

1890.

NEW ZEALAND.

SURVEYS OF NEW ZEALAND.

REPORT FOR 1889-90.

Presented to both Houses of the General Assembly by Command of His Excellency.

SIR,—

General Survey Office, Wellington, 2nd August, 1890.

I have the honour to furnish the following report on the work of the Survey Department for the twelve months ending the 30th June, 1890, at which date the survey year ends.

Extracts from the reports of the Chief Surveyors in charge of the ten land districts into which the colony is divided will be found in the Appendices, together with detail progress-reports on each of the road-works carried out by the department, and tabular statements of surveys completed, &c., with maps illustrative of the same.

To facilitate reference to the results of the year's work, the following figures have been compiled, which show at a glance the totals, and the average cost of the work under the various headings:—

	Area.	Rate per Acre.			Cost.		
		£	s.	d.	£	s.	d.
Minor triangulation (without topography) ...	1,334,671 acres	0	0	0·89	4,952	13	1
Topographical surveys... ..	248,712 "	0	0	0·46	482	19	9
Trigonometrical and topographical surveys ...	62,960 "	0	0	0·84	221	19	9
Selection surveys under "The Land Act Amendment Act, 1887"	261,484 "	0	0	3·33	3,633	16	1
Rural and suburban section surveys	431,695 "	0	1	3·7	28,249	1	1
Town-section survey (138 acres, 339 sections), per section ... ..	...	0	15	0·5	255	2	6
Native Land Court surveys	805,364 acres	0	0	2·6	8,924	18	6
Mining surveys	21,467 "	0	5	9·1	6,252	0	4
Roads, 408·16 miles, per mile ... ..	...	9	4	0	3,755	16	10
Miscellaneous work ... ..	...	...	...	...	6,356	15	11
Total cost of field-work finished during the year ... ..	...	...	...	...	£63,085	3	10

The total cost of field-work for the year was £49,816 8s. 9d., and the difference between that sum and £63,085 3s. 10d. represents field-work shown in the above totals that was commenced in the previous year, and also includes work done in the field, but not yet mapped.

The total cost of supervision, office-work, and publication, was £36,614 15s. 10d., so that the gross cost for the twelve months was £86,431 4s. 7d.; or deducting refunds for services performed for other departments, &c., the net cost of the department for the twelve months was £73,765 0s. 1d.

TRIANGULATION AND TOPOGRAPHICAL SURVEY.

Summarising the three first items above, it will be found that 2,572 square miles of country have been partly minor triangulated, and partly topographically sketched, at a cost of about ¾d. per acre. The largest area accomplished this year in one continuous survey has been in the Auckland District, by District Surveyor Cussen, where the work was necessary in order to cover the large area of surveys undertaken for Native Land Court purposes. Mr. T. N. Broderick, in Canterbury, and Messrs. Bullard, Smith, and Greenfield, in Nelson, also carried triangles over extensive areas in order to control the sectional and other surveys within those districts. Extracts from Mr. Broderick's report on the discovery of another pass over the Southern Alps, explored during the course of his survey, will be found in the Appendix.

The only other item of any consequence under this heading was a triangulation of 113,034 acres in the rough wooded country between Gisborne and Opotiki, performed by Mr. Teesdale, to facilitate the subdivision of some blocks for settlement along the Motu Road.

The triangulation of the colony—either as major or minor work—is now well advanced, and its continuance in the future will be in somewhat small and detached portions where necessary to cover the settlement surveys as they advance; the cost, therefore, of this class of departmental work will be a gradually-decreasing one.

The time will come when a great triangulation of the colony will be undertaken in the interests of science, and when this period arrives the work already done will facilitate its operations enormously, by furnishing the known position of points to form the apexes of a series of triangles of any size required.

So far as the settlement operations of the survey are concerned, no such governing triangulation is necessary, for the discrepancies on the closing lines of the work as it exists are far within the limits which could affect the boundaries of properties, or cause any displacement in the general maps of the colony.

SETTLEMENT SURVEYS.

Selection Surveys under the Act of 1887.—It has become necessary to make a distinction between the two classes of settlement surveys now carried on by the department. The first has for its object the preparation of selection-maps of lands to be thrown open before survey; the second, the complete survey of the sections as selected, in order to define individual boundaries and to furnish the data from which the titles are to issue. During the past year 261,484 acres were prepared in this manner for selection "before survey," principally in the Wellington, Canterbury, and Hawke's Bay Districts. The *modus operandi* is briefly this: The blocks to be dealt with have the principal road-lines run through them, with great care as to location and grades, and with a view to the areas into which the lands will subsequently be selected. Conjointly with this operation, topographical and descriptive information is obtained as to the best back and fencing lines, the character of the soil, vegetation, homestead-sites, lands for future smaller subdivision, public reserves, and other purposes incidental to the settlement of the country. The character of the surveys from which the above information is obtained is—so far as its technical value in measurements, either angular or linear is concerned—not of a first-rate class; nor is it suitable for the issue of titles, but it serves all the purposes of supplying full information to the selector, who, lithograph in hand, can easily find his way about the block, and correctly describe his selection in the subsequent application to the Land Office. A specimen plan on a reduced scale of a block thus prepared for selection "before survey" will be found in the Appendix hereto, which has been taken from one prepared by the Chief Surveyor, Wellington District, where the system has been more developed than elsewhere in the colony hitherto. So soon as the selections are made and the fees deposited for the ultimate survey, the work is put in hand, in the ordinary rigorous manner of section survey. The average cost of the former process for the past year has been slightly over 3½d. per acre. To this must be added the cost of final survey for definition of boundaries, which will average from 1s. to 1s. 6d. per acre.

The adoption of the system of preparatory survey has so far acted well, and little or no trouble has been experienced in defining the applications on the ground; whilst it has the great advantage of enabling the department to place lands in the market much more quickly than under the ordinary system of survey before sale. It seems also to have solved many of the well-known difficulties that have arisen in other countries in "selection before survey."

Ordinary Section Survey.—Under this heading is embraced the usual survey of sections before sale, the surveys of lands alienated, in some cases, many years ago, which are necessary in order to issue titles; the surveys of areas selected under the preceding section; and all other classes of complete section survey. The total area so surveyed and mapped during the twelve months was 431,695 acres, in 2,200 sections, averaging 196 acres per section, at a cost of 1s. 3½d. per acre, being about a 1d. an acre less than the cost for the previous year—a price which cannot be considered high when it is remembered that the greater part of the country dealt with is covered with dense forest, very rough, and often difficult of access. The output for this year exceeded that of last year by over 110,000 acres; but to arrive at this result the staff was augmented by the employment of ten additional officers temporarily engaged to meet the larger demand for lands; and the aid of several authorised surveyors was also called in to assist in working off arrears, who were generally employed at contract or schedule rates.

The country the department has to deal with in the future, being of a more broken character, and more remote from roads and settlement, the costs of survey will tend rather to increase than otherwise, though at the same time this is somewhat counteracted by the larger-sized sections in which the land will necessarily be selected. The amount of land fit for settlement which is still in the hands of the Crown is becoming small, notwithstanding the frequent statements to the contrary; and the settlement of the country through the Land Department must soon show a decrease in volume unless more lands are acquired from the Native owners. In some districts this has already become a necessity, which is frequently brought under notice of the department.

SURVEYS FOR NATIVE LAND COURT PURPOSES.

During the past year an area of 805,364 acres was surveyed by surveyors in the employment of the Government, at a cost of 0·22d. per acre. This area comprised 432 divisions or blocks of various sizes; and the surveys were undertaken to carry out orders made by the Court, generally representing divisions of blocks which had previously been before the Court, and which had recently come in for division at the request of the Native owners. The largest continuous area surveyed represents divisions of the King-country, or *Rohepotae* Block, where 523,328 acres, in thirty-four blocks, were completely surveyed and mapped at a very reasonable cost, the whole of which is secured by way of lien or mortgage over the lands themselves. To the total area above mentioned must be added over 96,000 acres, in sixty-nine blocks, which were surveyed at the cost of the applicants, but under the direction of the department. It will thus be seen that over 900,000 acres of land, in 504 divisions of different sizes, were prepared for the issue of certificates by the Court; and there still remains on hand a very great deal of this class of work—so much so, that it would be a work of some years to bring it all up to date.

GOLD AND OTHER MINING SURVEYS.

The past year has witnessed an increased demand for this class of survey, the area completed being 21,467 acres in 608 divisions, against 17,160 acres in 513 divisions for the previous year, the increase being principally in Otago. The surveys include licensed holdings, special claims, and dredging areas. A large proportion of the surveys have been made by the officers of the staff, though in many cases, in order to keep the work up to date, the aid of the authorised surveyors was called in. As in all cases the fees are deposited with the applications, the cost of survey to the Government is *nil*. Many of these claims are situated in the new mining fields at Nenthorn, in Otago, and in the Puhipuhi State Forest, in Auckland, at which latter place extensive silver-lodes were discovered during the year. The cost of this class of work is always high, owing to the isolated positions of the claims and the intermittent nature of the applications. For the past year the average cost was 5s. 9d. per acre.

ROAD AND RAILWAY SURVEYS.

Under this heading is included all surveys of roads, railways, water-races, &c., which do not form part of the systematic sectioning of the country. The work embraces the survey of roads laid out in exercise of the rights reserved under various statutes, such as the Land Acts, Native Land Act, &c., besides the definition of lines of roads leading to isolated blocks of Crown lands. A few miles of railway were also surveyed for Proclamation purposes, and included in the total are 144 miles of the reconnaissance survey of the road-lines leading from Taranaki towards Waikato, full descriptions of which appeared in last year's reports. The amount of work before the department in exercising the rights of roads before the time expires within which they may be legally taken is very large indeed, and, although urgent cases are taken in hand as they arise, a very great number of cases must lapse for want of sufficient strength in the staff to carry the surveys out, especially so as the increased demand for lands for settlement purposes leaves very few officers available for this work. It is the duty of the department to again urge that, in the interests of the public, the time within which road-rights under the Native Land Acts may be exercised should be extended for a considerable period.

MISCELLANEOUS WORK.

In many cases the work performed by the officers of the department does not admit of any classification under the various heads as given in the tables: it is therefore grouped together here. The cost for the year amounted to £6,356, and the services rendered for this sum consist principally of explorations, field inspections, reports on various matters, small surveys of different kinds, and sundry other small items too numerous to mention in detail.

ROAD-WORK GENERALLY.

Since the department took over from the Public Works Department the whole of the constructive road-works of the colony, in January, 1889, this branch of the service has been a somewhat important one. A very large amount of the work is immediately conducted under the direction of the Chief Surveyors, with the occasional help of road surveyors and a staff of overseers specially engaged, whilst some of it is supervised by two of the Assistant Engineers, who were transferred to the department for that purpose from the Public Works Department.

The aid of the local bodies is also made available in many cases; but the specification of the works and the final inspection of them is almost invariably undertaken by the Chief Surveyors and their staff. The reports from each district, given in the Appendix, detail the various works which have been in hand during the year: from them it will be seen that the operations extend from end to end of the colony, and that the character of the work varies a great deal according to requirements and locality.

The principal work, however, is that connected with the opening of some kind of way to the Crown lands before offering them for sale. In the lands which the Crown has now to offer to the settler—consisting, as it does, almost entirely of broken forest country—it is essential that the selector shall have some means of reaching his property, in order to remove his family, furniture, stores, stock, &c., to the ground; and it is found that, unless tracks are previously made, the lands do not readily find selectors. The necessity of continuing this system of opening the lands before sale is every day becoming of more importance. The available lands are further away from existing roads, the country is much more broken in its nature and almost always densely wooded—in fact, without a continuance of the present system of “roading,” there can be no reasonable doubt that settlement will fall off very considerably. It would seem to be necessary and advisable, in all cases where blocks of any size are thrown open, to construct a cart-road through them, and, in addition, that the by-roads should be formed as bridle-roads, all to be made rigidly on the permanent grades. The cost of these works is a legitimate charge on the lands themselves, and should be added to the price per acre according to the advantage each section derives from its position.

During the past year a total of over 260 miles of road has been constructed or improved, consisting mainly of the following descriptions of work:—

Cart-roads formed or improved	...	...	...	...	151.0 miles.
Bridle-roads formed or improved	...	...	...	...	113.0 "
Graded in addition	...	...	...	...	29.5 "
Drains made	...	...	...	...	7.85 "
Bridges (not included in the above)	...	...	...	...	1,146ft.
Contracts in operation on the 30th June	...	...	...	...	87

Outside the above works, the department has maintained a great length of main roads in Auckland, Hawke's Bay, Wellington, Taranaki, Marlborough, Nelson, Westland, Canterbury, and Otago, including therein some of the principal lines of communication in the colony which are situated outside the settled districts. Details of these operations will be found in the accompanying tables,

from which it will also be seen that the total expenditure, inclusive of sums spent through the local bodies, has amounted to £69,118. This does not, however, include the expenditure from "thirds" and "fourths" payable to local bodies out of the Land Fund, though the whole of it has to be previously approved by the department and Land Boards.

In connection with road-works, attention is drawn to extracts from the report of the Chief Surveyor of Westland, describing a new route over the Southern Alps, explored by himself, which in future times will form a fairly-easy railway-line between the east and west coasts of the Southern Island.

DEPARTMENTAL.

The greater demand for lands for settlement, and the larger output during the year, has necessarily caused more work in the indoor as well as the outdoor branches of the department, necessitating the very considerable temporary augmentation of the staff in order to keep pace with it. The demand on the time of those Chief Surveyors who also hold the offices of Commissioners of Crown Lands has been greatly increased during the year by the extra work thrown on them in connection with the investigation of claims under the Naval and Military Settlers' Land Act of last session, and of the revaluations under the Selectors' Lands Revaluation Act of the same year. That their own especial duties have not been materially interrupted through this extra work is due to the fact that a great part of it has been done after office-hours, and has been therefore a gratuitous service, which, however, has failed to meet the appreciation which is its due.

The publication branch at the head office, under Mr. Barron's special care, has been kept fully at work, and has produced a large output, as will be seen from that gentleman's report attached.

In February last the Auckland branch of the department removed from the old wooden building in Parliament Street—a building which is historically interesting as having been the first House of Parliament in the colony—to more commodious and substantial quarters in Customhouse Street, where it is nearer the public and other public offices. The removal thus effects a saving of time, and is a great convenience to those having business with the department.

The strength of the department on the 30th June was as follows: 55 surveyors, 62 draughtsmen, 15 cadets, 6 clerks, 1 accountant, 4 book-keepers, 1 photographer, 6 lithographers, all on the permanent staff, besides many surveyors and draughtsmen temporarily employed.

Three of the cadets passed on to the grade of assistant-surveyors during the year, and are now doing good work in the field.

I have, &c.,

S. PERCY SMITH,
Surveyor-General.

The Hon. G. F. Richardson, Minister of Lands.

HEAD OFFICE.

The administration of the Survey Department and of the large number of roads now under the care of the head office has entailed correspondence to the number of 13,700 letters and papers received and despatched. The vouchers which have been entered, placed to their proper vote and item, and signed number 8,882, of which 101 were for work done under 84 agreements with 52 local authorities, representing in all £155,549 4s. 7d.

The whole of the road-works in the colony paid for by the General Government, with the exception of roads on goldfields, are now authorised by the Survey Department. Important bridges are, however, still designed by the more experienced officers of the Public Works Department, as, as yet, no officer of the Survey Department could be detailed for such work. The Public Works Department has also at its command many standard designs and specifications which long experience has brought to the highest practicable state of perfection.

The administration rests, however, mainly on the head office of the Survey Department.

During the year there have been published 75 land-sale maps—viz., of Auckland, 16; of Hawke's Bay, 6; of Wellington, 18; of Taranaki, 6; of Canterbury, 10; of Otago, 19.

There have been drawn and published 12 district maps on the mile-to-an-inch scale, and a large number of maps for illustrating local subjects.

Of the six tourist-maps, 41,100 were printed and distributed during the year. They have had some effect in revealing to the world the splendid scenery, climate, and lands of New Zealand.

At the Dunedin Exhibition two maps were shown—one on the scale of 4 miles to an inch, measuring 15ft. by 20ft., and one on the scale of 8 miles to an inch, measuring 8ft. by 10ft. The hill-work of the first was very effectively drawn in crayon by Mr. Deverill; the writing and most of the other detail by Mr. McCardell. The 8-mile map was entirely drawn by Mr. G. Wilson. The first was picturesque, the second was geographical. Both received the diploma of first order of merit, and well deserved it.

Mr. Grant has completed the 8-mile geographical maps of the Middle Island. They are in three sections, and the last is now being printed. He is engaged on a new map of the Wellington, Hawke's Bay, and Taranaki Districts; but, as the geographical work of the Wellington District is much behind that of the other districts of the colony, it will probably be next year before sufficient data can be compiled to finish it.

For the Representation Commission 9 officers were engaged 32 days in preparing maps for consideration by the Commissioners; in publishing the proposed and the final lithographs showing the electorates, and in preparing two sets of descriptions, and getting up by hand 350 detail-maps for Parliament, Registrars, and others.

There is an increasing amount of work required in the formation and proclamation of licensing districts, Resident Magistrates' districts, Supreme Court districts, ridings, road districts, boroughs,



S. PERCY SMITH
Surveyor General.

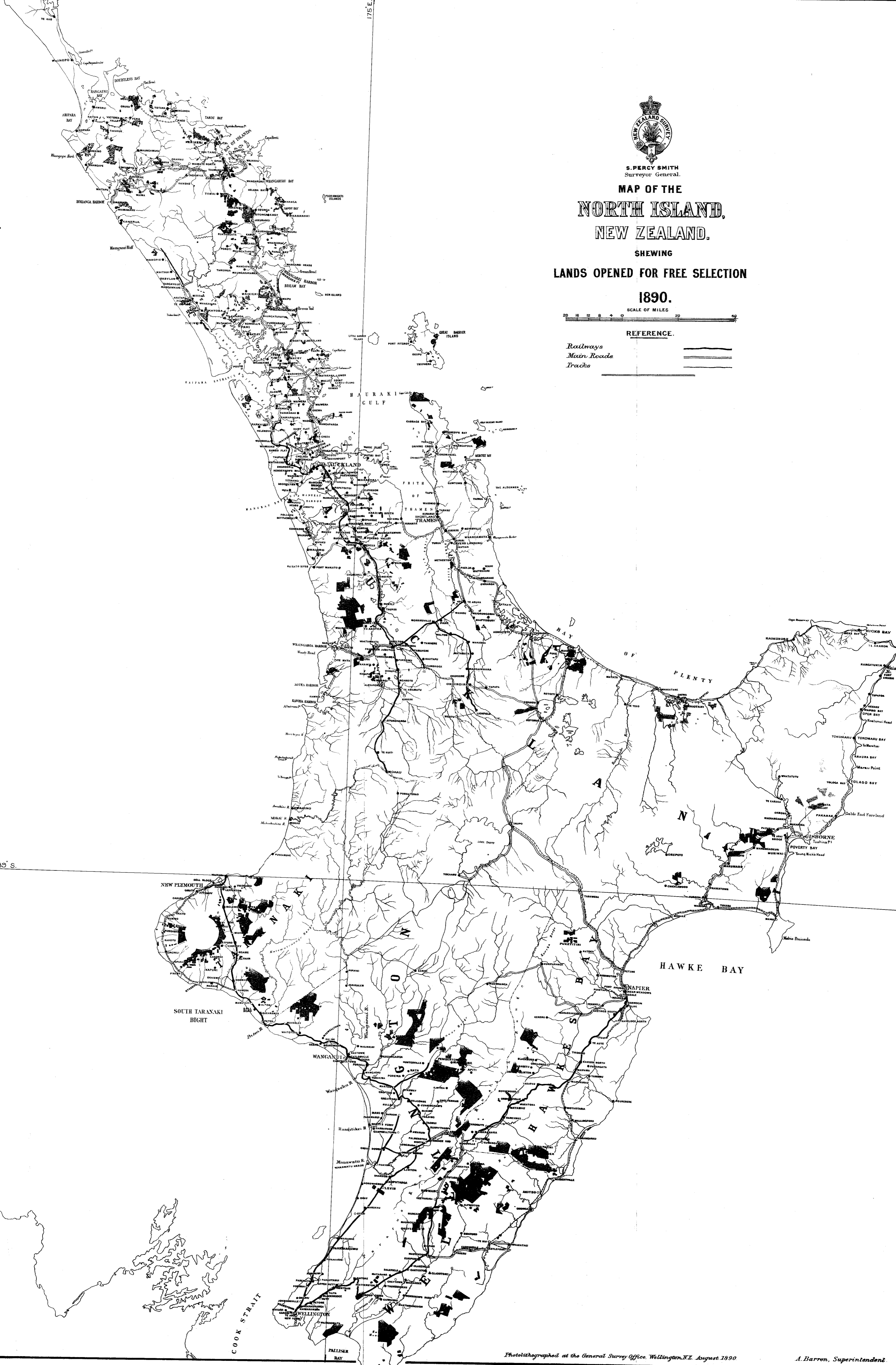
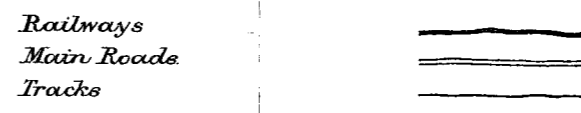
MAP OF THE NORTH ISLAND, NEW ZEALAND.

SHEWING
LANDS OPENED FOR FREE SELECTION
1890.

SCALE OF MILES



REFERENCE.



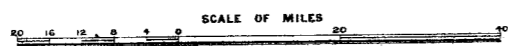


S. PERCY SMITH
Surveyor General.

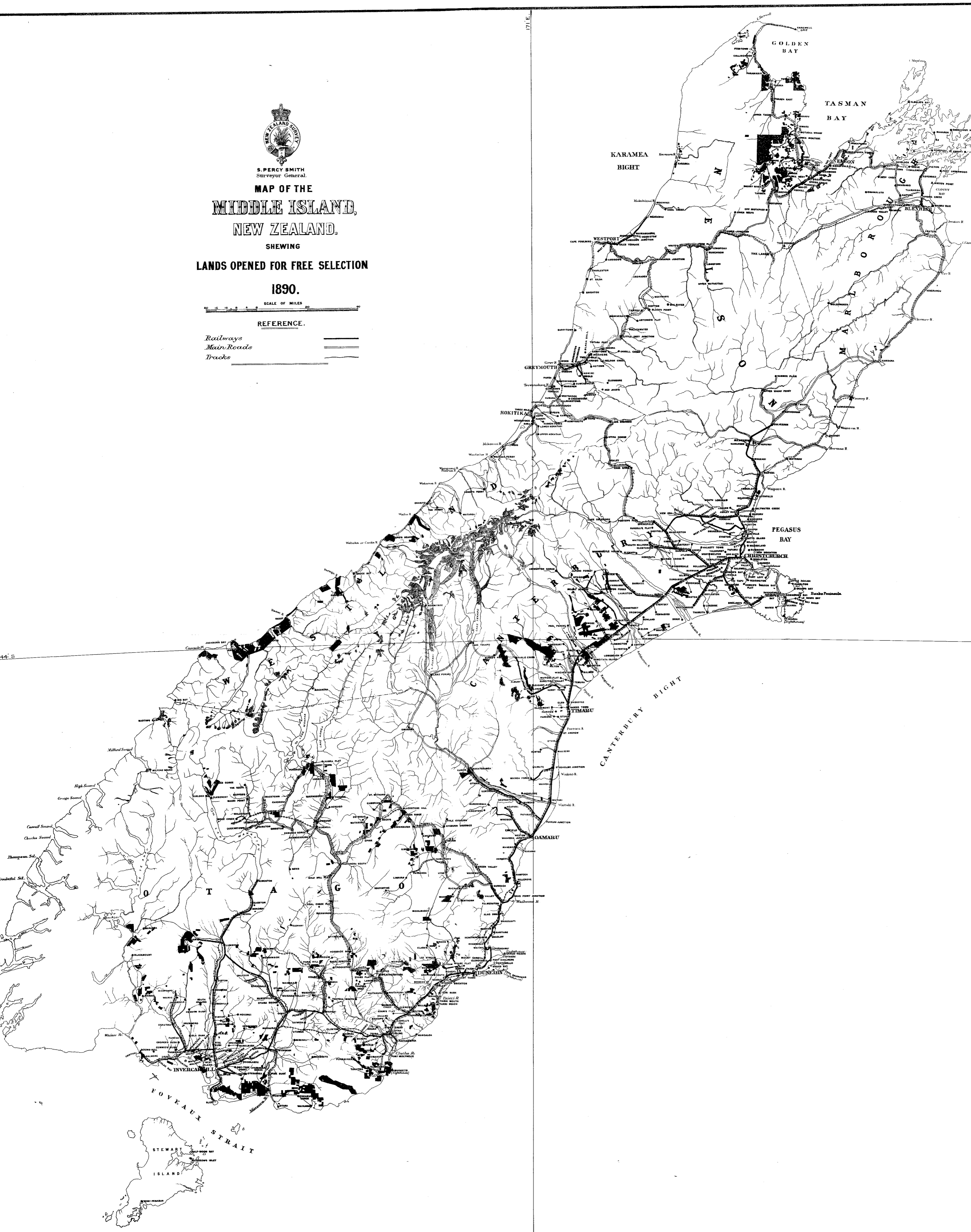
MAP OF THE MIDDLE ISLAND, NEW ZEALAND.

