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WALLACE N. JIBSO.

REPORT NO. II

HISTORICAL REPORTS

on

BEAR RIVER

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PREFACE

In 1943 the Geological Survey, in cooperation with the states of Idaho, Utah, and Wyoming, and the Bureau of Reclamation, began an intensive stream-flow investigation in the Bear River Basin. The purpose of this investigation was to secure adequate information on water supplies and uses within the basin as base data for a compact among the three states on the division of the waters of the river system, and to assist the Bureau of Reclamation in determining the irrigation and power potentialities of the Basin. In 1946, the states requested Mr. Leshar S. Wing, Regional Engineer of the Federal Power Commission to assist them in drafting a tentative compact and asked the Geological Survey to authorize Mr. W. V. Iorns, Project Engineer of the U. S. Geological Survey to assist Mr. Wing in this work. At the Compact Commission meeting in December 1948, the Commission appointed an Engineering Committee to assist Mr. Wing and Mr. Iorns in the study of such engineering problems as may, from time to time, be referred to the Committee by the Compact Commission. Mr. Iorns was appointed Chairman of this committee.

The states of Idaho, Utah, and Wyoming made available, in their cooperative program with the Geological Survey, funds during the 1950-51 Biennium, to the Logan Project Office for such special investigations and stream-flow analysis work as the Commission may need in the drafting of a compact.

In carrying out this assignment, much information has been collected and studied and a series of reports prepared to make a record of findings and any conclusions reached. This report is one of the series. The observations and conclusions stated herein are entirely those of the author, and do not represent in any way those of the Geological Survey, the Bureau of Reclamation, or any of the states concerned.

W. V. Iorns

HISTORICAL REPORTS ON BEAR RIVER

GENERAL

Bear River has long been what may be well classed as a prize interstate water problem. The early Mormon pioneers crossed it a few miles above Evanston, Wyoming and the Old Oregon Trail traversed it for a considerable distance. Its broad valleys and meadow lands with surrounding grazing area enticed early cattle ranchers to settle along its banks. The first settlers took up the lands along the tributary streams and diverted the waters onto the land. Later comers settled along the main river and attacked its waters. Irrigation was but a few years old when water right disputes began. Time has done little to effect any substantial settlement of these, but has instead, added to the complications.

The river in its meandering course crosses state lines five times and water is diverted for irrigation almost its entire length, with hundreds of individual rights involved. The state line crossings literally divide the river basin into six independent state sections. Under existing state laws, regulation and division of the river's waters among the individual users in each section can be effected. In most cases the respective rights of the individual users in each state section has been defined by court decrees and state adjudications. However, these decrees and adjudications define only the relative priorities between users in each state section and may not correctly reflect a correlation of priorities between the several state sections. Thus at the present time, the water users are faced with the problem of integrating the rights of their respective states, a problem which is no longer simple, but most complex. The political, economic, social, engineering and legal aspects of any solution, presents almost impossible barriers.

To fully understand Bear River and its water problem it is necessary to

go back into the history of its irrigation and carefully study the observations and comments of irrigation investigators. While probably many other investigators have reported on the problem, the following reports have been selected as presenting the facts in a least biased nature.

POWELL REPORTS

Mr. G. K. Gilbert in 1878 made the following report (1) on that area of Bear River included in the Utah Territory.

"The Bear River runs northward at first, and a little beyond the foot of the mountains enters the Territory of Wyoming. Swerving to the left, it passes again into Utah - - -. Bordering upon the upper reaches of the river (in Utah), there is little land available for cultivation, and the climate forbids any crops but hay. I am informed that the meadow land there somewhat exceeds two square miles in area (in Utah). Where the river next enters Utah it runs for 30 miles through an open valley, the valley that contains the towns of Woodruff and Randolph. At the head it passes through a short defile, and can readily be thrown into two canals at such a level as to command the greater part of the valley, bringing about 90 square miles of land "under ditch". For the irrigation of this amount the river is sufficient, but if the necessary water were thus appropriated, too little would remain for the use of the lands which border the contiguous portions of the river in Wyoming. These have equal claim to the use of the river, and a proper distribution of the water would assign it to the reclamation of the best selection of land in the two Territories. - - - where the river next enters Utah it has acquired so great a volume that it is impractical to make use of its entire amount. The portion of

(1) Report of Major J. W. Powell to the House of Representatives, April 3, 1878, Lands of the Arid Region of the United States.

