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Reports

State of Colorado

of the

State Engineer

(E. S. NETTLETON)

for

1883, 1884

REPORT
OF THE
STATE ENGINEER
TO THE
GOVERNOR OF COLORADO

FOR THE YEARS 1883 AND 1884.

DENVER, COLO.:
THE TIMES COMPANY, STATE PRINTERS.
1885.

1883 - 1884

DENVER, COLO., Dec. 1, 1884.

To His Excellency,

JAMES B. GRANT,

Governor of Colorado:

SIR: I have the honor to submit to you the following report of the operations of this Department during the two fiscal years ending November 30, 1884, together with such observations and discussions of subjects connected with irrigation as may tend to advance the agricultural interests of the State.

I have the honor to be, Sir,

Yours Very Respectfully,

E. S. NETTLETON,

State Engineer.

RESUME OF WORK

For the two Years ending November 30, 1884.

Upon taking charge of this Department, in March, 1883, I found that my predecessor (who was the first incumbent under the act creating the office of State Engineer) had not been able to accomplish much towards getting the Department into working condition, owing to a misunderstanding of the law regarding appropriations, and, as a consequence, no record was left in the office of the work done, except one field note book and two profile books, from which but little information was obtainable; nor was there any plan of operations for the future. The labor of establishing a plan to properly carry out the provisions of the law relating to the duties of the State Engineer, and his connection with the irrigation system, has fallen entirely upon me, without any established precedent for a guide.

The first work was to plan for the future operations of this Department, so as to be able to do as much in the right direction as was possible with the means available. The Legislature of 1883 fixed the amount to be allowed for assistance at quite a small sum compared to the work required by law, and I found that only sixty per cent of this was available, owing to an error made in the engrossment of the act, thus crippling the usefulness of this office in that proportion. It was, therefore, deemed prudent to act cautiously the first year of my incumbency; to thoroughly digest all of the best plans and methods for carrying out the requirements of the law, and to acquire as much information for the benefit of the people of the State as was possible with the means at my command. For the

reasons given, operations were confined to such as were clearly necessary, or defined by law, keeping a proper record of all work and transactions.

The act requires the State Engineer "to make careful measurements and calculations of the maximum and minimum flow in cubic feet per second of water in each stream from which water shall be drawn for irrigation, as may be best for affording information for irrigating purposes, *commencing with those streams most used for irrigation,*" and in accordance with this the Cache la Poudre, Big Thompson and St. Vrain rivers were selected as being the best entitled under the last quoted sentence of the act. Work was begun toward the end of March on the Cache la Poudre, Big Thompson and St. Vrain rivers, the field work of the year being confined to the water districts in which these rivers lie. When assistants were required, they were generally hired in the locality of the work, and only employed for the specific work on hand there, and were discharged on the completion of each job, the endeavor being made to keep within the limits of the small appropriation.

On the Big Thompson, the first work done was to have a straight length of the river dressed, so that gaugings and ratings could be made of the amount of discharge of the river. This was done at a point about two hundred yards above the head of the upper ditch, twelve miles from Loveland. The work consisted in removing drift and putting the channel into uniform shape. On completion, accurate measurements of cross-sections of the prepared length were made and a gauge rod erected; tri-daily observations of the height of water on this rod were made by a local observer.

During the progress of the work on the Big Thompson, operations were commenced on the Cache la Poudre; the site selected being on McBride's pre-emption, about half a mile above the mouth of the cañon, and twelve miles above Fort Collins. Here boulders had to be removed by blasting, and the channel prepared as in the Big Thompson. At both places the work was completed in time to make gaugings during the irrigating season of that year.