SHOWING
LANDS OPENED FOR FREE SELECTION

1890.



REFERENCE.



mining districts, and water-races. Many of these are frequently amended or altered, and necessarily complete record-maps of all must be maintained. This is all in addition to the record work relative to the opening and disposal of Crown lands.

The proclamation-work formerly done by the Public Works Department is under the charge of Mr. Short for the text and of Mr. Flanagan for the plans. During the year 80 proclamations have been prepared, entailing the examination of 150 plans and 47 descriptions; 7 Royal Commissions were prepared and issued, mainly to settle differences between local authorities; 38 warrants to take roads were also issued; and 19 proclamations are in hand.

The two printing-machines have been kept fairly constantly at work, and have turned out 926,623 impressions of 907 separate printings. The hand-presses, being mainly engaged on circular work and preparing for machines, have turned out 62,421 impressions.

A new lens and camera, capable of taking negatives 30in. by 30in., have been obtained; but in consequence of the press of work they have not yet been set up.

The department has now an establishment capable of printing every kind of lithographic, photographic, and some of the "process" work of older countries. The work done will compare well with larger places, and but for the necessity of great economy in the drawing portion might be made as good as the best.

It is sometimes vexatious that so little time can be given to working out the details of photographic processes; yet, in the midst of a constant flow of work, Mr. Ross, the chief of the Lithographic Office, occasionally finds time to make a step forward in something new.

A. BARRON,
Superintendent.

The Surveyor-General.

APPENDICES.

APPENDIX No. 1.

EXTRACTS FROM THE REPORTS OF THE CHIEF SURVEYORS IN CHARGE OF SETTLEMENT OPERATIONS.

AUCKLAND.

Triangulation.—The amount completed in the field and mapped during the past year was 864 square miles, or, in other words, 553,195 acres, at a cost of £1,661 2s. 2d., averaging $\frac{3}{4}$ d. an acre. Of this area 450,000 acres cover the country on the West Coast between Kawhia and the Awakino Block. The triangulation of this area was found to be absolutely necessary so as to govern the extensive surveys of Native Land Court blocks in that part of the King-country. The sides of the triangles average about 6 miles, but in a few cases, where the country is particularly difficult, owing to flat-topped hills covered with forest, we have had to be content with 10-mile sides. In other parts a minor series of from 3 to 4 miles have been obtained.

This country was found to be very rugged and difficult of access; but the District Surveyor, Mr. L. Cussen, assisted at times by Mr. A. Simpson, has accomplished the work rapidly and effectively. Mr. Cussen is deserving of special commendation, as his work this season has been particularly arduous, for conjointly with the work of triangulation he has carried on in an exhaustive manner an examination of the contract surveys in the district, amounting to 700,000 acres.

This triangulation forms another close on to the Taranaki series, which must be considered exceptionally good, considering that the bases of the two series are 170 miles apart in a direct line. The mean difference in the length of the common sides is four-tenths of a link to a mile, and the greatest difference is seven-tenths. The mean difference in bearing, after allowing for convergence, is 7", and the greatest 12".

The remaining trig. work was undertaken for the purpose of connecting sectional surveys at Hohoura, Hukerenui, Otau, and Waingaroa.

The triangulation in progress comprises 353,000 acres, extending from near Morrinsville to the Frith of the Thames, which is being executed under contract by Mr. P. E. Cheal, authorised surveyor.

Mr. W. Cussen, authorised surveyor, also has in hand 99,000 acres at Waihaha, west of Taupo.

Rural Sections.—The work completed in this district during the past year has been very large, for it has been exceeded only three times since the establishment of the department, the last time being in 1883. The total for 1889–90 was 103,672 acres, costing £9,375 10s. 10d., or 1s. 9d. per acre. The maximum area in any one section was 2,000 acres, and the average size of each section was 122 acres. So great has been the demand for land that the staff was quite incapable of making all the surveys required, and outside assistance had to be obtained, and 20,915 acres of "unsurveyed" selections, averaging 510 acres each, were consequently placed in the hands of authorised surveyors, as were also thirty-four applications, comprising 3,444 acres of isolated sections scattered over the district, and distant from the localities where staff surveyors were engaged.

The balance of the 103,672 acres—viz., 79,313 acres—has, with the exception of six prospectors' mineral leases, been executed by the staff. This land has been divided into 766 sections, averaging 122 acres each, and costing 1s. 9d. an acre, which is a very reasonable price. These surveys were scattered about localities where the original surveys are of a very ancient order, and where great care and tact is needed to satisfactorily solve numerous perplexing problems relating thereto. These problems have arisen in some cases from the complete obliteration of old survey-marks, and in other cases because there is no record to refer to excepting the diagrams on the back of old Crown grants, as neither field-books nor maps of the original surveys are now obtainable. It must be gratifying to the surveyors interested to find that so little exception has been taken to their determinations, as only one or two cases out of the multitude have been referred to me by the parties interested.

Town Surveys.—Under this head some 147 sections have been surveyed, at a cost of £107 17s. 4d., the greater portion being the redefining of the Town of Pahi, a very tedious and expensive survey, caused by the almost complete absence of old survey-marks or other reliable data upon which to base the work.

Native Land Court Surveys.—The large extent of country covered by applications from Natives to bring land before the Land Court for the investigation of title has brought about an unprecedented amount of survey. In the King-country alone there were no less than 1,411,000 acres the survey of which has either been executed during the year or is in progress and is nearing completion.

The country covered by these blocks extends from Taumarunui, on the Wanganui, northward for 64 miles to Alexandra, with a breadth of 50 miles, from the West Coast below Kawhia to the Waikato River at Patetere.

The 103 blocks which were completed during the year comprise 612,863 acres, which is very nearly double the area surveyed in any previous year.

The staff surveyors completed three blocks, containing 6,932 acres, at a cost of £118 9s. 6d.

The authorised surveyors, under private arrangements as to cost with the Native owners, surveyed sixty-nine blocks, containing 96,467 acres, and, in cases where the costs have been advanced by the Government, they surveyed thirty-eight blocks, comprising 516,396 acres, at a cost of £5,088 1s., for which liens have been lodged against the land.

In addition to the above completed work, there are in progress in the King-country surveys of 963,224 acres, on which Government has advanced £1,541 9s. 2d. These surveys are nearly complete, and District Surveyor Cussen is now engaged on their inspection.

Then, there are 30,776 acres in hand in the Taupouiatea, Piako, and other blocks, the cost of which will be paid by Government, owing to the land being principally portions awarded to the Crown out of Native blocks.

A further area of 82,000 acres, in 147 blocks, is in the hands of authorised surveyors for Native Land Court purposes, and the cost of this is to be defrayed by the Natives themselves.

Gold-mining Surveys.—Under this heading the office has been fully employed in recording and examining the claims received. These (though not nearly so many as in the previous year) amount to seventy-three claims, equalling 1,828 acres, and costing £917 10s. Of this number some twenty claims, equalling 490 acres, have been received for examination and approval within the new Puhipuhi Mining District. Generally speaking, the surveys under this heading have been very well done, and the errors of closure and connection with trig. very small—a fact which speaks well for the carefulness of the authorised surveyors employed.

Roads and Water-races.—The staff have surveyed some 40½ miles of road and goldfield boundary surveys, at a cost of £428, or £10 6s. per mile. This mileage includes roads surveyed by Mr. Philips for opening up Crown lands selected in Raglan County, and roads surveyed by Mr. F. Simpson to open up Puhipuhi. It also includes 12 miles of goldfield boundaries run by Mr. T. K. Thomson at Kuaotunu at a cost of £137, which sum should be refunded by the Goldfields Department. Surveys of some twelve miles of road, executed by authorised surveyors for counties in exercise of road rights, and 1½ miles of water-race, have also been received.

Other Work.—The £1,085 3s. 8d. set down in the summary statement to “other work” is, in the main, the cost of inspecting the surveys of Native blocks, as £706 7s. was expended in this work. This amount, spread over the large area inspected and thoroughly checked in the field, represents about ¼d. an acre. The balance of £378 16s. 8d. is the cost of the inspection of road-works, obtaining information for the Land Board and Kaihu Royal Commission, and for other minor matters.

Town Standard Surveys.—District Surveyor Edgecumbe, who obtained an extended leave of absence on account of ill-health, has, at his own request, been engaged for some months during the year on the standard survey of the City of Auckland, and the alignment of its streets. I am pleased to say that his health has permitted him to do a considerable amount of valuable and efficient work, and this has been done in a very creditable manner.

There still remains a large area to cover, as only the most densely-populated portions of the city have been operated upon up to the present time.

Land Transfer Work.—Doubtless owing to the prevailing depression, the transfer of landed property has been very limited. Mr. Foster has examined and passed sixty-nine plans, comprising 235 lots, of a total area of 3,373 acres, and he has also from time to time checked small surveys of this class in the neighbourhood of Auckland. Mr. Sturtevant, the draughtsman in the Land Transfer Office, reports that fifty-five applications to bring land under the Act have been received, examined, and searched, and plans prepared for the Examiner of Titles, and 420 certificates of title, with marginal plans, have been prepared in duplicate, representing an area of 99,277 acres.

Summarising the field-work in the foregoing, we have as follows:—

	Completed during the Year.	In Hands of Surveyors, 30th June, 1890.
Triangulation	553,195 acres	452,000 acres
Rural sections	103,672 "	90,000 "
Town surveys	147 sections	250 sections
Native Land Court	619,795 acres	1,081,951 acres
Gold-mining	1,828 "	...
Roads, &c.	40½ miles	51½ miles

Work for Ensuing Season.—The coming year promises to be even more heavily burdened with work than the past one has been, for, in addition to the above in the hands of the surveyors, there is a further unallotted area of 54,549 acres of surveys ordered by the Land Board on applications from intending settlers, and these are scattered all over the district: this list is being added to at every meeting of the Board. During the year there have been 251 individual applications to the Land Board for specially-selected areas, averaging 165 acres each, to be surveyed and thrown open for selection.

Although we have executed sectional surveys to the extent of 103,000, &c., acres, we have not kept pace with the amounts deposited by the Land Department, as some surveys were for issue of long-delayed Crown grants. It is the intention in the summer to prosecute surveys of the swamp-land near Matata, and some of the Crown land abutting on the Opotiki-Gisborne Road leading to Motu. There will for certain be a considerable amount needed in the Waingaroa District, and several blocks north of Auckland will also be taken in hand. In every instance the Land Board has been led to believe that their occupation will certainly follow.

The survey for the Native Land Court will be very heavy also, as for a certainty almost numberless subdivisions of the King-country blocks will be made by the Court, and a large number has been already applied for.

I would again suggest the desirability of laying out and surveying main roads through these lands, especially as so much subdivision is now going on. The roads would doubtless in many instances be made to form boundaries of the partitions.

I propose to give attention to the survey of roads through lands thrown open as "unsurveyed," and have already made arrangements for their being put in hand—notably in the Raglan County, where the land is being extensively taken up by *bonâ fide* settlers under deferred-payment and perpetual-lease systems.

Office-work.—The energies of the office staff have been taxed to the uttermost during the past year to keep pace with the heavy demands caused by the large amount of settlement survey which has been going on in all parts of the country, and also on account of the very large amount of Native Land Court work, which has been submitted to rigorous check.

The correspondence, instead of abating, has increased: 1,337 marginal plans have been placed on 460 Crown grants, and certificates of title in lieu of grants, representing 66,957 acres; 710 plans have been drawn on 245 ordinary leases and licenses, representing 52,891 acres; and 232 diagrams on 102 Native Land Court titles, for 172,074 acres. The sale of lithographs has amounted to £109 10s. during the year.

In February last the business of the Survey Department was transferred from the old buildings near the Supreme Court to the new, handsome, and commodious one in Custom Street. The change has proved a very great convenience to the public on account of the building being in the business part of the city. Twenty-one county maps, coloured up to date, are now hung up in the long corridor of the building, and all day long persons are found inspecting them with a view of selecting lands for settlement.

During the year the staff has been increased by the transfer from the Nelson District of Assistant Surveyors J. McKay and T. K. Thomson. Mr. R. Galbraith has also been promoted from cadet to the grade of assistant surveyor; and I am pleased to report that the work done by these young surveyors has been very creditable to them. There are now no survey cadets in this district.

At the close of this, my first departmental year in the Auckland District, I desire to express my entire satisfaction at the manner in which the officers, both field and staff, have met the great strain of the past year, and my appreciation of their willing services and hearty co-operation.

THOS. HUMPHRIES, Chief Surveyor.

TARANAKI.

Rural and Suburban.—The bulk of the work has been the subdivision of ninety-two sections of Crown lands for settlement, comprising an area of 27,943 acres, thus giving an average area per section of 304 acres, at a mean cost of 1.24s. per acre, which I think compares very favourably with that of previous years, when it is considered that each new block, as a rule, lies further away from settlement centres.

Native Land Court Surveys.—Under this heading 8,607 acres have been surveyed into sixty-two sections; and in this area there are five partitions, containing 297 acres, of West Coast Commission reserves: 1,240 acres are also included, being the resurvey and subdivision of old Native reserves in and around New Plymouth, for which grants have never issued, and which were brought under the provisions of the Native Land Act and orders made in June, 1887. Owing to considerable discrepancies having been revealed between the areas ordered and those included by the fences, some unavoidable delay was occasioned in the resurvey of the Puketotara and Moturoa Subdivisions. These have now been amended by the Court, and the plan of Puketotara has been received. Moturoa and one or two others will be finished shortly. The balance of 7,070 acres comprises the Pukengahu Block, a partial resurvey of which has been made at a cost of £60.

Native Land Purchase Surveys.—The survey of the Taumatamahoe and Whitianga Blocks, situate on the Upper Wanganui River, are in progress by Mr. John Skinner on contract; but, as they lie far back in rough country, the survey cannot be completed for several months. The completion of the southern boundary of Taumatamahoe will also complete the survey of Pahatuhia Block, estimated to contain 6,000 acres, and, as this block lies between the Mangaotuku and Taumatamahoe Blocks (Crown land), it should, I think, be acquired by the Crown, more particularly as Mr. Skinner's report upon it is more favourable than previous ones.

Roads, Railways, &c.—With reference to the 148 miles returned under this head, it should be explained that 144½ are included in Mr. Skeet's reconnaissance survey to connect with the Main Trunk line, 29½ miles of which were graded and chained. Three miles have been surveyed through the Ngaere Block (which is leased by the Crown) to give access to the Mangamingi Block, now in process of subdivision for settlement.

Other Work.—This includes back-pegging of old work, laying down a few standards at Inglewood and Stratford, the survey of a few sections at the latter town, the periodical soundings at the breakwater, and some scattered surveys about the town and district.

Land Transfer Surveys.—Mr. Bird, Chief Draughtsman, has examined forty-eight plans, comprising 32,786 acres, and surveyed into ninety sections, all of which have been approved, and the work of this branch is up to date.

Field Inspection.—I have during the year inspected the work of one staff surveyor, one contract surveyor, and eight Land Transfer surveys by licensed surveyors in different parts of the district. I have also inspected, prior to survey, the grading of two road-lines by Mr. R. H. Davies—namely, through the block subdivided by him near Urenui, and the line he is now surveying between Ngatimaru and Tikorangi.

Office-work.—Mr. Bird reports that the office staff has checked 18 surveyors' plans, prepared 19 new block-sheets, 41 plans for Native Land Court, 8 for the Department of Justice, 286 tracings

NATIVE LAND SURVEYS

ROHEPOTAE,

Surveys completed _____ coloured

492,398 acres.

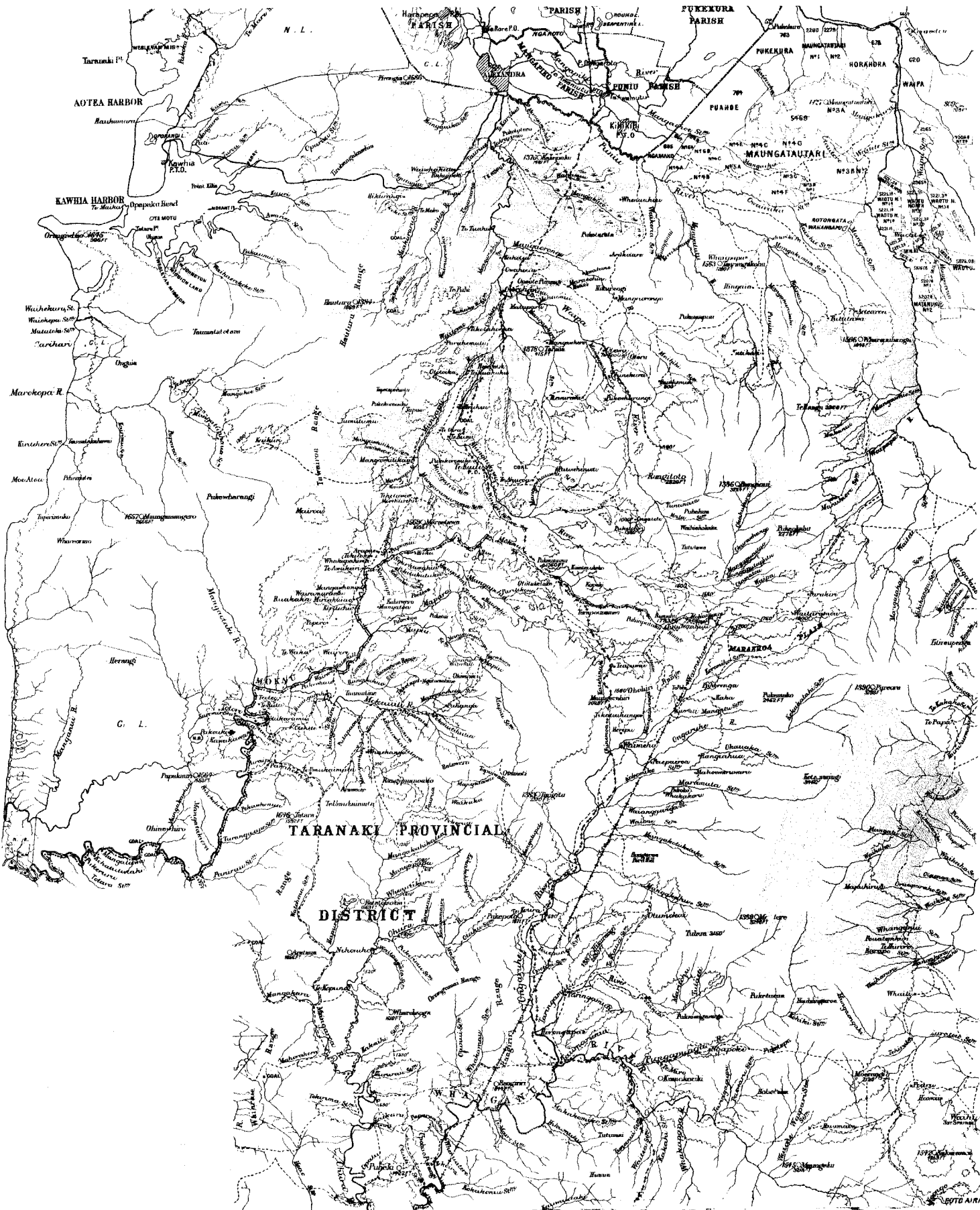
_____ in progress _____

318,500 _____

Subdivision surveys in progress _____

Triangulation in progress _____

SCALE OF MILES



of various kinds; that the staff has also checked 164 traverse-sheets, and prepared 6 tracings for photo-lithographing; also 199 Crown grants and leases, comprising 680 sections. In addition to this 21 plans of Native titles, including 48 sections, and 157 plans, including 890 sections, have been drawn on Land Transfer certificates of title. Work for other departments has been executed amounting to £218 19s. 3d., and outstanding liens on Native Land Court surveys amount to £1,355 5s. 9d.

Work for Next Year.—Mr. Skeet will survey two or three West Coast Commission reserves on the Upper Waitara, for which the owners have been pressing for some time. He will then subdivide the Crown land available in and adjoining the Makara Valley, between Ngatimaru and Tikorangi. The unsurveyed portion of the road to connect these settlements is now in hand by Mr. Davies. Mr. Skeet might afterwards continue the Mimi Valley Road eastwards, and cut up some of the land there for settlement. Mr. Dalziell will continue subdividing in the Huiroa district, between the Makino and Makuri Rivers, including, possibly, the survey of a town-site on the latter stream. Mr. Buckeridge will continue the subdivision of the Mangamingi and Mangaehu Blocks, and afterwards survey a road through the Toko, Huiakama, and Mangaere Blocks to connect with the East Road.

The standard and alignment surveys of some of the principal towns should be undertaken as soon as a staff surveyor is available.

The extension of the standard survey into the suburbs of New Plymouth is likewise much needed. In the office we have still a large amount of arrears to work up in the preparation of block-sheets and Land Transfer record maps, although a commencement of the latter has been made.

The following table gives the result of the chain-closures in this district during the year:—

Surveyor.	Number of Closures.	Number of Traverse-lines.	Total Length, in Miles.	Mean Difference of Closure per Mile, in Links.
H. M. Skeet	16	272	37	1.12
P. A. Dalziell	11	1,139	57.5	1.15
E. W. Buckeridge	3	284	6	2.4
T. K. Skinner (contract)	7	92	9.8	0.9
Totals and mean	37	1,787	110.3	1.39

SIDNEY WEETMAN, Chief Surveyor.

HAWKE'S BAY.

Minor Triangulation.—Early in the summer a contract was made with Mr. A. Teesdale for the triangulation of a block of Crown land in Motu and Ngatapa districts, in order to govern the settlement surveys now in progress. The actual area included in the survey was 113,634 acres, and the cost £473 9s. 6d., or 1d. per acre. 15,000 acres of Crown land in the Nuhaka district have been triangulated by Mr. A. D. Newton at a cost of 1s. 8d. per acre, or £112 12s. 9d. for the whole. The total area under this class is therefore 128,634 acres, at a total cost of £586 2s. 3d.

Topographical Surveys for Selection under the Land Act of 1887.—31,100 acres have been dealt with under this system at an average acreage rate of 7.9d., or a total cost of £1,023 3s. 9d.

Rural and Suburban.—25,567 acres have been divided into fifty-two sections, averaging 491 acres, at the rate of 1s. 3.6d. per acre, or £1,663 16s. 3d. for the whole. In addition to this, about 7,000 acres in Wakarara district, which were offered as unsurveyed land under the Act of 1887 some months ago, have been finally surveyed into sections, and a village settlement has been laid out at Motu; but, as the plans are not yet lodged, the work will have to be returned next year.

