

Territory must remain at a standstill without water storage. There are 150 reservoir sites reported in detail, and nearly as many more mentioned. They vary in capacity from 130 square miles to one acre, and from 2 feet to 100 feet deep. About one-third of the crops were lost this year through lack of water.

Utah, Nevada and Arizona are the most arid portions of the United States and therefore the preservation and economical use of all their water supply is an imperative necessity. To show how we differ from Colorado and the east, I have prepared a diagram of the average monthly rainfall of Salt Lake City for thirty-three years, and of Denver, Col., and Des Moines, Iowa, since the beginning of observations there.

During the irrigating season here, Des Moines, a place where irrigation is not necessary, has a rainfall of over two acre feet, and Denver almost one acre foot, while Salt Lake has less than two-thirds of an acre foot, which would make a difference of about 11,000 feet to the acre, which must be made up by that much more water from the streams to irrigate our lands, as well as that of Colorado, is irrigated. But during the same period the relative humidity of Denver is three degrees higher and the temperature two degrees lower, which would greatly increase the amount of water required to irrigate an acre of land in Utah in proportion to that of Colorado. Besides this, Denver is nearly fifty miles from the crest of the mountains from which a part of its moisture is derived, while Salt Lake City is but ten miles, and has a lake of 2000 square miles in area within seven miles on the other side. These things make Denver fairly representative of northern Colorado in general, while they show Salt Lake City as the place with at least 50 per cent more rainfall than the rest of the Territory (save the mountains themselves) and with a very abnormal humidity. Therefore what applies to Salt Lake in the great amount of water required per acre will apply with redoubled force in the dry and hot counties. We have had evaporating pans located in various parts of the Territory for the last two months, and though these were of necessity placed out of the reach of the wind the evaporation averaged about .3 of an inch per day, often running up to .5 of an inch. Had they been placed where the wind could have reached them the evaporation would have equaled 15 inches per month. The enormous drain upon our water supply can therefore be well understood. This militates against shallow reservoirs in the valleys. If Utah Lake were raised three feet its water would all be evaporated during the irrigating season, if none flowed in or out. Enough to irrigate 83,000 acres would go up in the air. From records kept in the mountains the evaporation there during the same period was only .08 of an inch and never exceeded .17 per day. Therefore reservoirs in the mountains are at least four times as valuable as those in the valleys. We do not yet know the rain-

fall in the heart of our mountains, but it will not fall far short of 40 inches nor more than 60 inches per annum. It should be observed that though we have two inches more rainfall in Salt Lake than in Denver, yet but 48 per cent of it falls during the irrigating season, while 73 per cent of Denver's rainfall comes when it is needed most.

The possibility of reclaiming Utah, by artesian wells has been greatly overestimated. All the wells so far obtained have been found in some one of the basins of the ancient lake, of which Great Salt Lake is the saline remainder—the area of that lake never exceeded 18,000 square miles. The clay sediment from that lake makes the impervious cap of those subterranean reservoirs, whose rims are but slightly elevated above the valleys, and the reservoirs are fed from the bases of the mountains, where the surface water runs over the gravel debris between the mountains and the clay rim. The average depth of these artesian wells in Salt Lake Valley is about 100 feet, in Utah Valley 200 and in Tooele about the same. In Millard County a few wells have been driven with a depth of about 200 feet and a flow of $\frac{1}{2}$ to 10 gallons per minute through $1\frac{1}{2}$ -inch pipe. Since no solid rock is struck in driving wells they are very liable to clog up in a few years. The flow in Salt Lake Valley will not average 25 gallons per minute, though some wells far exceed that. A well flowing five gallons per minute will irrigate an acre of ground.

The map and charts accompanying this report will give all necessary details.

PROF. MARCUS E. JONES.

was the final witness. He illustrated by a diagram which he had prepared the oscillation in the surface of Salt Lake and the amount of rainfall in Utah, extending over a period of many years.

At the conclusion of the testimony the session closed, with the understanding that the party would resume their journey westward at 7:30 next evening, no definite programme being adopted for the interim, although the city and county officers had offered to take them for a drive to any part it might be desirable for them to visit. Some of the members probably preferred to avail themselves of the only chance their visit to the Territory would afford for taking a run out to and a bath in the lake.

The committee paid the witnesses brought before them here

A COMPLIMENT

by saying they were not only more intelligent than those heard elsewhere, but the testimony given by them was vastly more valuable. In this connection it may be mentioned that great credit is also due to Governor Thomas for his complete arrangements for securing the necessary verbal and written testimony.

LETTER FROM ENGLAND.

There are a great many things of political interest taking place from day to day in this coun-

try, and possibly none more interesting than the debate in the House of Commons concerning the Royal Grants bill. It may safely be said that during the present Queen's reign no measure has been more stoutly withstood than the request of the present Parliament for provision for Her Majesty's grandchildren. The government, represented by the tory party, proposed to give the Prince of Wales £50,000, as an addition to his income, but Mr. Gladstone opposed this and moved an amendment to the effect that the Prince be allowed \$36,000 and provide for his own children. The government abandoned their own proposition and supported that of the "grand old man." But Mr. Labouchere has introduced an amendment to the bill, which practically denies any addition to the already enormous yearly income of the Prince. This was strongly supported by the radicals. Mr. John Morley will not support Mr. Gladstone's compromise unless the grant is final. The wording of the bill is such that the way is left open for further unlimited demands. He has the support of the bulk of the Liberals and part of the Liberal-Unionists. Mr. Gladstone, in making the compromise from £50,000 to £36,000, understood that it would be final and voted for it upon that understanding. Meanwhile feeling all through the country is running high over the bill. Large meetings addressed by prominent politicians are being held, protesting against any further increase to the already exorbitant sums paid to the royal family. In 1873, the minority against royal grants was only thirteen, but in 1889 it was ten times that number. The effect of the debate on the question will be a weakening of the hold which the throne has upon the people. Liberal Clubs and Trades' Unions have also been passing resolutions against the proposed government grant. It is said that the Queen has about £14,000,000 sterling in banks, and she spends very little of her own money, every expense being met by Parliament. The thing is almost certain if the present grant is allowed it will be hard to get another out of Parliament, providing the evolution of public feeling continues, as it has done since 1873, from a state of sacred reverence for the crown to one of public demonstration.

You will have heard by this time that "Jack the Ripper" has been prosecuting his operations again, this time upon a woman named Alice Mackenzie. The police were forewarned by a letter from "Jack" himself. Since the murder he has sent another letter, stating: "Shall do two more next time at White-chapel." The most strenuous efforts of the police have failed to unearth this human butcher. Spiritualists have even failed to produce him. True, they have given descriptions of him, also of his residence; and many other particulars were elicited from communications with the spirits of his victims, but without avail. Stuart Cumberland, the famous thought-reader, has seen visions and