Cache Valley which lies in Utah can nearly all be irrigated. What is on the left bank of Bear River can be served by Logan River and other tributaries without calling on the main stream. The right bank will have to be served in connection with an adjacent tract in Idaho - - -. In leaving Cache Valley the river tumbles through a short, narrow canyon, and then enters on the plain that borders the lake. The limestone walls of the canyon offer a secure foundation for the headworks to a system of canals to supply the plain - - -. Not only will the entire alluvial plain of the Bear be served, but the valley of the Malade, as far as Oregon Springs, and the valley which extends from Little Mountain to Connor's Spring - - -. In the following table are summed the agricultural resources of that portion of the Bear River drainage basin which lies in Utah:"

Tracts	Square Miles	
	Cultivated 1877	Cultivable
Base of Uinta Mountains	1.6	2.5
Yellow and Duck Creek	0.0	2.0
Randolph Valley and Saleratus Creek	9.6	69.0
Shores of Bear Lake	5.0	9.0
Cache Valley	50.0	250.0
Delta Plain, Malade Valley, and Connor's Valley Spring	22.0	218.

It is disappointing that this early investigation was restricted to the territory of Utah as it would be most interesting if they had also included the Wyoming and Idaho lands.

It is also interesting to note in this early treatise that these pioneer students of irrigation recognized the possibilities of future disputes over water rights and recommended that the Congress include in its western region homestead laws, adequate safeguards to protect the rights of the settlers. A bill

recommended by Major Powell in his report of 1878 contained the following:

"That the right to the water necessary to the redemption of an irrigation farm shall inhere in the land - - - and in all subsequent conveniences the right to the water shall pass with the title to the land - - - but if after the lapse of five years - - - the owner of any irrigation farm shall have failed to irrigate the whole or any part of the same, the right to the use of the necessary water to irrigate the unreclaimed lands shall thereupon lapse, and any subsequent right to the water necessary for the cultivation of said unreclaimed land shall be acquired only by priority of utilization - - -. Provided, That the water necessary for the irrigation of such farm can be taken without injury to the rights of any other person - - -."

The Congress knowing little of irrigation and unable to see very far into the future concerning interstate water controversies took no action. Irrigation policy and laws were left to the states.

Major J. W. Powell in 1889 reported as follows in the Second Annual Report of the Irrigation Survey (2) then a department branch of the U. S. Geological Survey:

"The study of the hydrography of the Bear River, of the present utilization of its waters and their future conservation, offers problems of unusual interest, not only from the geologic and engineering sides, but from political, economic, and social standpoints."

"This river rises in the lofty Uinta range in northwestern Utah, flows through the southwestern corner of Wyoming, a high, rolling contry devoted mostly to grazing, then turning west, crosses

(2) U. S. Geological Survey, Eleventh Annual Report 1889-90.

the line again into Utah, where the drainage waters begin to be utilized on a considerable scale for raising grass. It then turns to the east and recrosses the line into Wyoming, where the valleys contain hay ranches. Beyond these the river swings abruptly to the west into Idaho, winds through a mountain chain, and enters a large valley having an elevation of about 6,000 feet. Here is found the distinctive feature of this drainage basin - the peculiar lake and marsh, which act as a great natural reservoir, or rather as an equalizer of the flow of the lower Bear River. The river does not, as shown on the Land Office maps, enter the lake, but passes along in front of or below the open lake, meandering through the great marsh or level plain. In times of high water it spreads out through and over the marsh and its waters back up into the lake. In times of drought the marsh dries, much of it becomes good hay land, and the water from the lake finds its way through tortuous channels down to the river."

Powell
1889

"Around this large valley and beautiful lake, the southern half of which is in Utah, are clustered many prosperous towns and villages, which depend for their subsistence upon the waters of the smaller tributaries of the Bear. The center of the valley north of the lake is still public land, though dotted by houses, corrals, and haystacks. The occupiers of this land cannot get a title from the Government, as it is designated a lake on the official maps."

"From the north or lower end of this broad, level valley the river, again in a defined channel, winds north through hilly and broken grazing lands, then west along and through great lava plains, and finally, as though cut off by this lava sheet, turns abruptly south. Having passed the lava, the valley broadens, forming Gentile Valley, at the northern end of which there is a large body of high arable land. It is proposed to irrigate this land by a ditch taking water from Bear River itself. But at present the river is not

attacked in or below this valley; all the water for irrigation is taken from the lateral streams, which are largely fed by springs."

"Below Gentile Valley the river flows through narrow passes and over rapids to enter the beautiful Cache Valley, "the granary of Utah." This valley lies due west of Bear Lake Valley, but about 1,000 feet lower. Like the former, its upper end is Idaho, its southern in Utah, the latter portion being the most thickly settled."

"All the streams which go to join the Bear, from Gentile Valley southward, are diverted during the growing season upon the land, but the water in the river itself is untouched, because it has cut for itself a channel so deep below the general level that the communities along its banks have not been able to divert it upon the dusty plains."

"The river flows through the Cache Valley nearly to its lower end, finally turns back toward the northwest, and rushes through a very deep, precipitous canyon and enters upon the Salt Lake Plains, where, after meanderings more and more tortuous, it finally is lost in the Great Salt Lake."