Road Surveys.—The mileage return for the year is 87.8, of which 67.5 miles are in Poverty Bay district. The average cost per mile was £15.75. Mr. G. J. Winter, Engineer to Cook County, surveyed 7.75 miles of road, under the authority of the Survey Department, for the purpose of completing a gap between Waiomatatini and Rahui, in the Waiapu district; but this has not been included in the return, because it was done under the direction of the county. In addition to the foregoing, about 25 miles have been surveyed, but not mapped: this brings the total mileage up to 120. Most of these roads are through forest-country, and will give access to about 100,000 acres of Crown land.

Napier and Wairoa Road.—Late in the autumn it was decided to have a trial-survey of this line made, for the purpose of ascertaining whether it would be possible to find a practicable route, which would avoid the defects of earlier surveys, with a view to connecting Napier and Gisborne by a main road, which would enable travellers to pass between those places, *via* Wairoa, but without risking the delay contingent upon having to depend upon coasting steamers, whose trips are liable to interruption through stress of weather, unfavourable bars, &c. For this service Captain A. C. Turner was temporarily engaged, and commenced his survey about the middle of May; and, although the weather has been very unfavourable, he has graded and located about 25 miles, and explored a considerable extent of country.

Mahia-Gisborne Road, via Nuhaka.—The unsatisfactory state of the old track, which follows the telegraph-line between these places, has long been the subject of complaint by travellers and the local bodies concerned; but since the Crown lands at Nuhaka have been partially surveyed it

has been ascertained that a good line can be found by leaving the Wairoa-Mahia Road near the Native village of Nuhaka, passing through the Crown lands referred to above, and emerging upon the present track in a valley some 5 miles south of Muriwai. An additional inducement for regarding this as a main road will be found in the fact of several thermal mineral springs, containing valuable medicinal properties, having been discovered in the Crown lands close to this line, for there seems to be no reason why this place should not become a small sanatorium, very conveniently situated for all residents on the east coast of this land district.

Land Purchase Surveys.—The only transaction to record under this class is the cutting-out of a Crown interest in the Tauwharetoi Block, the area being 5,057 acres, and the cost £150.

Native Land Court Surveys at Cost of Owners.—Forty-one blocks, aggregating 56,382 acres, have been surveyed, and plans of twenty-seven of these blocks have been approved.

Field Inspection.—The duties connected with land-administration continue to be so onerous as to leave little time for this work, but the field-parties are visited as often as possible, and the Inspector at Gisborne has sent in eight diagrams of surveys, aggregating 6,926 acres.

Other Work.—Of the miscellaneous services included under this heading the principal items are: Erecting and repairing trig. stations, by the District Surveyor, Gisborne; grading roads for construction, and inspecting formation, checking and redefining old boundaries, and general office-work during the wet weather, by Mr. Armstrong; superintending removal of standard blocks at Napier, revising old surveys at Norsewood, inspecting and reporting upon selectors' improvements, and general office duties, by Mr. W. T. Neill; making observations for the purpose of ascertaining the variation of the compass at Napier, by Mr. J. Hay; redefining old boundaries, by Mr. G. A. Beere; restoration of trig. and standard points in Heretaunga district, by Messrs. Hallett and Laing, &c.

Land Transfer Surveys.—Mr. Dennan, Chief Draughtsman, has examined and submitted for approval fifty-five plans, containing 356 lots and 30,388 acres; and Mr. Buscke, of the Gisborne office, has dealt in the same manner with fourteen plans, of 82 lots and 9,154 acres; the cost being £86 2s. 8d. and £41 2s. respectively.

Road Plans examined for Local Bodies.—Mr. Dennan has examined and submitted for approval plans of 17.75 miles of roads closed and deviated by Road Boards and County Councils.

Crown Grants and Titles.—Plans have been placed upon 1,547 grants, leases, and the various other instruments of title, at a cost of £109 19s. The greater part of this work was executed by the ordinary office staff.

Lithographs, &c.—Six photo-lithographic plans were prepared for the purpose of providing sale-plans of lands opened for selection during the year. Eight maps of survey districts have been compiled, and five of these have been copied and forwarded to the head office for publication. Topographical maps of Poverty Bay and Hawke's Bay, on the four-mile scale, corrected to date, and containing much information useful to the general public, have been compiled and forwarded to the head office. Supplementary information for the land-tenure map has also been furnished, and further instalments of the lin. map of Cook County are in progress.

Miscellaneous.—The usual services have been rendered to other departments and to the local bodies. Chief among the former may be named the Native Land Court, the Land Transfer Department, and the Education Department, including the School Commissioners. All these offices are debited with the actual cost of the services rendered, but this is not the case as regards the Crown Lands Department, where the line which divides the duties is not always clear; but it may be stated that the officers of the Survey Department habitually render those of the Lands very considerable assistance—as, for instance, in the matter of selection of unsurveyed land, issue of titles, returns, &c., and on more than one occasion draughtsmen here have been required to undertake the duties of Receiver of Land Revenue.

Standard Survey of Napier.—A correspondence which has been going on between the Survey Department and the Napier Borough Council has resulted in an agreement being come to to resume the standard survey commenced some years ago, and to carry it to completion as soon as circumstances will permit, in order that certain vexed questions connected with titles may be finally settled, and that property-owners may be able to avail themselves of the provisions of the Land Transfer Acts. The basis of the arrangement is, that the department will supply the professional skill and the borough the labour and material.

Financial.—The total cost of this branch of the department for the year was £8,399 2s. 11d., but, as £1,722 18s. 2d. has been received as survey-fees, and credit is taken for services rendered to other departments, &c., to the extent of £313 17s., the net cost is reduced to £6,362 7s. 9d., so that these credits are sufficient to cover the cost of the two extra parties placed in the field at the beginning of last summer, as well as two large amounts paid on contracts.

Future Operations.—Unless some of the Native land in the Seventy-mile Bush is speedily acquired, settlement must very shortly come to a standstill in the southern part of the district, and the surveyors will have to be transferred to Poverty Bay, where it is proposed to prepare the Crown lands at Motu and other localities for settlement. As regards roads, these have been so energetically proceeded with, in order to avoid lapse of rights by effluxion of time, that the urgency may be said to be over, although a considerable mileage has yet to be done.

Changes in the Staff.—Mr. Tone's retirement early in the year, through his salary being reduced under the retrenchment scheme, leaves me to regret the loss of a most able and industrious officer, whom it would not be easy to replace. He has since been appointed to entire charge of lands and surveys in British North Borneo, where I understand he is initiating the New Zealand system of surveys. Mr. F. A. Rich retired at the end of last December. Mr. J. G. Wilson has been transferred from Gisborne to Napier, and Mr. W. T. Neill *vice versa*. Mr. James Hay was transferred from Canterbury to this district early in June last.

G. W. WILLIAMS, Chief Surveyor.

WELLINGTON.

Minor Triangulation.—The 11,000 acres returned by Mr. Ashcroft covered the coastal lands included in the Wellington-Manawatu Railway Company's No. 1 Allocation Block, between the Manawatu and Rangitikei Rivers.

Topographical Surveys for Purposes of "The Land Act, 1887."—Following up the practice introduced in 1887, eight members of the staff executed the necessary surveys and maps representing an area of 92,415 acres of bush-lands, with a view to throwing them open for selection as "unsurveyed lands" under "The Land Act, 1887." The blocks which make up the total comprise Mr. J. R. Annabell's South Maungakaretu, Mr. Lowe's Oroua-Coal Creek, Mr. Ashcroft's Otamakapua, Mr. A. Seaton's Mangahao, the Messrs. Climie's Middle Puketoi, Mr. Hughes's South Puketoi, and Mr. Lewis's Kaiwhata Block. Each of these blocks has been thoroughly explored, and provided with a system of roads and "back-lines" suited to the character of the land; and, with a due consideration of the requirements of the surrounding country, township- and village-sites have been picked out and reserved, river-banks have been conserved, and reservations have been made for schools, gravel, travelling stock, and other public purposes. Preliminary surveys have sufficed to define all these essentials, as well as numerous others, such as homestead-sites, water-frontages, and patches of valuable timber-trees. The maps have been made as full of detail as possible, the practical outcome being the notification for sale of extensive areas, with full and accurate descriptions, and "sale-plans" for the information and guidance of intending selectors, whose interests are considered in every possible manner; and, at the same time, paramount public interests have been conserved as far as possible. A specimen map on a reduced scale is appended. Free selection, wherever exercised without the foregoing safeguards, has resulted disastrously to the Crown's interest. A notable instance will be found in one of the Australian Colonies, where indiscriminate free selection is about to be supplanted by a system similar to that in vogue in this district: this has been determined upon because "many selections have been injuriously intersected by roads," causing "much annoyance and dissatisfaction," and, in consequence, "demands upon the Treasury for compensation."

Rural and Suburban.—The surveys under this class have been unprecedentedly extensive during the period under review, and the cost of 1s. an acre (on hilly forest lands) is less than in any previous year, and would be so even if the whole of the cost of the preliminary surveys were added. Of the total area of 105,470 acres, the staff executed the surveys of 62,216 acres, and 43,254 acres was surveyed by contract. The difference in cost is accounted for by the fact that the staff surveys only averaged 215 acres per section, whilst the contract work averaged 592 acres per section. Moreover, the contractors had, as a rule, more straightforward work, and greater advantages in the way of completed traverses on their blocks. The general character and quality of the latter surveys are being tested by the Acting-Inspector, Mr. Llewellyn Smith, and detailed reports of the result shall be forwarded to you. These settlement surveys are the most practical and useful from the settlers' point of view, as they place him in possession of his holding, and serve as the basis of his title. This class of work is becoming more elaborate and difficult, in consequence of the greater care bestowed upon the road-surveys, the additional work of back-line survey and pegging, and owing to the fact that the blocks are generally distant back lands of a hilly or broken character, covered with dense forest and scrub.

I append particulars showing the quality of the traverse surveys in the Wellington Land District from the 1st July, 1889, to the 30th June, 1890:—

Name of Surveyor.	Number of Closures.	Number of Stations.	Number of Miles.	Total Error.		Total Error per Mile.		Remarks— Nature of Country.
				Meridian.	Perpendicular.	Meridian.	Perpendicular.	
J. D. Climie	11	793	29.0	25.3	54.6	0.88	1.88	Rough.
John Annabell	13	421	16.1	40.5	30.3	2.5	1.9	Broken.
R. P. Greville	6	267	15.45	24.7	40.3	1.6	2.6	Part bush.
H. J. Lowe	5	420	14.0	5.7	20.1	0.4	1.4	Hilly bush.
J. F. Frith	1	109	4.0	12.0	7.1	3.0	1.8	Rough, hilly.
G. T. Murray	16	525	37.1	53.9	26.7	1.45	0.7	Flat bush.
C. A. Mountfort	5	346	16.5	30.6	11.8	1.8	0.7	Rough hilly bush.
J. R. Annabell	1	74	3.75	3.2	12.3	0.8	3.4	Fair country.
H. J. Lewis	4	48	7.9	1.3	3.6	0.2	0.4	Hilly.
Means and totals ..	62	3,003	143.8	197.2	206.8	1.3	1.4	

Native Land Court Surveys.—In addition to the 261,697 acres surveyed at the expense of the Crown, private surveyors surveyed and prepared eighty-four plans, of an area of 183,436 acres, in 223 divisions, making a total of 445,133 acres. The duty of inspecting the surveys, examining the plans, attending to Native Land Court requirements, and issuing titles, has severely taxed the energies of the office staff, and taken the inspector away for months from urgent settlement-survey inspections. The principal blocks included in the return are Awarua, Mangatainoka, Oruamatua, Uruokakite, Otairi, Whaharangi, and Pungataua; the other blocks are scattered throughout the district.

Road and Railway Surveys.—The 76 miles of road-surveys include lines outside settlement-blocks in the Waitotara, Otamakapua, Mangamahu, and Pohangina districts, and the Pahiatua-Palmerston Road. The cost, as given by the surveyors, is very moderate. I have again to

recommend that several surveyors should be employed to lay off and legalise roads through alienated lands, and to carry standard surveys along roads in use where the original surveys are defective, or in cases where no previous survey has been made of such roads.

Other Works.—Under this heading are classed the duties of a miscellaneous though very useful character performed for other departments and the public—such as, back-line pegging of sections sold in former years and under different conditions from those now prevailing, the supervision of road-works, providing guides for intending selectors visiting lands open for selection, valuations, inspections, estimates, and reports on matters of public interest and importance.

Land Transfer Surveys.—Plans representing 20,400 acres were tested and passed through the office. I had several of the surveys tested by staff officers, and in the present year I hope to attend to this duty systematically, with Mr. Ll. Smith's assistance. In connection with this class of work there are three fundamental operations demanding immediate attention—namely, (1) the extension of standard traverses throughout those districts which have long been in occupation, and in which, consequently, property is proportionately valuable; (2) the execution of standard surveys in new townships and suburbs; (3) the construction of standard record-maps to represent all the more recent surveys under this system.

General.—The following is a summary of the work executed during the year:—

Class of Work.	Number of Plans.	Area, in Acres.
Minor triangulation	1	11,000
Settlement survey	75	197,885
Native Land Court	84	445,133
Land Transfer	104	20,400
Public Works	33	
Sale-plans	32	
Total	329*	674,418 acres

As showing the result of the skill and labour brought to bear by the Wellington survey staff in furtherance of the settlement of the country, I submit the following statement of Crown lands operations for the year ended 31st March:—

	Area thrown open for Selection.	Area disposed of.	Number of Selectors.	Average Area.
	Acres.	Acres.		Acres.
1885	16,494	20,404	82	249
1886	54,989	23,712	149	159
1887	77,546	100,056	645	155
1888	59,993	70,390	494	142
1889	145,495	125,307	587	213
1890	97,146	106,349	386	275
Totals and average	451,663	446,218	2,343	190

The area thrown open during the year which expired on the 30th June amounts to 167,275 acres; whilst the area actually available for selection on the same date was 128,062 acres, and this will soon be increased by 108,000 acres more.

To keep pace with the numerous applications for land, the field staff has been increased to sixteen surveyors, and even then it was found necessary to let fourteen contracts, comprising an area of 47,153 acres, to authorised surveyors. Except in a few exceptional cases, the surveys have been promptly executed, notwithstanding that the large area disposed of consists of forest lands generally remote from settled districts.

Office Duties.—The Chief Draughtsman, Mr. James Mackenzie, in his summary of the office-work, reports that the preparation of sale-plans to keep pace with notifications under "The Land Act, 1887," formed an onerous and conspicuous portion of the work. The Native Land Court branch, in addition to the general duties of attending to requirements of the Court, reducing plans, and bringing the same up on the record-maps, prepared and issued 1,006 Court orders and copies; in the Land Transfer branch the number of certificates and copies was 1,642. New county maps are in course of construction, and are well advanced. Owing to the pressure of work resulting from the employment of about thirty surveyors, the office-work has fallen into arrear.

Letters received and despatched number 14,779; vouchers passed, 792; notices despatched, 10,103; applications registered, leases and licenses prepared, 838; warrants, comprising 687 titles and copies, 90; lithographs, posters, and Crown Land Guides despatched, 10,000; circulars to surveyors, 200. In addition to the foregoing a multitude of other duties were attended to, including the keeping of the accounts, and corresponding.

The expenditure for the year is as follows:—

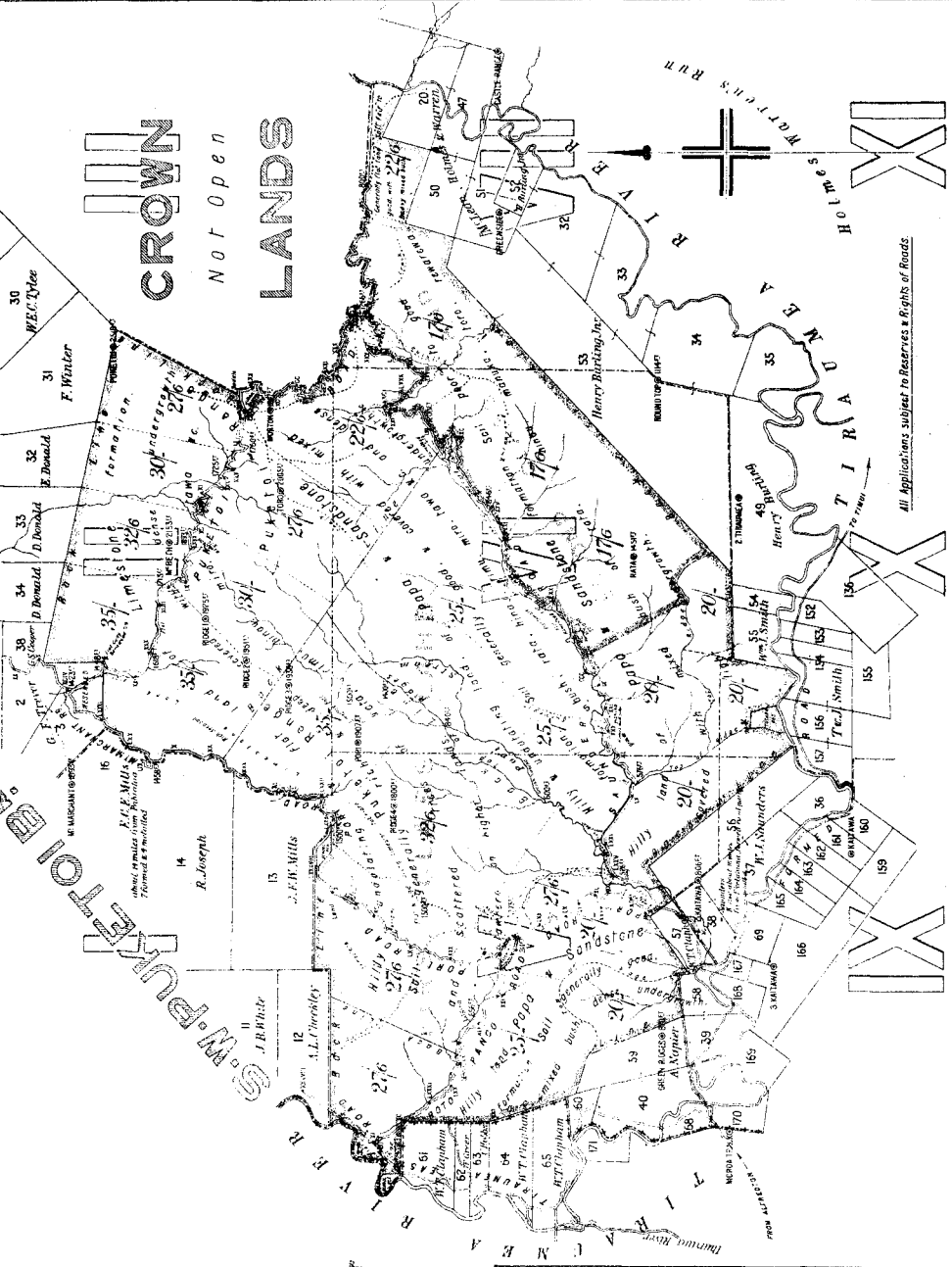
For surveys	£	s.	d.
On roads	13,405	1	8
	22,589	12	1
Total	35,994	13	9

* Including those sent in by authorised and licensed surveyors.

WELLINGTON LAND DISTRICT NO 17.

(Reduced to One Third.)

MAKURI-PUKETOI Blocks



All Applications subject to Reserves & Rights of Roads.

T. Perham del.

RURAL LANDS
OPEN FOR SALE OR SELECTION.
WELLINGTON DISTRICT.

The under-mentioned Crown Lands will be open for Sale or Selection, in terms of Section 9 to 11 of "The Land Act Amendment Act, 1897," either for cash, on mortgage, or on lease, on **WEDNESDAY, 9th JULY, 1899.** In cases where more than one applicant is received for the same area, priority of choice will be decided by priority of application. (See instructions below.)

UNSURVEYED LAND.—FIRST AND SECOND CLASS.
South Puketoi Blocks.

Blocks 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

A surveyor has been engaged to survey the above blocks, and the results will be published in the Wellington Gazette. The land is situated in the South Puketoi Blocks, and is of the first and second class. The land is open for sale or selection on Wednesday, 9th July, 1899. In cases where more than one applicant is received for the same area, priority of choice will be decided by priority of application. (See instructions below.)

J. W. A. MARCHANT,
Commissioner of Crown Lands.

The book-keeping in connection with this amount, in addition to the time necessarily devoted to the general business, have tasked the energies of the office staff. Mr. Mackenzie and Mr. Wright and his assistants, by cheerfully giving much overtime, have materially aided to cope with the pressure of business.

Proposals for the Year 1890-91.—My recommendations for the current year include those for last year—viz., the extension of trigonometrical and topographical surveys in the inland district. The survey of roads and legalising the same should be undertaken and carried out promptly in order to prevent compensation claims falling upon the local bodies. Standard surveys for Land Transfer purposes should be pushed forward in settled districts. Besides these important duties, the opening-up of Crown lands for sale and the survey of the areas already selected must take precedence of all other work. The office arrears should be worked off, and the long-required standard maps of various classes should be completed. In order to accomplish all this effectually the field and office staff should be increased.

I have once more to place on record my sense of the willing and satisfactory manner in which the staff officers have attended to their duties.

J. W. A. MARCHANT, Chief Surveyor.

MARLBOROUGH.

THE work in the field during the past year has chiefly been in connection with rural and suburban section surveys, and the area returned under that heading considerably exceeds that of last year. I attribute this increased demand for land in a great measure to the favourable provisions by which the settlement of the Crown lands is now being carried out under the various systems of the Land Act of 1885 and the Amendment Acts of 1887 and 1888. With the exception of one mining survey, all the season's work has been executed by Staff Surveyor Goulter, with no cadet assisting; and I think, when we review the different classes of surveys, their dispersive character, the generally rough country dealt with, the traverse closures, and the cost per acre, that the results of the season's work will appear satisfactory.

Rural and Suburban.—Out of the 10,751 acres surveyed, 6,985 acres, in twenty-nine sections, are situated in nine different localities, and are all covered with heavy bush. In determining the boundaries of the sections, natural features have been used as much as possible, 13 miles of beach and 11 miles of spurs and ridges having been traversed. Most of the beach traverses could only be chained at low-water. 2,902 acres, in eleven sections, were surveyed between the Kahautara and Kihikihi Rivers. This block was sold many years ago, but the survey and issue of the Crown grant were held over pending the selection of the Main South Road. The remaining 864 acres include five sections at Kaikoura and two sections in the Wairau Valley, on requisition from the Land Board: open country. There were seventeen closed traverses in connection with the above, which show a mean closing error of 1·3 link per mile.

Revision Surveys.—1,148 acres were surveyed, into five sections, at the mouth of the Kahautara River. A resurvey of these sections was necessary to determine the position of the adjoining block of 2,902 acres before mentioned.

Mining Surveys.—Under this heading 29 acres were surveyed for a licensed holding at Jackson's Head (a remote locality, and very difficult of access), and 5 acres for special claim in the Waikakaho Valley.

Other Work.—The work detailed in the returns under this head comprises the rough traverse and sketching of 136 miles of rabbit-proof fences in the Awatere Rabbit District, in accordance with your instructions, and Mr. Goulter was engaged one month at this work. A survey of the road-line over Torea Neck, Queen Charlotte Sound, was made; and the Tuamarina Land-plan Survey, for the purpose of exchanging old for new road, was commenced.

Office and Land Transfer Work.—The Chief Draughtsman (Mr. G. Robinson) states that during the year seventeen surveyors' plans have been received, checked, and plotted on their respective block-sheets, ten of which were constructed for this purpose, and one new Crown-grant record-map was compiled and brought up to date. In the Land Transfer branch 11 plans have been examined and passed. These represent dealings with 11 original sections, subdivided into 82 allotments, and embracing an area of 539 acres. Twenty certificates in lieu of grants, and 60 ordinary certificates, representing in all 180 marginal plans, were prepared; and 4 leases, 85 transfers, 87 mortgages, and 5 applications were examined.

In consequence of the illness of Mr. White, Receiver of Land Revenue and Clerk to Crown Lands Office, and subsequent pressure of work in that department, a good deal of the attention of the office staff has been devoted to Crown lands duties, in addition to the usual class of work done for that department, such as placing diagrams on the various kinds of leases and licenses, descriptions, tracings, &c. Other routine work, such as correspondence, accounts, tracings, and returns for head office, attendance on surveyors and the general public, and other items which cannot be presented in tabular form, also occupied a considerable amount of the draughtsmen's time.

