000 acre feet and the capacity is obviously not enough to regulate the flood flow; therefore, the stream cannot produce as much power as Boulder -- the damsite can't. Below Boulder is the Bullshead project. The project is one for re-regulation, and will not coincide sufficiently with the desires of the irrigator for water. Bullshead will have a regulation capacity of 1½ million acre feet within its high and low water reaches and, incidently, produce about one-third as much power as Boulder Dam.

QUESTION: Will there be any material storage back of the Parker Dam?

MR. DEBLER: I will first correct the statement I just made: I think it will only be about as much as one-fourth.

MR. JENKINS: Will there be storage in Bullshead?

MR. DEBLER: There will be $1\frac{1}{2}$ million acre feet.

MR. PATTERSON: That will have to be maintained/that amount of power?
for

MR. DEBLER: That is the river storage only; in addition to that we keep 150,000 acre feet for storage.

MR. JENKINS: How high will the Bullshead dam be?

MR. DEBLER: 150 feet.

MR. JENKINS: And the highest head will be about how much?

MR. DEBLER: From about sixty feet to about 150 feet. Parker Dam is primarily a diversion dam for the Metropolitan Aqueduct in order to reduce the pumping lift. The agreement with the United States provides for the use of the top 10 feet of that reservoir for regulating purposes. The objective is to use that 10 feet in part for flood control against the Williams River and in part for re-regulation for Boulder, with the flow prescribed to such time as the Bullshead Reservoir is built. Going next downstream, there are no additional dams downstream for storage capacity except that the Imperial dam will have a temporary storage capacity of about 100,000 acre feet, but that will be lost by silting in a number of years.

MR. JENKINS: That is the All -American Diversion?

MR. DEBLER: Yes. I have left out one stream, and that is the Williams River. We have left out one site. That stream does have an average flow approximately 100,000 acre feet which will undoubtedly in time be utilized through storage and ground water development. Now, we are planning on having survey parties in this lower country this winter taking the necessary land classification and utilization surveys for reservoirs and canals.

JUDGE STONE: If that is the full picture, Mr. Hosea and Mr. Swing, are there any statements or comments concerning that area?

MR. SWING: Well, I would like to ask Mr. Debler what information the Reclamation Bureau has with reference to the Checkowalla Valley?

MR. DEBLER: We have only the plans that were prepared by the private interests. They proposed that development some thirty years ago.

MR. SWING: It will be investigated, however, by you in due time as a part of the comprehensive plan of the Colorado River?

MR. DEBLER: I think it should be left for the last since there is considerable question as to whether or not there is any water for that land.

MR. SWING: Has that kept you from investigating projects in other states?

MR. DEBLER: Yes, it has. That is the controlling reason why we didn't investigate the Arizona-High Line Project.

MR. SWING: I didn't say as to what the priority of your work should be, but I certainly think if you were considering a comprehensive plan of the water development of the Colorado River, I think you would consider the Checkowalla Valley which has a pumping lift of only 130 feet.

MR. DEBLER: We had laid off of those areas where there is a question of water supply.

MR. SWING: Well, Congress passed an Act extending the time of 300 desert land applications in that valley until they could find out from you what the chances are for this development.

MR. DEBLER: Well, being frank with you, we can't tell them,

MR. SWING: Well, can't you make a factual report? We would like to have an investigation of that. We are not asking you to pass on water rights. We are not engineers and for that reason we want a project report as to whether there is a water supply. We will refer you to the Stevens-Jacobs report which was prepared in your office.

MR. DEBLER: It was prepared in Denver.

MR. SWING: We hate to see the water going to the Mexicans when it could be used here.

JUDGE STONE: Are there any further comments concerning this area? . . . It is nearly 10:30. Following further discussion of this comprehensive plan of development, as I take it, Mr. Swing expressed his desire this afternoon for an extension of the time for presentation of the plan by Mr. Debler and any conclusions, comments or other statements in general will be made tomorrow. I think at this time we should express our appreciation of this necessarily long explanation of a plan of development. I think we all understand, as has been stated by Mr. Debler and as appears in this Fact Finding Report, that it is necessarily a tentative plan and not a complete plan. It does not include small reservoirs but it is intended to show the major developments. Some reference was made before we recessed at dinner time to Mr. Tipton's report which is general in its material and which covers the whole basin. Now, do I understand at this time those who were not at the Green River meeting desire that Mr. Tipton make a general statement concerning his report and the general conclusions? Is that what you had in mind, Mr. Swing?

MR. SWING: Will his oral report be more detailed than his written report?

JUDGE STONE: No.

MR. SWING: Well, if not, I presume that there will be other presentations of this committee at later dates and since none of us have photographic minds, we just can't remember all of it. I suppose, after an

interval in which we can read it, if that is to be the situation, we can dispense with Mr. Tipton's oral discussion and go on and read his written one and be ready to comment on it at the next meeting.

JUDGE STONE: I believe that will be best because it will take considerable study, and then, any objections to certain conclusions can be voiced at this time.

MR. SWING: Well, speaking for California, we will be very frank in our comments.

JUDGE STONE: Well, if there is nothing more then . . .

MR. JENKINS: Let's have this committee go on record as being very appreciative of the reports Mr. Debler has made and the ones in the future we are expecting him to make.

MR. GILES: I second the motion.

JUDGE STONE: The motion has been made and seconded, and requires no discussion because I think we all heartily endorse that motion. We will consider that the motion is unanimously carried and so shown in the record. If that is all, we will recess until 9:30 in the morning.

MEETING RECESSED UNTIL 9:30 a.m., October 7th, 1938.

October 7, 1938

JUDGE STONE: The meeting will come to order. We are late; that is, I am late, and I assume that all the rest of you were here on time. Before we commence, may I say that the court reporter who has been taking these proceedings and who is familiar with the personnel is unable to be here. We have been requested, because of that situation, that anyone who speaks at this hearing indicate his name and the state that he represents so as to assist the reporter.

Last night we completed the review of the maps submitted by Mr. Debler. Up to this point it has been largely a submission of the plans as suggested by the Reclamation Bureau, and statements from the states as to additional hopes or possibilities as expressed by representatives of those states, and any other comment. It is hoped at this meeting that the states will frankly state what their plans may be and any objections which they may have to this initial plan. Last night, Mr. Swing, in commenting upon the California area, asked certain questions concerning an area in California which he thought should be investigated. It occurs to me, and I merely want to make this suggestion for the discussion of this committee, that due to the fact that this is what we might term a preliminary investigation--in other words, an effort is being made to review and investigate all possible projects; as this plan of comprehensive development evolves, as these individual projects are studied, and as the economic feasibility is eventually gone into, some of them will be built earlier, some of them later, and some of them may never be constructed. However, we are laying out here in the presence of all of the representatives of these states, all of these possibilities, and it would occur to me to be in line with that procedure if this committee should ask the Reclamation Bureau to include a consideration, an investigation of that particular project. We request that in all of these states. We have in Colorado. We are not sure that the particular projects will eventually be built, but we are considering the major features of a master plan as we might term it. Now, I am just submitting that for consideration, and should like to ask for comments from the other states.

MR. WALLACE: Mr. Chairman, I am sure that we all feel that each state should be permitted to use its water in the manner that it deems best, and if California can find water sufficient to take care of the Chuckawalla District, I will be very happy to have them do so; and I very heartily concur that this project be investigated by the Reclamation Department.

JUDGE STONE: Is there any further comment?

MR. ROGERS (Colorado) Mr. Wallace, would you want that investigation as to the lands that could be irrigated, or investigation as to available water supply for the project, or both?

MR. WALLACE: So far as we in Utah heretofore have been concerned, we have always carefully examined water supply; but that relates to the situation where there is no division of water among the states. In this particular instance, a certain definite amount of water has been allocated to California. Now, certainly, under no circumstances should we of the other states attempt to determine the place where California shall

use that water, and if she finds upon examination that she prefers to put it on one place or another, that should be entirely with her. Now, I take it that the amount of water California can have is very definite. California should be permitted to put that water on any part of her land that she care to apply it.

JUDGE STONE: I take it that the investigation of this project will be similar, the same kind of an investigation, involving the same items of inquiry as are involved in those other investigations, and the limitations hold, of course. In the upper states we are limited as to our total development of water supply, and then the terms of the Compact. Is there further comment? Mr. Swing, is there anything further?

MR. SWING: Nothing.

JUDGE STONE: Mr. Wallace?

MR. WALLACE: Well, I would like to say one word further, and that is that I am so anxious that these seven states get hold of the same rope, and all pull in the same direction, that I feel that every state should have the same privilege as every other State, and we should arrive at a common agreement so that in the future we can act as a unit.

JUDGE STONE: I think you are entirely right, Mr. Wallace. We have all got to submit our problems and frankly discuss them. I should--Mr. Lee--General Lee?

GENERAL LEE: Mr. Chairman, I see no reason why California should not be accorded the same treatment with reference to investigation of its projects, proposed projects of development, that any other state has, and, of course, I naturally feel that they are limited the same as we are limited by the water supply which we may use and which we must furnish; but so far as rights have developed, and opportunities have developed, the projects, I think, should stand on the same footing as any other state.

JUDGE STONE: Thank you. Mr. McClure of New Mexico, have you any comment?

MR. McCLURE: There does not seem to be any controversy regarding the development of the projects and I should say that an investigation should take the lines that California wants it to take. That is what we requested of the Bureau of Reclamation, and that is what they should do.

JUDGE STONE: Mr. Davis do you have any comment from Arizona? Mr. Smith?

MR. SMITH: Nevada is to some extent in the position of the interested bystander. Although we furnish the site to a large extent, and a good deal of the land that went into the Boulder Canyon Project, about all we can expect to get out of it is a little water and a withdrawal privilege of some of the power, if and when we find uses for it. But we think the proposed plan of development as presented here by Mr. Debler, has been

very comprehensive, very instructive, and we have learned a good deal from listening to Mr. Debler, and I have no doubt but what a great deal of good will come out of this study as it is being pursued by the Bureau of Reclamation. I hope sufficient funds will be appropriated to carry it on. But so far as the water situation is concerned for Nevada, we hope and we believe that there will be enough water come down to satisfy our needs, and that we will at least be able to get the 300,000 acre feet that were allotted under the Compact as we develop uses for it. A large part of that use, a substantial part of that use at any rate will be for industrial purposes, we hope, rather than irrigation.

Regarding the Chuckawalla Project in California which has been discussed here, if it is California's wish that that be investigated thoroughly, I think by all means it should be done.

JUDGE STONE: Mr. Debler, is there anything further you wish to offer on that line at this time?

MR. DEBLER: I can only say that with so many people having the viewpoint that we have had, that by all means we should investigate the project and we might find an amended program, and we will have it in that program.

JUDGE STONE: The expression has been made here; I presume it should be a matter of record, and I will be glad to entertain a motion.

MR. WALLACE: I so move, Mr. Chairman.

JUDGE STONE: A Second to that motion?

MR. SMITH: I second it.

JUDGE STONE: The motion has been made and seconded that the Bureau of Reclamation be requested to investigate the Chuckawalla project in the same manner as those other projects have been investigated. Any further discussion?

(The motion was presented and carried.)

JUDGE STONE: The motion is carried. Now, before we leave this subject, it is in order and I think we should have further discussion, suggestions or comments concerning the plan of a comprehensive development. The plan has been laid out here and if other projects or other plans are now being considered by the other states, and if they are not included in the plan of development, as outlined by Mr. Debler, it seems to me in keeping with the policy we are following here that comment and statements concerning that should be made. Yesterday Mr. Debler completed the plan in each state. We had some comment, but after we have it all before us, I mean the general plan, is there a part of that plan that someone has an objection to, or any additions or suggestions?

MR. GILES: Well, I may ask, Judge, what advantage there is in the judgment of this meeting, to make any suggestions on that plan?

JUDGE STONE: Well, my conception of that is, and I may be wrong about it, but as I view this, if anyone disagrees he should say so,--that this plan is being initiated and this is the original, or rather the first submission of the plan of investigation and of the projects to be considered. As has been stated, each state will from time to time make suggestions as to similar structures. The major structures have been discussed. The Reclamation Bureau, as it proceeds with the work, will no doubt encounter certain problems and there will be stages in this work when it will be necessary to discuss the matter with the various states. I take it that this committee from time to time will meet with Mr. Debler and other representatives of the Reclamation Bureau to review and help formulate and have a part in the working out of this plan of comprehensive development. Now, if that procedure is not followed, we may lose much of the value of the work that we are doing now. In other words, the states in cooperation with the Bureau, are helping to work out the general plan so that at the end if there is a plan of comprehensive development to be submitted to Congress, these states involved will have full and complete knowledge of the plan so that we avoid the arbitrary way of a Federal Bureau making a plan and completing it and submitting it to us and having to review it, and then eventually, after the work is done, smooth out the objections. I think it is very fine that the Reclamation Bureau is approaching the problem in that way so that we can, and shall take the opportunity of reviewing it from time to time. If that is your plan of procedure, Mr. Debler?

MR. DEBLER: Absolutely. The Judge expresses exactly my idea, and the report is not finished until it is signed and until that time there should at least be considerations of the plan.

MR. GILES: While you are on your feet, may I ask, do you contemplate submitting this matter as a definite plan to Congress?

MR. DEBLER: I had not thought that far. I had taken it for granted that the seven states would whole-heartedly and unitedly present their request for funds as they saw fit. I had not thought as to whether or not it would be necessary to submit this general plan for that purpose. You may recall that the idea which I have advanced several times lately with regard to the preliminary general plan, was directed more at the formulation of what we, or I, call the National Plan on the Colorado River, to the end that the world would know what our plans are with regard to utilization of that stream, that there can be no misconception of our intent to use the flow waters stream as completely as possible. Now whether that same presentation of a National plan, if that is to be carried out by this committee, if that should also be used to support the request for additional funds, I would say is a matter for your committee to decide.