"Until recently there has been no attempt to utilize, except on a few acres fringing the stream, any of the river water below Bear Lake. In 1889, however, a company began to construct in the canyon below Cache Valley two canals of the aggregate capacity of 2,000 second-feet. This system was designed to be one of the largest and best constructed works of the kind in this country, and to cover ultimately upwards of 200,000 acres, embracing within these limits many large towns as well as a portion of the city of Ogden."

"During the last two years, 1888 and 1889, the rainfall has been unusually small. The Bear River, like others, showed the

effect of this in diminished flow, the discharge shrinking to an unprecedentedly low amount- - -."

"There are dimly outlined for the future, as shown by the brief statement above, several questions of great importance, upon whose correct solution hang the peace and prosperity of many communities, embracing over 30,000 inhabitants. Here is a river crossing State lines five times, its water furnishing subsistence for scores of communities differing in laws and customs, flowing first through grazing countries, where its waters are lavishly used for raising hay, then through broad valleys of great elevation, where it is again robbed of its waters to raise the hardier grains and vegetables, and finally delivering its surplus waters to one of the most fertile valleys and genial climates of the West."

"In times of scarcity who is to apportion this water? How much belongs to this community and how much to that corporation? What protection do the present users enjoy against the stronger and richer canal companies or the aggressive adventures at the headwaters? These questions are seriously disturbing the minds of the inhabitants of that country, and are being discussed in the market places and in conventions. Each year, as population becomes more dense and a larger acreage is brought under cultivation, the demands upon the water increases, and the time is fast approaching when, instead of the demand exceeding the supply for, say, 1 in 15 years, it will be 1 year in 10, and later 1 in 5, and perhaps often-er. Thus questions of economic distribution and of priorities and equities of rights must depend upon the measurements of water, the knowledge of the distribution - in short, the results of the hydro-graphic studies begun now while the matter can be impartially investigated- - -."

"On examining the daily average discharge for the last year it can be seen that the maximum discharge at Battle Creek occurred on June 1, when the amount reached 6,000 second feet. Down the river at Collinston, however, the maximum occurred earlier, from the 21st to the 23rd of May, at which time the discharge was 8,700 second feet. The spring flood was marked by gradual increase day by day, and after the maximum by a quite steady decrease; there was not that irregular fluctuation so characteristic of the mountain streams, especially of the southern territories."

"The minimum flow at Collinston was in the middle of July, when the discharge barely reached 300 second feet. The "oldest inhabitants" united in declaring this the lowest amount ever reached by the river. The rain and snow fall had been for two years unusually light, giving less river flow, and also indirectly resulting in its diminution by the increased diversion of water for hay lands as well as for the raising of other crops. The area of meadow lands and cultivated lands had also increased, especially near the headwaters. At this juncture the project of the great canal starting in the canyon above Collinston, and the notices of appropriation posted in various places, caused general uneasiness among the individuals and communities in the drainage basin of the Bear, especially in Idaho, from the undefined fear of a contest regarding water arising with this great rival. This fear was largely founded on the fact that the newcomer was carefully protecting every point by an elaborate compliance with the law, while the former appropriators had relied wholly upon possession and custom, taking water wherever found, without notice or formal record."

DEPARTMENT OF AGRICULTURE REPORT

The U. S. Department of Agriculture, (3) in 1898, made a report on the water-right problems of Bear River. In this report Clarence T. Johnston reported on the physical features, irrigation, water supply and recorded water rights as they existed in 1898. Joseph A. Breckons discussed interstate water rights in general and Bear River in detail. The following has been extracted from this report:

"Bear River in its meandering course crosses and recrosses state lines five times. These boundary crossings divide the stream into six state sections."

CHARACTER OF THE WATER SUPPLY

"If all of the water supply came from the mountains at the head there would be in effect six independent sets of claims to supply, and controversies over the diversion of the water would long ago have become acute. But this is not the case; the stream grows from the lake where it starts to the larger one where it ends. While irrigators in each of the six sections take something from the river, there are tributaries which reenforce it. As a result, the maximum measured discharge at Evanston, Wyoming of 950 cubic feet per second, becomes over 10,000 cubic feet per second at Collinston, Utah. Smiths Fork, which rises in Wyoming and empties into the stream in the last section in that State, carries a much larger volume than the main stem above their junction. Logan River adds more to this volume than all the appropriators in Wyoming can divert. Henrys Fork (Thomas Fork) is an important feeder, and Bear Lake and the streams which drain into it afford a material increase to its low-water discharge. The exceptional increase due to these

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tributaries and the facilities for storage practically restrict inter-state complications over rights to the four upper sections along the boundary between Utah and Wyoming. This progressive increase in volume is one of the complications which will vex those who attempt to frame a code of laws for the interstate division of streams. On Bear River there is not one, but a dozen important sources of supply, the volume and availability of which will have to be considered. Wyoming and Utah are the important contributors to and depleters of the stream. But little water is either added to or taken from it in Idaho."

