

The quantity of work executed for the half-year ending 30th June, 1877, has been :—

Nature of Work.	Area.	Rate per Acre.	Cost.
	Acres.	s. d.	£ s. d.
Minor Triangulation without topography	23,128	0 3½	313 3 10
Minor Triangulation and Topographical Survey	861,000	0 1 ³⁶ / ₁₀₀	4,879 0 0
Rural and Suburban Section Survey	278,747	1 5	19,744 11 7
Town Section Survey (740 allotments)	441	25 3 ³ / ₁₀	557 6 3
Native Land Court Surveys	137,392	1 4	9,159 9 4
Native Land Purchase Surveys	62,236	0 8½	2,139 7 3
Miscellaneous work, Water-race and Road Surveys, Surveyors, Plotting } Arrears of Field work, &c. }	—	—	5,039 0 0
	1,362,944	—	41,831 18 3

Returns, Appendices Nos. 2 and 3, give the details for each Provincial District.

III.—COST OF SETTLEMENT SURVEY SINCE FOUNDATION OF COLONY.

Appendix 4 gives the cost of the surveys executed in the colony since its foundation. Thus what has been done, and the expense being known, the future cost may easily be calculated. The cost will be seen to exceed the acreage rate of America four times, the cause of which will hereafter be explained; but on this point it is also necessary to remark, that the value per acre received by Government is also four times that received in America. Knowing, however, the cost now, and in anticipation, I suggest that Government is in possession of data to found any measures in reduction of cost; but it is clear that such measures—in reduction—must necessarily curtail the offices and services of the department, and the privileges of settlers, in many ways. This will be more clearly seen on examination of the respective actual survey maps appended to this report.

The cost includes supervision and office expenses, but the return can only be considered approximate, owing to the defective nature of the early records. As a comparison between the several districts, there are also incongruities affecting the same, such as standard processes, minor triangulation, and road surveys having been carried out in some and not in others. Besides these, in some districts there are gold-field surveys, the sectionizing of towns and villages, ferry-sites, &c., to be borne in addition to the usual routine of settlement operations.

From consideration of the return, one fact is very patent—viz., THE ADVANTAGE OF SYSTEM. Thus, after an expenditure of £1,314,803 sterling on surveys, only 4,163,954 acres have proved to be reliable; 7,254,696 acres unreliable—system would have remedied this. Another fact is also elicited, and which runs counter to popular opinion—viz., that accurate work is not more costly than unreliable, but even less so.

IV.—SURVEY UNDER STATUTE.

As I lately did myself the honor, in letter dated 15th May, 1877, to express an opinion that the general settlement and section survey system of the colony should be enacted, directed, and authorized by Parliament, I will now state the reasons for my advising such a course.

Not to mention the responsibilities of the “Land Transfer Act” now resting on the Government, and for the meeting of which an approved system is essential. There is in the interests of the colonists a primary principle at the root of the subject—viz., the unchangeableness of original boundaries. It is not improbable that English law would support the principle, if fairly tested in the Courts; but to settle the question at once and directly is in the power of the Parliament of New Zealand. By the acceptance of the principle as a legislative measure, a practical, concise, and rapid mode of marking out and surveying the colony under authority also becomes necessary.

Where tenure is by grant from the Crown, this question, then, arises, Do the ground-marks, or the written descriptions, give possession in relation to extent and position? To my apprehension, the ground-marks give possession, they being actual and visible things done, the written descriptions being only accounts of these things which had been done. But why should not the written descriptions have the same validity as the ground-marks? Because they are not only secondary evidences of facts done, but also because they cannot in practice be made perfect, errors being attached to all the observations on which descriptions are founded—whether in bearing or distance—thus bearings and distances are always more or less in error, while the ground-marks may remain immovable notwithstanding. The fact, then, is that all settlement survey maps and descriptions have errors attached to them more or less according to the nature of the service and the instruments in use. In New Zealand and Australia, Canada, and the United States, there are three modes of settlement or actual survey :—

- 1st. By 8" theodolite ... admitted error 2 links per mile
- 2nd. „ 4" or 5" „ ... „ 8 „ „
- 3rd. „ Magnetic compass ... „ half a degree in bearing, or 69·8 links per mile. *

* But greatly more when subject to local attraction, as is frequently the case in New Zealand, and which makes the compass altogether unreliable.