

lots in Kanab for the construction of the canal to bring water to them had amounted to \$16 each last year and \$30 each this year.

Geo. M. Ottinger was the final witness, and reeled off valuable statistics from memory on the water question as fast as the stenographer could take them down. Among many other facts he stated that City Creek, the principal source of water supply for Salt Lake City, had a watershed of 13,000 acres; that the stream yielded in the spring about 5,000,000 gallons daily, but only a little over 4,000,000 gallons per day now; that the storage of water in artificial reservoirs in this vicinity for irrigation was not practicable, as 113 tons, or 27,000 gallons, were required for a single irrigation for one acre of land; that the reservoir now being constructed east of this city, with a capacity of 7,500,000 gallons, was only expected to supply water for culinary purposes, and that it could be fed by pipes from City Creek or Canyon Creek; that the canal from the Jordan covers about 3,000 acres of the city but did not bring water to irrigate that area; that Utah Lake was the natural source of supply; it being 10x25 miles in extent, and to use 50,000,000 gallons daily through the season would only lower it one foot.

At the conclusion of Mr. Ottinger's testimony the committee adjourned to 8 o'clock in the evening, with the understanding that during the interim they would take the proposed trip by rail to the south end of the county.

At the evening session

JOSEPH R. WALKER

was the first witness called. He said: There is a chain of six or eight lakes at the head of Big Cottonwood canyon, which, by raising their outlets, could be made to store large quantities of water, and I think that these are the only reliable sources of water for the city.

Senator Plumb called Major Powell's attention to the statement of Mr. Walker, suggesting that he have the ground surveyed at once and a report made on the feasibility of the plan.

Mr. Walker continued by giving a brief description of the lakes. He said he had no doubt that if they were properly arranged they would store enough water to supply the city. More water goes to waste from Big Cottonwood creek during flood time than is used during the entire season.

Major Powell stated that the Cottonwood lakes have already been listed and sent to Washington as sites for reservoirs.

JUDGE J. E. JONES,

of Utah County, was next called. He produced the immense map of Utah County prepared for the committee and proceeded to explain it. He said that the land on the east side of the lake is pretty well watered, but there is a large area of land on the west side of Utah County that is irrigable but is now without water. Utah Lake is too low to be used by Utah County; the only objection to the raising of Utah Lake was that if raised six or seven feet

it would flood a vast area of good land. The land is owned as a rule by poor people and they would not be able to do it themselves.

Senator Plumb—Would these people be willing to borrow the money from the government to make these improvements?

Answer — Yes, I think they would.

O. J. HOLLISTER,

secretary of the chamber of commerce, read an able paper on irrigation, lands, waterways, etc., throughout the Territory. He also made a statement in regard to the Bothwell canal scheme.

Senator Stewart was of the opinion that the government would not interfere with anyone who took hold of a natural reservoir and improved it, but Senator Plumb advised private citizens not to risk their money in anything that the government would have an opportunity to spoil.

F. A. HAMMOND,

of San Juan County, stated that there are 600,000 acres of very fine land that could be irrigated. There are only about forty-five families in the valley, but if they were furnished with surveys and estimates that people would come in if provided with means for irrigation and settle there.

In answer to questions by Senator Plumb, Mr. Hammond said that this was the county into which it is proposed to move the Ute Indians, and the committee diverted its attention to this subject for a few minutes. Mr. Hammond stated that he and the other settlers, so far as he knew, would be perfectly willing to move out.

Senator Jones asked—If a progressive and intelligent citizen like yourself can't make a good living there, how do you expect the Indians to?

"They're better adapted to chasing jack-rabbits than I am," was the reply.

HON. WM. R. SMITH,

of Davis County, answered a few questions relative to the supply of water in that locality, and the committee adjourned till 9 a.m. today.

This morning's session commenced about 9:30, the first witness called being

PROF. NEWELL,

who has been making observations on the subject of irrigation for some months past in Utah. He dwelt at length upon the opportunities afforded in and around Sevier Valley for establishing reservoirs and increasing the area of cultivated land. He stated that the bed of Sevier River was completely drained at four different places in Sevier County, yet sufficient water sprang up below the last dam to make the stream when it reached Deseret, in Millard County, as large as where it entered Sevier County, but not nearly large enough to irrigate the extensive plain in the region of Deseret. The residents of that part felt the necessity of reservoirs being established in their vicinity which would supply the deficiency during irrigating season. Gauging stations would also be necessary at various points

on the river to determine how the water should be distributed. He remarked that the customs in regard to the use and control of streams in Utah differed from those in vogue in other places. Priority of right is here interlocked with the system of equal distribution. Instead of the original appropriators of a stream having sole control of it, in many places here the settlers were divided into groups according to the period of their location, those having made use of a stream before a certain year being considered entitled to the first right for the extent of land then cultivated, and land cultivated subsequently up to another set date being entitled to secondary right, etc., so that a single individual might own first, second and third rights to the same stream. In case of scarcity the possessors of the latest rights were first deprived of the use of the water, then the next, and in extreme cases only those holding first rights were allowed to irrigate to the extent of the land originally cultivated. The general sentiment in the Territory was opposed to a monopoly of the water because of prior rights.

Being asked about the feasibility of using Utah Lake as a reservoir, he replied that soon after coming here he was of the opinion that to make it available for that purpose the water should be held back in the lake and its surface raised, but his views upon that subject had changed and he now thought the better plan would be to lower the outlet of the lake and drain it to a greater depth, as raising it would greatly increase its superficial area and evaporation without much increasing its outflow. The evaporation this year had been twice as much as the stream flowing down the Jordan. He thought the outlet of the lake might be lowered three feet, which would of course involve the lowering of the heads of the canals taking water from the Jordan as well.

Being asked if reducing the grade of the canals would not interfere with their usefulness, he seemed somewhat nonplussed, and admitted that he had not seen a profile of their grade, but ventured the opinion that cementing the bottom and sides of the canal would obviate the difficulty and prevent the grass and moss from growing therein. He also said he thought the oldest canals would not require their grade changing, but only those more recently constructed, showing that he knew very little about what he was speaking of, one of the oldest canals being located highest up the stream.

JUDGE JOHN D. PETERS

was the next witness. He explained that he had been summoned by telegraph to attend the session of the committee without knowing what was required of him, but being requested, he proceeded to give a detailed account of the manner in which the streams of Box Elder County had been developed and utilized, illustrating his remarks with a very fine series of maps which had been prepared for the use of the committee. He stated