"The value and availability of a river cannot be measured by a gauging at any point in its flow nor by a measurement of its surface supply. Its gains and losses from subterranean sources are much more important than have heretofore been supposed. In Bear River, there is a marked gain from seepage and the probable presence of unlocated springs which rise in the river's bed."

Listed in the report are some discharge measurements made in September, 1898 of the river's flow at several points and also of tributaries. The approximate locations and discharges given are as follows:

Bear River above Utah-Wyoming State line (above all diversions and at about same site as present gaging station) - -	57 cfs.
Bear River at about head of Woodruff Narrows - - - - -	43.5 cfs.
Bear River below Francis Lee and Bear River Canals at Wyoming-Utah State Line - - - - -	3.5 cfs.
Crawford Thompson Canal - - - - -	8 cfs.
Randolph-Woodruff Canal - - - - -	9 cfs.
Bear River below Crawford-Thompson and Randolph-Woodruff Canals - - - - -	5 cfs.
Bear River below mouth of Smiths Fork - - - - -	213.67 cfs.
Smiths Fork at Mouth - - - - -	210 cfs.

Thomas Fork was entirely diverted by its canals.

The feasibility of diverting water from Bear River for storage in Bear Lake was discussed in the report. It was estimated that 400,000 acre feet could be stored in the lake by raising the "turnpike" in several places to provide for 5 foot range in regulation, constructing an intake canal from Bear River and installing control gates in the outlet channel through the turnpike.

FORMER CONDITION OF UPPER BEAR RIVER

"The old water levels marked on the hills bordering the Valley of Bear River make it manifest that Bear Lake is the last remnant of a chain of lakes which formerly extended along the river as far upstream as the southern boundary of Wyoming. The former location of these lakes can be easily traced out by the broad and level aluvial deposits through which the stream winds its sluggish course. The first lake was located above Myers Narrows and had a length of nearly 10 miles and an average width of 2 miles. The second lake extended from Woodruff Narrows to about the mouth of Sulphur Creek with a length of about 22 miles and an average width of nearly a mile. The third lake extended from Woodruff Narrows to the narrows north of Cokeville, a distance of almost 50 miles and spread out to a width of 2 to 14 miles. That these level bottoms were formerly basins which have been filled to a great depth with sediment is clearly evident. In the midst of these level plains are isolated points, the summits of which were once high foot hills.

LOCATION AND CHARACTER OF THE IRRIGATION WORKS ALONG BEAR RIVER

Mill Creek Section

"When the river leaves the steep canyons on the headwaters it emerges into a broken foothill country. These foothills extend almost to the Utah-Wyoming boundary line. The channel of the stream follows close to the hills on the west side and on the

east side a low flat divide of water worn pebbles and gravel separates it from Mill Creek. Ditches tap Bear River near the boundary and cross Mill Creek divide at almost right angles to the main stream. There is more cultivated land along Mill Creek than along Bear River above their junction. Along the river near the mouth of Mill Creek the ground is saturated with alkali and greasewood takes the place of sagebrush. The presence of this salt has thus far discouraged attempts to utilize land in that vicinity. However, alkali disappears below the mouth of Mill Creek and natural grass meadows, interspersed with alfalfa fields extend from one side of the valley to the other, down to the Myers Narrows."

Hilliard Flats

"Two ditches cross both the Mill Creek watershed and a second divide to irrigate lands on Hilliard Flats along Sulphur Creek. The area capable of being irrigated approximates 8,000 acres and water can be easily distributed over the entire area. The southern half of the valley is settled, although not over 1/10 of the irrigatable land is cultivated. Sulphur Creek is of little importance as a source of water supply, as it furnishes but a small quantity of water at any time during the year."

Myers Narrows to Woodruff Narrows

"Below Myers Narrows, the valley again widens and farms occupy a narrow strip of bottom lands extending to the mouth of Yellow Creek. Ditches are taken from the river wherever convenient and the meadows are saturated continuously until low water. At the junction of Bear River and Yellow Creek, the river turns to the north and the valley approximates about a mile in width down to the Woodruff Narrows. This valley is a continuous meadow and controlled by

a few ranchmen. Three miles below Evanston, the Chapman Canal begins, which is 18 feet wide on the bottom, 24 feet wide on the top and 4 feet in depth. These dimensions give a carrying capacity of approximately 252 cfs. Of the 47,680 acres of land it irrigates, only 10,088 lie in Wyoming." (Both of these figures are believed to be considerably in error - - - W. V. Iorns).

