

1892.

NEW ZEALAND.

DRAINAGE AND RECLAMATION OF
LAKE ELLESMERE

(REPORT ON), BY J. M. HARDY JOHNSTON, M.INST.C.E.

*Return to an Order of the House of Representatives dated the 7th July, 1892.**Ordered, "That a report on the drainage and reclamation of Lake Ellesmere, transmitted by the Akaroa County Council to the Minister of Lands, be forthwith printed and laid before this House."—(Mr. TANNER.)*

SIR,—

Christchurch, 10th July, 1878.

In compliance with an agreement entered into with the Lakes Ellesmere and Forsyth Reclamation and Akaroa Railway Trust, dated the 8th day of January last, to furnish a report upon the best means of draining Lakes Ellesmere and Forsyth, to be accompanied by survey-plans and approximate estimated cost for a line of railway from a point on the Southbridge branch railway to Akaroa Harbour, I have now the honour to submit to you the following final report upon the above-mentioned proposed works.

Having signed my agreement with the Trust at its meeting, which was held in the Beach Arms Hotel, near Lake Forsyth, on the date already mentioned, and having made a hurried reconnaissance of the mouth of Lake Forsyth, I returned the following day to Christchurch, when preparations were immediately made for carrying out a detailed survey of the estuary of Lake Ellesmere at Taumutu, which I personally commenced on the 15th January and completed by the 1st February.

Meanwhile, previous to making any arrangement for commencing a work of such magnitude as that of a survey of the whole lake, required to be completed in the short space of three months, and which could only be intrusted to very competent surveyors, I had learnt that a survey-plan of its shores, showing accurately the line of ordinary flood-height, and plotted to a scale of 20 chains to an inch, had within the last two or three years been made by direction of the late Provincial Government. Deeming it advisable, therefore, to make full inquiries as to whether such plan could be made available for our purpose, and thus be the means of greatly expediting the work, I applied at the Government Survey Office, where every facility was courteously afforded me by the Chief Surveyor for making tracings from the plans in question and collecting other information bearing upon the subject; but I regret to say that, after nearly a month's labour had been expended in procuring tracings and endeavouring to compile a complete plan of the lake, the work had to be abandoned owing to the unfinished state of the original plans and the difficulty of compiling a sufficiently accurate plan from surveys plotted to different scales.

It was therefore not until the beginning of March that the general survey of Lake Ellesmere was actually commenced, and with the aid of two surveyors I was enabled to complete the whole of the field-work by the first week in May, as mentioned in my progress report dated the 8th of that month.

The survey of the estuary of Lake Forsyth, extending from the sea-coast to a distance of nearly a mile along both shores, including soundings within the estuary, was also completed by the date above mentioned.

The survey of the proposed line of railway from Lincoln to Akaroa Harbour, a distance of 31 miles 25 chains, was not commenced till near the end of February, owing to some unaccountable delay on the part of the surveyor engaged to assist me in this work; and it was not until the 13th ultimo that I received the plans, when I discovered they were in an unfinished state.

The plans, therefore, to be referred to in this report may be summarised as follows:—

1. General plan of Lakes Ellesmere and Forsyth. Scale, 20 chains to an inch.
2. Plan of the estuary of Lake Ellesmere, showing proposed works. Scale, 1 chain to an inch.
3. Cross-sections (eighteen in number) of the estuary of Lake Ellesmere. Horizontal scale, 1 chain to the inch. Vertical scale, 20ft. to the inch.
4. Detailed drawings (six in number) of proposed works. Scale, 5ft. to an inch.
5. Plan of the estuary of Lake Forsyth, showing proposed works. Scale, 1 chain to an inch.
6. Plans and sections of proposed line of Railway to Akaroa Harbour, 31 miles 25 chains. Scale, 4 chains to an inch.

As it will be necessary to explain some of the investigations which the above survey-plans have enabled me to make, with the view of arriving at the object aimed at—namely, the