department, is more than I can manage, although assisted by Mr. H. Trent, Chief Draughtsman, and occasionally a cadet for recording, This work also seriously interferes with the duties of the Chief Draughtsman on whom the chief part falls. 2,080 letters have been recorded as received and sent during the year, and I must ask for the assistance of an officer as clerk and draughtsman. The total cost of office, including general inspection by Chief Surveyor, amounts to £2,082 18s. 10d. A fireproof safe has been erected during the year at a cost of £259 6s. In this shortly the whole of the plans and most valuable documents of the office will be placed in security.

Arrears of Sectional Surveys.—The arrears of applications unsurveyed on 30th June, 1881, were 611 of 102,353 acres, and on 30th June, 1882, amounted to 524, containing 91,121 acres. During the past year, 194 applications for 14,570 acres have been received. The overtaking of the old arrears of applications is very slow work, the present staff having to deal with current applications and also with other work, comprising road surveys, triangulation, exploration, revision of old surveys, and mining surveys, which last has been the main work on the West Coast. The employment of several authorised surveyors, paid by fees deposited for cost of survey, has enabled me to prevent new arrears of unsurveyed applications accumulating, and to work a little into past arrears. If a sum is provided for cost of surveying old applications in arrear, on which no deposit for survey has been made, and also for revision of boundaries of present leasehold sections (now on magnetic meridian); where necessary for locating new applications, considerably more work in overtaking old arrears can be made next year. By the above means and the survey of about 30,000 acres in the Amuri district, now in hand by Messrs. Smith and Thompson, the old arrears should be reduced to small compass. The previous arrears on mining surveys, which at 30th June, 1881, had been overtaken and worked off on the West Coast; owing to the great rush of applications during the present year have now accumulated to 180 surveys in arrear, to begin the ensuing year with. The amount of fees remaining on deposit in the Reefton district, amounts to £1,975. New arrears are, however, arising from other sources. With nearly 400,000 acres of leasehold sections on old magnetic survey, having a purchasing clause, revision is necessary before certificates of title can be issued, when purchases are completed, and slow progress is made. No more revision is being done at present than is necessary to locate the older and current applications on the ground. The purchase of these leasehold sections is being completed each month in every part of the district, from Cape Farewell to the Grey, forming another set of "isolated surveys." The surveyors take these up where they are found to adjoin other work in hand, but the delay which must arise in many cases, is a great source of dissatisfaction to purchasers. The work done in revision survey, however, though slowly proceeding, is beginning to tell, and will do so more each year; thus of 23 leaseholds of which the purchase was completed, the surveys had been revised, and certificates of title can be issued at once. Of others requiring revision before title can be given, there has been during the past year, the purchase completed of 37 rural sections, containing 4,691 acres, and 40 town sections on magnetic survey, where standard lines are required to be laid down. The present conditions of title of land, held under freehold, is a great source of complaint from the public. Crown grants have been issued on the magnetic meridian from record maps, compiled by the building up of sections on each other, having no connection with fixed points. In most cases the diagrams and descriptions on old Crown grants, when presented for operation under the Land Transfer Act, cannot be accepted as correct, and the responsible officer is held to be obstructive. Some portions of the past year have been very wet, which has retarded operations, and the whole work of the year has been executed in rough broken ranges, heavily timbered, and in scattered localities.

JOHN S. BROWNING, Chief Surveyor.

MARLBOROUGH.

Triangulation.—Since my report of the 30th June, 1881, detailing the operations under the heading completed to date, Mr. Wilson has extended major and minor triangulation southward to the Ure River. The triangulation amounting to 320,700 acres is carried over open country ranging in height from the sea level to 5000 feet. The field work and computations are finished, and the preparation of the trignometrical and topographical sheets is all that is required to complete the work. Mr. Wilson, assisted by the office, is now engaged on those plans, which I hope to be able to return as completed before the spring sets in. The greatest difference in closing the major triangulation on itself, equals 2·4 links on a side of 71,730·2 links or ·27 link in a mile. The minor triangulation in two instances giving a difference of 1·8 and 1·7 links to a mile; the average close, however, being only ·8 link to a mile. The calculated bearings between five geodesical stations, comprised in the work, show a difference between standard and calculated bearings, ranging from three seconds (3″) up to a fraction over eight seconds (8″). With the object of obtaining further connections with the Wellington triangulation across Cook Strait, efforts were made by means of the heliotrope to observe from Trig E, Arapawa District, near Tory Channel, about 42 miles to Mount Matthews, Wellington. A clear sight to Weld's Cone, 42 miles distant, was obtained, the difference between the deduced and observed bearing from E, on Weld's Cone, being a fraction only over eight seconds (8″); unfortunately, however, during the whole time (nearly a month) Mr Wilson was engaged on this work, the weather was most unfavorable for observing towards Wellington, either a dense mist hanging over the strait, or a haziness in the atmosphere towards Mount Matthews, preventing signals being seen, he had, therefore, most reluctantly to abandon the attempt for a time. During the progress of the triangulation, observations were taken to Tapuaenuka (Mount Odin) the summit peak of the inland Kaikoura Range, from 5 trigonometrical stations, the mean height deduced therefrom is found to be 9,461 feet, above the mean sea level. (Stanford's map, published 1864, gives the height as 9,700 feet). The comparison of the heights for the five (5) stations is as follows:

	Links		Feet	Differences from mean.
Blairich	160,019·3	=	9,459·7	2·
Malvern	91,454·9	=	9,460	1·7
Ned	222,041	=	9,464·6	2·9
Weld's Hill	96,320·5	=	9,470·3	8·6
G.	219,074·8	=	9,454·2	7·5
	157,782·1		9,461·7	mean.