Woodruff Flats

"Below Woodruff Narrows the river turns to the north and the valley has a width varying from 4 to 7 miles, until the river returns to Wyoming. The land reclaimed in Utah is irrigated by larger canals and the methods of the farmers are much superior to those followed in Wyoming either above or below this tract. Four miles below the Narrows the Randolph and Woodruff Canal diverts from the west bank and covers a valuable tract of land averaging four miles in width, a large portion of which is now under cultivation. Considerable land is irrigated below Randolph from this canal. On the east side of the river is the Booth and Crocker Canal (Crawford Thompson), which irrigates a narrow strip of land about 20 miles long between the river and the Bear River mountains. Other smaller ditches also divert from the river in Utah."

Beckwith Ranch

"The Beckwith Company has three ditches. The first of these connects with the river on the west side, 6 miles above the Wyoming line. It is 30 feet wide on top, 25 feet on the bottom, and 4 feet deep. The other two canals of this company leave the river 2 miles below the Wyoming line. The most expensive dam on this section of the stream serves to raise the water to fill these canals. The ditches have no headgates. The dam has regulating gates which can

be closed and the level of the river raised to flow into the canals. The dam is a rock-filled crib structure, having a roadway built over the cribs and large quantities of loose rock thrown in above them. The gates are placed on the upper side of the dam and are so arranged as to be worked by one man."

Wyoming and Idaho Ditches

"The valley of the river from this point to the junction of Bear River and Smiths Fork has an average width of $1\frac{1}{2}$ miles. Immediately below the confluence of the two streams are the third narrows. The Wyoming and Irwin canals begin below them. Like the Beckwith canals, one dam suffices for the two and no head gates have been constructed. Numerous small ditches have been built between these canals and Bear Lake Valley. Thomas Fork flows into the main stream from the north beyond the Wyoming line. Here the valley of the river is from 2 to 4 miles wide, but it becomes narrower just below and contains little irrigable land until Bear Lake Valley is reached. In this valley the four ditches taken from the stream serve to irrigate 16,000 acres."

Bear Lake to Cache Valley

"From Bear Lake to Cache Valley the hills approach close to the river and only a limited area can be reclaimed. Some 15 miles below Soda Springs, several small tributaries furnish water for the irrigation of a tract of land known as Gentile Valley, but one ditch is taken from the main stream and it only serves to irrigate a small area of bottom land. Cache Valley is irrigated chiefly from the tributaries of Bear River. In the narrows below Cache Valley, two large canals divert on the east and west sides of the river for the irrigation of large tracts of land in Box Elder County."

CLAIMS TO WATER FROM BEAR RIVER AND TRIBUTARIES IN WYOMING

"The early Territorial records of Wyoming resemble those kept by the county clerks of Utah and Idaho today. The claims first recorded follow no special form. The name of the owner of the ditch, his post office address, and the amount of water claimed were the features made most conspicuous. A vague idea of the value of a cubic foot per second, or miner's inch, resulted in an irrigator claiming an amount equal to the volume of the river for the irrigation of a few acres, while his neighbor might claim but a small quantity for watering 160 acres or more. The error in this particular was, however, generally on the safe side for the irrigator, and the claims on Bear River alone call for over 1,000 cubic feet per second. This volume is between three and four times as much as is needed for all the land irrigated along Bear River in Wyoming today."

"In the Territorial adjudications, made by the courts, the carrying capacity of the ditch, instead of the area irrigated, determined the amount of appropriation. This influenced somewhat the building of ditches as well as the form of the claims filed for record."

"The State law, which has been in force since 1890, provides for a board of control, which has entire charge and supervision of the water of the State and makes all adjudications. It is made up of the State engineer and four division superintendents. The law required the county clerks to furnish the State engineer with a complete transcript of all territorial claims to water, and made the State engineer's office the place of record of all claims to water. The applications for permit under the State law correspond somewhat with the statement of claim under the Territorial law. In addition

to giving the name of the owner, the dimensions of the ditch, etc., it includes a description and area of the land to be irrigated." No specific quantity of water is claimed. The application must be filed before construction is begun, and the State engineer has authority to return the paper, or map accompanying it, for correction, and to refuse permits where streams are fully appropriated. Neither the application nor the statement of claim is a title to water. Under the Territorial laws, the decree of the court was as near a title as the irrigator was able to obtain. Under the State law, the board of control issues certificates of appropriation, after the adjudication is made, which are similar to a land title and as explicit."

"Under State and Territorial claims 18,840 acres of land are irrigated in Wyoming from the water of Bear River. If the State should adjudicate these rights, 283 cubic feet of water per second would be allotted to this area. The gaugings made in September, 1898, when the river was at extreme low water stage, show the scarcity of water that would exist even if the quantities used were limited to 1 cubic foot of water per second for each 70 acres, as required by the State law. But 57 cubic feet of water per second entered Wyoming from Utah at that time. No tributary adds to this charge until Smith's Fork is reached, which is practically on the Wyoming-Idaho line."