MR. ? (CALIFORNIA) In other words, Mr. Debler, as I understand, this is the projects as you see it in the Colorado River Basin, probably with the exception of the investigation of the California one. And it would then be the duty of each state to work out as to the feasibility of that particular project, and keep the rest of the states informed and then if that particular state desires to proceed with appropriation from Congress

for the construction of that project, or to make it possible that all the states could be informed of it and more or less work as a unit from a national standpoint for the development of it. In other words, all the projects here suggested--it is not possible that we can just move in bodily and say that we are going to start from Wyoming and go all the way down, but as each state might develop the project, or the feasibility of that particular project in that state, that the rest of the states be informed of it and work together to perfect the plan. Is that your idea of it, Mr. Debler?

MR. DEBLER: My idea was to develop a comprehensive plan of development. That will take considerable time, and such a comprehensive plan is naturally subject to amendments and additions. Yesterday, we struck only the high-lights of development. The details of that picture are entirely too numerous to attempt to describe at this time because we do not know them, and so far as the construction programs are concerned that I have only thought to this extent, thought it out only to the extent, that you probably would proceed as much as you have in the past. The area of a state or locality, or state board, would advance some project for construction from time to time, and I really don't know that on these individual projects that there is much for the other states to be concerned about, excepting only where they do involve an issue that is basin wide, and there I presume that your committee would be very active and take what steps are necessary to see that no other state is injured. But that is a little beside the investigation. The investigation that I have been speaking of and discussing is for the securing of facts, the factual information as to the possibilities of development for use of the seven states of the basin. And when you stated a moment ago that the report that has been discussed here yesterday should be signed, you mean by that from all the states, or from the Bureau, or?

MR. DEBLER: The Act of Congress required the Secretary to submit the comprehensive plan of development, and presumably without that complete, I don't know when the Secretary will submit that report. That will be a long ways off. In the meantime there will be a number of projects under construction. But the plan submitted, I have felt, should be one that this joint organization can endorse.

JUDGE STONE: I think we should keep in mind that we are now talking about and considering the plan of investigation, and as Mr. Debler says, of a plan of development. Now, as this investigation goes along, many details and many considerations will arise. Investigation will disclose matters which we do not know of now. It will necessarily mean that certain projects, certain developments in these states will come up for discussion, for objection or approval by the states so that in the end the plan submitted by the Secretary will have had a review in the process of development by the states involved. It seems to me that we would be derelict, so far as the states are concerned, if we were to wait until this plan was finally worked out and then come and say this is wrong and that is wrong, --the investigation has been completed, and we do not like it. Now there may have been some of these projects that have been discussed in the preliminary suggestions. As time goes on, we will find that some of them

are not to be in the picture and that will be disclosed in the investigation. We are not outlining a map, a plan for investigation, so that when this work is completed the states will have worked along with the Bureau step by step, reviewing at certain stages the results of those investigations as placed before us by the Reclamation Bureau. That will involve quite a lot of work and involve careful investigations, but after all, when this plan is ready for submission, we will perhaps have eliminated some and added others. Many similar projects will be added and it seems to me that the proper approach, certainly, is for us to meet around the table and frankly discuss them, offer objections and work out objections. But so far as this immediate situation is concerned, we are talking about the project that should have the attention of the Bureau in the matter of investigation.

MR. WALLACE: Mr. Chairman, the Utah Water Storage Commission has been working with the Reclamation Bureau for a great many years. When they have completed a survey, they submit it to our Board and to these investigators; and these reports are not made public until it has been passed upon by all of these. Now this is to be a continuing body for a great many years, and I am sure that the Bureau of Reclamation will be pleased to meet with us once or twice a year and submit progress reports, and that undoubtedly each state will work directly with the Bureau and that some such procedure will obtain as is obtaining now between our board and the Bureau, so that before the report is finally made public, it will receive the approval of the particular states and of the Reclamation Bureau. If that is followed, I am sure that we will have no complaint, and we have a precedent of that between our state and the Reclamation Bureau.

MR. SWING: Mr. Chairman.

JUDGE STONE: Mr. Swing.

MR. SWING: I think the suggestions are all very rational, all very reasonable, but it seems to me that the immediate thing in front of us is the matter of application to Congress for money to keep it going, and I think that was the question of Mr. Giles. Mr. Debler said yesterday that he could get up a report, he thought, by the time Congress met, although very sketchy. If we are going to Congress for an appropriation to keep this investigation going, which I assume we all desire to do, then you will have to have just that--a sketchy report to start it. The fact it is sketchy is the very essence of asking for more money to fill out the sketches. And I understood Mr. Debler to say that in that request he would follow the wishes of this committee, and it seems to me that we might indicate to Mr. Debler that he could be looking forward to preparing a sketchy report which would indicate the need for fuller and more complete investigations and therefore the needs for more money, and that would be the basis on which we would go to Congress to ask for money. Now I think he has made a little more than a sketchy investigation of the Upper Basin States and he explained that he had started at the upper end because of the cold season and he expected to move into Arizona and he indicated that he will soon move

into California, and it would seem that it would be possible before long, would it not, Mr. Deblor, to whip up something that would indicate that it was worth while to make this investigation complete so that we could go to Congress and ask for this million and a half?

JUDGE STONE: I think that is entirely right, and with that in view, you will observe on page 4 of the report of the fact finding committee of the Upper Basin States, after (c), that committee made this statement:

"We recommend that the governors of the Upper Basin States urge the appropriation by Congress without delay of such funds as are necessary to complete the investigation, studies and surveys within the Colorado River Basin, as designated by the Boulder Canyon Project Act, to make possible a plan of comprehensive development within the Basin."

Now, the thought is, as expressed by Mr. Swing, that there should be a progress report to be used as a basis, and although this is a report and recommendation of the four states--the problem on this question is to get some action based upon a progress report.

MR. SWING: While we of the Lower Basin think this is a fine sample of what the Reclamation Bureau can do as shown by what they have done in the Upper Basin States, and we are enthusiastic for having them do the same for the lower basin states, and as soon as that can be done, we think that a progress report for the seven basin states should be made. In other words, that we could broaden this for the seven states along the same line.

VOICE: Yes sir, you are entirely right.

MR. DAVIS: What we are trying to do is to evolve a method of procedure for this committee whereby we can get the development of the states. It seems to me that there are certain agencies we have overlooked. For instance the National Reclamation Association meeting which will come next week to Reno. Now last January the National Rivers and Harbors Association, on very poor argument, for the first time in their history (they have been in existence for some thirty years) agreed to take reclamation as part of their program, but they require approved projects. They want approved projects, that is, some which are sure and they know where they can go and get the backing of that association for development. Now the National Reclamation Association which consists of the seventeen western states--they are affiliated with the National Rivers and Harbors Association. Now that has been worked out just in the last year or two and it makes a rather powerful organization. It seems to me that one thing that this committee could do to work out the projects, if we are in agreement here, that there should be certain projects developed immediately; and of course I think what would come before that even would be the necessary funds to make the survey of the entire basin. Now it seems to me that if this committee could get in accord with that

and say that the seven states are now in accord to back that program with Congress, that would add 17 states instead of 7, and they in turn would ask the support of the National River and Harbor Association. I think in order to get these results we will have to be united here in this committee. Then through this larger organization present our program to get it worked out; and the thought came to me that it is so vital in the development of this Colorado River Basin, that this committee in our meetings here should have certain definite recommendations come out of it to be worked out. One now is, we need Federal funds for the completion of this survey, and then the committee should take steps to present that to the various other organizations. That thought occurred to me, Mr. Chairman, as one thing to keep in mind, not only as to our deliberations and getting in agreement, but carrying it to successful completion. And I want to present that for consideration, that we do get in agreement over the necessity for Federal funds for the completion of this survey, and then other things which may be pertinent at this time, and then present that to the National Reclamation Association and ask them for their support; and in turn ask them to get the National Rivers and Harbors back of it, and then when we go to Washington, they, in turn, will have the backing of these larger organizations; and I think we will find the machinery set for us to get something.

MR. JENKINS (WYOMING) Mr. Chairman, it seems we have overlooked one of the important things that we must cooperate with, and that is the National Resources Committee. They have been making investigations. They have been gathering material that we have accumulated and are looking into it, and it seems to me that we should cooperate very closely with it in order to get our projects properly before Congress. That is the machinery which the Federal Government has set up for presentation of these projects, and as Mr. Davis has suggested, the National Reclamation Association's influence, I would also suggest that we also cooperate very closely with the Federal Resources Committee.

MR. DAVIS: The National Planning Board is also another agency.

JUDGE STONE: As I understand, it is the National Resources Committee. Dr. Barrows of that committee is here and has been interested in observing the progress of this work. I hope before we adjourn that we may have a word from Dr. Barrows. I take it that the suggestion made by Mr. Davis is to this effect, that when the actions of this committee are gotten into some form or shape that we should have such assistance of the National Resources Committee--or I mean the National Reclamation Association, and such affiliated organizations as may help us in securing these funds. That is a good suggestion. Now, we are all agreed that we should ask that this necessary appropriation be made. Is this not the proper procedure, that out of this committee, which is a fact-finding committee, there should come a report to the Governors of these seven states?

(At this juncture, Governor Blood entered and invited the members of the Committee to luncheon, and explained to them how to reach the Auto Club, where it would be held, also adding that transportation was available to those who were not driving their own cars.)

JUDGE STONE: Mr. Giles has a suggestion.

MR. GILES: Mr. Jenkins doesn't know you gentlemen as well as Mr. Gallagher, the other reporter, knows you. For the purpose of making our record as clear as possible, will you please give your name when you address the Chair, and then you will get credit for your speeches in the record--if you want credit for them.

JUDGE STONE: I take it, Mr. Giles, then, if we don't want credit we will just keep quiet as to our name.

The suggestion I wished to make was this, that after we talk upon a few other details in connection with this-- we have now discussed this matter of applying for funds--that the action of this Committee should be incorporated in a recommendation to the Governor of the States, and the Reclamation Bureau. It would seem to me proper that after we have incorporated into the form of motions and the action of the Committee, the various items to be covered, that that then would be put in some form of a recommendation. If that meets with your approval after we act upon this matter, then we can consider it in that way, and a committee be appointed to draw up a recommendation, report and recommendation.

MR. SWING: I am just a little bit in doubt as to what Mr. Chairman has in mind. I don't know whether you have in mind whether at this meeting we should adopt a resolution addressed to the Governors on the subject of the application to Congress for one and a half million dollars, or whether it is simply a report of what has transpired at this meeting, for their information.

JUDGE STONE: It will be in the nature of a progress report of what has transpired, and any recommendation that can be made based upon what has been done here.

MR. SWING: What I had in mind, it appears to me as rational, in view of the fact Mr. Debler has some recommendations to make--I am sure it is satisfactory--that we may have a meeting set before we adjourn, say for sometime in December, perhaps early in December, and at that time Mr. Debler will have this so-called "sketchy" report, and we might discuss it with him, and I am sure it would be in proper form, and probably we will approve it, but at that time act upon the proposition of calling upon the Governors, the Congressmen and Senators, and everybody would take whatever action they then desire. Of course you could have a meeting called in between if there is anything up, but it seems to me a meeting held in the fore part of December would be in ample time to whip into shape what we want to present to Congress.

JUDGE STONE: I get your thought; it is a good suggestion. When do you think you could have the sketchy report?

MR. WALLACE: The date you mentioned was December?

JUDGE STONE: December.

MR. SWING: I think maybe as to fixing a definite date, Mr. Wallace, we had better leave it with the Chairman. What he usually does, I think, is to kind of have a round robin about ten days ahead of time--he may want to get the important ones of you people, the gentlemen here, that have the brains, present.

JUDGE STONE: That includes all, you may be sure.

MR. SWING: Isn't that your procedure, Mr. Chairman?

JUDGE STONE: That seems to me is perhaps the logical way of handling it.

MR. SWING: If I were to make a motion, it would only be that the Chair-- that early in December a definite date be fixed by the Chairman for a consultation with the important heads to hear the report, whatever you call it, the preliminary report of Mr. Debler, which probably will be used as the basis of asking for an appropriation from Congress to continue the investigation.

MR. WALLACE: I second the motion, Mr. Chairman.

JUDGE STONE: Mr. Swing made the motion, seconded by Mr. Wallace that a meeting be called of this committee early in December, upon the call of the Chairman, to consider for the purpose of considering any recommendations the Department desires to make, any recommendations which the Committee desires to make to the Governors of the several states.

MR. SWING: And to hear the temporary--what do you call it--preliminary report.

MR. QUINN: Mr. Chairman.

JUDGE STONE: Mr. Quinn.

MR. QUINN: Before you put that motion to a question for a vote, may I make a suggestion: Our Association, the Western State Engineers Annual Convention is to be held in Phoenix sometime during the first week of December, so it would be convenient, as quite a number of people here are members of that association, to have the meeting rather concurrent with our annual convention of the Association of Western States Engineers. I just wanted to bring that point out here before you put it to a vote.

(DISCUSSION OFF THE RECORD)

MR. DAVIS: I think Mr. Humpherys is right. I think there are two matters involved, and I was waiting until that was disposed of first. It seems to me there are two separate matters; one is passing a resolution requesting Congress to appropriate the money for this survey. Then it seems to me Mr. Debler's report would come later to support that and tell them why he needs that, setting out in his report those different detailed studies

that he has been unable to build. It seems to me the setting of the meeting and asking Mr. Debler to have the report is one thing, and passing a resolution to present to these various agencies perhaps is another to get the ball rolling in that way. It occurs to me there are two separate items in there, if we could dispose of Mr. Swing's motion, and then have a resolution passed to that effect.