Proposed Operations.—To begin the season with, we have in hand the following works: 7,970 acres of section surveys in the Pelorus Sound, and one mining survey, Wakamarina Valley; observations for determining the proper variation of the needle at the chief port in the district; survey of bridle-track, 1 mile, through Sections 6, 12, and 130, Waitaria Bay, Kenepuru Sound; land-plan survey of Tuamarina-Kaituna Road, 5 miles, and bridle-track, 2 miles, Watamonga Bay, Queen Charlotte Sound, under Public Works Act, for exchanges of roads; exploring and grading stock-driving track through the forest country between Tennyson Inlet and the main line of road

up the Rai Valley, about 18 miles, and about 6 miles through similar country from Nydia Bay to connect with the above. I was in hopes of completing these tracks during the past year, but owing to the large increase in section surveys, and other pressing demands upon the small staff at my disposal, I have been unable to accomplish it; and I am afraid, unless I get the services of Mr. FitzGerald or some other assistance, it will have to give way to some more pressing work. The above, and requisitions for surveys as they come in from the Land Office, will keep my present staff fully occupied.

HENRY G. CLARK, Chief Surveyor.

NELSON.

Minor Triangulation and Topography.—The total area returned as completed amounts to 552,575 acres, at an average cost of 1.03d. per acre. Of this area 75,000 acres only has been completed during the present year; the rest has been executed in previous seasons, but the plotting had fallen into arrear owing to the pressure of other work required by the Government. Mr. Bullard completed 200,000 acres up to the main range in the Buller district, and Mr. Greenfield 103,790 acres in the Wangapeka district, in order to control mining, mineral, and settlement surveys. This triangulation has a circuit of 82 miles, and embraces forty-four triangles. Mr. Greenfield closed on Mr. Sadd's previous triangulation, side G-F, with a difference of 6" in bearing and 0.14 links per mile in distance, and on Mr. Carkeek's side, J-1, to 7" in bearing and 0.56 links per mile. Mr. Bullard's close on Mr. Sadd's work, side Mt. M-B, was 9" in bearing and 0.78 link per mile in distance, and on Mr. Greenfield's work, side O-C, 17" in bearing and 0.98 links per mile in distance. Mr. Murray completed 75,000 acres from Waitapu to Tonga Island, and inland to the main range. Applications for settlement have been surveyed in the bays, old sections connected with trig., and standard points for future reference provided for on the headlands and in the various bays. Messrs. Smith and Thompson completed plans and calculations of 173,785 acres, the field-work of which was completed the previous season. This work was carried on from the Hanmer Plain base, by a series of triangles, over the main range to the West Coast, connecting with Mr. Bullard's triangulation brought up from the Maruia base. A close was made on the common side, C-M, with a difference in bearing, corrected for convergence, of 15", and on the length of side, 1.5 links per mile. The altitudes brought up from the datum of H. W. springs on the East and West Coasts respectively closed on Station C, Lewis district, 4,506.4ft., with a difference only of 0.5ft., and on Station M, 5,340.1ft., with a difference of 1.7ft. These results may be considered very satisfactory. During the last season, which was a short one, these officers have completed the field-work of 100,000 acres from Lake Sumner to the Hurunui Mount, connecting with the Canterbury triangulation. Advance stations have also been extended over 40,000 acres additional, the observations of which will probably be completed in July.

Rural and Suburban Sections.—78,283 acres, comprising 260 sections, have been surveyed, at an average cost of 1s. 11.6d. per acre—or, deducting the area of a grazing-run of 42,000 acres from the total, the average cost of the remainder is 2s. 4.4d. per acre., principally in bush-country. Up to the 31st March, 46,018 acres of surveyed and 86,118 acres of unsurveyed areas were thrown open for selection as second-class lands; and by the 30th June 990 acres of surveyed and 4,400 acres of unsurveyed land will be ready, making a total of 137,526. An additional 45,000 acres will probably also be available by the 30th September next.

Mineral Leases.—Several surveys of this class have been made, principally in the Buller district, and have been included in the above.

Gold-mining Leases.—Ninety-nine applications for licensed holdings have been surveyed, containing 3,140 acres, all in mountainous bush-country. The number under this class is about the same as last year, with a slight increase in acreage, owing to a few special areas being granted for dredging claims on the sea-beaches and river-beds. The bulk of these surveys are in the Reefton and Buller districts: in the latter it has been necessary to send Mr. Bullard to the assistance of the District Surveyor, and assistance will be required in the former during next year.

Land Transfer.—One hundred and nineteen certificates of title and Crown grants with 358 plans, also 139 certificates under the Land Transfer Act with 278 plans, and 157 plans have been examined, passed, and recorded on the record-maps. Two hundred certificates of title are in arrear, principally for town sections purchased at a recent sale.

Office.—The general work of the office is in charge of Mr. Trent. During the year 284 leases and licenses, with 638 plans, have been prepared; also three Crown-grant record-maps, ten selection, and six block maps. Eight plans for road-exchanges and a large number of plans and tracings have been supplied to the Crown Lands Office, field surveyors' and district offices; 1,482 letters have been received and answered; and 663 vouchers for accounts have been prepared. Two hundred and twenty-five surveyors' field-plots have been checked and recorded on block-sheets, twenty-two new block-sheets and two trig.-sheets have been constructed. This work has been done by Mr. Wright, Computing Draughtsman, who has also been employed on occasional surveys in the Town of Nelson. Last October Messrs. McKay and Thompson, cadets, received appointments as assistant surveyors in the Auckland district.

Other Work.—This heading embraces various surveys and reports, attendance at Wardens' Courts, inspection of road-construction under Road Boards, &c.

Proposed Work during next Year.—The work to be undertaken comprises 101 sections, containing 13,228 acres of settlement surveys, seventeen mining surveys of 446 acres, five mineral leases of 6,725 acres, together with surveys for current applications for each of the above classes during the year. This will be undertaken by the staff, assisted by authorised surveyors. Applications have also been made within areas set apart for selection by the Midland Railway Company on the West

Coast, amounting to 7,000 acres, and for two blocks in the Amuri district containing 27,000 acres. The former of these will be taken in hand by the District Surveyor, at Reefton, who will require some assistance, and the latter by Messrs. Smith and Thompson. Mr. Murray is to complete triangulation of the west side of Blind Bay, &c. JNO. S. BROWNING, Chief Surveyor.

WESTLAND.

Topographical Surveys were executed by Messrs. Murray and Wilson, and comprised odd portions of inland country in the southern part of the district. The total area of these surveys amounted to 59,128 acres, and the average cost was about $\frac{3}{4}$ d. per acre.

Topographical and Trigonometrical Surveys.—62,960 acres were surveyed, at a cost of about $\frac{1}{2}$ d. per acre. Several of the valleys of the southern rivers which lie within the area reserved under the Midland Railway contract, and within which applications for lands have been lodged with the company, required to have the minor triangulation extended to them, so in the case of the purely topographical surveys the work was combined with settlement surveys, which had the effect of reducing its cost very considerably.

Rural and Suburban Section Surveys.—Comprising isolated sections distributed over the whole of the district. The total area amounted to 7,217 acres, and the total number of sections was eighty. In connection with many of these surveys long traverses connecting with trigonometrical stations had to be made, and, taking into consideration that the sections comprised forest lands, and that in most cases the traverse connections referred to had to be taken through dense bush, the comparatively high cost, 2s. 2 $\frac{3}{4}$ d. per acre, is fully explained. Under the authorised scale of survey-fees it will not pay a private surveyor to undertake the surveys of small scattered allotments in a densely-timbered country like the West Coast, and such expensive work will, therefore, of necessity always fall to the lot of the staff surveyors. It was with the view of reducing the cost of these spotting settlement surveys, as well as to facilitate future surveys, that I combined, wherever it could be done, the section survey with extension of minor triangulation and topographical surveys. The total amount of bush-cutting effected during the year in connection with the surveys done by Staff Surveyors Murray and Wilson is 33 $\frac{1}{2}$ miles—namely, Murray, 23; and Wilson, 10 $\frac{1}{2}$ miles.

Town Section Surveys.—Comprising the last few blocks (forty-seven sections) in the Native portion of the Town of Greymouth, which completed the whole of the sectional survey of the Greymouth Native Reserve, at which Messrs. Roberts and Murray were engaged during the previous year. The standard survey of the Town of Greymouth, and the resurvey of the divisions and subdivisions of the Native portion of Greymouth (originally cut up by private surveyors) were carried on together, and hence the comparatively high cost per allotment.

Gold-mining Surveys.—994 acres were surveyed, costing 6s. 1 $\frac{1}{2}$ d. per acre. They consisted principally of quartz-mining leases, and river- and beach-dredging claims. All but one of these surveys were executed by contract surveyors Smythe, Lord, and Wylde: the cost of these surveys is in every case defrayed by the applicants. I regret to say that the quartz-mining industry in this district has not developed as was expected; and likewise that the number of dredgers at work is exceedingly small as compared with the number of dredging claims taken up during the year. In regard to the erection of dredging plants, however, allowance for delay must fairly be made, seeing that this particular and new branch of mining is but passing through its initiatory stages, and the most suitable dredgers for the various descriptions of ground have by no means been determined on yet. There are now eight different kinds of dredgers on trial on the Coast, and not one of them has proved to be altogether suitable. There is every prospect, however, that the difficulties connected with this class of mining will shortly be overcome, and that before long dredgers will be at work on all the auriferous beaches and rivers of the West Coast.

Road Surveys.—Twenty-five miles of this class of survey were done, at a cost of about £18 per mile, covering surveying, levelling, preparation of longitudinal and cross sections, &c., ready for contract. Twenty-two miles of these, comprising the extension of the Main South Road from Cook's River to the Mahitahi, and from Arawata to the head of Jackson River, were done by Staff Surveyor Murray; and 3 miles, comprising two deviations on the Christchurch Road, by contract surveyor Smythe.

In every case these roads traversed forest lands throughout their entire length.

Other Work, amounting to £56 12s. 8d., consists principally of work done in connection with the compensation payments under the Mines Acts to settlers in the Arahura and Teremakau River Valleys, and of sundry surveys for the Native Trust Department; it also includes assistance of one the staff surveyors at pressing office-work.

Office Work.—I am pleased to report that the arrears have been well-nigh overtaken, and that I hope to be able soon to furnish the remainder of the survey district maps for photo-lithographing. These lithos are much wanted, and, in view of the taking of the census returns in the early part of 1891, their preparation should no longer be delayed.

General Remarks.—Work done for other departments amounts again to a considerable sum during the year.

Field Operations, 1890-91.—It is proposed to complete the settlement surveys still on hand, and certain circuit and road traverses, as opportunity offers. Mining surveys and surveys of lands disposed of by the Midland Railway Company will, as heretofore, require first attention. I do not propose to extend our minor triangulation: that which has been completed up to date will probably suffice for many years to come; but I shall embrace any good opportunity to complete the topographical work and fill up the few gaps that still remain on our maps.

GERHARD MUELLER, Chief Surveyor.

CANTERBURY.

Minor Triangulation and Topography.—But one District Surveyor, Mr. T. N. Brodrick, has been employed on this work during the year. Starting from the triangulation of the Pukaki district, completed by Mr. Maitland in 1884, and connecting with the stations near the foot of Lake Ohau, which were erected by Mr. J. A. Connell in 1873, Mr. Brodrick extended the work to the head of the lake, and thence up the valleys of the Dobson and Hopkins Rivers as far as the triangulation could be carried, completing the topography of the sources of both these rivers and their main tributaries by traverse lines run up the river-beds, the intervening country being carefully filled in by cross bearings taken to the principal peaks on the adjoining mountains.

Whilst up the Huxley River Mr. Brodrick found a saddle in the Southern Alps at an elevation of 5,308ft., which he crossed, and thence descended to the Landsborough River. This is marked on Mr. Mueller's topographical survey of this river, but it is now found not to lead over to the head-waters of the Hunter River, which must rise somewhat further south: it is a connecting saddle between the Huxley and Landsborough Rivers. Mr. Brodrick has written a detailed and interesting account of his climb over this and Sealey's Pass at the head of Godley River, which, with sketch-plan illustrating his route, I enclose.* So far as I am aware, he is the only person who has actually crossed the main range between Whitcombe's and Haast's Passes, though Mr. Sealey, from the Canterbury side, ascended to the top of the pass named after him. Mr. Brodrick has completed about 90,000 acres of triangulation at under $\frac{3}{4}$ d. per acre, and 189,000 acres of topography at 0.37d. per acre.

Sectional Surveys.—Mr. Welch has been engaged nearly the whole season in subdividing the various Native reserves on Banks Peninsula, in connection with the divisions made by the Native Land Courts, to enable the Natives to obtain titles to their holdings. Mr. Mathias has been engaged on similar work in the south part of Canterbury. In both cases the work has proved very costly, owing to delays in the survey caused by disagreements amongst the Natives, their nearly interminable meetings anent the position of the land allotted to them by the Courts, and consequent references to the Native Land Court Judge before the rights of the rival claimants could be settled.

Mr. McClure subdivided one reserve of 1,805 acres on the south side of the Rakaia, but, as the subdivisions were considerably larger than in the other reserves, and as he was not delayed in any way by Native disputes—the subdivisions having been previously settled by the Natives at my office—the work was done at a very moderate cost. In all, fifteen reserves, containing 5,258 acres, have been laid off and pegged on the ground into 271 holdings, at a cost of 2s. 9 $\frac{1}{2}$ d. per acre.

Mr. Welch also completed the survey of one of the blocks selected by the Midland Railway Company, containing 7,146 acres.

Messrs. L. O. Mathias and G. H. M. McClure were both engaged in marking the boundaries, laying out roads, and making topographical surveys of blocks of pastoral lands, to be opened under "The Land Act Amendment Act, 1887." 66,567 acres have been so completed, at a cost of under 2d. an acre. Mr. Mathias also made a complete survey of the Station Peak Block, containing nearly 14,000 acres, at an average of 4.37d. per acre, which includes the cost of the topographical survey, which he had first to make in order to open the land under the Amendment Act of 1887.

Mr. Hay was occupied the whole season in laying out various blocks of the Lake Ellesmere Trust land into suitable-sized sections for sale. In all, he has divided 9,250 acres into seventy-two sections, at a cost of 1s. 0 $\frac{1}{2}$ d. per acre.

Mr. Hay was, at his own request, transferred to Hawke's Bay in May, after a service of twelve years and a half on the Canterbury staff, during which time he has executed a large area of trigonometrical and sectional surveys of various kinds, including some intricate and troublesome revision surveys on Banks Peninsula. His surveys have always been systematically and accurately done, and his plans clear and exceedingly well drawn.

General Surveys.—Owing to the demand for pastoral lands to be opened for settlement, very little general survey has been completed this season, and consequently a great deal of work has accumulated, which must be overtaken during the ensuing summer.

Land Transfer Surveys.—Mr. Monro, the officer in charge of this work, reports as follows: "The amount of work which has been passed through this office during the year ended the 30th June, 1890, has been approximately the same as that during each of three previous years, there being an increase in the number of plans deposited, and a further decrease in the number of certificates in lieu of Crown grants issuing. The amount of work passing through this office is perhaps best indicated by stating the proportion which the total amount of work passing through the Christchurch office of the Land Transfer Department bears to the total amount of work passing through that department in the whole of the colony. From a tabulated statement extending over several years compiled by the District Land Registrar from gazetted monthly returns, the amount of work performed by the Christchurch office of the Land Transfer Department is about two-fifths of that passing through the whole of the Land Transfer Department of the colony, both as to value and as to number of documents. During the year three new subdivision plans have been compiled—viz., Town District of Geraldine and adjacent rural sections, and Town Districts of Temuka and Aro-whenua and adjacent rural sections, by Mr. Cane; and subdivision of rural sections at New Brighton by Mr. W. C. Leversedge.

Forty-six plans have been deposited and checked, containing 534 allotments, being the largest number of plans received since the year 1883. Eight hundred and ninety-eight ordinary certificates of title and 277 certificates in lieu of Crown grants have been issued, the former requiring one and the latter two copies before they could issue. Out of 1,689 transfers received by the Land Transfer Department, 337 had to be checked as to area, &c.; and out of 129 leases received thirty-five required checking. Two hundred and ten applications to bring land under the Land Transfer Act have also

* See Appendix No. 4, page 53.

been passed. Eighteen road-diversion plans have been verified and returned to the Road Boards concerned.

Office-work.—The following are some of the principal items of work done during the year, viz.: Twelve tracings for lithography of Crown lands to be opened for sale; four new districts traced for the public map-room; thirty-nine large and thirty-two small plans received from the surveyors have been checked or are in course of check; 277 certificates of title covering 446 sections, and eight Crown grants, were prepared and handed over to the Land Transfer Department; and fifty-five perpetual leases in triplicate were prepared (this class of work, owing to press of other work put upon the officers lately, is somewhat in arrear, but I expect to have most of the leases issued during the present year).

During the current year I also hope to get a larger number of the survey districts forwarded for photo-lithography, as this part of our work is also very much in arrear, about one-half only of the Canterbury District having yet been done.

I must not forget to mention that, in addition to the year's work above outlined, two large plans, one of the Mueller, Hooker, and Tasman Glaciers, near Mount Cook, and the other of the Godley Glacier country, were prepared by Messrs. Haylock and Styche respectively, each plan in different style, the former obtaining a certificate of the first-class order of merit at the New Zealand and South Seas Exhibition held recently at Dunedin. These are excellent specimens of draughtsmanship, and, as they were both done by gentlemen trained entirely in this office, reflect credit not only upon them but upon the department itself.

Proposed Operations, 1890-91.—A considerable area of land has been purchased for cash during the early part of the present year, which, with land taken up on perpetual-lease conditions under the Amendment Act of 1887, has largely augmented the acreage remaining on hand for survey, which now amounts to 262 sections, containing 85,935 acres.

About 3,700 acres of the Lake Ellesmere lands will require to be laid off into sections in the early spring, and I may anticipate that the Midland Railway Company will apply for title for several large blocks during this year, which, with the blocks already applied for, will give more work than I can reasonably expect to get through in the current year.

Early in the season I purpose to send Mr. Brodrick to complete the survey of the Murchison and Tasman Glaciers, in connection with his previous surveys, so that an absolutely correct map of this most interesting district can be issued for the use of tourists and others visiting the locality. He will afterwards finish the topographical survey of the Ahuriri and Hunter Rivers, which will complete the topography of the country actually occupied.

JOHN H. BAKER, Chief Surveyor.

OTAGO.

THE permanent field staff remains the same as last season—namely, six surveyors, and there is only one cadet in the field. In January last two surveyors were engaged temporarily to assist in completing the settlement surveys in Glenomaru district, and they are still at work in that locality. The office staff is the same as last year—namely, eight draughtsmen and the accountant; but one cadet entered the office in October last. In order to keep the settlement surveys in advance of the demand, two or three survey parties in addition to those already engaged, and two or three survey cadets in the office, will be required.

Topographical Survey.—Only 287 acres are returned under this head, at a cost of 2d. per acre.

Rural and Suburban Surveys.—Over 32,000 acres have been surveyed during the past year, as against 20,000 acres for the previous one. The cost per acre is a little under 1s. 9d., as against 1s. 7½d. for the previous year. It must be remembered that in the Otago Survey District the greater part of the land for settlement is in dense bush. The bush has to be explored for every road, and this often necessitates going over the ground several times before the road is finally graded and pegged. Some excellent roads have been found in what at first appeared to be almost inaccessible country.

Town Section Surveys.—One hundred and nine quarter-acre sections were laid off at Nenthorn Township, at a cost of 10s. per section.

Native Land Court Surveys.—Two Native reserves—at Waitaki and Moeraki—comprising 1,147 acres, were subdivided into fifty-eight allotments, at a cost of 2s. 11½d. per acre. The work of allotting the ground between the various applicants, especially at Moeraki, was very difficult and tedious, and required great tact and patience on the part of the surveyor. A large part of the Moeraki Block was bush-land.

Gold-mining Surveys.—There has been a greatly-increased demand for mining areas this season as compared with the last, nearly three times the area having been taken up this year. The figures are 307 sections, comprising 10,424 acres, as against 109 sections, comprising 3,667 acres, last year. The cost per acre is less this year, being 4s. 7¾d. Of the above total, 6,300 acres was surveyed by the staff surveyors, and 4,100 by authorised surveyors on the fee system.

Roads, Railways, and Water-races.—Under this head the totals are 14.4 miles, costing £96 19s. 6d., or £6 14s. 8½d. per mile.

Other Work.—The chief item under this is the contract survey and land-plans made by Mr. George Mackenzie of 6¼ miles of railway reserves, comprising 414 acres, at a cost of £130.

Survey Inspections.—Of sixteen field inspections made during the year, four were road-inspections and two of land before survey. As there were four surveyors at work during the greater part of last season in the neighbourhood of Catlin's River, most of my inspections were in that locality. I visited the surveyors in their camps on seven different occasions, and inspected their work, besides

three visits to the "unemployed" at the road-works, Catlin's River. I also made both field and office inspections in the Lawrence and Queenstown Districts. Besides the above, I was for fourteen days in December inspecting and classifying runs with Messrs. Maitland and Clark, and I also visited the road-parties at work in the Arthur River and Clinton Valleys, and traversed the whole of the track from the head of Milford Sound to Te Anau Lake.

District Offices.—Lawrence office is still in charge of Mr. M. McLean; Queenstown office is now in charge of Mr. G. Mackenzie as Crown Lands Ranger and Assistant Draughtsman, the late Ranger, Mr. H. M. Adair, having been found drowned in Lake Wakatipu on the 9th December, 1889. The Naseby office is in charge of Mr. David Barron, District Surveyor, as there is no resident draughtsman.

Dunedin Office.—Mr. George Edward Darton joined on the 21st October, 1889, as a cadet. During the year Mr. Skey—who had six months' leave of absence on account of ill-health—prepared and recorded, with the assistance of Messrs. Wadie, Marsh, and Morrison, 252 Crown grants and certificates of title, 80 run and small grazing-runs licenses in duplicate, 117 perpetual leases in triplicate, 33 deferred-payment licenses in duplicate, 32 occupation licenses in duplicate, 3 coal leases and 2 agricultural leases, both in duplicate; and examined and recorded 286 special-claim grants and licensed-holding certificates, besides other incidental work. Mr. Nicolson, who has charge of all the records and lithographs, furnishes field surveyors with tracings and data for new surveys, makes copies of all new surveys for the Land Office, and attends to the public that come to the office for information. Mr. Wadie keeps the records of railway land-plans, records road-improvements to open up Crown lands before sale; collected information and prepared plan for New Zealand and South Seas Exhibition, showing factories and industries generally in Otago; records Land Transfer surveys on county maps, and constructed topographical map of coast and country around Dunedin, besides doing various other duties. Mr. Fynmore records all surveys of new and closed roads on working plans, and road district and county maps, reports on road matters, supplies descriptions of school districts for the Education Department, compiles returns of sold lands monthly, and attends to the public in connection with road matters: has made and compiled a new map of Clutha County and Glenomaru district. Mr. Thompson checked the following plans: From staff, 179; Land Transfer, 67; road and railway in duplicate, 19; mining leases, 256; and surveyed and fixed disputed boundary-line between the properties of Mr. John McCartney and Mr. John Kerr in Block IV., Portobello Bay district. Mr. Marsh, besides the work done on Mr. Skey's list, examined and recorded all gold-mining surveys on compiled and record maps, compiled information for eighty-chain maps, and plotted all work in connection with the West Coast explorations. Mr. Morrison, when not engaged on lithographic work, assisted Mr. Skey in the preparation of grant leases, &c. Mr. Runcie, besides assisting with the correspondence, recorded a *précis* of and indexed 3,612 letters received and sent out, receives and numbers all plans, compiles the monthly survey and road report, keeps the departmental accounts and stores, pays all salaries and wages, despatches all correspondence, plans, and parcels, and attends to affairs in connection with the clerical work of the office.

