

to traversing the head waters of the rivers, through avalanches; and, later on, through the rivers being in flood, we had to work wet to the waist, continually crossing and recrossing the rivers; in fact, during a flood in the Clyde, one of my men was nearly drowned in attempting to cross with the theodolite."

In all, this season, 350,959 acres of minor triangulation, with topography, were completed, at a cost of under 1d. per acre, and 371,140 acres, topography alone, at a cost of 0.42d. per acre.

*Sectional Surveys.*—But little sectional work has been completed during the year. The surveyors engaged on the triangulation finished any sectional work coming within the district in which they were surveying. Mr. Brodrick did a number of detached sectional surveys in the Tasman Valley in the spring and autumn, before and after the time he could work at the triangulation. Mr. Hay, after he had completed the season's triangulation, also finished the subdivision survey of the Lake Ellesmere flat, containing over 7,000 acres. The other sectional surveys require no special remark. The total done this year is 229 sections, containing 12,670 acres, at a cost of 10.68d. per acre.

*General Surveys.*—Mr. Mathias has made subdivisional surveys of a number of educational reserves for leasing in smaller areas, and has laid out some mining leases. He was also engaged in traversing fences to fix the position of the boundaries of some of the runs; also in fixing the position of new line of the rabbit-proof fence in course of erection in the Hakataramea Valley.

*Land Transfer Surveys.*—The work of this branch of the Survey Department remains about the same as in previous years. Mr. Monro, the officer in charge, reports: "The amount of work which has passed through this office during the year ended the 30th June, 1889, has been approximately the same as the average of the two previous years, but less than the average in each year from 1878 to 1886. This decrease during the last three years is partly due to there having been fewer sales of properties, and partly to alterations in the Land Transfer Act, on account of which new certificates of title are not now requisite in the case of transactions which would formerly have involved the cancellation of existing certificates and the issue of new ones. There is a marked decrease in the number of certificates in lieu of Crown grants. Plans on original parchment copies are received from the Crown Lands Office, and plans of duplicate and triplicate copies are prepared in this office. In the case of eighteen certificates in lieu of Crown grants issued under the Christchurch Drainage Board Reserves Sale and Exchange Act of 1887 plans were placed on original parchment copies of certificates in this office, as well as on duplicate and triplicate copies of same. Previous to January, 1888, plans on original parchment copies of ordinary certificates were prepared in this office, and plans on duplicate copies of ordinary certificates and on duplicate and triplicate copies of certificates in lieu of Crown grants were made by contract from those on original copies; since that date all plans on duplicate copies of ordinary certificates and on duplicate and triplicate copies of certificates in lieu of Crown grants have also been prepared in this office. I estimate the amount which would have been payable the past year if copies had been made by contract at £63.

*Office-work.*—Since the reductions made in the office staff last year the whole of the office-work, as regards the checking and construction of all plans, district, county, and Crown-grant record-maps, has been supervised by Mr. Shanks, Chief Draughtsman. Fifteen new district plans have been made for the public map-room, and seven were revised and added to. Four new districts have been traced and sent to Wellington for photo-lithography; but the principal draughting work done this year was the construction of four run plans, on a scale of one mile to an inch, showing all the topography, fences, run-boundaries, &c. These were traced, and sent to Wellington for photo-lithography. This last work was only completed in time to let the public have the use of them before the run sales by the strenuous efforts of several of the draughtsmen, who, for many weeks, had to return to the office after the usual hours and remain nightly till 10 p.m. in order to get them finished. Twenty-eight large and forty-one small plans were sent in by the surveyors, most of which have been checked and passed. There were 313 certificates of title or Crown grants of 435 sections of rural, town, or suburban land, containing 20,298 acres, prepared. Plans were put on 104 leases in triplicate, involving the drawing of over 300 separate plans on these deeds.

*Proposed Operations, 1889-90.*—I propose to send only one surveyor (Mr. Brodrick) to complete the triangulation of the Lake Ohau and Ahuriri Valleys, which can probably be done in four or five months. We shall then have proper topographical plans of nearly all the occupied sheep-country. One other season will then complete the topographical survey required of the Hawea and Wilkin Valleys, in the southern part of Canterbury. The topography of the head-waters of a few of the other rivers, such as the Mathias, Bealey, and Poulter, will be required to complete the topography of the whole of the Canterbury District; but this latter work can remain until the settlement-surveys required next season are done. Four surveyors will therefore be available to go on with the subdivisional survey of the lands withheld for settlement in 1890, and to survey the blocks selected by the Midland Railway Company.

JOHN H. BAKER, Chief Surveyor.

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The field staff is the same now as at the date of my last report, viz.: six surveyors. There is only one cadet at present in this district, and he is in the field. In the office there are eight draughtsmen and the Accountant, and no cadets, as against nine draughtsmen and three cadets last year. There is every indication of an increased demand for land for settlement during the ensuing year, and the strength of both the field and the office staff will be taxed to the utmost to keep pace with the demand.

*Topographical and Trigonometrical Survey.*—Mr. Strauchon has completed the triangulation of the Glenomaru District, chiefly bush, and returns 30,000 acres, at 2d. an acre. Mr. Langmuir has also done about 950 acres.