MR. HUMPHERYS: Mr. Chairman, I move a substitute motion to this effect: that it be the sense of this meeting that Congress be requested to appropriate or make available for investigations on the Colorado River a sum later to be designated by Mr. Debler, and that Mr. Debler be requested to make a report which could be used as a reason to substantiate the request for that amount of money, and that the Committee, the Fact-Finding Committee be instructed to confer with the Governors, with all the associations and committees mentioned to support the request made for the money.

JUDGE STONE: Do I hear a second to that motion?

MR. SWING: It seems to me the question of leaving that blank in this resolution, if we are going to have the amount determined, I think the amount should be hereafter determined by us.

MR. HUMPHERYS: Will you permit a question? Mr. Debler is in a position now to state how much money will be required to make that, without doubt, and it won't be in blank. Permit him to state the money that will be required to make that report.

MR. SWING: The question is whether we are going to ask for the full amount, or whether we are going to ask for the amount that is to be included in the annual appropriation bill.

MR. DEBLER: I may say a word that will be helpful. Speaking first to the point Mr. Swing brought up, I can see a precedent for asking at this time for at least the authorization, if not the immediate appropriation, of the entire amount. I would suggest for that purpose, at least for the present, you use the figure which was in your table in that report. There is \$1,570,000--that can, of course, be rounded out to one and a half million, which has been the sum mentioned. That figure can be used for the present.

The preliminary report which you desire, and which would be very helpful to Congress when it considers this request--I would suggest that the date for the submission of that be set not earlier than some time between the first and the tenth of December. A report of that kind to be very useful requires some thought, and it requires quite a little work. I would like to have that much time to prepare that preliminary report; and in the meantime, I think the figure here in the table, in your proceedings, is satisfactory.

JUDGE STONE: It seems that we all have the same idea about this. It is just a matter of getting it in proper form. We have one motion, and a substitute motion. Would it not be better to get this into a proper resolution, embodying both ideas--the suggestion of meeting for review of the preliminary report of Mr. Debler. May I suggest this, that we not consider these two motions at this time; that we appoint a committee, one from each state, to draft this resolution and submit it this afternoon for consideration--get it in proper form.

MR. DAVIS: Mr. Chairman: if it is in order to make such a motion, I so move, that you name the committee.

MR. SWING: I withdraw my motion.

JUDGE STONE: Is the second motion withdrawn?

MR. ? : There was no second.

JUDGE STONE: Do you withdraw?

MR. HUMPHREYS: Yes.

JUDGE STONE: We will consider that the two motions are withdrawn, and a motion has been made; and that was seconded, Mr. Davis' motion?

MR. SWING: I will second it.

JUDGE STONE: Seconded by Mr. Swing, that the Chair appoint a committee to make a resolution embodying the ideas for submission to the committee this afternoon. Any further discussion? All in favor say 'aye'; opposed 'No'--the motion is carried. Now, on this committee I will ask California, whom do you want on that Committee?

(DISCUSSION OFF RECORD)

JUDGE STONE: I will appoint Mr. Swing of California; B. G. Rogers, Colorado; Tom McClure, New Mexico; T. H. Humphreys, Utah; Mr. DeArmánd, Nevada; Mr. Davis, Arizona; General R. E. Lee, Wyoming. If that committee requires a little time after luncheon to draft the resolution, I am sure that can be arranged. I am not going to deny them the opportunity of having luncheon with the Governor of Utah.

There is one matter which I wish to suggest for consideration of the Committee, the matter of procedure mentioned by Mr. Debler to me some time ago; and I understand that-- where is Mr. Peterson, is he here?-- that Mr. Peterson had some suggestion about that. Will you present that matter?

MR. PETERSON: It has to do with the form of this progress report, or second report that you have been discussing. The question is whether in outlining the investigation projects the method of preparing maps of sub-basins, or whether the project should be shown on maps based upon state lines. It seems to me there is two sides to the question, and I judge from Mr. Debler's talk to us in Colorado that he would like to have the suggestions of this Committee as to which might be the most advisable way to get up this report to Congress. From a Colorado standpoint, we necessarily have to limit our mapping and listing of projects, our state plan of development to our state boundary lines with the exception of those few projects that are interstate in character. There is an advantage there that the state plan, then, should be compared with the Bureau plan, and any differences or discrepancies in the two would become fairly well covered. On the other hand, from the standpoint of studying our resources, and the effect of one project or another, it might be best to prepare this Bureau report the same way that the preliminary report has already been prepared-- that is, by individual sub-basins. I haven't any motion to make about it, but I do feel that the Bureau would like to be advised as to your wishes in that regard.

MR. WALLACE: It looks to me as though the Bureau Plan as already developed is an excellent one. If there is not any objection to it, I would like to hear them.

MR. DEBLER: You want to know about that before you proceed with this preliminary?

MR. WALLACE: I would like to. It affects our work somewhat. I have no preference in the matter.

JUDGE STONE: Is there an objection to the present plan, the basin plan as shown by these maps?

MR. WALLACE: I move the plan be approved, Mr. Chairman.

MR. ? : I second the motion.

JUDGE STONE: It has been moved and seconded the plan heretofore followed by Mr. Debler of the Reclamation Bureau of mapping, which is according to the business involved, be approved. Any discussion? Those in favor say 'aye'; opposed? The motion is carried.

The committee has just pointed out that they ought to have a Chairman, so that they will get together. I wish to designate Mr. Swing of California as that Chairman.

Are there any other matters on this plan of development? If not, the next question, the next matter on the program is the application of Arizona for a preliminary permit on the so-called Bridge Canyon Project. I believe all of the states have been notified by the Federal Power Commission of the nature of this application, and some of the states have photostatic copies of the application. These states were all notified that they had, stated that the representatives had, rather, until the 30th day of September within which to make comments. As I explained to Mr. Scott of Arizona over the phone the other day, an application was made by the Upper Basin states for an extension of time until October 30 to make such comments. That request was granted, and comment must be made on or before the 30th of October. I also suggested to Mr. Scott, and it met with his approval, and I am sure with the approval of Mr. Davis and his associate here today, that in line with our procedure, and before comment was made, that we have the opportunity in a meeting of this kind to have Arizona's position on that matter explained, and to openly and frankly in this department discuss the application for such a permit. Now, without going into the notice which was given to the Upper States--you are familiar with that-- and without discussing the nature of that application, I will ask Mr. Davis if, at this time, he is prepared and desires to submit a statement concerning that application. Mr. Davis.

MR. DAVIS: Mr. Chairman: I am at a loss in one way to know just exactly what you want covered in that, so I will just try to give you a back-ground on the attitude and the action of the present Commission on filing on Bridge Canyon Damsite.

This Commission came into being about July 1, 1937. We were all rather new to the work. However, we all knew in a general way the development of the Colorado River, and what these controversies have been, the Colorado River Compact, Boulder Dam Act, etc., in a general way. What I am saying to you now, I am going to say frankly for you. We found ourselves rather in a chaotic condition in Arizona in this way: we had different, various groups in the state who had opposing views on the development of the river. We had the high-liners, and the anti-high liners; we had the compactors, and the anti-compactors; those who believed that California was doing the right thing, and we had the anti-Californiaites--and those who believed that the only way for Arizona to get anything themselves was to go to the Court and "law" our way out. We found ourselves in that position, and we tried to find out what had been done in the way of development in Arizona

of the resources of the Colorado River so that Arizona could get the benefits; and we found out that it had been mostly for the past fifteen years a matter of law-suits, continuous bickerings and quarrelings, making a political foot-ball out of the situation as we saw it, and we determined to attack the problem of seeing what Arizona could get out of the Colorado River to receive the benefits for the state of Arizona, and we thought that the best way we could do was to work in harmony and concur with the other Basin States, and then to have a development program of our own, and if we were in conflict with the interest of any other state, then we would try to meet those, and work them out--try to sit around the table with you people and work them out where there were conflicts; and if there were no conflicts, to work in accord with your development programs.

We have been very much interested in this report of Mr. Debler's-- something we have been trying to get hold of as to what has been done in the Basin as a comprehensive development. In line with that policy we adopted to find out what we could do in the State of Arizona, we found that water and power run along pretty well together in the development of the resources. We, in looking over the situation-- Mr. Scott, the other member of our Commission who is not able to be here, and I regret he could not be here--he is an engineer who has surveyed that river from one end to the other--he had charge of the aerial mapping for Fairchild & Company, he has been up and down the river, and made a survey of the towns, and of Mead Lake for the Federal Government, and he knows the engineering problems about that. So, we had had stated to us a number of times by different people that Mr. Colter, that Arizona had filed on all the damsites up and down that river. We just wanted to verify that, so we wrote to the Federal Power Commission as to what filings had been made in the State of Arizona on these damsites, and the reply was there were no filings upon the river of any kind in force and effect at this time.

Then the question came to the Commission as to whether any sites should be filed on by the State, and it seemed that Bridge Canyon, the next site above Boulder, was a wonderful damsito, but we could not find any information as to whether the geological structure was such as would enable a dam to be built there.

About a year ago, Mr. Scott--a little over a year ago, Mr. Scott went into that. He visited the damsito; he had a geological study made of it by a competent geologist, and some drillings were made, and he found out that the information which had gone out--Mr. Debler, some of those statements you made last night in regard to the capacity of that, it is possible some of those may be in error, because they found out that some of the first surveys, at least the reports on it, were in error. We found out it was a wonderful damsito, and capable of development of a great deal of power. It will act as a sort of a regulating reservoir for Boulder Dam, and help that. It will aid in the de-silting, and of course there are power possibilities, which would make it an excellent damsito for the development of power.

The matter of water diverting from there, we have no information, and nothing at the present time, which would lead us to believe that water could be diverted from Bridge Canyon Dam. However, there may be some invention, or something come up later that will do that, I do not know. But we filed on it as a power site.

Now then, we have done considerable preliminary surveying, some drillings have been made, and that is as it stands at the present time. And of course the next step was to make application to the Federal Power Commission. The Federal Power Commission has its rules and regulations, and there are almost a book of them on the requirements in filing upon such a site. We have taken the preliminary steps to make preliminary application, and we were working quietly along this line until the Federal Power Commission carried it over the Associated Press that we had made the application for this filing. Since that time we have had many inquiries of what we intend to do, and how we are going to do it.

I can frankly say we don't know just what the future developments will be. We feel that any benefits which would accrue from the dam in Bridge Canyon should come under the control of the State of Arizona. It is all in the State of Arizona, it is not bordering on any other state; and the water there, of course, as outlined to me, will be the same water that will have to operate Boulder Dam. Now that, first of all, is one of the steps in the development program that the Commission has undertaken to project as a development program for the State of Arizona. Of course, there are great benefits that can accrue. We can see how properties, an area in Southern Utah, in Northern Arizona, and perhaps in Nevada can be served with power, because all the power from Boulder Dam, from all the information we can get, is already spoken for, and will be utilized, and there will be a demand for more than is generated at Boulder. I don't know--it may be ten, fifteen, or twenty-five years before we will see the completion of this. That is something we are unable to determine.

We are glad that we have the opportunity of discussing this with you people. We can see no reason why it should conflict with the interests of any other state. We see no conflict of interest in any way, and if there is, we would like to know that as well as you people, and if there is a conflict of interest we would very much like to have you bring it out at this meeting, because we want the support of you people in our development program, as we want to give you our support.

I was very much interested in yesterday's presentation by Mr. Debler, and I noticed on the maps he had a number of power sites in Utah here. I suppose from Wyoming, Colorado, Utah, and down the line many very wonderful power sites will in the future, no doubt, be developed and these dams built. We can see no conflict with our interests in the building of any of those power dams in any of these other states. We can see no conflict of interest with your own state if the Bridge Canyon Dam is built for the generation of power.

Now Mr. Chairman, that in brief, I think covers the picture as I see it, what led us to filing upon it as a development program in the State of Arizona, that we may receive the benefits of power development to the state; and then it is one of the progressive steps in the development of the river which in time will be built above there. It may be necessary, if Bridge canyon operates to the fullest efficiency, that even above there, at Marble Canyon or Glen Canyon or some place designated, a sort of regulating reservoir be for them which in time will help the de-silting problem, and add to the efficiency of not only Bridge Canyon, but Boulder Canyon below. Perhaps, if there is anything else I have omitted, you can ask questions that are in your minds.

MR. HINDERLIDER: May I ask if this is substantially the same project as was formerly applied for to the Federal Power Commission, and designated as the Diamond Creek Project?

MR. DAVIS: No, that isn't the same as the Diamond Creek.

MR. HINDERLIDER: You will probably recall that the representatives of all the seven states appeared in Washington some years ago, and strenuously opposed the application of a permit for the Diamond Creek--even your own state, and for reasons then assigned, and as a result of the position at that time, the Federal Power Commission denied the application and nothing further was done about it. It was locally known as the Durant.

MR. DAVIS: I think the opposition came from all the states at that time, they didn't want to see the power of the river thrown into private hands and developed in that way. They wanted to see a uniform development to the states involved, to get the benefits rather than a private corporation as I remember that fight at that time, and I remember it very well. I think that was the underlying principle, that the state didn't want to grant that at the present time, until the present affairs had been worked out about the development of the river.

MR. HINDERLIDER: You stated that you cannot conceive of this project in any way interfering with the rights of the Upper Basin States to the first use of water for consumptive uses, Arizona not being a signatory at this time to the compact?

MR. DAVIS: Can you see any?

MR. HINDERLIDER: The compact makes the use of water for power development subservient to that for consumptive uses.

MR. DAVIS: Inasmuch as we are located above Boulder, and the water that will operate the Boulder Power Plant would have to be the same, would have to pass through the Bridge Canyon.

