

this almost unknown country, where, notwithstanding some few delays caused by the objections of petty chiefs, he has pushed forward the work with great energy, until at the present time he has covered an area of one and a half million acres with major and secondary triangles, the angles of which are observed and topographical features sketched, and has, in addition, erected stations ready for observing over nearly another million acres. The work has so far advanced that Mr. Cussen has "exchanged shots" with Mr. Skeet, working from the Taranaki side. This is a result which must be deemed highly satisfactory, and great credit is due to Mr. Cussen for the energy and determination with which he has pushed on the work in the face of no ordinary difficulties, and for the tact he has displayed in dealing with the Natives. Appended hereto is a copy of his report on the work and the country passed over. The work done by Mr. Williams was the revision of a few triangles in the Rotorua district, necessitated by the removal of one of the stations (supposed to be) by the Natives, which has caused us an immense deal of trouble in reconciling and revising surveys based on an erroneous position of the station removed. Mr. Cheal's work was the observation of a triangle which closes in two portions of the triangulation meeting on top of Te Aroha, which shows a closure in the rectangular elements of 9.2 links in meridian and 78.1 links on the perpendicular in a distance of 180 miles, whilst the heights close to one foot in the same distance, thus furnishing another illustration of the remarkable manner in which the errors in hypsometrical observations cancel one another in this country. Mr. Hardy's major work is also a revision of some former faulty observations, which results in a better closure than that heretofore accepted. The last item under this head is an area of 667,569 acres, covered by major and partly minor work, executed by Mr. C. Alma Baker for the department, in the mountainous district extending from Opotiki to Hicks' Bay, undertaken specially in connection with a series of Native block-surveys, and which has given us a capital topographical map of a territory hitherto quite blank on the maps, together with a further check on the two independent triangulations of Bay of Plenty and Poverty Bay. The following are the results arrived at, showing a satisfactory close in lengths, but not so good in bearings. The distance between the two bases is 125 miles:—

Bay of Plenty meridian	° ' "		° ' "	
139A to Orowhaha=	232 3 37	=68187.6	Orowhaha to Kapua=	19 25 12 = 74215.2
Convergence=	0 53 33		Convergence=	53 33
	231 10 4			18 31 39
Poverty Bay meridian=	231 7 57	=68184.0		18 28 40 = 74218.5
$a \approx$	0 2 7~	3.6	$b \approx$	0 2 59~ = 3.3
Bay of Plenty meridian	° ' "			
Kapua-Hikurangi =	62 14 37	= 71680.1		
Convergence=	0 53 33			
	61 21 4			
Poverty Bay meridian =	61 17 50	= 71684.0		
$c \approx$	0 3 14~	4.1		

$a=0.42$ lk. per mile; $b=0.36$ lk. per mile; $c=0.45$ lk per mile.

Minor Triangulation.—Nearly all the 445,457 acres returned as completed has been done directly in the interests of the section surveys, its lengths being deduced by the Ray Trace system from the major sides.

Topographical and Trigonometrical Surveys.—The return shows 197,250 acres as completed under this heading; the largest item, that of 115,660 acres, was done by Mr. E. H. Hardy during the process of defining scattered applications in the Tokatoka and other districts. His map is beautifully drawn, and gives a large amount of very useful information, much more so indeed than is usual.

Rural and Suburban Sections.—This class of work, which has the most interest for the public and brings the department into more immediate contact with it, shows an apparent decrease of about 13,000 acres, but an increase of 259 sections in number when compared with last year's work; but there are nearly 26,000 acres surveyed, but not yet mapped, still in the hands of the surveyors, and consequently not included in the returns. The cost of survey per acre has risen from 1s. 3d. to 2s., this being due to the smaller size of sections, and to that fertile source of delay and expense—the redefining of old boundaries adjacent to the lands applied for. Some of these surveys have been especially difficult during the past season, owing to the absence of the proper data to work from. Where the record of the dimension of land sold consists of the meagre information given on old grants, and where the ground-marks have been lost or do not agree with the grants, the surveyor has before him a most difficult task to satisfy all the conditions, resulting in very slow progress at a very great cost. Mr. Weetman has been particularly unfortunate in this respect during the past season, for his district is more wanting in old maps than most others. Mr. J. I. Philips has the largest output of section work, much of which is mixed up with old surveys, and is therefore the more creditable to him. Notwithstanding the large staff engaged almost exclusively on preparing lands for sale, I regret to say there are large arrears of applications, some of them of long standing. Were it not for the great loss of time caused by the difficulty in defining old boundaries the staff could easily keep pace with the requirements of the public for new lands, notwithstanding the scattered nature of the applications, and these form the bulk of the lands which are sought for. The blocks of Crown lands which are of any extent and at the same time suitable otherwise for settlement are so situated that until they are opened up with roads it would be premature to survey them. During the past year an area of 8,573 acres was surveyed, at a cost of £1,335 14s. 11d., for the purpose of issuing grants, the old plans of which were either deficient or altogether wanting, and a further sum