Land Transfer Work.—Mr. Thompson's work under this heading has been already detailed under the Dunedin office-work. Mr. Treseder, whose time is wholly taken up with this kind of work, examined and checked 39 applications, 946 transfers, 583 mortgages, 279 leases, 170 transmissions, 305 draft certificates, and put plans (in duplicate) on 615 certificates.

Lithographic.—Mr. Morrison reduced and drew two plans for photo-lithography, and eighteen plans on transfer paper. Mr. Bain put down eighteen lithographs, from which he pulled 5,050 copies, and also printed 200 circulars and mounted 267 maps.

The "Unemployed."—I had about forty of these men under my charge till near the end of January in this year, during which time they were employed in clearing and forming the road at Catlin's River. By your instructions they were paid off in January, and I handed over the road they had been engaged on to Mr. F. Wither, Assistant Engineer, who has had charge of the road since.

Proposed Operations for 1890-91.—As the demand for land in the Catlin's and Woodland districts still continues, I propose that Mr. Strauchon, as soon as he has finished subdividing part of Run 177A for the Southland Survey Office, shall triangulate Woodland district, and carry standard bearing into Tautuku and Rimu districts. I think four surveyors should be kept steadily at work on the settlement surveys in Glenomaru, Catlin's, and Woodland districts.

Messrs. Barron and Wilmott will probably be kept fully employed in their own districts. A standard survey of Dunedin city is urgently required, and the want of it is keenly felt in regard to Land Transfer surveys.

There are some bush reserves in Warepa and Clarendon districts to be subdivided, also several Native reserves along the coast; and, as the present staff cannot undertake these, it will be necessary to engage two extra surveyors if the work is to be done during the coming season. There are also applications awaiting survey in the Taukupu Valley, amounting to 1,550 acres, and a third surveyor could be fully employed in cutting up this and the adjacent land during the next twelve months.

C. W. ADAMS, Chief Surveyor.

SOUTHLAND.

Field Work.—During the year there were fifty-three sections, comprising 7,920 acres, surveyed under the head of "Rural and Suburban Surveys." Under the head of "Native Land Court Surveys" there were four sections, comprising 255 acres, executed; whilst under the head of "Goldmining, &c., Surveys," there were executed 102 sections, embracing 4,563 acres.

In addition to these, we had a trigonometrical and topographical survey made of some 55,000 acres in Stewart Island. This latter survey comprises a network of triangulation extending from Port Pegasus to near Port Adventure, one of the chief objects of the triangulation being, in addition to procuring a more accurate and complete map of the country, to connect the tin-mining areas applied-for at Port Pegasus and at Kopaka with the geodesical trig. at Breaksea Island, and, again, to connect the areas at Pegasus and Kopaka with each other. It will be remembered that the tin-mining "fever" at Pegasus broke out somewhat suddenly, and at a time when the nearest trig. station was at Breaksea, some twenty-three miles distant. To delay the surveys of the mining areas until the triangulation was extended would, I think, have been a most unwise course, and would have led to endless complications in respect of boundaries, and to endless disputes on the part of applicants. The dense bush and scrub-clad nature of the country around Pegasus made the process of "pegging" claims and of following up the pegs by survey no easy matter, and that we were able to push the surveys through, practically without dispute, reflects credit on the care and skill of the surveyors engaged—namely, Messrs. John Hay (staff), and T. S. Miller and H. R. Dundas, authorised surveyors. Owing to the absence of connection, the surveys were started and carried on on an assumed bearing, a uniform correction being applied to the bearings when the true bearing had been carried down from Breaksea by the triangulation. The triangulation includes the paring and measurement of a base-line, and, having been conducted over country most of which is covered with dense scrub, it has been a work of considerable labour. The work is now finished on the ground, but, owing to the inaccessibility of the Lord's River locality, and the want of regular communication, the plans have not yet come to hand. The tin-mining areas at Kopaka, some seven in all, were surveyed by Mr. James Blaikie. Having also been started on an assumed bearing, a correction will have to be applied to the bearings when the triangulation is complete.

The work under the head of "Rural and Suburban" comprises a considerable number of sawmill-areas and several isolated purchases, many of which were in bush. An unusually large number of sawmill-areas were surveyed during the year. Some of these were applied for during the previous year, but, owing to the demands made upon the department in respect of the survey of the tin-mining areas at Pegasus, the surveys had to be delayed until the bulk of the mineral areas had been overtaken. The surveys of these sawmill-areas are now well up to date. The demand for fresh areas has slackened very much of late, and this is readily to be accounted for by the fact that, in the form either of sawmill-areas or of reserves thereto attached, the most of the forest-land that is at present readily accessible has been taken up. There can only be a temporary lull, however, because the great forests of Longwood and Tautuku still remain nearly intact in the hands of the Crown, and will afford scope for the sawmilling industry for a long time to come.

In regard to the tin-mining industry, there can be no doubt that the excitement in connection with the field reached high-water mark a considerable time ago, the demand for mineral areas having suddenly dropped down to nothing. It is clear that the areas will not be worked in the individual forms applied for, and many of them, in fact, have already been abandoned. There can be little doubt, however, of the presence of tin in considerable quantities over the field, and if a large company possessing experience and capital could be induced to "set in," the mineral wealth of the place might soon be turned to profitable account. I do not think that fortunes will be made, but the chance of a fair return for steady industry seems very good. The industry (tin-mining) is new in the colony, and its profitable prosecution will involve considerable preliminary expense. Apart from the necessity of capital, a practical experience of the tin deposits occurring, and the modes of working pursued in other countries or colonies, would be an indispensable factor towards success. The presence of some old tin-workers on the ground with capital to invest in smelting, machinery, &c., might change the whole character of the place and be the means of establishing a hive of successful industry in a locality which is now occupied by a few prospectors. The newness of the industry, the necessity of securing both experience and capital, and the money that has already been spent on the field are strong arguments for a lenient administration, meanwhile, of the regulations in respect of compulsory acreage labour. I do not think that further areas are likely to be applied for for some time.

In regard to gold-mining, there has been considerable demand during the past year for special claims, &c., situated on creeks, rivers, and ocean-beaches. The Welman dredge on Waipapa Beach and its success to date have pioneered the way for dredging and dredging claims throughout the district. Matters have now come to a lull, a good many areas having been applied for; but the success of the subsequent dredges ordered might at any time revive the dredging excitement and cause still further areas to be taken up. We have numerous auriferous beaches and rivers where dredging, if proved payable, would find abundant scope.

The surveys of land applications throughout the year have not been very numerous, though, perhaps, more so than usual, owing to some unsurveyed land being gazetted under "The Land Act Amendment Act, 1887." The perpetual-lease system, owing to the small payments required, is the favourite tenure applied for; but in bush-clad country, &c., care requires to be exercised in parting with land on this principle, the payments being trifling, and the desire to secure, cheaply, bush suitable for milling and fencing, &c., being considerable.

In regard to the work of the staff surveyors, it will be seen that Mr. John Hay has been engaged during the year partly with the survey of tin-mining areas and partly with the minor triangulation (and topography) above referred to in Stewart Island. The work in both cases has been extremely rough and trying. Mr. Strauchon has during the year been chiefly surveying in the Otago District, but has now entered upon the subdivisional survey of a block of land in Waikawa District. As the block is partially scrub- and bush-clad, the survey will necessarily occupy more time than would otherwise be the case.

Office-work.—During the year, in addition to the usual routine duties of the office which are incapable of being tabulated, 105 certificates of title in lieu of grants, involving the preparation of

315 plans, were prepared. In connection with the Land Transfer work, 257 certificates of title, involving the preparation of 514 plans, were issued during the year. One hundred and eighteen leases and thirty-seven applications to deal with land under the Land Transfer Act were also examined. In addition to these, thirty-seven plans were examined and passed. These plans embraced thirty-eight original sections, subdivided into 275 allotments, containing 4,617 acres. A number of Land Transfer record-maps were also prepared. We have done very little in the way of preparing maps for lithographing during the year, but have been busy in other directions. The only lithos prepared in this office during the year were those of Pegasus mineral areas, and of Wrey's Bush Township. As you are aware, a large number of district lithos were prepared by Mr. Deverell some years ago, and, as the most of the survey districts were included, the necessity of preparing others was not very urgent. The extension of the land district, however, and perhaps the growing scarcity of the issues already sent out, may necessitate during the coming year the preparation of several fresh district lithos. In carrying on the work of both field and office I have been very ably and faithfully assisted by the officers under me, and it gives me pleasure to bear testimony to their merits. The Departments of Lands and Survey require occasionally to assist each other, and this mutual assistance is rendered in the heartiest way, thus expediting the work of both branches of the department.

JOHN SPENCE, Chief Surveyor.

APPENDIX No. 2.

DETAILED REPORTS ON THE ROAD-WORKS UNDERTAKEN BY THE SURVEY DEPARTMENT.

AUCKLAND.

ROADS TO OPEN UP CROWN LANDS.

Okaihau to Victoria Valley.—Opens up about 7,000 acres. Works done on this road during the season are: 14 chains of formation 6ft. wide, 20ft. of bridging, and some general repairs on already-formed portion of road (chiefly of damages caused by fire); and, in addition, about 4 miles of grading and pegging has been executed by Mr. Grut at the northern end of the road, from which end it has been decided to begin opening the road, as being a work more immediately useful to settlers than that of continuing northwards from where it at present ends at the Native settlement of Mangamuka. Mr. Menzies has charge of the southern end, and Mr. Grut of the northern portion.

Ahipara to Herekino.—Opens up about 6,000 acres of Crown land. The work done consists of 22½ chains reformed and metalled, 14ft. of bridging, and about 160 cubic yards of slips removed. Mr. Grut has charge.

Herekino to Whangape.—Opens up about 7,000 acres of Crown land. A distance of 4½ miles of road has been graded, commencing at the Puhata Bridge and ending at the mouth of a creek known as Murray's, on the Awaroa. In the channel opposite to the end of the road there is about 10ft. depth of water at low tide. The formation done consists of 145 chains formation, averaging 8ft. wide. Mr. Grut, who also graded the road, has charge.

Herd's Point to Takahue and Kaitaia.—Opens up about 20,000 acres of Crown land. At the southern end the following works have been executed: 25¼ miles of overgrowth cleared half a chain wide, 40 chains widened and repaired, 296½ chains widened from 6ft. to 14ft., 12ft. of bridging, and 73 chains of water-tabling. At the northern end the following works have been carried out: 86 chains formed 28ft. wide between ditches (of which 57½ chains have been metalled 10ft. wide), 8ft. of bridging and one 20ft. bridge redecked, together with 4 miles of overgrowth cleared half a chain wide. Mr. Menzies has charge of the southern end, and Mr. Grut of the northern.

Waimamaku to Pakanae.—Opens up about 5,000 acres of Crown land. Works completed during the season are: 3½ miles graded and pegged, 269½ chains formation 6ft. to 9ft. wide, 63ft. of bridging, 9 chains of embankments, and 1½ chains corduroy. Mr. Menzies, who also graded the road, is in charge.

Kaihu to Punakitere.—Opens up about 100,000 acres of Crown land. At the northern end the following works have been completed: 275 chains formation 14ft. wide (in forest), 100ft. of bridging, 12 chains of embankments, and about 8 miles of grading. At the southern end one contract about 2 miles long (formation) has been let, of which 40 chains 7ft. wide have been completed, and about 11 miles have been graded. Mr. Menzies is in charge of the northern end, and Mr. A. B. Wright of the southern end.

Wairua to Helena Bay.—Opens up about 2,000 acres of Crown land. The works completed during the season are: 4 miles widened from 6ft. to 9ft., and 54ft. of bridging. Mr. A. M. Sheppard is in charge.

Opuawhanga to Whananaki.—Opens up about 2,000 acres of Crown land. Nothing has been done to this road during the season, owing to the difficulty of getting the title therefor arranged with the Native owners of the land through which a great portion of it passes, and the principal one of whom lives at the Great Barrier. This man lately, when finally interviewed, demanded such exorbitant compensation that matters with respect to the road are at present in a state of deadlock.

Whangarei to Kawakawa (main road).—During the season 37½ chains of deviation 12ft. wide (to avoid a dangerous hollow scoured out by the floods near the Waiotu Bridge) have been formed, and about 7 chains have been metalled 11ft. wide between Whakapara and Waiotu Bridges. Mr. Sheppard is in charge.

Wairua Bridge and Road.—Opens up about 10,000 acres of Crown land. During the season a bridge of 127ft. span has been constructed over the Wairua River, together with about 2 chains of embankments; also, about 2 miles of levelling and pegging-off for road-works has been done by Mr. A. M. Sheppard, who is in charge.

Whangarei through Taheke.—Opens up about 1,500 acres of Crown land. Works completed are: 49½ chains formation 6ft. to 9ft. wide, 18ft. of bridging, and 2 miles of forest cleared 1 chain wide. Mr. A. M. Sheppard is in charge.

Paparoa to Waikiekie.—Opens up about 1,200 acres of Crown land. The works done are: 103 chains formation 6ft. to 9ft. wide, 30ft. of bridging, and about 70 chains of remainder of road benched continuously ready for letting by contract. Difficulties with respect to obtaining a title for part of it prevented this road from being completed this season as far as surveyed. Mr. P. Russell, under Mr. E. Fairburn's supervision, was in charge.

Matakana to Te Arai.—Opens up about 5,000 acres of Crown land. Works completed this season are: 255 chains formation 6ft. to 12ft. wide, 93ft. of bridging, 33 chains of embankments with ditching, and 120 chains of forest cleared one chain wide. Mr. A. V. Harington has been in charge, and the whole of the deviation surveyed is completed.

Avondale South.—Opens up part of the suburban Crown lots in the neighbourhood. The works constructed have been: Nine stone pipe-culverts, and 16 chains formation 18ft. wide. In addition to and in connection with this work, about three-quarters of a mile of road has been constructed by the Avondale Road Board. Mr. T. Grange, together with Mr. E. Fairburn, has had charge.

Awaroa Swamp Drains.—Open up about 3,000 acres. The works carried out during the season consist of 45 chains widening drains, 125 chains cleaning out drains, and 25 chains clearing channel of Otatau Creek. The Waipipi Road Board, through their Inspector, Mr. J. T. Mellsop, has charge.

Akaaka Swamp Drains.—Opens up about 3,000 acres. During the season Mr. A. B. Wright has had about $9\frac{1}{2}$ miles of lines cleared in swamp, and soundings taken, besides $5\frac{1}{2}$ miles levelled and pegged. Two contracts (one let by this department and one let by the Waiuku Road Board) are in operation in the Akaaka Swamp, in which during the season the following works have been completed: For that let by this department, 92 chains of clearing out and straightening bed of Akaaka Stream 10ft. wide at bottom, and 63 chains of old ditching widened to 4ft. extra width by 7ft. in depth; for that let by the Waiuku Road Board, 80 chains of ditch 5ft. to 6ft. wide and 4ft. deep, and 29 chains of similar ditching partly done. Mr. J. T. Mellsop, under supervision of this department and Waiuku Road Board, has charge.

Waerenga to Whangamarino.—Opens up about 3,000 acres. Works completed during the season are: 128 $\frac{1}{2}$ chains formation 8ft. wide, 52 chains 15ft. wide, 186 chains of track cleared 20ft. wide, and 71ft. of bridging. Mr. T. Grange was in charge.

Te Aroha Drains.—Open up 600 acres. Works done during the season are: 94 chains of drains made 4ft. in depth, 126 chains deepened from 3ft. to $5\frac{1}{2}$ ft. Mr. T. Grange, under Mr. A. B. Wright's occasional supervision, was in charge.

Waingaro to Akatea, or Firewood Creek Road.—Opens up 6,000 acres. Works done during the season have consisted in improving the present bridle-track by widening, ditching, and forming flat portions which were only cleared and stumped previously, and substituting permanent bridges and culverts for original temporary ones. This road is likely to be an important one in the near future, and has excellent gradients, but will require a good deal more expenditure on it before it will be available as a cart-track. The works completed during the season are: The construction of 148 $\frac{1}{2}$ chains formation 9ft. to 12ft. wide, 20 chains of ditching, 25ft. of bridging, and 16 glazed-stone pipe-culverts (12in. to 24in. diameter). Mr. T. Grange was in charge to about middle of April, and at present Mr. W. P. Cogswell is in charge; both under Mr. E. Fairburn's occasional supervision.

Akatea to Papakauri.—Opens up 5,000 acres. The works carried out were: 56ft. of bridging, and about 755 cubic yards of embankments. This work was finished early in the season, under the superintendence of Mr. F. H. Edgecumbe.

Whaingaroa to Mangapiko.—Opens out 10,000 acres, and has good gradients. The works completed during the season are: 120 chains formation 6ft. to 12ft. wide, and 20ft. of bridging. Mr. W. P. Cogswell is in charge, under Mr. E. Fairburn's occasional supervision.

Whaingaroa to Waitetuna.—This is a continuation of the Waingaro-Akatea Road, and, like it, has excellent gradients throughout. Opens out 3,000 acres. The work done during the season, consisting of a few improvements and repairs, are: 15ft. of bridging and 400 cubic yards of widening and removing slips. It is a pity that this road, together with that of the Waingaro-Akatea, could not be widened into a narrow cart-road, as it is worth such improvement. Mr. W. P. Cogswell was in charge.

Kawhia to Waipa and to Raglan.—The work on these two roads has consisted of improvements and repairs. Works done during season are: The removal of 300 cubic yards of landslips and fallen trees; 29 $\frac{1}{2}$ miles of road repaired, with parts widened and sharp points rounded off. Mr. J. Cowell, under Mr. E. Fairburn's occasional supervision, has been in charge.

Waitomo Caves Road.—The survey of this road was made in October last, and the tender of John Mercer, of Auckland, for £577 10s. 4d., for the construction of three bridges was accepted on 3rd January. The formation of the rest of the road (5 miles 36 chains) was let in small contracts to the Natives resident in the neighbourhood. Good progress has been made, and the works are almost completed. This road has been constructed under the supervision of Mr. Hursthouse, of the Public Works Department.

Roads in Bay of Plenty District.—These roads were formerly under the charge of Mr. S. Crapp, but as his services were dispensed with on compensation in November last fresh arrangements had to be made, and the following roads are now maintained at a slight cost to the Government by the Whakatane County Council, viz.: Road, Matata to Te Puke, Whakatane to Opotiki, Whakatane to Ohope, Opape to Torere, road at Hawaikinarae-nui.

VILLAGE-SETTLEMENT ROADS.

Herekino.—Open out 10,000 acres. Work done during the season consists of 90 chains of formation widened from 6ft. to 16ft., and 28ft. of bridging.

Takahue.—There has been no work on the branch-roads in this settlement during the season. That on the main road passing through it is included in the return given for the Herd's Point-Takahue-Kaitaia Road.

Fern Flat.—Open out 3,000 acres. Not much has been done on these roads this season. The works completed are: 51 chains of 6ft.-wide road widened to 10ft., 4ft. of culverting, and 2,200 cubic yards of landslips removed. Mr. D. A. Grut, under Mr. E. Fairburn's occasional supervision, has had charge of this and the two next-preceding mentioned roads.

Motukaraka.—Open out 3,000 acres. Works completed during the season consist of the construction of a horse-and-footbridge 6ft. wide and 240ft. span, together with 9 chains of embankments with double ditches. This bridge is a most useful work, as, besides being of substantial

build and forming a connection between the two halves of the settlement, it also serves as a pier from which boats can leave at any time of tide. The nature of its design also admits of its being easily widened into a cart-bridge. Settlers have had work on the Herd's Point-Takahue Road.

Punakitere.—Nothing except repairs to two culverts, a few other small repairs, and construction of a chain of fascining has been done on this road during the season. The village-settlers have been provided with work on the Kaihu-Punakitere Road, so that their necessities, in one way, have been provided for; but Mr. Menzies, the local Inspector, reports that some of the branch roads in this settlement badly need repairs, some of the homesteads not being accessible without danger since wet weather has come on.

Waimamaku.—Open up 4,000 acres. Works constructed during the season are: 6½ chains widened from 6ft. to 10ft., 1½ chains of road corduroyed, and one wire foot-bridge converted into a horse-bridge. Mr. G. G. Menzies, under Mr. E. Fairburn's occasional supervision, is in charge of this and the two next-preceding mentioned roads.

Hukerenui.—Open up 3,000 acres. Work done during the season consists of 48ft. of bridging.

Whananaki.—The work done since last season has been 10 chains of 4ft.-wide road widened to 10ft., and about 500 cubic yards of landslips cleared away.

Parua.—Open up 1,500 acres. Work done consists of 3 chains of breast-cutting 12ft. wide by 3ft. deep, and 3 chains of metalling 12ft. wide. The village-settlers, as to road work, have been chiefly employed on the Whangarei through Taheke Road, which is a continuation northerly and westerly of Parua Main Road. Mr. A. M. Sheppard, under Mr. E. Fairburn's occasional supervision, is in charge of this and the two next-preceding-mentioned roads.

Omaha.—During the season the work done has been 18 chains of 8ft.-wide road widened to 14ft., 15 chains 5ft. wide widened to 7ft., 38ft. of bridging, and construction of one 50ft.-span foot-bridge. Mr. A. H. Vickerman has had charge.

Swanson.—Work done during the season consists of 3 chains formation 16ft. wide, 18 chains 8ft. wide, and 8ft. of bridging. Mr. E. Fairburn has charge.

Firewood Creek.—The works on these roads have been confined to the main one, and have already been given under the head of Waingaro-Akatea.

Oropi Special Settlement.—The landslips have been removed on that portion which passes across the deep gully, and also a distance of 1,056 links of new road has been made.

ROADS MAINTAINED BY GOVERNMENT in the Counties of PIAKO, TAURANGA, ROTORUA, EAST TAUPO, WEST TAUPO, and HAWKE'S BAY.

Oxford to Rotorua (30 miles).—This is the most important road in the district, as so many tourists travel on it, and nearly all the goods used in Rotorua are brought over it, thereby making the road a feeder to the railway. No new works have been done during the season. Five surface-men have been employed, and all their time has been taken up in keeping the roadway in good order, last year being the first of the heavy traffic. It is very much cut up now, as the greater part of the Sanatorium contract materials are being brought over it; consequently it has been found necessary to put all hands into the bush to fascine the worst places. Notice also has been given to the carters using the road, warning them not to overload their wagons when furnished with narrow tires, &c.

Kaiwaka via Taupo to Maungaiti.—During the season this road, comprising a distance of 128 miles, has been maintained, eleven surface-men and three horses having been employed on the work, which also includes repairs to Mohaka fencing, twelve culverts at Pohui, and reshingling overseer's house at Taupo, besides repairing and painting Taupo Bridge. The road at Turangakuma Hill has also been widened in the most dangerous places.

Tauranga, Rotorua, Atiamuri (56 miles).—During the season the works done have consisted in maintenance, on which four surface-men have been employed two-thirds of the time. The roadway has been kept in fair order, although for four months only one man could be kept on owing to funds running low. Also, two bridges with stone abutments, of 37ft. and 42ft. spans, have been constructed, and 20 chains of road metalled. One 20ft. defective bridge has been removed, and replaced by two sets of 24in. pipes and 300 cubic yards of embankment. Also, two others bridges have had defective sleepers removed, and have received new decking.

Maketu and Te Puke to Rotorua (38 miles).—Instructions were given last spring to have this road repaired, as nothing had been done upon it since the eruption. The £260 allowed has opened the road fairly well, and it is now in good order, requiring only occasional maintenance.

Tikitere Road (2½ miles).—This is a new road formed for tourist-traffic. The work has been done by contract, Native labour being employed.

Rotorua to Waiotapu (22 miles).—Only a short distance—about 2 miles—has been formed to continue the road towards Taupo; but the road has been properly maintained, and tracks cut through the valley between different points of view, and the whole has been well patronised by tourists. Some 2,200ft. of totara is ready to build into culverts. Two surface-men have been employed at times.