"Only since 1881 have the laws of Idaho required the recording of ditches. Utah has required it only since 1897. In neither of these States does a failure to record appropriations made prior to these years work a forfeiture of rights. Hence their records are incomplete, and the names of claimants and the amount of water claimed cannot be given."

10fs/6'

The report contains 2½ pages of listing of territorial claims to water from Bear River and tributaries in Wyoming as recorded in the office of the State Engineer at Cheyenne, Wyoming. A number of the dates of priority as shown in this table check with present day listings of adjudicated water rights. However, since many of the appropriators names are apparently different in this listing and as listed in present tabulations of adjudication, it is impossible to make a satisfactory check in most cases. Nevertheless, it is believed that the evidence shown by this early tabulation indicates that the present adjudications for Wyoming are probably quite correct.

THE IRRIGATED AND IRRIGABLE LANDS

"The area which Bear River can be made to reclaim is restricted. On the upper third of the stream the alluvial vallies along the river have nearly all been irrigated. In Idaho the land which can be profitably watered is limited in extent and much of it is too uneven in surface to be attractive to irrigators. The greatest expanse of unoccupied land and the field of future growth is in Utah. In Salt Lake Valley, in Cache Valley, and Gentile Vallies under projected canals, there is destined to be a great increase in the cultivated area. The following table gives a close approximation to the reclaimed and reclaimable area in each state."

Irrigated and irrigable Areas in Wyoming, Utah, and Idaho

State	Land Irri- gated	Land yet to be reclaimed	Total capable of being ir- rigated
	Acres	Acres	Acres
Wyoming - - - - -	19,840	23,840	43,680
Utah - - - - -	56,000	207,000	263,000
Idaho - - - - -	16,000	10,000	26,000
	<hr/>	<hr/>	<hr/>
Total	91,840	240,840	332,680

"The scarcity experienced by the appropriators living between the head of the stream and the mouth of Smiths Fork has led to considerable uneasiness and to a desire for an interstate adjudication of priorities by appropriators below, but a study of all the conditions shows their fear of scarcity to be groundless. Smiths Fork and Logan River are the principal sources of supply, and both reinforce the stream below where the greatest use now occurs. Three hundred and thirty thousand acres is believed to embrace all the land which can be profitably watered. The mean yearly flow of the stream for the past five years has been over 1,500,000 acre-feet. This would cover to a depth of nearly 5 feet all the lands which can be irrigated. One-half that amount will be ample. The immense size of Bear Lake, and the ease and cheapness with which it can be converted into a reservoir, make it possible to utilize practically all the water discharged from the stream except that flowing from Logan River. All that is needed is its conversion into a storage basin and the building of a canal from Bear River to fill it.

*Bear
Power
Right*

"The irrigators along the Wyoming and Utah boundary need relief. During the past six years there have been a number of seasons when the stream was drained as dry as it was in 1898, when only defective dams prevented a dry channel. The completion of the Hilliard Flats or Yellow Creek Canal will either rob existing users below or lead to some sort of an agreement for the establishment and enforcement of priorities across State lines."

DIFFERENCE BETWEEN WATER-RIGHT RECORDS IN STATES CONCERNED

"In all of the States traversed by Bear River the settlers along its course are drawing on a common source for water for irrigation purposes; in all is recognized the doctrine of the right

to use of water by virtue of prior appropriation, and the settlers are calling upon their respective commonwealths to protect that right. Yet, because these rights have thus far been left to the settlement of State tribunals which only exercise jurisdiction within State boundaries and have no influence beyond, over 250 distinct appropriations, one representing an outlay of \$1,000,000, are as absolutely without specific regulation as if there were no irrigation laws. And while it is true that the courts may in time be invoked in litigation, yet a decision regarding priorities across State lines will not open head gates across State lines when the stream rises enough to give water for all or close them when water is scarce. That needs ^{an} ~~no~~ officer with specific duties. It would be just as easy to conduct a city water plant without an engineer to run the pump as to try to enforce priorities across State lines without some authorized official to open and close gates. There is now no United States or State law to correct this need."

"Some Wyoming irrigators along the stream have taken advantage of these conditions, and in order to avoid the enforcement of priorities in Wyoming have built the head gates of their ditches just across the State line in Utah."

Hilliar

"A great many of the irrigators who are taking water from this stream and experiencing this unsatisfactory condition of affairs have called for a remedy, and have urged a division and adjudication of the waters of the entire stream. But when authority is sought to make such a study of the stream as is necessary for such a division and adjudication it is found that there must be some legislation to bring the rights of the irrigators and the methods of enforcing them into harmony."

