

Another contract trigonometrical survey is in course of execution by Mr. James Mitchell, over the Hakateremea and adjacent country, 170,000 acres have been completed in the field, but, as the maps are not all in yet, it does not count as completed work, and is not included in the year's returns. These surveys have been nearly all done with Troughton's five-inch theodolites, a small portion only having been done with a six-inch.

In Westland an area of 429,440 acres has been triangulated with a six-inch theodolite; the base of verification gave an error of only 6.1 inches per mile, an accuracy which would be commendable under any circumstances, but all the more so in this case, where there were many difficulties to be overcome. The other triangulations do not call for special remark. They have all the one object of establishing accurate points every two or three miles over the districts suitable for settlement. To one or more of these points every property is referred in distance and bearing, and the co-ordinates on the meridian and perpendicular of its connecting traverse tabulated, so that a clear record can be kept, and in the event of obliteration or challenge of original boundaries, they could be re-established with certainty within narrow limits of error.

The topographical survey, which is usually carried on simultaneously with the trigonometrical survey, furnishes maps of the country to a scale of two inches to the mile, on which the streams, forests, hills, and general configuration of the country is shown; the altitudes of ridges, saddles, and valleys given, and the best through lines for roads are also indicated. There are many parts of the Colony where the topography is both very vague and inaccurate, and which must be brought under trigonometrical and topographical survey at the earliest opportunity. These topographical surveys are invaluable as the groundwork of selection maps, and enable an intelligent selection of town sites and other public reserves to be made. There is much complaint made in various quarters as to the meagreness of information at land offices; the dissatisfaction is due very much to the want of these maps.

Settlement Survey (Rural and Suburban.)

This is the actual measurement and pegging on the ground of the areas which are to be occupied by the settlers. The other operations of survey already referred to are mainly useful only in so far as they are contributory to this end. 901,312 acres have been marked off into 5,692 sections of an average size of 158 acres each. The average cost per acre varies much in the several provincial districts, ranging from 11½d. in Canterbury to 2s. 9½d. in Westland. The main causes of difference are, as between grassy open districts and those covered with bush, and also as to whether the surveys are isolated or associated together in large blocks. The adverse circumstances are in full play in Westland and Nelson, and the most favourable natural conditions are in Canterbury, where, by grouping selections, it has been found practicable to let large contracts for sectional survey at prices ranging from 5d. to 11½d. per acre. The more isolated work, or the work abutting on old and doubtful boundaries, requiring time and investigation, has been reserved for the Staff Surveyors. The survey operations in Canterbury have, consequent on the extensive purchases of Crown lands there, become of much greater magnitude than in any other Provincial District, and will continue so for the next two years until the arrears are worked off. Mr. J. H. Baker, the Chief Surveyor in charge of this branch of the Department, has been most indefatigable and unwearied in his efforts to cope with the great demands of the position. He has, with the aid of his principal assistants, Messrs. Kitson, Williams, Shanks, Trudgeon and Wright, succeeded in getting this branch of the Department into good working order. In the Appendix will be found at greater length Mr. Baker's account of survey proceedings in Canterbury.

The average cost per acre of this class of surveys for the twelve months has been considerably less than for the previous year, and it will still become less as system and organisation become more perfect.

Town Surveys.

1,273 acres have been marked off into 1,630 allotments, at an average cost of 15s. 1¾d. per allotment; these have principally been extensions of surveys in townships already established.

Native Land Court Surveys

Aggregate an area of 44,213 acres. The purpose of these surveys is to enable the Native owners to have their titles investigated before the Native Lands Court, and to secure a title enabling them to deal with their lands. The department leaves the execution of these surveys as much as possible to private authorised surveyors, who make their arrangements for pay direct with the Native owners or their agents. When Government undertakes the surveys a very long time often elapses before payment is made, at present a sum of about £3,440 is owing. This is not likely to be paid until the land is sold by the Natives. But the repayment is deemed sure some time, as Government has a lien on each block of land for the cost of its survey. During the year 148,826 acres were surveyed by private authorised surveyors. The plans and field work of all have to pass before the Deputy-Inspectors, so that the Natives run no risk of being imposed on by bad survey. There is also a scale of survey charges in force for the payment of such private surveys of Native lands. All these Native surveys have been done on true meridian, properly connected, and magnetic surveys with their uncertainties are of the past.

Native Land Purchase Surveys.

An area of 517,636 acres comes under this designation, and comprises Native Lands either purchased or under negotiation by Government. It is acquired in large blocks, and the survey usually consists of a circuit traverse of boundaries, connected and checked to triangulation carried on simultaneously. The latter secures that the blocks will be correctly located on the maps of their districts, and also that the sectional subdivision of the land may proceed immediately on its being handed over to the administration of the Land Boards.