MR. HINDERLIDER: Of course that was appropriated, and would be put to use in harmony, on compliance with the provisions of the Colorado River compact and the Boulder Dam Act. The first water is for consumptive purposes, and not power.

MR. DAVIS: This Bridge Canyon is for the development of power.

MR. HINDERLIDER: I understand.

MR. DAVIS: And it would simply go down in the river, on Mead Lake, and generate more power at Boulder, and perhaps further on down. It is rather to increase the efficiency of Boulder. Any dam which would act as a retaining reservoir or regulating reservoir and aid in the silt control and the regulation of the flow of the river that falls below, adds rather than detracts.

MR. HINDERLIDER: The proposed reservoir will have a capacity of two million five hundred thousand acre feet?

MR. DAVIS: That was Mr. Debler's statement.

MR. HINDERLIDER: Let me finish my question. It is not your conception, I take it, if this permit were granted, if the project went to construction, and Arizona, not being a signatory on the contract that binds her to recognize the use of water for consumptive purposes, if it is satisfactory to use for development of power, your project then, in your opinion, would have the effect of calling the water out of the Upper Basin States that might be required for temporary impounding for consumptive uses?

MR. DAVIS: I cannot see it would in any way affect it, can you?

MR. HINDERLIDER: Let us say the project is built, and you demand water to fill that reservoir out of water we may, in the Upper States, be impounding temporarily for consumptive uses.

MR. DAVIS: Well, Mr. Hinderlinder--

MR. HINDERLIDER: I am asking this question to draw out your view point.

MR. DAVIS: My answer would be, you have estimated the impounding capacity of the reservoir would be two and a half million acre feet; under your compact you are required to let down seven and a half million feet.

MR. HINDERLIDER: On an average, a year.

MR. DAVIS: Yes. So I don't see how the impounding of two and a half million would in any way compel you to do anything whatever when you already have to send down seven and a half million.

MR. HINDERLIDER: We are not required to deliver seven and a half million acre feet each year; it is an average of 7,500,000 over a period of seven years.

MR. DAVIS: It could all be let down in any one year if you had it; the river could be let down just so you had an average of the seven and a half million.

MR. HINDERLIDER: We are not required by the compact to let down any particular amount in any one year; we let down an average of seven and a half million feet over a period of ten years.

MR. DAVIS: Yes, that is the compact; but can you see any reason for impounding above Boulder two million acre feet, when much more than that has to come down to operate Boulder?

MR. HINDERLIDER: We are not required to let any specific amount come down to Boulder Reservoir in any one year.

MR. DAVIS: There is nothing they could do at Bridge Canyon which would impair in any way the operation of Boulder.

MR. HINDERLIDER: What I am getting at, would it impair the rights of the Upper Basin States to deliver this from Boulder Reservoir, let us say?

MR. DAVIS: If that is the case it has already been done in the construction of Boulder.

MR. HINDERLIDER: Or in compliance with the construction of this development.

MR. DAVIS: If that were true, it has already been done in the construction of Boulder Dam, or any other smaller dam above.

MR. HINDERLIDER: Boulder was built in compliance with the Colorado River compact; your project would not be since you are not a signatory to the contract.

MR. DAVIS: What difference would that make?

MR. HINDERLIDER: I am not prepared to say at this time.

MR. DAVIS: Anything that would interfere with the Upper Basin States, I would like to know. We cannot, by any stretch of the imagination, see where it would.

MR. ROGERS: Is this above?

MR. DAVIS: It is in the neighborhood of 125 miles above Boulder.

MR. ROGERS: What Mr. Hinderlinder is getting at, Mr. Davis, is would the right acquired by Arizona in the dam be such that Arizona could require the delivery of 2 1/2 million acre feet to your dam. Could that in any way, any manner, work to require the Upper Basin States to deliver water from the Colorado River Compact when Arizona isn't a signer of it, and of course that is the question he wants answered. You state that since we are required to deliver seven million five hundred thousand acre feet to Lees

Ferry, then under no circumstances could you call for any more, because if we deliver 7,500,000 acre feet to Lees Ferry each year, then you could stop two million and a half feet, therefore we would not be affected-- that is your answer to it.

MR. DAVIS: Let me answer this way: If we are taking the water out of the river, then perhaps you would have some concern. Inasmuch as you have to deliver now to the Imperial Valley--I think they claim priority there in the Imperial Valley of 4,400,000 feet a year.

MR. ROGERS: Read from the Statute of Limitations.

MR. DAVIS: By their Statute of Limitations, they are entitled to something over 5,000,000 acre feet, and you have to let that down to them anyway.

MR. ROGERS: We don't have to let that down any year under the contract.

MR. DAVIS: I think the Imperial Valley claims prior right and the compact says prior right shall not be affected.

MR. ROGERS: Let me say this, Mr. Davis: Would Arizona be willing in her application to limit whatever right she may acquire at the damsite to the use of water that the Upper Basin States are required to deliver to the Imperial Valley, at Lees Ferry, or what not?

MR. JENKINS: At Lee's Ferry.

MR. ROGERS: At Lee's Ferry, under the provisions of the compact, the Boulder Dam?

MR. DAVIS: There would be no question about it. You know you have to let more than that down anyway.

JUDGE STONE: Your question goes to this effect, whether or not Arizona would be willing to subject its project to the compact and the Boulder Dam project.

MR. ROGERS: That is what it amounts to.

MR. JENKINS: Mr. Davis, isn't it a fact that the Imperial Valley requirements are detached from the river now, and attached to the storage of the Boulder Dam, and therefore we are not bound to let that down every year?

MR. DAVIS: Mr. Jenkins, I don't think you are right, because Arizona claims prior right to some of that water. The Boulder Dam allows to the Gila project 2,800,000 acre feet of water.

MR. ROGERS: All the states gave up, as I understand it, the priority rights except the state of Arizona, and we divided the water between the basins.

MR. HINDERLIDER: Because California never, as far as Arizona was concerned, said she didn't have the prior right.

MR. ROGERS: I am saying as between Arizona and California.

MR. DAVIS: The prior right still holds between Arizona and California, and the compact as I understand it states very definitely that nothing in the compact will interfere with the waters appropriated, or to that effect. They recognized prior right up to that time.

MR. ROGERS: Mr. Davis, no doubt you are familiar with the limitation and the appropriations on the Gila project which is to the effect, "and the works and the waters connected therewith shall be limited to terms and conditions of the Boulder Canyon project and the Colorado River Compact." Now, would you, in this application bewilling that the same provisions be applicable to this application?

MR. DAVIS: For the generation of power?

MR. ROGERS: Yes.

MR. DAVIS: I see no reason why we should object.

MR. ROGERS: No, I don't either.

MR. DAVIS: It may be something we haven't been able to think of ourselves.

MR. ROGERS: I know that the members of your Congressional Delegation didn't oppose the limitation in the Gila project; in fact, they suggested that the Upper Basin States write the limitation making it conform to the Colorado River Compact and the Boulder Canyon Project, and so recommended; and now if it is agreeable, could the same thing be placed into this application and be limited by it?

MR. DAVIS: What you are telling me is you want the assurance that Arizona will not claim in that any of that seven million five hundred thousand feet agreed with, allowed to the Upper Basin states in the compact.

MR. ROGERS: Well, as allowed to the Upper Basin, yes.

MR. HINDERLIDER: In conflict with the provisions of the Boulder Canyon Project Act and the Colorado River.

MR. DAVIS: You want to be sure no one will appropriate it--

MR. ROGERS: No, the only assurance, we understand by the compact that we will be entitled to the use of 7,500,000 acre feet whenever we use it.

JUDGE STONE: I think, Mr. Rogers, here is something that may clear up what you are getting at. As I understand, Mr. Roger's position is whether this permit, and any other proceedings looking toward this development, would be subject to the Boulder Canyon Project Act and the compact. Now, in the Boulder Canyon Project Act, in sub-division C, in Section 13, there is this provision:

"Also all patents, grants, contracts, concessions, leases, permits, licenses, right-of-way, or other privileges from the United States or under its authority, necessary or convenient for the use of waters of the Colorado River or its tributaries, or for the generation or transmission of electrical energy generated by means of the waters of said river or its tributaries, whether under this act, the Federal water power act, or otherwise, shall be upon the express condition and with the express covenant that the rights of the recipients or holders thereof to waters of the river or its tributaries, for the use of which the same are necessary, convenient, or incidental, and the use of the same shall likewise be subject to and controlled by said Colorado River compact."

Now, to clear up this question, the question is whether or not Arizona, in making this application for permit--

MR. DAVIS: For preliminary--

JUDGE STONE: For preliminary permit, would recognize the provisions of sub-division C of Section 12 of the Boulder Canyon Project Act making such a project subject to the provisions of the compact of the Boulder Canyon project Act. Now, this act of Congress says that any permit of this nature shall be subject to this act, and the Colorado River compact. Now, I believe that clears the question up.

MR. DAVIS: Judge Stone, that is an Act of Congress you just read?

JUDGE STONE: Yes.

MR. DAVIS: The Federal Government controls the river, doesn't it?

JUDGE STONE: Yes.

MR. DAVIS: How could we help it, whether we wanted to or whether we didn't want to?

MR. ROGERS: We don't have the acquiescence of the State of Arizona.

MR. DAVIS: The very fact that they would grant the permit, that would carry the terms.

MR. DEBLER: I might help you and tell you that provision is written into their provision, written by the Federal Commission.

MR. ROGERS: I would like to know as to what rights ^A Arizona would have on the river regardless of the Federal Government.

MR. DEBLER: As to this question as to whether or not Arizona consents in its permit to the inclusion of an item in regard to the compact, the law requires that must be written into the permit before it is issued.

MR. HINDERLIDER: Isn't it a fact, regardless of Congress or the Supreme Court of the United States, you have something to say with respect to this entire matter. As said heretofore whatever rights Arizona has, she

still has, but they have not been determined. It would seem to be only fair and proper that that should be included in this application for a temporary permit, an acquiescence on the part of the Sovereign State of Arizona. It is not an individual power company, or an individual making this application; it is the state of Arizona, and she should acquiesce in the limitations imposed in the Boulder Canyon Project Act.

MR. DEBLER: I did not speak to that point, Mr. Hinderlider. That is a matter, of course, for discussion. I was merely trying to point out that whether Arizona desires it or not, this section 13-C will be written into the permit.

MR. ROGERS: That is, the Federal Power Commission has no discretion but to write it in there.

MR. DEBLER: Going to your point, Mr. Hinderlider, as to whether or not that is adequate to the protection of the Upper States, I am not venturing an opinion.

MR. WALLACE: It took a long time to write the Boulder Canyon Project Act, and every possible provision was written into it to care for such a condition as has now arisen. There are numerous provisions in the Act covering practically the same ground. The Federal Government owns all of the power sites on the Colorado River in the State of Arizona, when the state of Arizona became a state. The United States reserves the right to withhold those from entry, and during the period in which they were to act, they acted, and all of those power sites are now the property of the United States, and not of the State of Arizona. That is right.

MR. DAVIS: I would not say it is the property of the United States because the land belongs to the state, but the Federal Government has control and supervision.

MR. WALLACE: We might have some controversy about those provisions; because of the fact that Arizona would not ratify the compact, all the provisions that could be thought of were written into the act to protect the Upper Basin States, and the other Lower Basin States against the possibility of Arizona establishing a prior right contrary to what their rights were under the compact. So that it is a fact that Arizona will not get this right to build that dam excepting that those provisions be written into the permit.

MR. DAVIS: That is the way that we looked at it.

MR. WALLACE: So I can see no reason why Arizona could not frankly state in her application for the permit that she recognizes the provisions of law, and will abide thereby.

MR. DAVIS: We see no objection to that either. We think it is imposed on us whether we like it or not. I want to state frankly again that Arizona never has consented, that she never had any fight on the reclamation status on the limits of water under the compact. We don't think we can use that much anyway, and we cannot hold it back.

MR. ROGERS: That is a matter we recognize. Probably that has been the position of most of the people in Arizona, and your differences with the compact is not with the Upper Basin States.

MR. DAVIS: Not at all.

MR. ROGERS: And any right that you might acquire, we want, as long as you do recognize it is part, admission that you recognize it, whether in this permit or in any other permit would certainly show Arizona's good faith in that regard if she doesn't officially, and then the Upper Basin States would not be placed in a position of at some later date being confronted with someone who claims that Arizona never contended that way. That was the only object in getting that.

MR. DAVIS: I think I get your point, Mr. Rogers. Now I want to state now, frankly, here to-day the position we see we are in; that whether we like it or not, we are bound by the provisions of the compact in certain respects, because the United States Government has entered into an agreement with six states they will allow certain waters to the Upper and certain to the lower basin. It places Arizona in this peculiar position, that so far as the Upper Basin states are concerned we don't figure we could ever take any of that water; but with California, California operates under that--I am not mentioning Nevada, because Nevada is not in the water.

MR. ROGERS: Only as to 300,000 acre feet.

MR. DAVIS: It is questionable what it will get out of it. California can expect in the lower basin that that 75 million acre feet a year must be past Lee's Ferry in a ten year period, but as between California and Arizona, it is simply whoever appropriates that water, that 75 million acre feet; and as we can see it, the only way we can get any of that water is to appropriate it, and I think the appropriation has been made right now in the Gila Project, regardless of the limits.

MR. ROGERS: That is exactly the point I was trying to make. You recognize that so far as the Upper Basin states are concerned that they are entitled to the use of their seven million five hundred thousand acre feet, and so long as they use that and pass the required amount under the compact, whatever right that you might assert or claim, your appropriation will never rise above the seven million five hundred thousand acre feet of the Upper Basin States. That you recognize.

