

cost does not appear till the following year's return is sent in. This is owing to the rule that until a surveyor finishes his maps he cannot be credited with the acreage shown on these maps. I will now proceed to summarize the different classes of work done under the direction of this office.

*Minor Triangulation.*—The only work done this year has been for necessary connection with Otara and Toitois triangulation on the west, and Mr. Adams's at Waikawa Harbour; in extent 16,317 acres, at the rate of 1d. per acre.

*Minor Triangulation with Topography.*—The total area of country overtaken this year by minor triangulation with topography is 324,972 acres, the work having been done by District Surveyor Strauchon, Assistant-Surveyors Wilmot and Farquhar, and Contract Surveyors Dennison and Grant, at a mean rate of 0·92d. per acre. Mr. Strauchon's triangulation is of parts of the Mokoreta and Waikawa Districts, which together complete the connection between Waikawa Harbour and the settlements in the Tokanui Valley on the west, and the Wyndham Valley on the north; the area done by him is 50,591 acres, at a total cost of 2·63d. per acre. The topographical features of the country covered by this work have also been accurately mapped, so that a felt omission has now been supplied, and a basis established on which the survey may proceed of those blocks of land already reserved for settlement out of Runs 177 and 257, and which extend to about 7,000 acres of open land. The triangles close on Toitois District with a difference in bearing of 1' 3", and in linkage of two links to a mile, and the altitudes from Trig. H, Toitois District, carried through close to within 5·9' on Trig. C of Mr. Adams's in Waikawa Harbour. This latter does not necessarily mean an error, but it may show that the height of low-water mark varies on different parts of the coast, as the datum for Mr. Strauchon's altitudes is from the Bluff, while Mr. Adams's was taken on Waikawa Harbour itself. There is a disagreement also of 4·7 feet in closing on Mr. Connell's Trig. Q, Mokoreta District. Mr. Strauchon experienced very bad weather during part of this survey, with other causes of detention and difficulty, owing to a large proportion of the triangulation being in heavy bush, causing great labour in clearing stations, and considerable loss of time in getting about from place to place. Stores and trig.-tubes had to be packed on horseback to the ground from Fort-rose, or a distance of twenty miles on an average. Mr. Assistant-Surveyor Wilmot's triangulation has joined that at Martin's Bay with the farthest extension of similar work at the head of Lake Wakatipu. The extent done this year is 31,000 acres, covering parts of Martin's Bay, Hollyford, Caples, and Dart Districts, and which has cost at the rate of 2·35d. per acre, the total area surveyed by Mr. Wilmot from the West Coast to the Wakatipu being 64,000 acres, at a cost of 3·7d. per acre, including trigonometrical and topographical plans. This survey closes with that of Martin's Bay with a difference of 3·33 links. The Martin's Bay triangles are not well conditioned. The distances of Trig. E, Martin's Bay, from Geodesical Station, Mount Nicholas, on the meridian and perpendicular, will form the matter of a subsequent ordinary report when all the returns are complete. This triangulation has occupied three seasons, the work being undertaken during the summer only, owing to the extreme humidity of the climate. As you are aware, the configuration of this district is rugged and mountainous in the extreme, and throughout its length is intersected by dangerous rivers, while the mountains are covered by the usual heavy bush and dense vegetation characteristic of the west coast of the Middle Island to an altitude of about 3,500 feet. Stores and trig.-irons had to be carried on the men's backs over nearly the whole of this country, which added greatly to the labour and expense of the work now successfully finished. A very interesting general report by Mr. Wilmot, of his explorations to the east and west of the Hollyford Valley, including an account of his discovery of a pass to Milford Sound, I had the honour to forward to you on the 6th of last month, and which, by your permission, was subsequently published in the Dunedin newspapers. He also has found that the elevation of the margin of bush gradually rises as the bush recedes from the coast. Mr. Assistant-Surveyor Farquhar has completed the triangulation of the Dunstan mountains, embracing portions of Tarras, Cluden, St. Bathans, Wakefield, Lauder, Blackstone, and Leaning Rock Districts. The area surveyed is 195,500 acres, which has been done at the rate of less than  $\frac{1}{2}$ d. per acre, including the preparation of trigonometrical and topographical maps. The bearings closed with adjoining triangulations with a mean difference of 10". This survey also fills up a much-felt blank in the topography of the interior, and will enable the runholders to arrange their fencing boundaries with fair certainty as to the acreages included. Being the first and only triangulation carried out by Mr. Farquhar, I am glad to say that he has done it creditably. Messrs. Dennison and Grant, contract surveyors, are credited with an area of 47,881 acres on the Kakanui Mountains, which, though actually finished last year, was not included in the annual returns for that year. The cost of this work was at the rate of 0·6d. per acre. For table of differences in closing see appendix, where the actual error is taken as half the difference.

*Rural and Suburban Section Survey.*—Thirteen staff surveyors and one private surveyor under contract (besides other surveys executed) have surveyed and mapped 175,300 acres of land, at the rate of 10d. per acre. The means of my checks, by triangulation on traverses, show an error of 2·2 links per mile. This land is classed as pastoral deferred-payment land, in areas or sections of from 600 to 4,600 acres, and agricultural sections averaging 100 to 320 acres each. The greater portion of this work lies within blocks reserved for settlement out of runs re-leased in February, 1882—that is, in the Strath-Taieri, Maniototo, and Upper Clutha Valley. In the case of the surveyors whose returns show the highest cost of survey per acre, it must be remembered that the reason lies in the great cost of isolated surveys, which always require much travelling, and of bush surveys being included in the gross amounts. The staff has done its work faithfully, the surveyors all exercising the greatest desire to effect accurate surveys. They have also been careful to tabulate the grades of roads, and to reduce those grades wherever practicable on the ground within the standard or ruling grade of 1 in 10 and 1 in 20.

*Town Section Surveys.*—The town section surveys done are—Sutton Township, in Strath-Taieri, near the site of the bridge at present being built over the Taieri River; sections in Naseby and Lawrence; and a town and village settlement in Block XI., Chatton District. The total number of allotments is 343, costing 16s. 8d. per allotment.