Rotomahana (7 miles).—This is a road designed to enable tourists who cannot endure the fatigue of a journey *via* Te Wairoa to drive out to the "ashfield" and see the Rotomahana country; but, it having been found impracticable to maintain the portion thereof passing through the volcanic mud, except at considerable expense, it has therefore only been made passable for buggies to within 5 miles of Rotomahana.

Taupo to Wairakei (5½ miles).—The work done during the season has been general maintenance and the following works: One 48ft.-long 36in. by 30in. culvert renewed; and replacing two stringers in Waipuwera bridge, of 27ft. span, with new ones; also redecking that bridge. Also, a survey of a short deviation to miss the Geyser Valley. Four surface-men have been employed during three-fourths and one man during one-fourth of the time.

Taupo via Tokaanu to Waimarino.—During the winter of 1889 the road around the cliffs on the shore of Lake Taupo was blocked for wheeled and dangerous for horse traffic. During the season

a sum of £27 has been expended in removing slips and clearing out water-tables, and now the road from Taupo to Tokaanu (35½ miles) is in fair order for light wheeled traffic.

Water-supply, Whakarewarewa Village.—A length of 2,125ft. of piping has been put down, with proper connections, to allow the Natives the use of the water-supply, and two horse-troughs have been erected in Ohinemutu, which have proved of great benefit. Signposts during the season have been put up at the junctions of all roads in Mr. J. C. Blythe's charge, as far as Tokaanu.

Ross's Road, Taupo.—This road, 2¾ miles long, has been graded, and a contract let for 2 miles of it. Native obstruction has prevented the remainder of the road being gone on with up to the present, but it is anticipated that before the winter is over this difficulty will have been got over.

Galatea to Te Kapu.—The landslips in the valley of the Kopikopiko Stream have been cleared away at a cost of £4 16s. This amount is all that has been spent on this bridle-track since it was completed in July, 1886.

Outlets from Rotorua Lake (Closing new and reopening old one).—A contract was let to E. Ainsley, for £56, to close the new channel and reopen old one, and the work is nearly completed. The Natives made a little trouble, but that has been got over by agreeing to plant willows along the bank of old channel to prevent their land being washed away. The whole of the above works have been under Mr. J. C. Blythe's charge.

10th July, 1890.

THOS. HUMPHRIES, Chief Surveyor.

SUMMARY of ROADS and BRIDGES constructed or maintained in AUCKLAND DISTRICT for the Year ending the 30th June, 1890.

Vote.	Item.	Name of Road or Work.	Roads constructed, main- tained, or improved.		Graded in Addition.	Drains.	Bridges not included in Roads.	No. of Contracts in Force.	Area opened.
			Bridle- road.	Cart- road.					
<i>Miscellaneous Roads and Bridges.</i>									
78	1	Roads and Bridges North of Auckland (repairing flood-damages)
79	1	Oxford to Rotorua (maintenance)	33·0
	2	Tauranga to Napier <i>via</i> Taupo (maintenance)	175·0
80	1	Maungaroto to Tokatoka	0·4
	2	Warkworth to Kawakawa	8·25
	3	Raglan to Waipa (maintenance)
	5	Kaikati—Te Aroha (Thompson's Track)	9·1
	7	Rotorua to Rotomahana (maintenance)
	8	Tauranga, East Cape, Whakatane, Te Teko, and sundry roads Bay of Plenty (maintenance)	180·0
	9	Roads and bridges in the Native districts (maintenance, fencing, and sundry works)
	10	Maketu to Rotorua (maintenance)	33·0
	11	Rotoiti to Tikitere	2·5
	12	To Waitomo Caves
	13	Otorohanga to Kihikihi
80	14	Main Road, Mangapai	2·0
81	2	Waikomiti—West Coast	0·5
<i>Roads to open up Lands before Sale.</i>									
82	1	Okaihau—Victoria Valley .. .. .	..	0·2	..	..	1	7,000
	2	Herd's Point—Takahue—Kaitaia (widening) .. .. .	..	5·3	..	..	15	20,000
		Herd's Point—Takahue—Kaitaia (metalling) .. .. .	..	0·7	..	..	..	..
	3	Waimamaku—Pakanae .. .. .	..	3·5	..	3·5	10	5,000
	4	Paparoa—Waikiekie .. .. .	..	1·3	..	1·0	..	1,200
	5	Wairua—Helena Bay, widened from 6ft. to 9ft. .. .. .	..	4·0	..	..	54	2,000
	6	Whangarei, through Taheke .. .. .	..	0·6	..	..	18	1,500
	7	Puhoi—Makarau .. .. .	..	3·0	..	..	..	..
	8	Matakana—Te Aria .. .. .	..	2·0	..	1·2	..	5,000
		Omaha (widening) .. .. .	..	0·3	..	..	88	..
	9	Wairua Bridge and Road .. .. .	..	..	..	2·0	127	10,000
	12	Whaingaroa—Mangapiko .. .. .	..	1·3	..	..	1	10,000
	13	Whaingaroa—Waiteuna .. .. .	..	0·2	..	..	15	3,000
	15	Waerenga—Whangamarino .. .. .	..	3·2	..	..	..	3,000
	16	Awaroa Swamp drains .. .. .	..	..	..	1·5	..	3,000
	17	Kawhia, Waipa, and Raglan (thirty miles), maintenance, &c. .. .. .	..	..	..	..	..	..
	18	Waingaro—Akatea .. .. .	..	1·6	..	..	25	6,000
		Akatea—Papakauri .. .. .	..	1·0	..	..	56	5,000
	19	Mata to Kauroa .. .. .	..	0·1	..	..	66	..
	20	Akaaka Swamp drains .. .. .	..	..	..	3·1	2	3,000
	21	Te Aroha drains .. .. .	..	..	..	2·0	..	600
	26	Huka Falls to Puketarata (maintenance) .. .. .	..	..	..	..	..	..
	27	Tatarika drains .. .. .	..	0·5	..	1·25	..	..
	29	Avondale South .. .. .	..	0·8	..	..	..	..
	29	Oropi Special Settlement .. .. .	..	0·1	..	..	..	..
83	2	Fern Flat (widening) .. .. .	..	0·8	..	..	..	3,000
		Ahipara—Herekino (reforming and metalling) .. .. .	..	0·3	..	..	..	6,000
		Herekino, widened to 16ft. .. .. .	..	1·1	..	..	..	10,000
		Herekino—Whangape .. .. .	..	1·8	..	..	12	7,000
		Motukaraka .. .. .	..	0·1	..	..	240	3,000
		Waimamaku (widening) .. .. .	..	0·1	..	..	..	4,000
		Kaihu—Punakitere .. .. .	..	0·5	..	3·5	17	100,000
		Whananaki (widening) .. .. .	..	0·2	..	..	..	3,000
		Whangarei—Kawakawa (metalling) .. .. .	..	0·6	..	..	2	..
		Hukerenui .. .. .	..	..	..	..	48	3,000
		Parua (metalling) .. .. .	..	0·1	..	..	..	1,500
		Swanson .. .. .	..	0·2	..	..	..	..
Totals			23·7	460·25	21·5	7·85	737	68	225,800

STATEMENT showing the AMOUNTS paid to LOCAL BODIES in Auckland District during the Twelve Months ended the 30th June, 1890, as Thirds of Perpetual-lease and Deferred-payment Lands, and as Fourths of Small Grazing-runs.

	£	s.	d.
Awhitu Road Board	6	0	7
Bay of Islands County	21	9	7
Gordon Special Settlement	71	3	0
Hobson County	12	15	9
Hokianga County	38	10	9
Hunua Road Board	1	15	5
Karaka Road Board	2	1	5
Komokoriki Road Board	5	3	3
Mercer Road Board	0	19	0
Matakohe Road Board	4	9	3
Mangonui County	6	17	6
Matakana West Road Board	7	18	6
Onewhero Road Board	138	11	6
Opotiki Road Board	79	19	6
Otonga East Road Board	2	8	11
Omaha Road Board	7	14	10
Ohinemuri County	16	1	6
Opapeke Road Board	1	15	5
Otamatea Road Board	6	5	11
Pirongia Road Board	3	7	4
Puhi Road Board	1	10	6
Parna Road Board	2	18	11
Pukekohe East Road Board	20	12	1
Pokeno Road Board	6	14	2
Raglan County	55	12	2
Rodney County (including Lower Mahurangi and Tauhoa)	29	19	4
Tauranga County	51	18	7
Tauhoa Road Board	5	6	11
Te Puke Road Board	72	9	10
Victoria Valley Road Board	1	17	9
Whangarei County	142	0	1
Waitoa Road Board	78	11	1
Waitemata County	58	12	3
Waipipi Road Board	13	1	10
Whareora Road Board	1	8	6
Whakatane	10	3	2
	£988	6	1

HAWKE'S BAY.

Waiomatatini to Hicks Bay.—The formation of this road was started immediately after commencement of survey in March last. £300 was voted for the purpose, out of which £112 19s. 6d. has been expended in forming 4.25 miles of bridle-track 6ft. wide, including all necessary bridges and culverts, with a width of 33ft. cleared in the forest portions. The object in opening this line is to give access to Crown lands in the Waiapu Valley, and to afford better communication between the places mentioned above.

Tologa to Mangatokerau.—A continuation of this road has been graded from Run No. 44 to its junction with the Ormond-Waiapu inland road, a distance of about $7\frac{1}{2}$ miles, and a contract has been let for forming that length into a bridle-track for the purpose (*inter alia*) of giving access to the Tauwhareparae Block, containing some 50,000 acres, and vested in the Gisborne Harbour Board. The cost to date has been £167 14s. 6d.

Tologa to Arikihī.—This line has now been completed as a bridle-track to its junction with the Ormond-Waiapu Road, enabling travellers and stock to pass from the coast to any of the inland settlements. The total cost is £540 2s. 3d.

Ormond to Waiapu.—Five miles and three-quarters of this line have been formed as a bridle-track to its junction with the Tologa-Arikihī Road, at a cost of £150 13s.

Gisborne to Opotiki.—The vote taken for this road has not been more than sufficient to cover cost of maintenance. This much has been fairly effected at a cost of £446. Since November last the whole length down to Opotiki has been under my charge.

Wairoa to Rotokakarangu.—The Wairoa County Council received a subsidy of £200 for widening a portion of the bridle-track for the purpose of cart-traffic, and I inspected the work shortly after sending in my last report. Several appeals have been made for further subsidies, but it is understood that there is no money available for the purpose.

North Makaretu (Makaroro Road).—It was proposed to continue the formation of this road into the block which was thrown open for selection some nine months ago, but, as there has not hitherto

been an active demand for this land, it was considered well to defer further expenditure until it was seen whether the land would be occupied or not.

Danevirke to Wainui.—The two formation-contracts in progress at the time of last report were taken over early in the spring, and these, together with various works carried out by the local body by means of accrued land revenue, have greatly facilitated settlers' operations—that is, during the fine weather; but hitherto sufficient funds have not been available for erecting the three bridges wanted between Danevirke and Weber. The total expenditure for the year upon maintenance, formation, inspection, &c., was £544 6s. 11d. In addition to this a subsidy of £500 has been paid to the Danevirke Road Board in aid of the new bridge just erected over the Manawatu River; but this bridge has not yet been opened for traffic owing to certain complications which have arisen with the Native owners of the Kaitoke Block as to the legality of a road which was taken many years ago under the Governor's warrant. The three Road Boards within which this road lies have been notified that they must in future provide for its maintenance.

Expenditure for Year.—The total expenditure upon all roads within the district out of direct road votes for the year ended 30th June last was £1,803 12s. 5d. Since the first votes to open up Crown lands were taken in 1880 to the present time £37,224 0s. 9d. has been expended upon roads giving access to lands which have been or are being prepared for settlement.

Land Revenue handed to Local Bodies for Expenditure on Road-works.—During the period under review the revenue handed to local bodies was £3,559 8s., which, added to last year's total, gives £30,742 10s. 3d. since the commencement of the system. In addition to this, a sum of £500 has accrued, and is available for expenditure as soon as the necessary proposals are made and approved by the Land Board. The instructions to furnish a statement of the mileage and character of the roads made or improved by the local bodies came to hand too late to enable me to furnish any trustworthy information on this head. It may, however, be said that there is a tendency to use revenue from this source largely for the purposes of maintenance—a course which the Land Board deprecates, seeing that these funds are a diminishing quantity under the operation of the existing land-laws, and by the process of purchase of the fee-simple by selectors.

Loans to Local Bodies.—So far as I am aware, the only operations in this district which come under this category are: £1,000 borrowed by the Maharahara Road Board for the purpose of completing roads in the northern portion of Woodville district, and £3,000 obtained by the Danevirke Road Board for the purpose of opening up a more direct road to Wainui from that settlement. The greater part of this amount was expended upon the erection of the bridge over the Manawatu River before referred to.

G. W. WILLIAMS, Chief Surveyor.

SUMMARY of ROAD-WORKS &c., executed in HAWKE'S BAY LAND DISTRICT for the Year ending 30th June, 1890.

Name of Work or Road.	Roads constructed, improved, or maintained.		Graded in Addition.	Contracts in force.	Area opened.
	Cart-road.	Bridle-road.			
<i>Miscellaneous Roads and Bridges.</i>					
Vote 80, item 19.—Waiomatatini—Hicks Bay ...	...	Miles. 4.25	Miles. ...	...	Acres. 1,020
<i>Roads to open up Lands before Sale.</i>					
Vote 82, item 30.—Tologa—Mangatokerau ...	...	1.50	8	1	49,150
" 82, " 32.—Ormond—Waiapu (main road)...	...	5.78	...	...
" 82, " 31.—Tologa—Arakihi ...	...	4.06	...	...	20,300
" 82, " 33.—Ormond—Opotiki (maintenance)	60	...	...	...	...
" 82, " 37.—Danevirke—Wainui ...	1.73	...	...	...	14,000
Totals ...	61.73	15.59	8	1	84,470

TARANAKI.

Mokau Punt.—At the Mokau River, opposite the Native settlement about one mile from the Heads, a punt has been constructed for the purpose of establishing a ferry over the river. At this point the river, when the tide is in, is about 12 chains in width, and when the tide is out the width is reduced to 6 or 7 chains, according to the season. As steamers trade regularly up the river to the coal-mines, it was deemed undesirable to have an overhead cable with which to work the punt in the usual way, as it would have to be lowered and raised each time a steamer passed in or out, necessitating strong straining-gear and two men to work it. The punt is therefore worked by winch-gearing, and on a chain lying across and on the bed of the river, and secured to posts on each side. The punt is a double pontoon, with a carrying-platform on top 35ft. by 10ft., and is suitable for shipping stock as well as for ferry purposes. The establishment of the ferry benefits and renders more accessible the Crown lands lying to the north of the Mokau River. Cost, £220.

Pukearuhe to Mokau.—The work during the year on this section of road (16½ miles) has been the repairing or renewing some of the old horse-bridges, improving the width and grades of some of the cuttings, and general surface-work. A contract has lately been let for excavating a road down the Rangimitimiti cliffs, which, when completed, will avoid the old track around the Mokau Heads and the dangerous track down the cliff. Cost, £151.

SUMMARY of ROAD-WORK executed in the TARANAKI DISTRICT under the supervision of the Survey Department, 1889-90.

Vote.	Item.	Name of Road or Work.	Roads constructed, improved, or maintained.					Area of land opened.
			Cart-road formation.	Felling and Stumping only.	Bridle-roads.	Punt.	Bridges not included in Roads.		Contracts in Force.
80	18	MISCELLANEOUS ROADS AND BRIDGES,— Junction Road—completing contracts; also 3 miles of surfacing, removing slips, &c.	Miles. 5·5	Miles. ..	Miles. ..	Ft. ..	..	Acres. ..
82	41	ROADS TO OPEN UP LANDS BEFORE SALE,— Pukearuhe to Mokau—repairs to bridges and surfacing	16·5	..	..	..	1	..
	43	Roads east of Stratford	2·0	..	..	..	..	..
	45	Eltham Road—bridges .. .. .	..	..	..	83·6	1	..
47-49		Rotokare and branch roads, and Inland Mokoia—felling	..	12·5	..	..	..	9,600
	48	East and Wawiri Roads—felling .. .. .	..	2·1	..	..	..	6,000
	50	Mokau Ferry, across Mokau River .. .. .	..	..	..	1	..	..
	51	Pukearuhe Inland-Mimi Road—formation, culverting, bridging	6·0	..	..	..	7	..
	52	Egmont Road, tourists' route to Mount Egmont .. .. .	..	..	4·15	..	..	..
		Warea-East Road—felling .. .. .	..	1·6	..	..	..	..
			30·0	16·2	4·15	1	83·6	9
								15,600

WELLINGTON.

Taumaramui-Karioi, Ohakune-Pipiriki.—These roads have been maintained by a small gang under Mr. Nicol, supervised by Mr. G. T. Murray. The work done comprised felling and clearing the bush, forming 6ft. in width in the worst places, repairing and placing culverts, and maintaining the whole length of 85 miles, at a total cost of £470 6s. These roads intersect and open up the Waimarino, Atuahae, and Rangataua Blocks, benefiting an area of about 200,000 acres of Crown lands.

Wanganui-Murimotu, Field's Road.—The bush was felled along 6 miles of this road 1 chain to 2 chains wide; the felled bush was burnt off, and the area sown with grass-seed as usual. Culverts were renewed to a great extent throughout, and the formation widened and improved in many places. Of the 65 miles comprised in this road, 25 are available for dray-traffic, and the remainder consists of a bridle-road about 6ft. in width. The cost for the year was £384 9s. 1d. This road leads to the remote Crown lands in the Rangataua and Waimarino Blocks.

Napier to Karioi, Moawhango to Waitangi Section.—A small contract was let to improve the road at Tikirere sideling, near Moawhango, at a cost of £18. Plans and specifications were prepared by Mr. G. T. Murray for 11 miles between Moawhango and Waitangi, for which tenders have been invited. When the works comprised in these contracts have been completed, Karioi will be accessible from Napier by dray and coach. The expenditure for the year was £37 5s. 7d. This road connects Hawke's Bay with the Waimarino, Rangataua, and other Crown-land Blocks.

Hunterville to Turangarere.—Mr. G. T. Murray surveyed and prepared plans and sections for a distance of 1 mile 14 chains, and Mr. Charles Field and party were employed on this road between Poukiore and Pauerawera. The work consisted of dray-road formation, 18ft. in width, over a length of 1 mile 11 chains. The party also felled, stumped, and cleared 3 miles 15 chains, formed 20 chains near Makohine, and repaired the whole length of road, at a total cost of £800 9s. This road also leads to Waimarino and other Crown lands.

Wanganui to Murimotu, Hales's Road.—The only work carried out on this road with funds provided by the Crown consisted of 57½ chains bush-felling and horse-road formation. The work was under the direction of and carried out by the Upper Wangaehu Road Board. The amount advanced by the Government was £100. This road served 20,000 acres of Crown lands in the Maungakaretu Block.

Ngutuera Road.—The Government advanced to the Waitotara-Momohaki Road Board £400, which the Board expended in constructing a dray-road, from 12ft. to 16ft. in width, for a distance of 3 miles 30 chains. This road leads to about 10,000 acres of Crown lands in the Omahine-Waitotara Block.

Mangawhio Road.—Mr. Murray executed the engineering survey, and prepared plans, sections, and specifications for 5 miles of this road: the work to comprise bush-felling, stumping, clearing, and formation for a horse-road. Tenders were called for, without resulting in a suitable offer. Steps are being taken to obtain fresh tenders. This road is a continuation of the Ngutuera Road. The cost for the year was £40 13s. 6d.

West Waitapu and Otamakapua.—Mr. Charles Field and party executed the following works: Rangitikei Valley Road, felling, stumping, and clearing 174½ chains, and the formation 6ft. in width on 132 chains on the same length, at a cost in all of £350 13s. The Mangatutu Road was repaired at a cost of £15 6s. Mr. Murray executed the engineering survey and prepared plans and specifications for 3 miles of the Tapuae Road, for which tenders are being invited. The total cost of these three works was £383 1s. 6d. These roads served about 20,000 acres of Crown lands in the Otamakapua Block.

Oroua Branch Road.—The Kiwitea Road Board were intrusted with £300, with which they formed 1 mile $2\frac{1}{2}$ chains of this road, from 12ft to 14ft in width, for dray-traffic. This road leads to the Feilding Special-settlement Block and to the distant Crown lands at the back, estimated to contain 15,000 acres.

Palmerston to Pahiatua.—Mr. Murray executed the engineering survey of 4 miles of this road, commencing on Andrewwatha's Road, at the end of the present dray-road, and tenders are being invited. The cost for the year was £45 14s. 4d. On the Pahiatua side Mr. Reaney executed the engineering surveys and plans, and prepared specifications for $3\frac{1}{4}$ miles, at a cost of £38. A contract for the sum of £199 5s., comprising $193\frac{1}{4}$ chains of bushwork and horse-road formation, is in hand. The only Crown lands on the route are included in the Forest Reserve.

Otaki to Manukau.—The Horowhenua County Council were granted the sum of £156 to metal the road from Otaki to Manukau, but up to the present date only the specifications of the proposed work have been submitted for my approval. No Crown lands are benefited by these works.

Manawatu Gorge Road.—The gang on this road cleared 45 slips, comprising 1180 cubic yards, opened and cleared side-drains for 1175 chains, the full width of the road was remetalled for a distance of 55 chains, and the wheel-ruts for 197 chains, 13 old bridges were repaired, and also 22 platforms, the timber used being 23,660ft., and the weight of iron used being 860lb. The total cost for the year was £624 7s. 9d. Mr. R. H. Reaney carried out the whole of these works without inconvenience to the public who used the road.

Pahiatua Village Settlement.—The Pahiatua County Council were intrusted with the sum of £150, with which they formed 73 chains of dray-road, and put in culverts for the same. The works benefit the village settlers.

Mangaramarama Overflow.—The above-mentioned body were also intrusted with the sum of £200 for the purpose of deviating and improving the course of this stream. The proposals of the County Engineer have been approved by me. This work is for the benefit of the village settlers in the locality.

Makakahi Bridge to Mangahao.—They also were intrusted with the sum of £75, which was expended in felling the bush 66ft. wide, stumping and clearing 20ft. wide, for a distance of 76.5 chains. A contract was also let comprising 1 mile 60 chains of bush-felling 66ft. wide, stumping and clearing 20ft. wide, at a cost of £77 2s. 4d. Both these works were completed under the supervision of Mr. R. H. Reaney. This road leads towards the Mangahao Crown lands, comprising about 5,000 acres.

The following works were also executed by Mr. Reaney, or under his supervision:—

Tutaekara Road.—The engineering survey, with plans and specifications of $2\frac{1}{4}$ miles; 1 mile of bushwork and bridle-road formation 6ft. wide were completed by contract. The total cost was £178 16s. 4d. This road leads to the Mangahao Block also.

Hawera Kakariki Road.—The engineering survey of this road, with plans and specifications of $4\frac{1}{4}$ miles, was completed at a cost of £56 1s. 9d. A contract has been let for a distance of 2 miles 59 chains, which comprises bushwork and dray-road formation, and which is well advanced towards completion. This road leads to and serves about 5,000 acres of Crown lands on the Mangahao River.

Mount Bruce Road.—A day party under Mr. J. Barron felled the bush 66ft. wide, stumped and cleared in the centre 20ft. wide for a distance of $4\frac{1}{4}$ miles, at a total cost of £381 17s. 6d. This road serves about 5,000 acres of Crown lands.

Mangamahoe Road.—The same party felled the bush 66ft. wide, stumped and cleared 20ft. wide, and formed a bridle-road 6ft. wide for a distance of 4 miles, at a cost of £464. This road serves about 10,000 acres of Crown lands.

Mount Marchant Road.—The engineering survey, with plans and specifications of $3\frac{1}{4}$ miles of this road, were made; three contracts were let and completed for the works, comprising bush-felling 66ft. wide, stumping and clearing 20ft. wide, and formation of a bridle-road 6ft. wide, at a total cost of £617 18s. 6d. These roads serve about 7,000 acres of Crown lands.