MR. DAVIS: I am talking as a practical application to use that water, not as the legal right.

MR. ROGERS: It is principally the legal right that we are fearing, to be perfectly frank; is that the appropriation that you might make, you may at a later time come back and say, "while we recognize that the Upper Basin States are entitled to seven million five hundred thousand acre feet, yet we have made a legal appropriation which we believe is ahead of everything else. We are not bound by the terms of the compact, and although

we recognize the Act and the use of it, our legal appropriation is ahead of the thing we recognize, and we are not bound by anything to the Upper Basin States."

Now all we are interested in is, as I see the matter, is whatever claim you do make in an appropriation will not come ahead of the use of the seven million five hundred thousand acre feet that the Upper Basin States use of water, and you will never attempt to assert your legal claim is superior to that right.

MR. DAVIS: Mr. Rogers, inasmuch as this whole thing is a matter of the development of power, and not of the utilizing of water, not to take any water out of the river, but simply utilizing the power, I do not see where you have a point.

MR. HINDERLIDER: It has the effect of taking it out of the Upper Basin States if you can successfully assert the priority right by virtue of this proposed development, as I view it. It is a more serious matter since the State of Arizona is the applicant. The State of Arizona has not given up its claims; it is not bound by the compact, it is a free lance the same as the Republic of Mexico, let us say. If it were a corporation, or an individual making the application I could concede it would not be probably so serious as it is now as a result of the sovereign state of Arizona making this application.

MR. DAVIS: Mr. Hinderlinder, in what way do you figure we are appropriating water?

MR. HINDERLIDER: For the development of power. It is just as valuable as long as you are not bound by the contract, as for consumptive uses.

MR. DAVIS: That amount of water has to come down anyway?

MR. HINDERLIDER: Not necessarily in any one year. Under the compact, the Upper States Basin doesn't have to deliver an acre foot of water in any one year, as long as they deliver the 75 million acre feet in ten years.

MR. DAVIS: How could we make you deliver more than that?

MR. HINDERLIDER: That is the question. Arizona isn't bound by the compact.

JUDGE STONE: You intimated a moment ago, Mr. Davis, possibly you would consider the making of your application subject to the compact and the Boulder Canyon Project Act--is that correct? You would be willing to make your application and state therein that this application is made subject to, and any permit granted thereunder, will recognize, and we acquiesce in subdivision C. of Section 12 of the Boulder Canyon Project Act, and it also involves making any permit subject to the compact. Would Arizona, in the application, be willing to make their application subject to that provision?

MR. DAVIS: I think you and Mr. Debler have answered that question because you have read the law, and the Federal Power Commission will write that into our permit, that they are granting the permit under those conditions. How can we help it?

JUDGE STONE: I see your point there, and what I am saying here is to frankly bring out all of the points of view. There is this, however, which is back of any permit or any contract or any proceedings involving water, something beyond the statute, and what I refer to is the interpretation of the statute. Even though this may be written into the permit, yet there is still left undetermined what the courts might say as to the effect of that provision in the permit due to the fact that Arizona hasn't ratified the compact. On the other hand, if Arizona in their application as a sovereign state in connection with the construction of this project recognizes the compact and the Boulder Canyon Project Act and its provisions the same as was done on the Gila, the appropriation made on the Gila, then, without making any broad expression of policy as to the entire compact, but as to this particular project the objection would be removed--now, it would seem to me that would be entirely reasonable--if, as you say, and perhaps properly so, that you cannot conceive of any way in which this project will interfere.

Assuming you are right on that, then I should think there would be no objection to Arizona acceding to that position so far as this particular project is concerned--not as a general policy, but in connection with this particular project. Do I make myself clear?

MR. WALLACE: Mr. Chairman, I would very much dislike to have Arizona build a project using seven or eight million acre feet of water unless there is a compact between these four upper basin states and Arizona. If Arizona is unable to arrive at a compact with California, there seems to be no reason why she should not enter into a compact with the Upper Basin States for the division and the proper utilization of these waters, as between Arizona and this group. It would simplify the matter, clarify it, and we would be out of trouble for all time, and these matters of difficulty we are talking about would be out of the way. Now, I respectfully suggest, in order to clarify the position, the situation between Arizona and the Upper Basin States, that an endeavor be made to write a compact between Arizona and the Upper Basin States. All of our legislators will meet in the coming winter.

MR. DAVIS: I think there is a better way out of it than that.

MR. WALLACE: I would like to hear it.

MR. DAVIS: In mentioning the compact, we realize the futility of the development of this basin unless all the basin states are in accord and agreement; that is what we have been talking about. In answering Judge Stone's question there, outside of the legal phases of it, there is a practical side, and what will we say-- a moral side of getting together and working in cooperation with people. What we want to do is to work in agreement with all the states, and when there are differences or injustices or whatever you may call it in the compact and in the Boulder Dam Act,-- the Boulder Dam Act is subject to the compact-- and when they have provisions, direct statements in direct conflict, it seems to me those should be ironed out just at such meetings as this--that if we have differences with California, we get together with California and talk that matter over. There are certain provisions in that Boulder Dam Act where we can get in agreement with California, Nevada, a tri-state compact,

which has never been entered into. It seems to me we come to the place we can sit down with you people and say, "here, what is your interpretation of this", and with these interpretations worked out, what we would ask is in fairness, and the rights we have not interfering with your rights; to get an interpretation of that, and let us then, with that interpretation, ratify the other compact and accept the Boulder Dam Act in line with those interpretations. If it takes legislative enactment, or whatever it takes, there are provisions in there which should be cleared up with all of us. You people aren't clear, by any means. As Mr. Hinderlinder said, the Supreme Court may give us an answer--not that Congress cannot-- and we realize that; but I don't believe our way out is to go to law about it.

MR. WALLACE: That is the one thing we want to avoid.

MR. DAVIS: I concur in your suggestion, and I believe the better way is that instead of finding out--that fight, that was ten or fifteen years ago-- we would have these things established before now and work in agreement with the seven states.

MR. JENKINS: Mr. Davis, would your legislature--before you press this application, will your legislature be willing to pass an act of self-limitation confining themselves to the amounts of water that the Upper Basin States are required to furnish?

MR. DAVIS: Mr. Jenkins, don't ask me that.

MR. JENKINS: That is just the problem. That is what we are fearing. We don't want to step blind-folded into acquiescing to a permit, as you understand and you know too well that the granting of a power right will be a permit, that when the water flows over that dam it will be appropriated year by year in that amount. You can appropriate, you can make an appropriation of water and it may be a dry year when the Upper Basin States are not prepared to present or to give you or furnish you with that much water. You will be in a position to demand that we let down that water, unless you are bound by some statute of self-limitation; and until that is granted, we feel constrained to oppose such an application, or the granting of such an application.

JUDGE STONE: I think we are broadening out this discussion considerably. I see possibilities of suggestions made by Mr. Davis, and others. Of course it will take time to work it out; but on this particular problem I would like to hear from some of the other states.

MR. DAVIS: May I just make a statement, and then throw it open to discussion. We are going to recommend to our Legislature the clarification of the compact, but before we can do that we have to have something which we have done in the state, and we have to have some very good legal opinions, some engineering advice--we have got to know just what our needs are before we can present them even to you people, and we are going to

work on that problem and we are going to work on that problem in the line of this in working out these questions.

I have this suggestion to make to you people, if you have any reservations as to your rights being infringed upon in any way, or should be taken away from you, if you hold those reservations, and if you want to send word back to the Federal Power Commission that you would object to the granting of that, that is all right. We will go ahead as far as we can with the application, but we would appreciate it if you would put in that if Arizona subscribes to whatever you say in the Boulder Dam Act, and recognize that limitation for the use of power to the appropriation, we would appreciate it if you would put it in that way. We don't want to be in a position to dictate to you, but if you should do this before that, I think that would clarify it. Whatever reservations you have, put it before the Federal Power Commission, and let us work the plans out in our own states along with working out the snags and inconsistencies in the Boulder Dam Act and the compact. It will take some time to present this application and even get a license--probably five years.

MR. WALLACE: There is a suggestion in the Boulder Canyon Project Act that Arizona be allocated two million eight hundred thousand acre feet of water in a treaty or compact with the other lower basin states. California now comes in and asks for the right to use 7 1/2 million acre feet of water.

MR. GILES: You mean Arizona.

MR. WALLACE: Arizona. Which is a beneficial use, so she is asking us to approve now the beneficial use, and establish a priority and a right to the use of 7 1/2 million acre feet of water.

MR. DAVIS: Will you break that down?

MR. WALLACE: Pardon me just a moment--I am puzzled. You haven't a Bishop or something of that kind--sometimes we have to go to our Bishops for counsel and advice--we don't know what to do. We simply want to protect our rights. We want you to have all of yours, and if it is possible for you to build that dam and use that power, we want you to do it, but we want to do it upon a basis so that we are all in agreement that there will be no fight between ourselves, and between your children and my children. How to do it, I do not know. I am puzzled. We need legal advice in this matter just as much as you do. If we can find a way out, we would like to find a way out, but we cannot it seems to me, cannot, should not at this moment approve a plan under which you will establish a beneficial use to 7 1/2 million acre feet of water, because that is as much a beneficial use, and establishes a priority just as much as using that water for irrigation purposes would.

Now, as I say to you, I confess to being puzzled. I am not a lawyer, but I have been interested in the matter of the Colorado River development for a good many years, and we would very much like to have your state ratify the Colorado River Compact. Now, we don't know how we can bring it about. We would like to bring it about. I suggest to you, I have already suggested to you, that so far as the Upper Basin States are concerned, we are ready--although I cannot speak for all--to say we will enter into a compact with Arizona under which you can build that project with proper limitations under the Boulder Canyon Project Act and the Compact. Now, if that can be accepted so that we can include all of the states, we will be delighted.

Now, it seems to me it is not possible to build that project this year, but if you could be patient about it, and let us think about it until we have our next meeting, and you go on with your work, and let the matter remain without trying to force an approval, and let us take the necessary time to see if we can work out some plan under which the seven states can get together--I respectfully suggest a delay in the matter. You have given your position to us, and we will study it carefully and at the next meeting of this Committee, we will again take the matter up with an earnest desire to settle it.

MR. DAVIS: I can concur in all you said except that 7 million five hundred thousand feet which you claim Arizona is asking for; will you show me wherein Arizona is asking for it.

MR. WALLACE: You want to use it for the development of power, don't you?

MR. DAVIS: But the appropriation of water--

MR. WALLACE: It is an appropriation of water to a beneficial use, and would establish a prior right to the use of that water just as definitely as though it were used for irrigation.

JUDGE STONE: Mr. Giles has a question he said he wanted to ask.

MR. GILES: I don't know but that it has been cleared up. Now that it has been suggested by Mr. Davis, I don't know whether you can answer my question or not. You will recall the last lawsuit in the United States Supreme Court. The only reason why Arizona, or one of the chief reasons why Arizona was not granted her request for an equitable portion of the waters of the river was she had not presented a justifiable cause. She was not prepared to take the water, and the Court said, "Go home, and when you are prepared to go to the river to get it, we will talk to you." Wasn't that right? You haven't changed your conception of your rights to the water of the river since that time, have you? No, where have you gone on record changing your conception of your rights in the river?

MR. DAVIS: I think you are right.

MR. GILES: That is what I wanted to get clear.

MR. DAVIS: And we haven't surrendered anything as far as I know.

MR. HUMPHERYS: Judge Stone, I am not exactly clear as to Arizona's position. I would like to ask Mr. Davis if, as stated, if the makers of this application would object to saying, if you please, "this application is made subject to all the terms of the Boulder Canyon Project Act and the Boulder Canyon Compact"--would, or would you not object to making that statement?

MR. DAVIS: I would say for two reasons we would accept them; first, we would have to before we can get it. The next one is we would want to.

MR. HUMPHERYS: You would not make it?

MR. DAVIS: We would. We would have to. I am talking about this present Commission, what our attitude is.

JUDGE STONE: I understand Mr. Davis' answer is that the Commission at this time for two reasons he made would be willing to make the application for this permit, that any permit granted would be subject to the Boulder Canyon Project Act and the Colorado River Compact, is that correct?

MR. DAVIS: That is right.

MR. WALLACE: However, Mr. Chairman, if the State of Arizona is to be bound, it would require an act of the Legislature of Arizona.

MR. DAVIS: That is true.

JUDGE STONE: Now, we have had considerable discussion of some of the states. I think it is entirely proper that we should know what the attitude of the other states is. Does California have any statement to make at this time, Mr. Swing?

MR. SWING: Mr. Chairman, I am just substituting here temporarily. There has been no meeting of the California Colorado River Commission since this came up, and I have no authority to bind the state on this matter. Anything I say, therefore, I would say as a private citizen of the United States.

I cannot see where California is injured by this proposed development, particularly since the Boulder Canyon Project Act contains very iron clad provisions, and for the additional reasons--I think Mr. Davis and his Associate Commissioner here have gone the full distance in agreeing, as I understand their oral statement, that they are willing to amend their application, if requested by the Attorney General of Colorado, so as to contain a provision that the application was made subject to the Boulder Canyon Project Act and the Compact. I think you have gotten everything you can get.

I don't altogether agree with my friend Wallace's position, as his desire might be, from his point of view, to make Arizona "knuckle down" and say-- there is a difference between the state ratifying a compact for every acre of land there is in the state of Arizona, and saying that each separate project as it comes up shall be bound. You people were all perfectly willing to accept the statement in the law with reference to the Gila and Head Rock Dam, which was simply an imposition of the compact on the works to be constructed and the water to be diverted by that work. And along comes the Arizona Commission and offer you exactly what you accepted then in connection with this.

