

port and Reefton to control the Land Transfer surveys, which I hope to be able to put in hand this year.

Survey fees, &c., received during the year, £933 18s.

JOHN S. BROWNING,
Chief Surveyor.

MARLBOROUGH.

Triangulation.—My report for last year shows Mr. Wilson engaged on major and minor triangulation over the lower part of the Wairau Plain, the Waitohi Valley, Queen Charlotte Sound, and Port Underwood: the completion of that work I am now pleased to report. The above triangulations, commenced on the 8th October, 1879, and finished on the 31st March, 1881, comprise 335,680 acres of major, including 111,445 acres embraced by the connecting triangles over Cook Strait with Mana Lighthouse and Trig. Kaukau, in the Wellington District, and 224,000 acres of minor triangulation, with topography, and covering the greater part of Arapawa and parts of Cloudy Bay, Linkwater, and Gore Survey Districts, and were completed at a cost of $\frac{1}{4}$ d. per acre for the major and $1\frac{1}{4}$ d. per acre for the minor. About two-thirds of the work was carried over mountainous forest country, the remainder being partly open and partly covered with scrub. Mr. Goulter's triangulation of the Pelorus Sound, in progress at that date, has also been completed during the year. This triangulation, commenced the 1st January, 1880, and completed the 30th November, 1880, at a cost of $1\frac{1}{2}$ d. per acre, comprises 77,000 acres of minor triangulation, with topography, carried over portions of the Orieri, Arapawa, Linkwater, and Tennyson Survey Districts. The country covered by this triangulation is heavily timbered over the greater part, and, with the object of making the stations easy of access to the section surveyor (most of the section surveys required being on the coast-line), they have been kept as close to the coast as possible: the triangles are therefore of necessity small, averaging 1- to 2-mile sides. The side of a triangle in the Wakamarina District was used as a base, and to suit the peculiar configuration of the Sounds a chain of triangles was carried from the mouth of Kenepuru Sound down the Main Sound to Tawero Point, and back again through Crail Bay, closing as follows:—

Kauauroa	..	..	..	Ref. Geo. =	20,050·8
					20,050·6

Difference $\cdot 2 = \cdot 08$ per mile.

A branch series was carried up Kenepuru Sound, closing on Mr. Wilson's Queen Charlotte Sound triangulation to a mean of 2·3 per mile. The meridional distances, however, of Onahau, Takorika, as determined by major triangulation, show—

					North.	West.
Major triangulation	..	..	..	..	33,012·8	80,756·0
					33,013·2	80,755·4
					<u> </u>	<u> </u>
					·4	·6

The greatest difference in closing of the chain of triangles being 1·1, the least 0·8, or an average of ·38 link per mile.

Section-survey.—There is under this heading 3,890 acres of rural-section-survey, in 38 sections, executed during the year, 15 sections (1,655 acres) of which may be classed as revision surveys. Twelve of the above sections (1,122 acres) were surveyed on application, either to go to auction sale or for selection under the deferred-payment system; and the balance, 11 sections (1,113 acres), were, at your desire, surveyed for the Nelson office: these latter, situate in Port Ligar and adjacent bays, were, I understand, applications of very long standing. Field-plots of the Nelson surveys, diagrams of subsidiary triangles, and part of the Orieri Survey District triangulation, together with co-ordinates of Kaituamauma and Kauauroa Ref., and other data sufficient for the Nelson office to utilize the triangulations in this district in calculating the position of the respective survey districts and block-lines to which these surveys belong, were furnished to Mr. Browning in May last. The above surveys are scattered about in various bays of the Sounds, and the revision surveys were done at the same time; advantage being taken to revise and connect with the trig. points the old surveys in the vicinity of the work. By adopting this course I shall gradually, as the work proceeds, re-establish and revise all the isolated and erratic surveys in the districts now under control of triangulation, plot them on their respective working block-sheets, and prepare Crown-grant and Land Transfer record maps thereof. In this class of survey many obstacles present themselves. In the Sounds much time is lost through detention of boats by adverse winds and bad weather, days sometimes being lost from this cause alone; chaining in some cases can only be accomplished at low water; shifting camp for nearly every block requiring survey; in others the bush has been worked for saw-mill purposes, involving extra time and labour in opening up lines through fallen tree-tops and entangled undergrowth encumbering the ground. These, and searching for and re-establishing the boundaries of adjoining surveys, and the limited extent of the land to be laid off, greatly add to the cost of this descrip-