

In the Nelson Government's section surveys, on the scale of eight inches to a mile, the system was even rougher. Where they abutted on the coast, a rough compass traverse of the shore-line was generally made. Sections were then laid off with compass and chain, at intervals as required. Often, part only of the lines shown on the plan were really laid out, and the work was left unclosed and unchecked, and large errors have since been detected. Many sections were Crown granted by these surveys, but the work generally has proved so worthless wherever tested, that Mr. Clark, the present Chief Surveyor, now insists on having resurveys made of such parts as are required to be sold. The plans of some of these revised surveys on the coast have been collated in groups on record maps on various scales,¹ together with new surveys added since. But all of the rest—including the detached blocks inland, surveyed in the same fashion, and many of them never yet placed accurately in position—would need revision, the field-books being unintelligible, and the bearings being in few cases written on the plans.

Of the topographical surveys made prior to 1859, it is enough to say that they are of the same class as those described in my remarks on Nelson.

Since 1859, about 62,800 acres of section surveys, on the principle of survey before selection, and 490,000 acres of topographical surveys of pastoral lands, have been completed under the Marlborough Government. Rough sketches, hardly to be called surveys, have also been made of about 1,035,000 acres for leasing and licensing purposes. The topographical or "run" surveys consist of chain and theodolite traverses of the boundaries—nearly always following well-marked natural features—of the large pastoral tracts sought to be purchased as runs, interior details being roughly filled in by intersections and sketching in the usual way. As 320 acres is the maximum size allowed by law for a single section, the plan of the run is divided on paper into sections within that limit, which are then sold and granted in groups. Though this system, founded as it is on such loose surveys, is very faulty, it results rather in errors of plan and acreage than in overlaps of grants, the selection of natural features as boundaries luckily affording a pretty good safeguard against the latter evil. Until lately, it was the custom to allow intending purchasers to employ licensed surveyors of their own choosing, a plan which here, as in the surveys of Native claims, was found so fatal to accuracy and system that, on Mr. Clark's urgent recommendation, it has now been abandoned.

The section surveys have been made in scattered blocks, sometimes isolated, sometimes contiguous to old work. Theodolites are used, except in bush, when a circumferenter is preferred; connections with former surveys or well-defined objects is insisted on; and the plotting is tested in the office. Where new surveys abut on old, the old meridian is recovered and used, and the common edges are assimilated, wherever this is possible; though occasionally the new work has to be drawn separately without regard to the old. Most of the field-books of these section surveys have been kept; and the character of the work generally is such that probably about six-sevenths of it is sufficiently accurate for Land Transfer purposes, and could be incorporated without much further trouble into a general system. In one instance, in 1867, a rough trigonometrical survey was made of a block (two runs) of some 39,000 acres in the Awatere and Waihopai districts, with a base line about 140 chains long.² Beyond this, and the matters of detail above mentioned, no advance has been made upon the old system; and there are no means as yet of compiling a correct general map of the province. Consequently, the surveys of Marlborough, as a whole, are still in an unsatisfactory state, in spite of Mr. Clark's best efforts to set them right. Here, as in other places, the errors unhappily bequeathed by the early surveyors, and the want of sufficient funds to correct old mistakes and make a fresh start on an accurate basis, have very seriously hampered the Chief Surveyor, and checked all attempts at substantial improvement. At present there is no field or office staff, and the desultory surveys which now and then have to be made are carried out by contract, or by special terms with private surveyors.

Summary of Progress.

					Acres.
Section surveys, trustworthy .. .. .	..	..	..	..	107,100
Section surveys, needing revision .. .. .	..	..	..	..	154,700
Topographical surveys, rough .. .. .	..	..	..	..	622,000
Reconnaissance surveys, for leases .. .. .	..	..	..	..	1,035,000
Unsurveyed .. .. .	..	..	..	..	1,081,200
Total area of Marlborough .. .. .	..	..	..	..	3,000,000

WESTLAND.

Westland, regarded from a surveyor's point of view, is the most difficult province in New Zealand, being filled with lofty ranges and deep valleys and gorges, all covered with a dense impenetrable jungle. Considering the character of the country, it is perhaps fortunate that the demand for land has been much less rapid here than elsewhere. The survey was begun in 1863, before the separation of Westland from Canterbury. In that year and the next, rough coast traverses, mostly made by contract and with a compass only, were carried from Grey River

¹ The Nelson sheets, in ten-mile squares, proved utterly useless for this purpose.

² In this resurvey, eighteen cases of erroneous grants were detected, the result of a previous faulty survey.