MR. WALLACE: I beg your pardon, Sir. We were perfectly willing, we tried to talk this situation over with the Arizona delegation, and it is understood that the present item No. 1 does not total anything approaching two million eight hundred thousand acre feet of water. Now, larger appropriations covering very much more land are to be made; and we reserve our right, and have reserved our right to protest. So we did not accept the statement in its entirety to which you have just made reference.

MR. SWING: To come back, the California delegation has no authoritative statement it can make. All I have said here I have said as an individual.

I think, as a lawyer, that the use of the water running over the dam would constitute a beneficial use, and would vest in Arizona a right to the amount of water which they use for generation. That much is what you are contending for. On the other hand, we know they agree that that structure and the water so used shall be subject to the Colorado River Compact and the Boulder Canyon Project Act. That gives you everything you could ask for out of that problem.

MR. WALLACE: Will you go far enough with me to suggest that the binding of Arizona be done by the Legislature of Arizona? That was done in the case of California, in a similar matter.

MR. SWING: I haven't looked at their authoratative act setting up the Colorado River Commission, or whoever it was that made the application. They always will look into that, but if they have the proper authority to make this application, they have the proper authority to make it on the terms of the Commission.

MR. GILES: Mr. Chairman, as a lawyer I view this situation like this; it doesn't make any difference whether they accept the provisions of the compact, or make this application subject to it or not. They can still go to the Supreme Court of the United States, just as they did in the last case that they went with, and the Court hasn't sent Arizona home and closed the door to them in that case. Now, that is my view of this in that. Until Arizona waives her right to object to the upstream development on that river, that we will get into trouble over this thing too. And for my part, as a lawyer, I would like to see the Upper Basin States get just that kind of a waiver out of this situation, because I can see down the stream of time some trouble coming up over that very point.

MR. JENKINS: But that will have to be done by statute.

MR. GILES: Yes sir, I think you are right.

MR. McCLURE: Was the Gila project ratified by statute, Arizona statute?

MR. GILES: No.

MR. HINDERLIDER: It took the appropriation, subject to--

MR. WALLACE: The Gila project is possibly a million acre feet of water. This is possibly 7 1/2 million acre feet of water, which is a very different proposition, Mr. McClure.

JUDGE STONE: Mr. Smith, does Nevada have any comment to make on this?

MR. SMITH: Not at this time, Mr. Chairman.

JUDGE STONE: It occurs to me, I think we have all appreciated the attitude on the part of Mr. Davis and his Commission in an effort to avoid difficulties, lawsuits, and controversies. We also recognize the necessity of these states protecting their water rights, and their use to water under the compact, those states who have ratified the compact.

I should dislike very much to see a matter of this kind be hastily decided without mature consideration for the protection of everyone concerned. Mr. Wallace made a suggestion a few minutes ago which appealed to me, and I hope to the rest of you--that this is something that needs study and consideration and perhaps a way can be worked out. I was wondering if the Arizona representatives here would have any objection to a statement going on behalf of all of the states to the Federal Power Commission that this matter be delayed for a time, probably until the next meeting of this committee, so that the matter will be further studied and considered.

Now, we have the California representative stating that the Commission in that state has not considered this matter; Mr. Smith states that at this time his state is not in a position to make a statement. Now, in the interest of harmony and the accomplishment of the purposes of this committee, wouldn't it be the right procedure at this time to have united action in asking that this be delayed for a time? Now, you have stated that it would take probably five years to work it out anyway, and a short delay probably would not hurt anyway.

MR. WALLACE: I think we can promise on behalf of the State of Utah, we will give the matter thorough consideration, and particularly from the legal standpoint, have the best attorneys available give us their opinion in the matter.

JUDGE STONE: That is one consideration. We have a difference of opinion perhaps here among the attorneys, and it ought to be studied from a legal point of view. Would Arizona have objection?

MR. DAVIS: We would concur to that very thoroughly.

JUDGE STONE: You would concur; and would you gentlemen, with the rest of the states, in asking that action be deferred?

MR. WALLACE: I move, Mr. Chairman, that the matter go over until the next meeting of this Committee, and that in the meantime the states pledge themselves to a study of the matter.

MR. SWING: We can discuss our consideration; will the Federal Power Commission postpone it?

MR. DAVIS: I second the motion of Mr. Wallace:

JUDGE STONE: The motion Mr. Wallace made, seconded by Mr. Davis, is that this Committee ask the Federal Power Commission to postpone its consideration. Is it understood that is the motion? Is there any further discussion?

MR. DAVIS: I would suggest that this motion be carried with instruction to the Chairman to so notify the Governors in the various states to ask for it.

JUDGE STONE: Let the motion be amended to provide that the Chairman of this Committee notify the governors of the several states, of the seven states here represented, that they request that action of the Power Commission be deferred until the next meeting of this Committee, for further consideration.

MR. WALLACE: Question.

JUDGE STONE: All those in favor of the motion say "Aye"; opposed? The motion is carried.

Governor Blood suggested that we adjourn by 12:20. It is 12:10 now. We will recess until what time, gentlemen?

SEVERAL VOICES: Two o'clock.

JUDGE STONE: The meeting, then, will recess until two o'clock this afternoon.

R E C E S S

3:10 p.m.

MR. SWING: Mr. Chairman.

JUDGE STONE: Mr. Swing.

MR. SWING: The sub-committee which you appointed to draft a resolution on the matter discussed this morning, and personifying the spirit of cooperation which has been exemplified in this room heretofore, succeeded in unanimously agreeing upon a resolution which I will now hand to the Chair.

JUDGE STONE: We will ask the Secretary, Mr. Giles, to read the resolution.

MR. GILES: "RESOLUTIONS: BE IT RESOLVED, that Mr. E. B. Debler, Chief Hydraulic Engineer of the Bureau of Reclamation, be requested to prepare a preliminary report showing the progress of work on surveys and investigations for a comprehensive scheme for the development of the Colorado River Basin, and an estimate showing how soon the work can be completed, and the amount of money necessary to complete the work, which is now estimated at \$1,670,000.00, and

BE IT FURTHER RESOLVED, that a meeting of this committee be held early in the month of December, 1938, the time and place of the meeting to be fixed in the call by the Chairman, for the consideration of the said Debler report, and to plan proper steps to be taken to present to Congress the request for legislation and appropriations to carry said surveys and investigations to completion, and

BE IT FURTHER RESOLVED, that in the meantime the Governors of the seven basin states, the United States Senators and Representatives of said states, be advised of the importance and necessity of said surveys and investigations and of the early completion of the same, and that they be requested to urge upon the Congress proper legislation and appropriations as requested herein, and

BE IT FURTHER RESOLVED, that the National Reclamation Association and also the National Resources Committee be requested to support the proposed legislation and appropriations to be presented to the Congress and to approve and endorse the measures necessary for the early completion of the work, and to direct their legislative representatives in Washington to support said measures."

MR. SWING: I move the adoption of the resolution.

MR. LEE: I second the motion.

JUDGE STONE: The motion has been made that the resolution be passed, and the motion has been duly seconded. The initials of Mr. Debler should be changed from D. B. to E. B. You have heard the reading of the resolution; is there any further discussion?

MR. QUINN: I do not like to criticize the resolution, because I think the intent of it is very good here; but might not it be misunderstood here about work in the first paragraph of the resolution, shouldn't that be "investigations" instead of "work"? Congress might construe that, or some of the eastern people might construe that as meaning the actual construction of something, instead of service or investigations.

MR. GILES: You have investigations right after that, John.

MR. QUINN: In the last sentence here, the amount of money necessary to complete the work.

MR. JENKINS: To complete this investigation.

MR. WALLACE: I think that change should be made. Will you accept that?

MR. SWING: Oh, yes.

JUDGE STONE: Let the record show that in the 6th line of the Resolution the word "work" be changed to the word "investigation."

MR. SWING: Investigations, plural.

JUDGE STONE: Investigations.

MR. MCCLURE: That doesn't sound right, putting investigations in there.

JUDGE STONE: To complete the investigations?

MR. MCCLURE: I beg your pardon. I was reading another paragraph.

JUDGE STONE: You think that is all right now, Tom?

MR. MCCLURE: Yes.

JUDGE STONE: Any other suggestions or comment? If not are you ready for the question?

MNAY VOICES: Question.

JUDGE STONE: All those in favor of the resolution as read indicate the same by the usual sign. Opposed? The motion is carried.

MR. WALLACE: I would like to advise the gentlemen the usual sign in this country is the raising of the right hand. I suppose these brethren don't understand that, do they?

MR. ROGERS: Is that a "Hitler" sign?

MR. WALLACE: No, this is "straight up".

MR. DAVIS: It is called to our attention by Mr. Quinn that the meeting of the Western Engineers will be in Phoenix in the early part of December, and many of this group will attend that; and the resolution calls for a meeting of this group in the early part of December. If it meets with your approval, I would like to extend an invitation to meet at Phoenix early in December for this assembly.

JUDGE STONE: Thank you, Mr. Davis.

MR. WALLACE: How is the water down there?

MR. DAVUS: Fine; best in the country.

JUDGE STONE: I notice the time and place are to be fixed by the Chairman. I would say at this time, are there any other suggestions?

MR. JENKINS: The gentleman from Nevada suggests that we meet at Boulder City.

JUDGE STONE: I don't think we had better pursue this farther. We are going to Boulder City, see the Rose Bowl Game, and all these things.

MR. SMITH: My suggestion was that we might meet at either Las Vegas or Boulder City. It is summer down in that part of the country at that time of the year, and of course you know at Boulder Dam and the Power Plant and the Lake, there is good fishing, entertainment of all sorts if you want that sort of thing, in Las Vegas.

JUDGE STONE: We will keep the suggestions in mind. They both sound interesting.

The next order of business is the Mexican question. You recall the resolution which was referred to when we met yesterday. According to that resolution, this question was referred to this Committee for study. The resolution further stated that these states were opposed to any exchange of the water of the Rio Grande, or any water of the Colorado for water in the Rio Grande. With such trade negotiations there is involved also the question of whether the two should be considered, or whether this is the proper time to approach this subject or to make any suggestions. It is one that requires careful consideration, and a knowledge of all the facts. It would seem that we are not prepared at this time to arrive at a conclusion; and it is also apparent at this time that we should not merely let the matter drift, that some machinery or something should be set in motion to at least secure the decision of the various states, that decision of the states to be based upon something of a careful study of the situation.

You will recall that this Jacob-Stevens Report was reviewed at Phoenix, and in this fact-finding report which we have had before us here, Mr. Tipton has referred to the Jacob-Stevens Report, and the conclusions there made. It seems to me we should have some discussion as to procedure before we enter into the consideration of perhaps some problems and questions which we are not at this time prepared to consider. I would be very glad to hear from anyone who has any suggestions to make.

MR. DAVIS: As I remember, there was a resolution passed at the Phoenix Meeting relative to this matter. My memory is just a little hazy on just what that is.

JUDGE STONE: I will read that; that is the one I referred to yesterday. I think it is on page 142 here. The resolution is as follows:

"WHEREAS, the question of a treaty with the Republic of Mexico providing for a division of the waters of International Streams is a matter of very great importance, in which the seven States of the Colorado River Basin have a vital interest, and concerning which full data are not now available, now, therefore,

BE IT RESOLVED, that this question be referred to the seven states committee appointed under authority of this conference for a study, with instructions to report its findings to the next meeting of the representatives of the Colorado River Basin States.

BE IT FURTHER RESOLVED, that in accordance with the interests of the Colorado River Basin States and the policy of the State of Texas, as expressed by its representatives to the conference, the Colorado River Basin states oppose any exchange of water from the Colorado River for use of water in any other international stream."

Now, a policy was announced there in the last part of that, the last paragraph of that resolution. The other paragraphs refer the matter to this Committee for study. Now, this committee has not studied this problem. This is the first meeting we have had since that resolution was adopted, and the question is how are we going to approach that subject, and how are we to study it?

MR. WALLACE: Mr. Chairman, isn't the conclusion on this particular matter dependent upon the report that we are to receive in December? Our protests have gone to Washington, and there is no probability of any action as to the Colorado River treaty for a long time in the future. In order to prepare this matter in the best possible form, we should have the necessary data which will back the statements we may make in any resolution we may propose. I think it would be wise for us to await the report of Mr. Dehler, and at our next meeting act upon it in such a manner as that report may indicate as being the best possible way. I think this matter will remain on the table until we meet again. I so move, Mr. Chairman.

MR. TIPTON: I think that is an excellent suggestion. I would like to make another along that line. There is some question, of course, about the policy of initiating at an early date negotiations on the Colorado River.

DISCUSSION OFF THE RECORD

MR. TIPTON: Following along Mr. Wallace's suggestion, I would like to offer this suggestion, and it results from conversation I have had recently with Mr. Jose who was recently connected with Mr. Lawson's office, with the last report. Expanding upon this problem is the so-called Jacob Steven's Report. An attempt was made in that report to arrive at the minimum dependable surplus that would go to Mexico under various developments in the United States. Now, I do not believe that all the states in the Basin have given full consideration to that report. I have gone into it personally rather thoroughly. I did arrive at some conclusions which might be changed upon the development of further information. But, pending the December meeting, pending this report of Mr. Deblers, I believe it would be a good policy for each of the states with their technical staff, planning board, or water conservation boards, to review that report, and if possible come to the December meeting with some conclusions of their own as to the reasonableness of the Jacob-Stevens conclusions. Now, that might not be possible, but opinions could be formed by that time. Then they could be discussed by the group, and it is conceivable there finally might come out of the group a smaller technical sub-committee to attempt to reconcile the opinions of the various states. That is all, of course, contingent upon the ultimate conclusion of this group, that fairly early treaty negotiations should be initiated. When we say early, that doesn't mean next month, or the next six months, or possibly the next year.