Makuri Valley, Gorge, and Aohanga Roads.—A day party under the supervision of Mr. J. D. Climie felled the bush 66ft. wide, stumped and cleared 20ft. wide, and formed a bridle-road 6ft. wide for a distance of 12 miles, at a total cost of £1,167 12s. 7d. These roads serve about 20,000 acres of Crown lands in the Puketoi District.

Tiraumea Bridge.—A wire-cradle bridge was erected over the Tiraumea River, under Mr. J. D. Climie's supervision, at a cost of £119 0s. 8d. This work also benefits the Crown lands in the Puketoi District.

Mangaone Valley Road.—The bush on this road was felled by contract 66ft. wide, stumped and cleared 33ft. wide in the centre, and a day party under Mr. R. P. Greville's supervision made it passable for horses for a distance of 2 miles 5 chains, and erected four small temporary bridges, the total cost being £179 14s. 10d. This road benefited an area of 15,000 acres of Crown lands which have been sold since it was made.

Hastwell Village Settlement.—The village steward, Mr. A. R. Mackay, was intrusted with the sum of £19 18s., with which an area of 13 acres 1 rood and 6 perches of road-lines was cleared of bush, burnt off, and sown in grass. This work was done by the village settlers in the locality.

Ngaturi and Makuri Townships.—The bush on the sites of these two townships was felled and burnt, and the area comprising 67 acres was sown in grass, for a total cost of £137 12s. 6d.

SUMMARY of ROAD WORKS executed in WELLINGTON DISTRICT during the Year 1889-90.

Vote.	Item.	Name of Road or Work.	Roads constructed, improved, or maintained.		Bridges constructed.	Contracts in Force.	Area of land benefited.
			Cart-road.	Bridle-road.			
			M. ch.	M. ch.			Acres.
79	3	MAIN AND MISCELLANEOUS ROADS, ETC.—					
		Tauamaranui-Karioi	2 2	..	..	..	200,000
		Ohakune-Pipiriki .. .. .	..	..	..	..	..
83	2	Village settlements	0 73	..	..	..	..
103	3	Hunterville-Turangarere	4 26	0 20	..	..	..
		Totals	7 21	0 20	..	..	200,000
		ROADS TO OPEN LANDS BEFORE SALE—					
82	55	Mangamahoe .. .. .	..	4 0	..	..	10,000
	56, 62	Makuri Valley Gorge and Aohanga .. .. .	..	12 0	..	..	20,000
	57	Hawera-Kakariki .. .. .	..	..	..	1	5,000
	58	Tiraumea River .. .. .	..	..	1	..	..
	59	Tutaekara .. .. .	..	1 0	..	..	5,000
	61	Mangaone Valley	2 5	..	4	..	15,000
	63	Mount Marchant .. .. .	..	3 20	..	..	7,000
	64	Makakahi-Mangahao	2 56	..	..	..	5,000
	65	Mount Bruce	4 20	..	..	..	5,000
	69	Oroua Branch	1 2	..	..	..	15,000
	72	Wanganui-Murimotu	6 0	0 57	..	..	20,000
	73	Rangitikei Valley .. .. .	..	3 66	..	..	20,060
	76	Maungakaretu .. .. .	..	2 31	1	..	..
	80	Ngutuera Valley	3 30	..	..	..	10,000
		Totals	19 33	27 14	6	1	137,000

AMOUNTS GRANTED TO LOCAL BODIES in WELLINGTON DISTRICT during the Year 1889-80.

Name of Local Body.	Name of Work.	Amount.
Upper Wangaehu Road Board	Formation of Hale's Road	£ s. d. 225 0 0
Waitotara-Momohaki Road Board	Formation of Ngutuera Valley Road	400 0 0
Kiwitea Road Board	Formation of Oroua Branch	300 0 0
Horowhenua County Council	Metalling road, Otaki to Manukau	156 0 0
Pahiatua County Council	Formation of roads in village settlement	150 0 0
"	Improvement of Mangaramarama Stream	200 0 0
"	Clearing of Bridge Road, Mangahao	75 0 0
Masterton Road Board	Purchase of road through Section 9, Block X., Kopuaranga	170 0 0

STATEMENT showing PAYMENTS to LOCAL BODIES from 1st July, 1889, to 30th June, 1890, as Thirds of Perpetual-lease and Deferred-payment Lands, and Fourths of Small-grazing Runs.

Road Boards.	On account of Deferred-payment Lands.	On account of Perpetual-lease Lands.	On account of Small-grazing Runs.	Total Payments.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Kiwitea	840 9 8	88 7 7	..	928 17 3
Moteroa	14 13 9	7 1 0	..	21 14 9
Masterton	14 9 7	..	..	14 9 7
Rangitikei County	34 18 8	14 18 5	20 3 10	70 0 11
Pahiatua	2,172 17 4	740 16 4	..	2,913 13 8
Eketahuna	820 14 10	97 15 9	..	918 10 7
Alfredton	61 7 6	45 14 8	..	107 2 2
Mauriceville	28 19 5	28 9 8	..	57 9 1
Waitotara-Momohaki	132 7 9	111 9 11	..	243 17 8
Waitotara County	105 8 5	12 11 6	81 1 6	199 1 5
Wirokino	21 18 1	53 15 11	..	75 14 0
Totals	4,248 5 0	1,201 0 9	101 5 4	5,550 11 1

J. W. A. MARCHANT,
Chief Surveyor.

NELSON.

Sandy Bay Road (Grant of £250 to Riwaka Road Board).—Contracts Nos. 4, 5, and 6 have been let for widening the present horse-track into a dray-road, and the work is now in hand. The area of land benefited by the work is 5,000 acres.

Riwaka Valley Road (Grant of £300 to Riwaka Road Board).—£200 of the sum available is required for compensation for land required for the road. The specifications of the work to be done with the balance have not yet been forwarded by the Road Board.

Little Sydney Road (Grant of £177 7s. 6d. to Riwaka Road Board).—£30 has been paid to Mr. J. Duncan as compensation for taking land for the road. 72½ chains of clearing, stumping, and formation of horse-track have been made, 5ft. wide, at a cost of £78 8s., and 1¼ miles continuation of the above work at a cost of £82. The area benefited is 2,000 acres.

Neudorf to Dovedale Road (Grant of £50 to Upper Moutere Road Board).—48½ chains of dray-road have been improved, and other works are in progress. The area benefited is 1,000 acres.

Pigeon Valley to Stanley Brook (Grant of £250 to Stanley Brook Road Board).—The horse-track has been widened to a dray-road for 4½ miles. The clearing and forming is 14ft. wide, and the work was completed in March, 1890. The area benefited is 3,000 acres.

Pigeon Valley to Dovedale (Grant of £100 to Waimea County Council).—The work, which consists of 43 chains of bush-felling and the formation of a dray-road, is in progress. The area to be benefited is 2,000 acres.

Wakefield to Dovedale (Grant of £100 to Dovedale Road Board).—31 chains of horse-track have been widened to a dray-road, with formation 16ft. wide. The work was completed in January, 1890.

Wairoa Gorge Road Cart-bridge (Grant of £185 to Spring Grove Road Board).—This amount was a subsidy to the Board. A dray-bridge, consisting of two 20ft. and one 80ft. spans, with approaches, has been constructed. The total cost of the bridge was £405.

Pretty Bridge Valley Road (Grant of £60 to Waimea Road Board).—The work, which consisted of 60 chains of clearing, stumping, and levelling dray-road, with formation 14ft. wide, was completed in November, 1889. The area benefited is 2,000 acres.

Wairoa Gorge Road (Grant of £200 to Spring Grove Road Board).—No. 1 contract is in hand for 40 chains of dray-road, with formation 12ft. wide, or 8ft. on solid; also with 220ft. retaining-wall. The contract-price is £147. No. 2 contract, in continuation of the above, is estimated to cost £123.

25th June, 1890.

JOHN S. BROWNING,
Chief Surveyor.

STATEMENT showing MONEYS paid to LOCAL BODIES from Thirds of Deferred-payments, approved by the Nelson Waste Lands Board, during the Twelve Months ended the 30th June, 1890.

							£	s.	d.
Riwaka Road Board	...	...	...	...	...	...	13	8	10
Stanley Brook Road Board	...	...	...	...	...	...	19	16	8
Waimea Road Board	...	...	...	...	...	...	20	17	8
Dovedale Road Board	...	...	...	...	...	...	91	1	8
Spring Grove Road Board	...	...	...	...	...	...	9	6	0
Upper Moutere Road Board	...	...	...	...	...	...	26	7	8
Total	...	...	...	...	...	...	180	18	6

SUMMARY of ROAD-WORKS executed in the NELSON DISTRICT during the Year 1889-90.

Name of Road or Work.	Roads constructed, improved, or maintained.		Length of Bridges constructed.	Contracts in Force.	Area of Land benefited.
	Cart-roads.	Bridle-road.			
	M. ch.	M. ch.	ft.		Acres.
Miscellaneous Roads and Bridges—					
Vote 80, item 20, Sandy Bay Road	...	...	...	3	5,000
" 80, " 22, Lyell-Westport Road	...	...	225	...	...
Roads to open up Lands before Sale—					
Vote 82, item 84, Little Sydney Road	...	2 12	...	...	2,000
" 82, " 85, Pigeon Valley to Stanley Brook Road	4 40	...	...	...	3,000
" 82, " 86, Pretty Bridge Valley Road	0 60	...	...	...	2,000
" 82, " 87, Wakefield to Dovedale Road	0 31	...	...	...	...
" 82, " 88, Neudorf-Dovedale Road	0 48	...	...	...	1,000
" 82, " 88, Pigeon Valley to Dovedale Road	0 43	...	...	...	2,000
" 82, " 89, Wairoa Gorge Road	...	...	120	...	...
" 82, " 91, Wairoa Gorge Road	...	...	...	1	...
Totals	6 62	2 12	345	4	15,000

JOHN S. BROWNING,
Chief Surveyor.

MARLBOROUGH.

Watamouga to Port Underwood Track.—Stock-track, to enable settlers to drive their stock out to the Waikawa Track, connecting with Picton. Future requirements will consist of widening in places where vertical hard batters cause present width of 4ft. to be insufficient, and felling bush on both sides, to admit light and air. So far, the track has stood admirably, and been found most convenient.

Rai Valley Road.—This work is all gravelling. The valley is 7 miles long, and of this the worst places, 4 miles 4 chains in length altogether, have been gravelled. Of the balance, about 3 miles, nearly all must some day be gravelled, as occasion requires. The three bridges over Flat Creek, Alfred Creek, and Brown River must some day be made. This road is part of the Blenheim-Nelson Main Road, and is within the Pelorus Road Board District.

Kaituna to Tuamarina Road.—This road has just been finished, and is generally in good order. Most of it is hard, but the class of rock is too soft for traffic in wet weather, and it must some day be gravelled throughout. This is its only requirement. About half the road is in the Pelorus Road Board District, and the balance in the Picton Road Board District. The former have taken over their portion. The latter have at present declined, but will be obliged to do so when the title is cleared. Length recently formed, 5 miles 3 chains.

Kenepuru to Manaroa Track.—This track, 4ft. wide, 4 miles long, was some time ago constructed, half out of parliamentary vote, and half out of accrued thirds of deferred-payment lands. Recent operations within the year consist of felling bush on both sides on north end, and on lower side only on south end. Funds expended were accrued thirds as before. Future requirements will be widening in places to a small extent, and felling bush above track on south side. This track is exceedingly useful to the settlers.

Torea to Kenepuru Track.—This is really a small road 8ft. wide, connecting the Queen Charlotte Sound with the Kenepuru arm of the Pelorus. It was constructed some time back in the same manner as the preceding. Present operations have consisted in providing and laying drainpipes to carry off water. The track amply satisfies present requirements, and no extension is required. Work executed as in the preceding.

Grove Road.—This road is the connection between Queen Charlotte Sound and the new diggings at Mahakipawa. Present operations consist of gravelling only, with light formations, executed by the Pelorus Road Board, under subsidy of £1 for £1. Future requirements are more gravelling.

Whangamoa Road.—This is a continuation of the main road from Blenheim to Nelson, and adjoins the Rai Valley, previously mentioned. It is all within the Waimea County. Present operations are gravelling, which was about one-third completed on the 30th June. Length of gravelling is 7 miles, which is the whole of worst portions. Future requirements will consist of more gravelling as required, and a small bridge over the Graham—an exceedingly rough little creek.

Hope Road.—This road is the main coach-road connecting Motupiko Road Board District with Inangahua County at Hope Junction, on the Nelson-Westport Road. Our operations for year consisted of maintenance generally, and the road was left in capital order when it was handed over to the Waimea County Council. The only special work was the Hope Bridge. Future requirements will consist of general maintenance, 16½ miles.

Tophouse Road.—This road runs from the terminus of the Nelson Railway at Belgrove to Tophouse. It has been lightly maintained to suit requirements. There is very little traffic, and future requirements will consist of little more than keeping it open. Twenty-eight miles now handed over to Waimea County Council.

Upper Buller Road.—This road connects Tophouse with the Hope Junction. Length, 22 miles. It was kept open and lightly maintained till the 30th June, when it was handed over to County Councils. The lower half is in the Inangahua County, and the upper in the Waimea. There is very little traffic, and future requirements need be nothing more than keeping it open. Just at present the road is washed away at the "Slips," opposite Mr. Kerr's station, and reconstruction is for the time impracticable.

GERALD FITZGERALD,
Assistant Engineer.

STATEMENT showing ROAD-WORKS executed in MARLBOROUGH during the Year ending 30th June, 1890, by LOCAL BODIES, out of Thirds of Deferred Payment and Perpetual Leases, and Fourths of Small Grazing-runs.

Name of Local Body.	Amount paid to Local Body out of Deferred Payment, Perpetual Lease, and Small Grazing-runs, approved by Land Board.	Remarks.
Pelorus Road Board ...	£ s. d. 1 14 0	Improving main road on which sections front, metalling, &c.
Kaikoura County Council	5 16 0	Improving existing roads leading to the sections, metalling, ditching, &c.

SUMMARY of ROAD-WORKS executed in the MARLBOROUGH LAND DISTRICT for the Year 1889-90.

Name of Road or Work.	Roads constructed, improved, or maintained.		Length of Bridges constructed.	Area of Land benefited.
	Cart-roads.	Bridle-roads.		
Miscellaneous Roads and Bridges—	M. ch.	M. ch.		
Vote 80, item 24, Kaituna-Tuamarina Road	5 3	...	...	...
" 80, " 25, Kaikoura-Clarence Road	4 3	...	...	...
" 80, " 26, Watamonga-Port Underwood ... ..	...	5 61	...	...
Total	9 6	5 61	...	...
Roads to open up Lands before Sale—				
Vote 82, item 95, Rai Valley Road	4 4	...	...	...
Total	4 4	...	...	...
Roads constructed or improved out of Deferred-payment Thirds—				
Kenepuru-Manaroa Track ... ..	...	4 0	...	...
Torea-Kenepuru Track ... ..	...	1 20	...	...
Grove Road	2 66	...	...	...
Total	2 66	5 20	...	...

WESTLAND.

Pounamu to Teremakau (Vote £200).—Length about $4\frac{1}{2}$ miles, making accessible about 1,200 acres of good agricultural land on the northern bank of the Teremakau River. A mile and a half completed, 1 mile now under contract: clearing 33ft., formation 8ft., and metal 5ft.; contract price £162 1s.; payments made up to date, £125; will probably be completed in about a month.

Cook's River Flat (Vote £1,200).—Length about 8 miles, traversing a block of about 3,000 acres of very good land, and making accessible about 4,000 acres of second-class land. A contract for $5\frac{1}{4}$ miles was let in February, 1889, and completed in December last: clearing 33ft., formation 7ft., metal 4ft.; contract price, £906 18s. The remaining $2\frac{3}{4}$ miles, which required clearing only, were let for £64 13s. 6d., and also completed in December last. A balance of £228 8s. 6d. for extension of Cook's River Flat Road southward remains in hand; this extension will tap another 1,200 acres of very fair settlement-land between Cook's River and the Karangarua River.

Hunt's Beach to Makawiho (Vote £500).—Length 3 miles, traversing and making accessible about 4,000 acres of good agricultural land. A contract was let in March last: clearing 33ft., formation 7ft., and metal 4ft.; contract price, £450; the work is progressing well, and will probably be completed in October next.

Makawiho to Mahitahi (Vote £300).—Length 7 miles, traversing about 3,000 acres of very good land, and making accessible another 2,000 acres of second-class land. Survey of road completed, and plans shortly ready for calling for tenders for construction of the first $2\frac{1}{2}$ or 3 miles of this road.

In addition to the above road-works, I had under supervision a number of tracks subsidised by Government, and the maintenance of the Hokitika to Christchurch Road, and of the Haast Pass Road.

GERHARD MUELLER, Chief Surveyor.

SUMMARY of ROAD-WORKS executed in the WESTLAND DISTRICT during the Year 1889-90.

Name of Road or Work.	Roads constructed, improved, or maintained.		Contracts in Force.	Area of Land benefited.
	Cart-road.	Bridle-road.		
Roads to open up Lands before Sale—	M. ch.			Acres.
Vote 82, item 100, Pounamu to Teremakau	1 40	...	...	1,200
" 82, " 99, Cook's River Flat Road	8 0	...	...	7,000
" 82, " 96, Hunt's Beach to Makawiho Road	3 0	...	1	4,000
Totals	12 40	...	3	12,200

STATEMENT of ADVANCES made by GOVERNMENT out of Road Votes to LOCAL BODIES in the WESTLAND LAND DISTRICT during the Year ended the 30th June, 1890.

Local Body and Work.	Clearing, formation, and metal.		Amount of Contract.	Subsidy paid by Government.	
	Dray-roads.	Bridle-roads.			
	Miles.	Miles.	£	s.	d.
Westland County Council—					
Bald Range Road, construction...	1.34	...	641	19	0
Tucker Flat Road, construction ...	0.56	...	170	19	6
Kumara to Hokitika, maintenance ...	19.00	...	1,200	10	0
Grey County Council—					
Grey Valley to Teremakau Track, construction ...	...	4.00	947	6	0
Baird's Terrace to Lake Brunner Track, construction ...	...	1.75	290	15	0
Ahaura to Kumara Road, maintenance ...	46.00	...	1,885	6	4

CANTERBURY.

PRACTICALLY no new road-works, except a few tracks cut at the Mount Cook glaciers, have been done under my supervision this year. I have tabulated the particulars of a few balances I have paid on account of various road-works previously undertaken. I have no knowledge of any loans under "The Loans to Local Bodies Act, 1889," being paid to local bodies in this district.

29th July, 1890.

JOHN H. BAKER, Chief Surveyor.

ROAD-WORKS in CANTERBURY.

Road.	Expenditure during Year 1889-90.	Remarks.
	£ s. d.	
Upper Ashley, over Kuku Pass	75 0 0	Further payment on account of work reported on last year: a small balance is still due, waiting until I can inspect the work.
Mount Grey Downs (Loburn to Kowai)	32 0 0	Balance of amount due on work previously reported on.
Glentui Forest ...	15 0 0	Balance of amount due on work previously reported on.
Mount Cook glaciers ...	55 10 6	Mr. Wither reports about 330 chains of tracks have been cut at a cost of £55 10s. 6d.; but the expenditure, including preparation of plans for foot-bridge, advertising same, and travelling-expenses, amounts to £79 11s. 9d.
Ohau Bridge ...	...	Done by Waitaki County Council; correspondence not passed through this office.
Village and deferred-payment blocks	27 15 9	Reserve 1263. About 70 chains of road-formation in the village settlement at Pighunting Creek.

JOHN H. BAKER,
Chief Surveyor.

REPORT on ROADS, by the ASSISTANT ENGINEER, Christchurch.

Kaikoura to Clarence Road.—This work was proceeded with up to the end of November, 1889, when all the "unemployed" were paid off, and this work was closed. The formation of the road was completed from 5 miles 50 chains from the Clarence Bridge up to 1 mile 47 chains from the same bridge, and the greater part of it was metalled.

Construction in Bealey Valley.—The formation of a new road in the Bealey Valley, to avoid the numerous crossings of the Bealey River, was proceeded with up to the end of November, 1889, when the work was stopped, as all the "unemployed" in Canterbury were paid off. A small deviation, beginning at 46 miles 52 chains from Springfield, and ending at 46 miles 68 chains, was formed. This deviation saved two crossings of the river. Another deviation, which starts at 47 miles 19 chains from Springfield, was continued, and the formation of a length from 47 miles 40 chains to 47 miles 70 chains was finished, and from 47 miles 70 chains to 48 miles 20 chains was partly done. The bush was all cleared off, and the road-line graded and most of the light work done. At 48 miles there is some heavy rockwork, and when the works were stopped this rock-cutting was in hand.

Catlin's to Waikawa Road.—In January, 1890, the supervision of the road-construction on the Catlin's-Waikawa Road was transferred from the Chief Surveyor, Dunedin, to me. When I took charge the bulk of the formation was completed up to about 25 chains from the Catlin's River, and between that point and the river the swampy ground had been drained by means of two side ditches,

the excavated stuff being wheeled on to fascines laid on the ground to form the roadway. No more work has been done on the north side of the river, but as soon as the Catlin's Bridge is finished the formation on the north side will be made up with stuff from a clay terrace on the south side. Between the Catlin's River and the Mackenzie Creek the bush had been felled and cleared, and some of the formation done when I took charge. Up to the 30th June, 1890, the whole of the formation between the two streams had been finished, the length being about one mile. From where the road-line crosses the Mackenzie Creek the bush has been felled 1 chain wide, and a roadway 40ft. wide cleared for a distance of about 4 miles 63½ chains up the Mackenzie Valley, over the saddle, and a little past the crossing of the North Parakanui Stream. Also the bush-felling 100ft. wide and clearing 50ft. wide a distance of 4 miles up the Catlin's River from the bridge-site, which was begun before I took charge of these works, are practically finished.

Catlin's River Bridge Contract.—A contract has been let for the construction of a timber bridge of five spans of 30ft. each over the Catlin's River. The work at the bridge-site is not yet begun, but the contractor is in the bush getting the logs.

Tourist Tracks, Mount Cook Glaciers.—About 330 chains of tracks have been formed in the neighbourhood of the "Hermitage" at the foot of Mount Cook, so that tourists can easily walk about and see all the most interesting sights.

FREDERICK WITHER, Assistant Engineer.

PAYMENTS made to LOCAL BODIES out of Thirds and Fourths between the 1st July, 1889, and the 30th June, 1890, and Statement showing how the several Road Boards are spending the Moneys received by them in the CANTERBURY LAND DISTRICT.

Road Boards, &c.	Amount paid by Treasury.	Amount paid by Receiver.	Total Amount paid to Board.	Particulars of Work approved by the Waste Lands Board.
	£ s. d.	£ s. d.	£ s. d.	
Arowhenua Town ..	21 17 11	32 15 3	54 13 2	Form and shingle streets in the Arowhenua Village Settlement; fill hollows and place foot-planks over the creek.
Ashburton Upper ..	26 18 4	34 6 6	61 4 10	Improve the Main South Road north of Chertsey, Alford Forest Road near 35820, &c., and roads bounding lots in Reserve 350.
Coldstream ..	1 5 0	12 4 1	13 9 1	Improve the Main Lowcliff Road and Main South Road, west from the Hinds Township.
Geraldine ..	92 4 5	182 12 4	274 16 9	Formation and metalling roads through the Orari Village Settlements and Railway Reserves 349, 389, &c., near Orari.
Hampstead Town ..	..	2 5 10	2 5 10	Formation of roads as moneys accrue, round Reserve 1261 near Ashburton; and build culverts across water-channels.
Longbeach ..	1 2 8	1 2 8	2 5 4	Improve the road-formation fronting Rural Section 35754, near the mouth of the Ashburton River.
Mackenzie County Council	9 8 0	12 15 6	22 3 6	Form and shingle streets in the Fairlie Creek Village Settlement, and surface-formation of road through Ashwick Flat.
Malvern ..	1 18 8	7 8 0	9 6 8	Form road fronting Lots 5 to 17, subdivision of Reserve 1824, situated near Springfield.
East ..	11 10 2	12 8 10	23 19 0	Repair roads fronting on lots of Reserve 1935 near Springfield, and roads forming the frontage of Annat Village Settlement lots.
South ..	1 19 7	5 18 9	7 18 4	Improve the roads near the Coalgate Railway-station, and fronting upon the lots of Reserve 1238 adjacent.
Mount Hutt ..	10 7 0	9 4 9	19 11 9	Form and improve the road on the east side of the north branch of the River Ashburton, abutting on Section 35795, &c.
Oxford ..	357 18 11	137 18 8	495 17 7	Repair, shingle, and improve fords, &c., on Dépôt, South Eyre, Esperanza, and other roads through Reserves 2331 and 2332.
Rakaia South ..	31 18 1	39 15 2	71 13 3	Metal Hardy, Johnston, and Ulundi Roads, in the Rakaia Village Settlement.
Rangitata ..	19 17 9	10 11 5	30 9 2	Improve roads in the South Mayfield Settlement, and road north of the Hinds Township, fronting on lots of Reserve 1381.
Temuka ..	20 18 10	5 14 10	26 13 8	Improve the roads abutting on lots in Reserves 283, 1371, 1381, situated near Winchester and South Rangitata Railway-stations.
Wakanui ..	4 3 2	4 9 4	8 12 6	Improve the roads fronting lots in Reserves 264 and 1497, situate between Chertsey and Dromore, and road in Village Settlement of Dromore.
Waipara ..	..	55 3 10	55 3 10	
Totals ..	613 8 6	566 15 9	1,180 4 3	

JOHN H. BAKER, Chief Surveyor.

