

miles steam across the lake, and with good horses the journey could be done very quickly. The number of horses now employed would be sufficient to run right through to the Hermitage, and the work for them would be much lighter, and consequently they could do it more quickly and better than at present. There should be three stages: Fairlie to Tekapo, 26 miles, say, four hours; change horses; Tekapo to ferry-boat, 20 miles, three and a half hours; lunch and boating across the lake, one hour; new coach and fresh horses to Hermitage, (27 miles) say, four hours and a half: total, thirteen hours—say, from 6 a.m. to 7 p.m. I have estimated the journey at the low rate of six miles an hour, which speed could always be maintained without fail. Should a weekly service only be required, each horse would not have to travel more than a maximum of fifty-four miles and minimum of forty miles per week. At present they are doing eighty, and some of them a hundred and sixty, which accounts for their poorness, and utter inability to do the journey in a reasonable time. And yet the company has at least four sets of horses. There is deep water at both sides of Lake Pukaki at the points indicated as landing-places, and only small stages, and a boathouse, with a hut for the boatman, would have to be erected. I may say that enough horse-feed can be, and is at times, grown on the freehold at the head of the lake to feed all the horses that are ever likely to be employed on the road.

It was no use making extensive and costly surveys, with exact estimates of the different routes, at this stage of the proceedings; but I have measured all that was necessary to enable me to speak accurately in the general way that I have done, and this, I am sure, will be near enough for you to decide whether the survey of any particular route should be undertaken.

If it is thought worth while to bridge over the Tasman in preference to any other scheme, it would be as well to consider whether it is not less costly to put the bridge across the two streams opposite Braemar, and make a raised causeway, protected by wire fence and willows, across the island and swamp. Both swamp and island are always wet, and at times flooded in places, but neither are ever in the slightest degree washed away.

SIDNEY WEETMAN, Chief Surveyor.

EXPLORATION AND TOPOGRAPHICAL SURVEY IN FIORD COUNTY.

As you are aware, the object of the exploration was to ascertain whether or not there was a practicable route to Dusky Sound from Lake Manapouri *via* the Spey and Mackenzie Rivers, as suggested by Mr. Thomas Mackenzie when he was out in that country, to ascertain the courses of the Seaforth and Mackenzie Rivers, and at the same time to sketch in the topography of the country thereabout. This would naturally include looking for any other passes that might be of use for roads or tracks from the lake to the sounds. Starting about the middle of January last with a strong party of six men, and provisions to last for three months, I pitched my first main camp at the head of the west arm of Lake Manapouri. Thence I cut and blazed a track up the Spey River to the Mackenzie Pass, and from there down the Seaforth River to Dusky Sound. From this main line I made several branch lines, taking out flying camps and ascending a good many hill-tops, so as to obtain the best views of the country, and points of vantage from which to fix the topography. On most of these points I built cairns, about 7 ft. high, which came in very useful as means of identifying the various peaks. To insure accuracy in the sketching of the topography I measured carefully a base nearly a mile long at the head of the lake, and from this fixed the position of Leaning Peak and two other peaks, and worked from these as a base, using for this work a 4 in. theodolite. The heights were carefully taken by barometer, and checked by reciprocal vertical angles. On my return I carried true bearings from View Hill, east of Manapouri, to Leaning Peak, and thence to a number of the tops on which I had built cairns; and also from a small base at View Hill I fixed the position of that peak. By these means I have secured a thorough check on the work.

Judging from the nature of the country that a triangulation survey will not for many years, if ever, be carried out there, I have endeavoured to make a thorough topographical survey, and not merely a reconnaissance. The area included in the survey will be about 200,000 acres, and it is approximately bounded by lines running from Supper Cove, Dusky Sound, to Deep Cove, Smith Sound; thence to South Arm, Lake Manapouri; thence to point on the Grebe River five miles below South Arm; and thence to Supper Cove again. This will be plotted and shown on a map drawn on a scale of one mile to an inch. I have also carefully examined all passes in order to ascertain their suitability for roads or tracks. To do this involved a considerable amount of hard climbing, as the country is extremely broken, and it was very difficult to trace the course of the streams, as they branch and double about in a very eccentric manner.

I returned to the main line to Manapouri, and then went up the south arm of the lake. From this point I cut a track some five or six miles up the Grebe River, and intended to have continued it through to Lake Monowai, but, very foggy weather having set in, I deemed it advisable to stop the work for this season.

The trip occupied about eleven weeks, of which three or four were wet. No hitch of any kind occurred, and for this, in great measure, I have to thank the men who accompanied me, who proved themselves first-rate bush hands, and well earned the extra wages paid.

The whole country travelled over is excessively rugged and broken, the valleys and sides of the mountains to a height of over 3,000 ft. being densely bushed, where not absolutely precipitous, and the tops to the west of the Grebe and Mackenzie Rivers for the most part bare broken rock, rising to heights varying from 4,000 ft. to 5,000 ft. To the east of these rivers, however, the tops are rather smoother, and those on the east of the Grebe River are well grassed. The bottoms of the main valleys vary from a few chains to half a mile in width; the side valleys are mere ravines, with precipitous sides. When open patches occur in the bush they are almost invariably peat swamps. The valley at the head of the Seaforth, described by Mr. T. Mackenzie as a lovely valley,