

official value, they remain merely as application records, and can form no intrinsic portion of an approved system of survey.

Having now inspected the survey systems of Canterbury, Marlborough, and Nelson, having 3,182,696 acres of unproved and in a large degree incorrect section surveys, and looking at the fact that the Crown lands are intersected and "spotted" by these, the first question that presents itself is, Should the unproven and incorrect surveys be revised? My answer to this professionally is, that it would be desirable to do so. Then have the Government the power at present? I think not. But had the Government the power, on whom would the corrections and re-adjustments devolve? Certainly not on the Survey Department, for a radical question arises to this effect, namely—A British subject having been placed on a certain area of land by Crown Land Surveyors, it is true, incorrectly measured, do the measurements or the actual marks on the ground give the possession? Till otherwise instructed, I will answer the question for myself in this way: that it is the marks on the ground that give possession; and I am further of opinion that, unless the strongest proofs were given that the holder had shifted the marks himself, a jury would keep him in possession, against all other subjects. Thus a revisal of unproven and incorrect surveys, whether expensive or inexpensive, would of themselves merely give information, but have no validity for the purposes of correction and readjustment of boundaries. Hence I conclude that, with the immense deal of work that there is pressing, no revisal in the meantime should be attempted, nor should this be recommended till the landholders themselves in different localities have petitioned Government or Parliament to this effect.

Under the above considerations, the duty of the survey adviser is clear—namely, to recommend the authorities to confine the operations of the Survey Department to meeting the wants and claims of present land purchasers and settlers now inflowing. In doing this the various surveyors cannot avoid coming in contact with previous surveys unproven or incorrect; when they do so it will be their business to note and record the boundaries of such surveys as they find them on the ground, or, if they cannot so find them, to establish what they ought to be by investigating the marks of adjacent or next lying properties.

Hence it will be the duty of the Chief Surveyors of the three provinces above named to commence and establish new maps for all new work, in which maps the adjacent boundaries of the old or previously surveyed sections only will be shown.

All old maps will thus have yet to be retained as records carefully preserved. The Crown titles must be issued on their authority, unless the landholders interested under the sanction of Government obtain an order for survey revisal, and Commissions having powers of re-adjustment. And what is the responsibility of the Survey Department in relation to Crown grant plans which they prepare in the meantime? My opinion is that, in regard to these past surveys, it extends to reporting actual errors from time to time, but making an exact copy of the plans in the archives, till otherwise ordered by Government.

The survey work of Nelson stands as follows:—

	Acres.	
Minor triangulation, ...	63,000	Not mathematically reduced.
Block section survey ...	117,000	Mechanically plotted.
Spotting ditto ...	158,000	"
Ditto ditto ...	42,000	Mathematically reduced.
Section surveys in hand ...	103,000	Diffused over all parts of the province.

Leaving Nelson I arrived at Westland by sea, and visited the Survey Office at Hokitika, on 20th September, where Mr. Gerhard Mueller, the Chief Surveyor, gave me every assistance in my inquiries.

WESTLAND SURVEYS.

Westland formed a portion of the old Province of Canterbury, and from which it separated in 1868. The initial station of the survey is the Observatory, Hokitika, which is a meteorological one only. This is situated in latitude $42^{\circ} 42' 52.5''$ S., longitude $170^{\circ} 58' 51''$ E. of Greenwich. These determinations are supposed to have been made by Lieutenant Woods, for there are no records of the observations in the office, but they may yet be found in the Marine Department at Wellington.

The true meridian at Observatory has not been observed for, but there is an assumed one on which all the surveys in the Grey, Arahura, and Totara Districts are based. This assumed one is magnetic, equal to $15^{\circ} 28' 28''$ east of true, but how this was found is not shown.

There are three separate districts in Westland apart from each other, the centre of the one being Hokitika, of another, Okarita, and of the third, Jackson's Bay—all having their special initial points, the meridians being magnetic.

That portion of the province extending from the Grey River to Bruce Bay has been triangulated with a 7" theodolite, the sides being fifteen to twenty-five or thirty miles. But owing to the densely wooded nature of the country no base lines, in the usual sense of the term, have been possible, therefore long road and shore traverses have been had recourse to instead. Owing to the above natural cause also the actual or section surveys are executed by major and minor traverse circuit. The circuits are all mathematically reduced, and closings tested. This is correct as far as the coast surveys are concerned, but in the interior long traverses have been relied on. Closings under 16 links to the mile have been passed as a rule of the department.

The department is directly under the Provincial Secretary, and has always had the support of the local authorities, as far as they were able, but the work was often carried on under very straitened circumstances, which has prevented all being done that ought to have been.

The land system allows of selection before survey, but the applications are restricted to certain localities at the instance of the Waste Land Board. The reason of this is that, the province having auriferous lands, it is not advisable to sell land everywhere. Rural land is sold down to twenty acres and to any extent upwards. Suburban land may also be selected before survey in sizes of one to ten acres. This measure has not materially kept back the survey. By means of this system in a damp and forest