We also know what present diplomatic relations between the two countries are. I am making this as a further suggestion, and that is that the individual states should study seriously the Jacob-Stevens Report, get the import of it, see what it means, and see whether or not you as states concur in his conclusions, because there, in that report there was set up as a conclusion certain quantities of water which the author said would go to Mexico--in any event, a dependable supply so far as quantity was concerned. The supply was some considerably greater than was considered by the American Section of your Joint Water Commission, National Commission. And if this body is to indicate to Mr. Lawson that it is the feeling of the body that in its judgment, the time was ripe to start negotiations, then this body should be able to say to him along what lines he should start those. I think we have got to work toward that end. We probably cannot reach any conclusion in December, but we should make progress.

MR. WALLACE: I renew the motion.

MR. DAVIS: I second the motion.

DISCUSSION OFF THE RECORD

MR. SWING: I approve the motion that has been made by Mr. Wallace, and I approve the suggestion of Mr. Tipton, and

DISCUSSION OFF THE RECORD

JUDGE STONE: Mr. Wallace, it occurs to me that this motion might well be broadened to incorporate the idea of Mr. Tipton, the suggestion that in the meantime these states through their technical staffs be giving attention and study to this problem so that when the Debler report is in, and those states have arrived at some conclusion, then we might consider that problem in the light of the data and the positions which may have been secured in the meantime, or may have been taken in the meantime. Your motion merely calls for, that this matter be laid on the table, and not considered until the December meeting.

MR. WALLACE: Of course, ordering this study, of course it may easily be added to this--that the technical officials of the states be requested, in the meantime, to make a careful study of the Jacob-Stevens Report. I so move, Mr. Chairman.

JUDGE STONE: Mr. Davis seconded the motion. The motion has been made, and seconded; is there any discussion. Are you ready for the question? Those in favor say 'aye'; opposed? The motion is carried.

MR. DAVIS: It seems to me that this committee, in the December meeting, will need a little advice outside of the investigation on the Stevens Report which is technical in its nature. There are other matters, matters of policy, and the situation politically. I think we have today a former member of the Boundary Commission, if I am not mistaken, from the California Commission, and Mr. Swing is very familiar with that. I would suggest you appoint them a Committee to bring back to the December meeting their recommendations as to what we should do in regard to the Mexican situation outside of the consideration of the Jacob-Stevens Report. I believe they have some very definite ideas as to how to handle this situation from their past experience and information.

MR. SWING: I thank Mr. Davis for his complimentary reference. I do not know where I will be in December. I beg leave not to be appointed anything. I am just here for today only.

JUDGE STONE: Mr. Jose, I believe Mr. Davis referred to you, and I presume in your position as advisor to the California Board that the very matters which Mr. Davis refers to will be considered; and whatever conclusion the California Board comes to you will bring us to this meeting. Am I correct in that?

MR. JOSE: I should assume so.

JUDGE STONE: I believe that will take care of that.

MR. DAVIS: That will be agreeable.

JUDGE STONE: All right. I believe I made perhaps a rather misleading statement as to the nature of the Tipton Report. From some remarks I have heard, it appeared perhaps my statement concerning that report, and the nature of it may have been misleading. It was not done--except that perhaps I didn't express myself clearly enough on the matter. I thought at that time, that Mr. Tipton might just briefly state what he attempted to do in this report. You have the report before you, and as was stated yesterday, it will be studied by the representatives of these states. I should like Mr. Tipton to just state briefly what he attempted to handle in this report.

MR. TIPTON: The report was an attempt to get under one cover facts concerning several more or less loosely related items about which there was some mis-information in the Upper Basin States--such items as water supply in the basin, whether or not there was sufficient water to take care of the allocations under the compact, whether or not there ever would come a time, in view of the record of stream flow when deliveries would have to be made by the Upper Basin at Lees Ferry, and other related matters with respect to the water supply.

As I have mentioned, the Jacob-Stevens Report was reviewed and discussed; the situation on the Lower Rio Grande from a technical standpoint was reviewed and discussed. The question of the operation of Boulder Canyon Reservoir about which there was considerable misunderstanding in the Upper Basin was reviewed and discussed, both under present conditions and under assumed conditions throughout the period of repayment, by decades. There was a short discussion of projects that might be constructed that would be closely related to the Boulder Canyon Project in the future, both to take care of the silt situation and to re-regulate the water at such time as there develops an interference between the development of power and the demand or requirements for water below the dam for irrigation. Now, I think that covers briefly the subjects that were discussed, and I won't discuss any of those at this time unless there are some questions. They are all in the record that has been furnished you, or will be furnished you.

MR. GILES: Judge Stone, Mr. Humphreys called my attention to a very important matter that I think should have the attention of the Committee. I direct your attention to paragraph 3 of part 2 of our report to the Governors at Yellowstone. That matter should be brought before this Committee, and some action taken with respect to creation of monuments, etc.

JUDGE STONE: Mr. Giles has called to my attention paragraph 3 on page 3 of the report of the Fact Finding Committee. That paragraph reads as follows:

"We recommend congressional legislation which will preserve and guarantee to the states the full utilization of the water resources for consumptive and non-consumptive uses, including rights of way over Government owned or controlled land provided such legislation shall not affect existing and established national parks." Mr. Humphreys called that to our attention through Mr. Giles, and the matter was discussed by the Fact-Finding Committee. I am going to ask Mr. Humphreys at this time to just state what the problem is.

MR. HUMPHREYS: Mr. Chairman, this matter came to the attention of our Water Storage Commission about a year ago. There was an investigation made upon the Virgin River cooperatively by the Bureau of Reclamation and the Water Storage Commission. The result of that investigation was as stated yesterday, to the effect that the cost of building a project for the so-called contiguous lands was excessive by reason of silt conditions. As a result of that report, it became necessary, because of the congested condition in that section, to seek a supply elsewhere, that is, see if water could not be secured above the erosion area and to some extent that was successful. Among other reservoirs discovered was one mentioned yesterday in the record as North Fork. It was not known to us at that time that it was a part of the National Park, of Zions National Park. As a matter of fact, it was not a part of that originally created, but it was a part of the park as subsequently added to by a National Monument. Without the knowledge that it was within the boundaries of the Park, we induced the Bureau of Reclamation to make an application to appropriate water so as to prevent encroachment, and the state proposed immediately to make a topographic map of the reservoir, and likewise of the damsite. We were promptly notified by the Park Service that that was a park, and that without permission, or a consulting with the proper officials, we should keep off. Since that time we have had some difficulty in establishing a gauging station there. And I understand the Bureau of Reclamation has had some difficulty, or has been criticized for the reason of making an application to appropriate water on a National Monument.

MR. WALLACE: Park.

MR. HUMPHREYS: Park Service.

DISCUSSION OFF THE RECORD

MR. WALLACE: I would like to move that the Chairman of our Upper States Commission, inasmuch as we are all interested in this situation, be requested to appoint a committee to confer with Secretary Ickes at Reno upon this very important question, with Governor Blood as Chairman.

JUDGE STONE: The motion is seconded?

MR. WALLACE: I haven't heard any.

MR. ROGERS: I second the motion.

MR. SMITH: Mr. Chairman.

JUDGE STONE: The motion has been made and seconded, Mr. Smith.

MR. SMITH: I just arise to a question of expediency of bringing this to the attention of the Secretary at the Reno meeting. I understand that he is being besieged with requests for interviews and conferences, that he expects to remain in Reno only one evening, that he will arrive rather tired, and it may be an imprudent time to take up a matter of this sort with him. I have been given to understand that he doesn't care to have any business engagements at that time.

MR. JENKINS: I would suggest in the motion here that it be made more explicit. You say "this matter"---you had better state what matter.

MR. WALLACE: The motion must be adequate.

MR. JENKINS: You had better amplify it so it goes in the record.

MR. LEE: I would like to have it understood that this motion go not only to parks and monuments, but to the forest service. Now, in Wyoming we have our troubles with the Forest Service.

MR. SWING: That is the Department of Agriculture.

MR. LEE: Yes, all right; we must take action just the same.

MR. WALLACE: We cannot take that to Secretary Ickes.

MR. LEE: I understand that the rule seems to be, if you wish a right of way for an irrigation canal to cross any land within the areas of the forest service, although the appropriation may be outside of the National Forest Reserve, and your line of survey, and your line of your canal must necessarily cross perhaps a small part of it, of the forest reserve, you cannot construct it without a special permit from the Forest Service. I do not know of anyone in the past few years who has been able to obtain such a permit in Wyoming. I know of more than one small project where ranchers or farmers desired to supplement which was irrigation supply, to bring some new land under irrigation which was absolutely blocked because they cannot get through there without the

approval of the Forest Service, and so they are simply placed in a position where they cannot develop and cannot get the water that they need. We may say that the law is simple and ample, but the administration certainly blocks any development.

JUDGE STONE: Mr. Quinn, did you have something?

MR. QUINN: Mr. Chairman, I was just about to arrive at the same point Mr. Lec brought out; that I would like to see this motion enlarged, or resolution enlarged, and sent to the Secretary of Agriculture.

MR. WALLACE: Well, let that be a separate motion. This is specifically with the Secretary of the Interior, and for one meeting and for one purpose. It is a separate resolution. On the other matter, make it on the other matter.

MR. QUINN: I was thinking, following out Mr. Smith's suggestion of not taking it up with Secretary Ickes at Reno. Then the Governor could take it up with a committee to draft the resolution and take it up with the Secretary of the Interior and Secretary of Agriculture also. In Wyoming, in many cases, why we have been defeated from actually making surveys on some of these wilderness areas, and as I understand the function of the Forest Service, or the local Forest Ranger is the discretion to just designate a wilderness area on which you cannot make any improvements whatever. And his word stands there until it is appealed from in the United States District Court. In Wyoming, in very many instances our local people have been deprived of making some improvements that would mean just the existence of that community.

DISCUSSION OFF THE RECORD

JUDGE STONE: Mr. Wallace, I was going to make this suggestion. I understand the weight of your suggestion. It must be taken up as soon as possible; but in order that this whole matter might be handled, could not the motion read that this matter of securing rights of way over Government owned or controlled lands, be referred to Governor Blood with the suggestion that he appoint a Committee to, at the proper time, confer with Secretary Ickes, the Secretary of the Interior Department, and Secretary Wallace of the Agricultural Department with respect to this matter.

SECRETARY WALLACE: This is a matter of immediate and pressing importance. It is one item, and it should not be mixed with the forest situation. We have had the situation between the Department of the Interior and the Department of Agriculture in Ogden on our project up there. Now we all know about that, but I have one specific thing to do here. I want to prevent the erection of that particular monument; I don't want to talk about anything else.

JUDGE STONE: You want it confined to that?

MR. SWING: Since this is a matter taking place within the State of Utah in which they are vitally concerned, and they have a Governor who is on excellent terms with the Secretary, and if he is willing to make the trip to Reno, I am sure the Governor will be received with courtesy, and can say anything he wants to the Secretary. That disposes of the immediate pressingsituation in Utah. I still think that the way to meet this situation is for the Chairman to appoint a Committee of two lawyers, one probably from Wyoming, one from Utah, who will draft two memorials addressed to the Secretary of the Interior and the Secretary of Agriculture referring to the law, referring to the regulations, referring to specific cases, and making a dignified argument, and then we request the Governors of these states to send those in which are directed to the regulations and to the practices under the regulations. My own opinion is the law itself, as I tried to say a while ago, is straight-forward and easily understandable, and has been on the books since 1891 and has functioned very well in a good many instances, and if there is trouble in these instances, it is a matter either of the practice, or of the regulations under the law.

MR. DAVIS: At Casper, last year, this was brought out in the National Reclamation Association. I think every one of these Western states, the 17 of them, are confronted with the same problem. I am in full accord with what you want here, Mr. Humpherys and Mr. Wallace. In the entire area of Arizona, 72% is under Federal control-Indian Reservations, Forest Reservations or monuments, and they are encouraged more and more all the time. I believe to get this you can get the backing of seventeen states. Why, with the National Reclamation Association on this very thing, that wasdiscussed very fully, and it is right down their alley. All of them are concerned about that very encroachment you are talking about, Mr. Wallace. And I think if Governor Blood and his Committee not only confer with Secretary Ickes, but get the National Reclamation to adopt a resolution in the same tenor, you will get the backing of the entire group.

MR. WALLACE: We want the assistance of all the states here. I think the representatives of these seven states, with their Governors, if any of them are there, could meet with Secretary Ickes, and I am sure that they would be cordially received. I think that good will be done, and bearing in mind that two monuments have already been made; and we are very anxious to prevent this one happening within the next ten or fifteen days. The time for action is here and now.

JUDGE STONE: It seems to me, Mr. Wallace, that your request is entirely proper as to this particular matter, and the motion-as I understand it, Mr. Wallace wants the backing of these seven states in this motion, to delegate the Governor to appoint acommittee to take up this particular problem, as it is an immediate problem. Then Mr. Swing's idea, which can be covered by another motion will carry out a more general problem. Now, you have heard the motion, and it has been seconded. Is there any further discussion?

MR. SMITH: Mr. Chairman, I wish to dispel any allusion which may have sprung up as the result of my suggestion, that I am opposed to the motion. I merely suggested it as a matter of expediency, and as a matter of courtesy perhaps, to a visiting official. My thought was that this is a very important matter-we all concur in that. So far as I know there is no opposition to it; there certainly is not on the part of Nevada, that you might ask the Secretary when it would be convenient for him to meet your Governor, set the time on the matter, rather than running over to Reno to say "here, we want to see you about this right now.

MR. WALLACE: I will assure the gentlemen from Nevada we have as the Governor of the State one of the most courteous, kindly gentlemen of whom I have any knowledge, and that his approach to Secretary Ickes will be in a dignified and proper way.