Qu
in H

"Some perplexing problems will have to be solved before such division and adjudication as suggested can be effected. All agree that priority of appropriation and devotion of water so appropriated to beneficial use establishes the right of the appropriator. But before there can be any division of the waters on a just basis it must be known when and how the rights of the individual appropriators were acquired."

"In commencing to make such division the following situation would be confronted:

In Wyoming certain requirements in reference to recording ditches are observed. An examination of the official records of a body established by State law and known as the State board of control will disclose the date of appropriation, the object, and the amount of water to which the appropriator is entitled."

"In Utah there is no general record of such rights and no common place of record. Whatever records there are in Utah of rights acquired prior to the passage of the law of 1897 are voluntary ones, made by appropriators with county officers. There is no examination by authorized officials to determine if the records are in accord with facts, and such records as are made do not always give a correct and complete history of the existing situation. The Utah records of the Bear River appropriations are scattered among four counties, and in order to determine the status of contiguous water users at various places on the stream all of the four county seats must be visited."

"The second State legislature of Utah passed an act requiring that all persons intending to construct irrigation works must post a notice at the head gate and record a statement of claim in

the office of the county clerk. The same act also provides for the recording of claims existing at the time of its passage. This clause was made inoperative by the following proviso: "That a failure to comply with the requirements of this section shall in no wise work a forfeiture of such heretofore acquired rights or prevent any such claimant from establishing such rights in the courts."

"In Idaho the situation is somewhat similar to that in Utah. The records of appropriations are in the several counties and are subject to no general rule as to form and method of keeping. The recorded claims differ in various counties as to the unit of measure employed, and the amount of water claimed depends largely upon the desires of the claimant. There is no system of adjudication or record employed in the State, and there is general complaint that no one can enjoy the ownership of water sufficient to render his farm permanently productive until his rights have been tested by lawsuits. The records become encumbered with imperfect water right locations, many of the papers recorded failing to state necessary facts to constitute an intelligible record. The records, being in the various county seats, are widely scattered, and the failure to require any submission of proof of compliance with the law after the recording of the notices of claim renders the records useless for the purpose of determination of perfected appropriations."

Difference in Character of Rights

"It may therefore be readily seen that at the outset the claims of appropriators of water from the Bear River on record could not be taken as a basis for the equitable division of its waters."

"If an effort should be made to go further and to determine what the actual rights of the people are who are using the waters of the stream, the first step would be the establishment of a standard

by which these rights might be measured. If the right be determined by the size of the ditch built by the Idaho appropriator, this should also determine the rights of the appropriators in the other two States. If it is determined in Wyoming by the acreage which has been irrigated, or the needs of that acreage, the same standard should be employed in Idaho and Utah. There could never be a harmonious and just division of the waters of the stream across State lines, no matter by what authority divided, if in Wyoming rights should continue to be measured by the acreage irrigated, and in Idaho and Utah such rights should be measured by the size of the ditch whether any acreage is irrigated or not. As a matter of fact, an examination of the irrigation statutes of these three States will show that the laws of Wyoming do not recognize any but usufructory rights, and the water appropriated for irrigation is measured by the acreage upon which it is to be used and the necessities of that acreage. While not settled by the courts of last resort of the State, so far as the administration of the irrigation law is concerned ownership of water is held to be inseparable from that of the land to which it appertains. In Utah rights to water can be acquired for purposes of sale, and water is declared by statute to be personal property. The courts of the State have held that water ownership can be separated from land ownership, but thus it is made a separate or floating right. In Idaho there has been no settlement of these matters, and there is no degree of certainty as to what a water right really is, or whether once acquired it is attachable to any part of the land it is desired to water, or is movable at will up or down stream."

*Wygo -
water goes
with land*

*Utah -
water right
can be sold*

Difference in Tribunals which Determine Rights

"If an attempt should be made to divide the waters of the Bear

River equitably, regardless of State boundary lines and upon a common standard of measurement, such division would have to be made by a tribunal which should establish and adjudicate the various rights in accordance with the laws of the respective States through and in which the waters of the stream flow. Could such a tribunal be agreed upon is a doubtful question."

"In Wyoming the executive authority for dividing and adjudicating the waters of the river is the State board of control, a member of which collects the testimony of all who use the waters of the stream, obtaining facts as to dates of construction of ditches, size of ditches, time of first appropriation by each use and acreage irrigated by each, and the waters are divided as equitably as may be possible with this information as the basis for making the division."

"In Utah there is no tribunal by which the waters of the stream may be divided other than the courts, and rights are determined by an ordinary suit at law between claimants."

"In Idaho, if a dispute arises, the courts must be appealed to for a division of water among irrigators."