JUDGE STONE: Any further discussion on this matter?

MR. JENKINS: I would like to hear the motion. It seems to me it started out with a paragraph, and then developed into something else. I would like to know what we are going to vote on.

DISCUSSION OFF THE RECORD

MR. JENKINS: I would like to see that definite in the motion, what this very important question is, so that we will have something definite.

MR. STONE: The point you make, Mr. Jenkins, can easily be written in there. It is merely this question of securing rights of way over Government owned or controlled lands for the purpose of water utilization and development. Isn't that correct?

MR. JENKINS: I thought it was a particular monument you were referring to.

(THE MOTION WAS READ BY THE REPORTER)

MR. WALLACE: I think that will cover it.

(DISCUSSION OFF THE RECORD)

JUDGE STONE: Undoubtedly this should be formed in the form of a motion, and acted upon. Do you have that, so you may make a motion?

MR. SWING: I would rather Mr. Jenkins make a motion. I cannot serve on it. I think it should be two good attorneys; of course there are so many-one from Utah and one from Wyoming; those are the two states that have been apparently the worse hit.

MR. DAVIS: I second the motion.

MR. STONE: Now, the Chair cannot make this motion.

MR. SWING: All right, I will make the motion.

MR. STONE: The Motion is the Chair appoint a committee consisting of two lawyers.

MR. WALLACE: Three; Utah, Colorado, and Wyoming.

JUDGE STONE: Three lawyers, who will make a study of the statutes and the regulations made thereunder concerning rights of way over government owned and controlled lands, and report their study and their recommendations to the next meeting of this Committee for action. Is that correct, Mr. Swing?

MR. SWING: That suits me fine, if it suits Mr. Jenkins.

MR. JENKINS: It is all right.

MR. LEE: It is all right.

JUDGE STONE: Mr. Davis seconded the motion.

MR. WALLACE: Do you want someone from your state to serve on that Committee?

MR. DAVIS: I think that is all right. We are here close together.

JUDGE STONE: You have heard the motion; any further discussion?

MR. WALLACE: Question.

JUDGE STONE: Those in favor, indicate the same by saying 'aye'; opposed? The motion is carried.

I am about to introduce Dr. Barrows, who has been at this meeting, and at other meetings. It is always a pleasure to hear from Dr. Barrows of the Water Resources Committee, of the National Resources Department. Dr. Barrows.

DR. HARLOW H. BARROWS: Mr. Chairman and Gentlemen: It was my privilege to congratulate you at Yellowstone upon the promising opportunity which you have to help develop a fundamental plan for the effective control and efficient use of the water resources of this great river basin in a common interest of the seven states involved. Today I renew those congratulations.

One indisputable prerequisite to success in such an undertaking is a common will to agree, a willingness on the part of each state to sympathetically consider the needs and wishes of the other states. In your deliberations yesterday and today you have evidenced abundantly that will and that willingness.

I want also to congratulate Mr. Debler upon the preliminary tentative plan which has been developed under his direction, so far as the Federal Government is concerned, of course, with your splendid assistance also. I would like, if it won't embarrass him, to congratulate him personally

upon his presentation yesterday of that plan. It seemed to me that he was a walking, or rather I should say, a sitting encyclopedia of statistics with respect to these many projects. I marveled at his command of those data. He emphasized yesterday, and other speakers emphasized the fact, that this plan, however, is only a tentative plan, a preliminary draft of a plan, a nucleus if you please of a plan which in due time will develop; and which presumably will pivot on many of the projects now set forth.

I believe that success in dealing with the water resources of the West in general is contingent, among other things, upon acceptance of the river basin as a unit area and in planning, that is the concept pretty generally accepted now in principle, but its implications in many quarters are not accepted. You have accepted them.

If each state in a great basin were to develop in isolation, and carry out in isolation a plan for development of its segment of the larger area, there could never result a united "master plan" for the control and development of the water resources of the entire area. One might as well hope that you could take several pieces from each of a number of jig-saw puzzles, and expect them to fit together.

And so, in your state-planning, you apparently are taking into account sub-basins as sub-areas--the entire basin as a great unit area, and each of you, each group, is considering the wishes and needs and rights of all of the rest.

I was pleased, too, yesterday, repeatedly, in the course of Mr. Debler's presentation and in connection with specific remarks about it made by various members of the group, particularly pleased that you were emphasizing a multiple utility of different projects, particularly the larger ones, of course, I take it that it is a social mal-adjustment, and not an economic adjustment when a big dam is built, let us say, for irrigation alone, provided it would have been practical to plan it, design it, construct it, and operate it, not only for irrigation but also for various other purposes. A big dam on a river may helpfully regulate, or help to regulate the flow of the stream for a considerable distance below the dam; it may help to ameliorate flood conditions, may help to protect life, may afford recreational opportunities, may serve water supply needs, may permit the development of power. All useful purposes, so far as economically practicable, should be served in proper balance.

But I take it that multiple purposes again involves here more than recognition of the multiple activity of individual projects. Multiple action must be carried out if it is to be effective, not only with reference to functional utilities, functional lines of development, but also on an aerial basis because a big project in a given sub-basin may affect, or itself be affected, by all other significantly large projects in that same unit area. You are meeting that requirement likewise in your initial planning and initial discussions.

Still further it seems to me that you clearly have recognized that important commitments should be made, not on the basis of mere opinion, but in the light of all relevant facts. I think that the adoption of any plan, even for a relatively small sub-basin, which did not involve consideration of all relevant facts, which was not based on theory giving investigation of all physical conditions and facts, economic, social, legal conditions, and facts of pertinent character, would be illogical, probably economically wasteful, and very possibly would invite controversy. You are avoiding, I believe, in your earlier deliberations and plans of procedure, several of those serious pit-falls into which groups in other parts of the country upon occasion have inadvertently fallen into.

Now, to get the relevant facts takes time, and costs money. You will need to exercise patience. Yesterday Mr. Debler said that the investigations which he envisages perhaps could be completed in three years, but he would prefer five years. I think it is almost a national thesis, if we make up our mind we want a thing, we wanted it yesterday. We want prompt action, not prompt preparation for some action. And in consequence, year by year, we make many serious mistakes.

Now, happily of course, there are important projects in each of these seven states scattered throughout the great drainage area which apparently are sure, and fit into one rather mature plan. Seemingly, the investigation has reached a state which makes that certain, so no state apparently has to mark time or has to stand still while these indispensable investigations are being completed. I think Mr. Swing said this morning, perhaps one or two others of you; likewise, I think one of your most pressing and important problems is carefully to plan your campaign for the getting of the Million Five Hundred Thousand Dollars or so which will be needed for the carrying out of these comprehensive and detailed investigations.

Congress, repeatedly in recent years, has shown greater willingness to appropriate several billion dollars for construction than it has to appropriate a few million dollars for sorely needed investigation preliminary to construction. Too often we have gone ahead with great enterprises, and then afterward have made investigations. We make studies after Bonneville is well along toward completion, when these studies should have been made, it seems to me, before Bonneville was started. We are making similar studies with respect to irrigation and power in connection with Grand Coulee which may well have been made before that was started.

You will be wise, if I may venture so to say, to plan stage by stage, step by step, in advance of action. That is the only kind of planning that can be depended upon with confidence. It may be presumptuous for me to say, however I ventured to say it to Mr. Debler's Chief Commissioner (?) less than a fortnight ago in Washington, that I think the estimate of the sum needed, \$1,500,000 is approximately half a million dollars too low. I think before you get through, you will find you need two million, and not one million five hundred thousand. I don't believe it would be very much more difficult to get the two million than the other.

I believe that very significantly large water problems you have in this basin merges into the same problem, or some combination of problems having to do with the occupation and utilization of the land; and I believe every land problem in turn merges into a human problem, and the study of those cultural conditions, trends in population, prospective changes in population and in its distribution in industry, in business; and the requirements for water are going to take more effort and more money, I believe, than has been set down against those items as yet.

Perhaps the only thing I can do further is to renew and emphasize a statement which Mr. ?, my chief, made at the Yellowstone Park meeting to the effect that if at any time the water resources department can assist you, it will be happy to do so upon your call. And I am sure also that Dr. Woods, Regional Chairman for the National Resources Committee Fields Area will be similarly available, and agree to serve if and when he can.

This afternoon it has been the fashion, apparently, to say a few things off the record. I am going to avail myself, if I may, Mr. Chairman, now for a moment, with your approval.

(Talked Off The Record)

I think the most inspiring day I ever lived professionally was the day the Rio Grande Compact was signed last March 18. One of the other very inspiring occasions has been this one of yesterday and to-day, because you have demonstrated this common will to agree, to give and take, to look at the other fellow's side of the proposition, and plan in terms of this Great Basin as a united area, to recognize multiple utilities, potentialities of particular works, not only along functional lines, but along aerial lines; and I think you will find as you work longer together that it will be easier and easier to get over the successive difficulties which, of necessity, will confront you, just because of your initial success. You will get closer together, and it will be more and more easy to understand one another's minds.

APPLAUSE

JUDGE STONE: I am sure, Dr. Barrows, we appreciate those remarks. They were well taken, I am sure. You touched on some vital problems which confront us.

Now, Gentlemen, there are two other minor matters, matters of detail. One is with respect to the record. Is it the desire of the Committee that this record be prepared, mimeographed, and a number of copies provided for the next meeting, something in this form?

MR. DAVIS: I so move you.

MR. SWING: I second it.

(THE MOTION WAS PUT AND CARRIED)

JUDGE STONE: It will be understood that this work will be done, and the expense of it apportioned among the seven states.

That disposes of that matter.

MR. JENKINS: You want to have more copies of these volumes.

JUDGE STONE: I am coming to that next. The next matter is with respect to these--Mr. Jenkins, you mentioned that. There were 150 copies, and we considered we would get out that probably. However, the plates were made and it will be possible to have 200 copies. MR. Wallace suggested to me at the noon hour he thought to have the 200 copies.

MR. WALLACE: They contain the reports and the maps. 200 isn't too many.

Now, at this time I should like to have some suggestions as to the distribution of these 200 copies.

MR. WALLACE: We would like our proportion of them, Mr. Chairman.

JUDGE STONE: This was a fact-finding report of the Upper Basin. How many would you like to have in the Lower Basin?

MR. DAVIS: Is that what you are talking about, what you have been referring to, Mr. Debler's Report?

JUDGE STONE: Yes.

MR. JENKINS: First of all, Mr. Debler, would you not consent to mail to each member of the Fact-Finding Committee a copy so that we can get it early?

JUDGE STONE: We would be glad to do that.

MR. JENKINS: If you will attend to that, the distribution of other copies, we can attend to that.

JUDGE STONE: It will be understood we shall send out early a copy to each member of this Committee, and you will understand that will be complete, which I referred to yesterday.

MR. SWING: California, twelve.

MR. DAVIS: Arizona, twelve.

MR. SMITH: Nevada, twelve.

JUDGE STONE: Is it understood the balance will be divided proportionately among the four Upper Basin States?

(UPPER BASIN REPRESENTATIVES) That is agreed to.

JUDGE STONE: That Committee was to be appointed. It seems to me there should be no delay about it. If we don't do it now, maybe we will drift along and not get it done for two or three weeks. I will appoint General Lee, Grover Giles, and Attorney John Rogers,

MR. SWING: Has the Committee on Courtesy reported? I think we ought to report a vote of thanks to the Governor, to the State Officers for the use of the state rooms and facilities, and also other courtesies that have been extended. Perhaps we should include the newspapers for the pictures they put in the paper.

JUDGE STONE: Thank you, Mr. Swing. I think that is in order. I understand Governor Blood wanted to come in just a minute before we adjourn. That motion has been made and seconded.

MR. JENKINS: Including the delightful luncheon.

JUDGE STONE: I am sure we will all enter in accord with that motion. All those in favor say 'aye'; opposed? The motion is carried.

(GOVERNOR BLOOD ENTERED) Is that the motion to adjourn?

JUDGE STONE: No, not the motion to adjourn. We are just presenting appreciation for the many courtesies, and the privilege of meeting here.

GOVERNOR BLOOD: That is very kind of all. I am glad that you came to Salt Lake, I have said that before. Unfortunately for me this has been two days of unusual pressure and I have not been able to follow these discussions, but I shall learn what you have said and done when I read the record, which it will be my privilege, I hope, to do. I do read these records.

However, I do want to express the hope that as a result of this meeting we shall proceed with a unanimous front, united front, to the solution of the problems of the Colorado River Basin. I could not say more if I stood on my feet for a long while. That is the purpose of the meeting. I may quote my friend, William R. Wallace, who for years has continued to say to me, "When we quit discussing these things separately, and get together, and get all the seven states around the table at one time, we will begin to get somewhere" and we have done that. I hope we are in the way of getting somewhere.

Thank you for coming to Salt Lake City. I wish I could have been with you more, and I wish we might have had time between the meetings to have made you gentlemen acquainted with our state and our city. Most of you, I am aware, that you are quite familiar with Salt Lake, but you haven't given us time to take you beyond the borders of Salt Lake.

Again, I say thank-you, and good luck.

APPLAUSE

JUDGE STONE: Those of us who have had an opportunity and the privilege of working with Governor Blood know how efficiently he has worked in the interest of the development of this Basin, and how kindly he has been in his attitude. I am sure we appreciate him in Salt Lake, if it were not for any other reason, Governor Blood.

GOVERNOR BLOOD: I thank you.

JUDGE STONE: Gentlemen, I believe that is all there is to come before the meeting. I want to express my personal appreciation for the splendid way in which this Committee has worked. We came here to work, and I believe we are accomplishing something. Thank you.