"In order to effect a satisfactory division, the tribunal making it must meet the ideas and prejudices of the people to be governed by its decisions, and in all the steps to be effected their views must be conformed to in as large a degree as possible. With the records of priorities and amounts of appropriations at hand, and with a uniform standard of measurement established, the question still remains: Is it feasible to get the people of the several States to agree upon any uniform method of supervision?"

"As conditions now exist, with water users working out these various problems within the borders of their own States, and the

methods and forms of procedure of these States far apart in irrigation matters, the efforts to draw them closer together will necessarily work injury to some individuals. The number injured, however, will certainly be smaller if the efforts are made in the immediate future than if put off to some distant date."

Evils of Litigation over Water Rights

"No case involving contests between residents of adjoining States for the right to use the waters of a stream flowing in or through both States has as yet reached ultimate and final decision in the courts. This is due in a measure to the fact that such litigation is extremely expensive, tedious, and vexatious, involving a final appeal to the United States Supreme Court; that the pioneers in irrigation have been generally settlers of small means, who have preferred submitting to injustice rather than become involved in legal controversies likely to absorb a goodly portion of their belongings; and that the absence of irrigation laws in many of the irrigated States has given license to might rather than right in the settlement of water-rights controversies. Even States the interests of whose citizens have been encroached upon by the citizens of adjoining States have been slow to plunge into legal controversies, and have allowed their citizens to suffer without an effort to afford them the protection to which they should be entitled."

"This state of affairs, it is self-evident, cannot continue much longer. The rapidly increasing importance of irrigation interests, the necessity of securing the greatest service from the waters of all streams, and the need of protection for vested rights, all tend to make it imperative that a remedy must soon be found either in the courts or in the State or National legislatures."

RECLAMATION SERVICE SECOND REPORT - BEAR LAKE PROJECT, 1903

On March 16, 1903, a letter was addressed to the Secretary of the Interior by the Bear Lake and Bear River Irrigation Commission, Logan, Utah, inviting attention to the possibility of the use of Bear Lake as a reservoir for the storage of the flood and unappropriated waters of Bear River for the irrigation of the following areas:

1. An area of more than 100,000 acres lying northwest of Bear River in the vicinity of Bancroft, Idaho.
2. An area of about 150,000 acres in the vicinity of Downey, Idaho, and extending southward into northern Utah.
3. About 30,000 acres between Cub and Bear Rivers, in northern Utah and southern Idaho.

In consequence of this request the Reclamation Service made an examination of Bear Lake as a storage reservoir and run preliminary canal surveys beginning in the vicinity of Soda Springs and extending down the river into the Cache Valley area. The following references to work then progress around Bear Lake have been extracted from the Reclamation Report (4):

"By a careful examination of the shore line of the lake it has been found that the meander line of the public surveys is considerably above any level to which the Lake would be raised if the tentative plans upon which the present investigations are based should be carried out, thus eliminating questions relating to the right of way for the proposed storage, insofar as it relates to patented claims."

"Two private projects are in course of development to utilize portions of the Bear Lake section. The Telluride Power Company is constructing a 35-foot channel from Bear River to North or Mud Lake.

(4) Reclamation Service, Second Report, 1903, Bear Lake Project.

Their plan, as outlined in their recorded notices of appropriation, contemplates the raising of the surface of the lake, including the North Lake section, 5 feet above the level of the lake at the time of the field examination in 1901. The company proposes to divert Bear River into the lake basin, and have begun the construction of the channel mentioned above. The alignment of this channel is shown on the accompanying map. Little progress has been made on the work, though it is not entirely abandoned. The recorded plan of utilization is indefinite, covering in one general statement all possibilities of power and irrigation development from the Bear Lake Basin to Great Salt Lake. No work of any kind has been done toward the utilization of the water that may be stored."

"The Utah Sugar Company is constructing a channel, also shown on the maps herewith, from North or Mud Lake to Bear River. Little progress is being made on this project, as the channel is large, having a bed width of 100 feet and a grade of 1.25 feet to the mile, the grade of the bed being 4 feet below the present level of Mud Lake. If the channel were extended on the same grade to intercept the main lake it would be 4.5 feet above the present lake surface; therefore, such an extension is probably not contemplated, and while the plan will undoubtedly furnish some additional water to Bear River, it is by no means such a one as will develop the possibilities of Bear Lake in a satisfactory manner."

"The contemplated utilization of the water by the sugar company is in the northern part of Utah, mainly in Box Elder County. In this section a large electric-power plant has recently been completed, which will utilize Bear River water and discharge it at a point so low as to preclude all possible use for irrigation under a gravity

system. It is generally recognized that the sugar company's development of Bear Lake is intended to supply water for this power plant, as well as to make possible an extension of the irrigated area owned by the sugar company in Box Elder County, Utah."

"The extent of proposed irrigation development under the project is not apparent, though the possibilities are great, and in the district of the proposed operation water is valuable."