OTAGO.

Track, Milford Sound to Te Anau Lake.—The whole of this track has been cut and formed afresh, or widened and improved, including 1 mile and 10 chains from the beech huts to the waterfall. There are now four huts between Milford Sound and the Sutherland Waterfall, and two huts in the Clinton Valley, besides one at the foot of Lake Ada, east side, which is not now used. The total length of bush track—viz., 26 miles and 50 chains—is made up as follows:—

Track below Lake Ada	...	...	...	M. ch.
From landing above Lake Ada to beech huts	...	...	...	2 0
Beech huts to Sutherland Waterfall	...	...	...	5 40
Beech huts over saddle to Mintaro hut	...	...	...	1 10
Mintaro hut to Half-way Camp	...	...	...	4 60
Half-way Camp to Te Anau Lake	...	...	...	6 40
Total	...	...	...	26 50

Of the above, the track below Lake Ada is narrow, and should be widened and improved. The remainder of the tracks in Arthur Valley are in fair order for pedestrians, including the track up the Roaring Creek to McKinnon's Pass. This is not a "pass" in the ordinary acceptation of the word, but a rough hog-backed ridge, clear of bush, along which the track is marked by guide-poles for about a mile. The descent into the Clinton Valley is very steep, and too narrow for a permanent track. This, and the upper part of the track in the Clinton Valley, about four or five miles in all, should be widened and improved. The remainder of the track to Te Anau is fairly good, with the exception of two rocky bluffs which require some rock-blasting to avoid a steep climb on both sides. The track in the Clinton Valley requires the erection of three huts for the use of tourists—namely, one at Te Anau, one at Half-way Camp, and one at Lake Mintaro. This track cannot be said to open up Crown lands, except to a small extent; but I have no doubt, if the tourist traffic increases, there will be a demand for a few small holdings, both in the Arthur and Clinton Valleys.

Maniototo County.—The first item, "Roads in Blocks XI. and III., Gimmerburn," is given in the report of the County Engineer; but I have no advice from your office of the money (£100) having been advanced. In reference to the work done by the Waihemo County, the two sums of £73 and £227 make up the £300 voted by the Government; but the £85 11s. was obtained out of land revenue, and also spent on the road. The two items, "Wakari to Waitati Road," and "Road up Leith Valley to Blueskin," are for £50 each, and were granted as subsidies of £1 to £1 to the local bodies interested. The improvements on the road up the Leith Valley are completed, but I do not know if anything has been done by the Waikouaiti County on the other side of the saddle. The other items in the schedule do not call for special remark, with the exception of the Catlin's-Waikawa Road through Block VIII., Glenomaru, on the north side of Catlin's Lake, and through Block III., Woodland, on the south side. This was cleared and made partly by the "unemployed" and partly by contract. A good deal of heavy cutting was required, and where the ground was level it was generally swampy.

C. W. ADAMS, Chief Surveyor.

PARTICULARS of ROAD-IMPROVEMENTS, &c., to open up Crown Lands in OTAGO during the Year ending 30th June, 1890.

Name of Road.	Mileage improved.	Area of Land benefited.
	M. ch.	Acres.
Pembroke to Matukituki	1 53	50,000
Jetty and track, Manuka Island, Lake Wanaka	.. ..	300
Track, Milford Sound to Te Anau Lake	30 50	..
Roads in Blocks XI. and III., Gimmerburn	0 34	3,400
Roads in Block VI., Maniototo	1 0	1,200
Run 210, Deepdell	0 54	9,114
	5 13	15,374
Wakari-Waitati Road	.. ..	..
Road up Leith Valley to Blueskin	.. ..	..
Roads to open up blocks in Glenkenich	1 15	543
Roads in Block VI., Rangleburn	1 8	1,500
Kelso-Waikaka Road	2 74	2,000
Glenomaru-Owake Roads	1 20	2,000
Road in Block I., Woodlands	2 0	900
Catlin's-Waikawa Road	3 40	5,000
Catlin's River bridge	.. ..	..
Main road in Block IV., Woodlands	4 0	3,720
Totals	55 41	95,051

Total amount paid to local bodies out of land revenue for the year, £5,210 16s. 5d.

SOUTHLAND.

No. 1 Road, Waikaka Siding to Waikaka Town.—Mileage formed, &c., $3\frac{1}{2}$ miles; acreage rendered better accessible, 5,000 acres. This work consists of 204 $\frac{3}{4}$ chains of combined formation and gravelling; also 1,400 cubic yards of gravel, which was laid down in places where it was most required. One 10ft. bridge was also built, and five culverts were constructed. The work is situated on the main road up the Waikaka Valley from Waikaka railway-siding, near Gore. The road is an important one, and at the upper end taps a certain amount of Crown lands of mixed character.

No. 2 Road, Riversdale to Switzers.—Mileage formed, &c., $3\frac{1}{2}$ miles; acreage rendered better accessible, 5,000 acres. This work consists of 27 $\frac{5}{8}$ chains formation and gravelling, with 3,225 cubic yards of excavation and five box culverts.

No. 3, *Wyndham via Mimihaui to Otarua*.—This work consists of a bridge, 18ft. span, over Fortification Creek.

No. 4, *Boundary Creek Bridge to Makarata*.—This work consists of a bridge, 26ft. 6in. span, resting on masonry piers, with approaches formed and metalled.

No. 5 *Road, Waikawa*.—Mileage formed, &c., $2\frac{1}{2}$ miles dray and 5 miles track; acreage rendered better accessible, 10,000 acres. This work consists of $88\frac{1}{2}$ chains heavy formation, $74\frac{1}{2}$ chains fascining and clay blinding, $27\frac{1}{2}$ chains bush-clearing, $23\frac{1}{2}$ chains ditching, one 8ft. bridge, and eighteen culverts. The work extends from the head of Waikawa Harbour some 6 miles north, to near the north boundary of Waikawa Survey District. The road is part of the main road from Fortrose to Waikawa *via* Tokonui Gorge. In addition to the above work the track from Fortrose to Waikawa *via* the beach (for a distance of some 5 miles) was either made or improved in places. The track previously in existence was almost impassable in one or two places. The work done has remedied this, and, the track being shorter than the dray-road *via* Tokonui, besides traversing auriferous country, the recent improvements will be of great service for packhorse-and passenger-traffic.

No. 6, *Horse-bridge, Wairaki River*.—£1 for £1; acreage rendered better accessible, 20,000 acres. This bridge, which is being constructed for horse-traffic only, is 168ft. long and 4ft. wide. It is being built across the Wairaki River near the junction of that river with the Waiau. The cost of bridge, including approaches, will be over £200. The work will be finished in about three weeks, the contract now being in force. The work is being done by the Wallace County, the Government giving the county a £1-for-£1 subsidy. The bridge will be of great utility for horse- and passenger-traffic, the Wairaki being an awkward river, subject to occasional floods.

No. 7 *Road, Centre Bush*.—Mileage bush-felled, &c., three-quarters of a mile; acreage rendered better accessible, 300 acres. This work consists of 60 chains of bush-felling and clearing. It begins on the road running east from Central Bush Railway-station, and goes due north into the unsold Crown bush, the sections having been made a village settlement.

No. 8, *Woodend to Bushy Point*.—Mileage formed, &c., $3\frac{1}{2}$ miles; acreage rendered better accessible, 1,500 acres. This work consists of 20 chains formation, fascining, and gravelling, 230 chains of clearing, and 500 cubic yards of gravel laid down in places for repair. This road gives the nearest access to the Bushy Point Goldfield. Dredging operations are proposed on the beach, and should they be successful, as seems more than probable, the utility of this road will every day become more apparent. As it is, the road is of considerable use for through traffic. It skirts the moss, taps the beach, and leads without interruption to the mouth of Mataura River, thus connecting two parts of the district that were formerly inaccessible the one from the other.

No. 9 *Road, Appleby to Tisbury*.—Mileage formed, &c., three-tenths of a mile; acreage rendered better accessible, 1,100 acres. The work done upon this road consists of 24 chains formation and 23 chains gravelling. This work is in continuation of the work upon the same road that was done last year. The road runs along the south side of the Seaward Bush Railway from near Appleby Railway-station towards Tisbury Station. The road, while of great service to present settlers in the vicinity, will also materially help to open up Crown lands at and around Tisbury.

No. 10, *Seaward Forest to Deferred Payment Block*.—Mileage formed, &c., $1\frac{1}{2}$ miles; acreage rendered better accessible, 2,000 acres. The work done upon this road consists of 69 chains formation, double ditching and fascining, 900 yards gravel, 5 log bridges, and 7 culverts. This work is in continuation of work done upon the same road during last and previous years. The road will, I think, yet prove a useful one; and even now it has induced settlement in a locality which a few years ago was absolutely shut out from all possible communication by horse or dray. When it has been extended to the beach it will open a line of through communication to Fortrose on the one hand, and to Bushy Point, Bluff, and Woodend on the other, that will be of great service to the district.

J. SPENCE, Chief Surveyor.

STATEMENT showing MONEYS paid to LOCAL BODIES in the SOUTHLAND LAND DISTRICT on account of Thirds of Deferred-payment and Perpetual-lease Lands, and Fourths of Small-grazing Runs, during the Year ended the 30th June, 1890.

Local Body.	Deferred-payment.	Perpetual-lease.	Small-grazing Runs.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Southland County	1,174 10 6	118 7 2	3 6 8	1,296 4 4
Wallace County	798 13 0	164 9 4	..	963 2 4
Invercargill Road Board (per Southland County) ..	11 8 0	12 18 5	..	24 6 5
Toetoes Road Board (per Southland County) ..	0 19 8	4 13 0	..	5 12 8
Oteramika Road Board	182 16 5	13 8 6	..	196 4 11
South Invercargill Borough	44 8 2	..	..	44 8 2
Lake County	49 14 0	23 14 9	..	73 8 9
Borough of Riverton	2 0 0	..	..	2 0 0
Wyndham Road Board	52 0 11	..	..	52 0 11
Knapdale Road Board	53 5 1	40 19 5	..	94 4 6
Tuturau Road Board	16 7 8	..	..	16 7 8
Mataura Town Board	18 5 6	..	..	18 5 6
Lindhurst Road Board	139 2 6	1 1 2	..	140 3 8
Gordon Town Board	37 8 11	..	..	37 8 11
Borough of Gore	1 17 5	..	..	1 17 5
Totals	2,582 17 9	379 11 9	3 6 8	2,965 16 2

SUMMARY of ROAD-WORKS executed in SOUTHLAND under the supervision of the SURVEY DEPARTMENT.

No.	Name of Road or Work.	Cart-	Bridle-	Bridges	Contracts	Area
		road.	road.	not included in Roads.		
		M. ch.	Miles.	Ft. in.		Acres.
1	Waikaka Siding to Waikaka Town ...	...	...	10 0	...	5,000
2	Riversdale to Switzer's ...	...	...	...	...	5,000
3	Wyndham <i>via</i> Minihau to Otaraiā ...	...	...	18 0	...	...
4	Boundary Creek Bridge to Mokoreta ...	...	...	26 6	...	5,000
5	Waikawa ...	...	5	8 0	...	10,000
6	Horse-bridge, Wairaki River ...	...	...	168 0	1	20,000
7	Centre Bush ...	0 60	...	...	...	300
8	Woodend to Bushy Point ...	3 40	...	...	...	1,500
9	Appleby to Tisbury ...	0 24	...	...	...	1,100
10	Seaward Bush to deferred-payment block	1 40	...	...	...	2,000
11	Stewart Island ...	...	...	...	...	...
	Totals ...	6 4	5	230 6	1	49,900

* Bush felled only.

No. 1.—RETURN of FIELD-WORK executed by the STAFF and CONTRACT SURVEYORS from 1st July, 1889, to 30th June, 1890.

District.	Topographical Survey.		Minor Triangulation.		Topographical Survey for Selection under "The Land Act, 1887."		Topographical and Trigonometrical Survey.		Rural and Suburban.		
	Acres.	Cost per Acre.	Acres.	Cost per Acre.	Acres.	Cost per Acre.	Acres.	Cost per Acre.	Acres.	No. of Sections.	Cost per Acre.
Auckland	..	d.	553,195	0.72	..	d.	..	103,672	849	s.	1.81
Hawke's Bay	128,634	1.09	31,100	7.8	..	25,567	52	..	1.33
Taranaki	27,943	92	..	1.24
Wellington	11,000	1.2	92,415	5.16	..	105,470	362	..	1.00
Marlborough	11,899	52	..	0.91
Nelson	552,575	1.03	71,402	0.3	..	78,283	260	..	1.09
Westland	7,217	80	..	2.23
Canterbury	..	0.76	59,198	0.74	66,567	1.91	62,960	31,678	162	..	0.59
Otago	..	0.37	189,297	2.00	..	..	..	32,046	238	..	1.75
Southland	7,920	53	..	2.1
Head and Lithographic Offices
Means and totals ..	248,712	0.46	1,394,671	0.89	261,484	3.33	62,960	431,695	2,200	1.03	..

District.	Town Section Survey.			Native Land Court Survey.			Mining Survey.			Roads, Railways, and Water-races.		Miscellaneous Work.		Total Charges against the Survey Votes for Twelve Months.			
	Acres.	No. of Allotments.	Cost per Acre.	Acres.	No. of Sections or Divisions.	Cost per Acre.	Acres.	No. of Sections or Divisions.	Cost per Acre.	Miles.	Cost per Mile.	Cost.	Field-work.	Supervision, Office-work, and Publication.	Survey Votes		Publication.
															s.	d.	
Auckland	71	147	14.56	523,323	34	0.17	1,828	73	10.04	40.39	10.12	1,085	15.887	4,789	17	0	d.
Hawke's Bay	..	..	..	5,072	3	7.2	..	..	..	87.8	15.15	481	5,672	2,727	0	9	s.
Taranaki	..	..	..	8,607	62	0.66	..	..	..	148.00	3.5	218	2,103	1,588	16	5	d.
Wellington	..	..	..	261,697	..	0.22	..	..	..	76.00	10.15	2,448	9,414	3,990	12	5	s.
Marlborough	..	..	..	..	..	..	..	..	..	..	..	89	674	1,039	14	2	d.
Nelson	..	..	..	..	..	..	..	..	..	..	..	..	1,087	1,823	15	2	s.
Westland	31	47	29.6	..	..	..	8,140	99	7.06	12.25	6.18	1,087	5,961	2,823	15	2	d.
Canterbury	9	36	12.9	5,258	271	2.84	994	23	6.12	23.19	7.19	56	1,460	1,620	12	8	s.
Otago	27	109	10.0	1,147	58	2.94	10,424	807	4.63	4.13	3.10	216	3,228	3,972	6	2	d.
Southland	..	..	..	255	4	1.06	4,563	102	6.3	14.4	6.14	673	4,887	3,259	16	11	s.
Head and Lithographic Offices	..	..	..	..	..	..	..	..	..	..	..	..	1,025	1,112	11	1	d.
Means and totals ..	138	339	15.05	805,364	432	0.22	21,467	608	5.82	408.16	9.4	6,356	49,816	36,614	15	10	s.

Total Expenditure

Less Refunds

£86,431 4 7

12,666 4 6

£73,765 0 1

No. 2.—ABSTRACT of the SURVEYORS employed and of the WORK on HAND in each PROVINCIAL DISTRICT on 1st July, 1890.

Chief Surveyors.	Surveyors employed.		Work on Hand.						
	Staff.	Tempo- rary.	District.	Trig.	Settle- ment.	Native Block, &c.	Roads, &c.	Town.	Mining and Mineral Leases.
T. Humphries ..	16	9	Auckland ..	Square Miles. 450	Acres. 83,660	Acres. 915,230	Miles. 41	Acres. ..	Acres. ..
S. Weetman ..	3	3	Taranaki ..	..	186,563	112	4	..	..
G. W. Williams ..	5	7	Hawke's Bay ..	..	48,880	46,009	71	..	..
J. W. A. Marchant	8	7	Wellington ..	200	214,507	447,084	6	40	..
J. S. Browning ..	8	..	Nelson ..	..	13,500	..	..	..	4,294
H. G. Clark ..	1	..	Marlborough ..	..	8,350	..	29	..	24
G. Mueller ..	2	..	Westland ..	1,518	10,644	..	225	..	150
J. H. Baker ..	4	..	Canterbury ..	..	85,935	..	..	..	..
C. W. Adams ..	6	2	Otago ..	..	35,025	..	..	..	1,583
J. Spence ..	2	..	Southland ..	..	2,700	..	..	..	..
Totals ..	55	28	..	2,168	689,764	1,408,435	376	40	6,051

No. 3.—CROWN GRANTS and other INSTRUMENTS of TITLE from the CROWN prepared.

District.	Number.	Cost.	District.	Number.	Cost.
Auckland	705	£ s. d. 293 6 2	Westland	279	£ s. d. 23 10 8
Taranaki	199	36 0 0	Canterbury	285	241 5 0
Hawke's Bay ..	1,150	71 19 8	Otago	805	485 0 0
Wellington ..	780	76 18 0	Southland	105	45 0 0
Nelson	119	156 9 6	Totals	4,447	1,435 17 0
Marlborough ..	20	6 8 0			

No. 4.—LAND TRANSFER WORK.

District.	No. of Plans passed.	Deeds and other In- struments examined.	No. of Plans placed on Certificates of Title.	Cost.	District.	No. of Plans passed.	Deeds and other In- struments examined.	No. of Plans placed on Certificates of Title.	Cost.
Auckland ..	69	420	1,112	£ s. d. 556 0 0	Westland ..	383	..	361	£ s. d. 35 2 7
Taranaki ..	48	..	157	156 14 0	Canterbury ..	145	..	898	339 14 2
Hawke's Bay ..	69	..	19	129 4 8	Otago ..	67	2,322	615	415 0 0
Wellington ..	104	..	524	145 7 6	Southland ..	37	..	514	75 0 0
Nelson ..	157	..	278	189 14 0	Totals ..	1,090	2,742	4,538	2,065 1 11
Marlborough ..	11	..	60	23 5 0					

No. 5.—PHOTOGRAPHS.

Department.	Number of Plates taken during the Year.	Number of Silver Prints made during the Year.	Department.	Number of Plates taken during the Year.	Number of Silver Prints made during the Year.
Survey	295	10	Government Printer ..	4	..
Mines	40	..	Education	1	..
Marine	3	6	Defence	6	..
New Zealand Railways	17	..	Crown Lands	10	..
Justice	10	..	Patent Office	2	..
Public Works ..	16	..	Telegraph	18	..
Museum	2	..	Geological	6	..
Lunatic Asylum ..	3	..	Totals	483	16
Public Buildings ..	50	..			

No. 6.—LITHOGRAPHIC PRINTING executed from the 1st July, 1889, to 30th June, 1890.

Department.	Number of Separate Printings.	Number of Impressions.	
		By Machine.	By Hand.
Survey	575	406,865	37,229
Public Works	166	63,550	5,352
Railways	82	168,960	223
Colonial Secretary	30	60,500	140
Justice	10	400	1,120
Mining	29	71,500	
Customs	1		500
Defence	51	2,200	1,352
Registrar-General	1		100
Education	8	575	750
Telegraph	5	3,600	
Stock	1	2,000	
Forests	62	9,900	8,700
Geological	27	24,400	36
Marine	34	13,500	1,345
Treasury	4	4,600	81
Native	15	13,000	22
Government Insurance	8	5,903	6
Crown Lands	55	59,150	14
Public Buildings	6		351
Property-tax	9	13,020	5,100
Government Printing Office	2	3,000	
Totals	1,181	926,623	62,421

No. 7.—ABSTRACT of LITHOGRAPHS PRINTED during the Year.

At the Head Office	982,294 impressions.
Auckland	1,700 impressions, 11 plans.
Dunedin	5,050 " 18 "

Maps and photographs mounted at Wellington, 1,254; maps mounted at Dunedin, 267.

No. 8.—RETURN showing the amount of Thirds of Deferred-payment and Perpetual-lease Lands, and Fourths of Small-grazing Runs paid to LOCAL BODIES during the Twelve Months ended the 30th June, 1890.

Name of District.	Amount paid.
Auckland	£ 988 16 1
Hawke's Bay	3,559 8 0
Taranaki	185 18 0
Wellington	5,550 11 1
Marlborough	7 10 0
Nelson	180 18 6
Westland	
Canterbury	1,180 4 3
Otago	5,210 16 5
Southland	2,964 16 6
Total	£19,828 18 10

No. 9.—STATEMENT OF EXPENDITURE, &c., on ROADS under the Control of the SURVEY DEPARTMENT, for the Twelve Months ended 30th June, 1890.

Work.	30th June, 1889, to 30th June, 1890.		Roads, &c., constructed, improved, or maintained.			Area of Land rendered better accessible.
	£	s. d.	Cart-road.	Bridle-road.	Length of Bridges constructed.	
MAIN ROADS, &c.						
Maintenance of Manawatu Gorge Road	236	0 0	4 40	..	..	..
Roads, Bridges, and Wharves, North of Auckland	112	0 0	..	..	..	..
<i>Main Roads—</i>						
Oxford to Rotorua	532	0 0	33 0	..	..	..
Tauranga to Napier, <i>vid</i> Taupo	1,911	0 0	175 0	..	..	..
Roads along North Island Trunk Railway	390	0 0	4 0	..	..	..
Nelson, Tophouse, and Tarndale	299	0 0	28 0	..	..	..
Nelson, Westport, Greymouth, and Hokitika	3,752	0 0	234 0	..	..	..
Hokitika to Christchurch	5,117	0 0	110 0	..	..	..
Haast Pass Track	83	0 0	45 0	..	..	..
Total	12,432	0 0	633 40	..	..	..
MISCELLANEOUS ROADS AND BRIDGES.						
<i>Auckland—</i>						
Maungaturoto to Tokatoka	93	0 0	0 32	..	..	..
Main Road, Warkworth to Kawakawa	1,049	0 0	8 25	..	..	..
Raglan to Waipa	57	0 0	..	..	..	..
Katikati to Te Aroha (Thompson's track)	542	0 0	9 1	..	..	..
Rotorua to Rotomahana	149	0 0	5 0	..	..	..
Tauranga, East Cape, Whakatane, Te Toko, and sundry roads, Bay of Plenty	878	0 0	180 0	..	..	..
Roads and Bridges in Native Districts	229	0 0	..	..	..	..
Maketu to Rotorua	318	0 0	33 0	..	..	..
Rotoiti-Tikitere	88	0 0	2 40	..	..	..
To Waitomo Caves	861	0 0	5 36	..	120	..
Otorohanga to Kihikihi	3	0 0	..	..	..	..
Mangapai Block	150	0 0	2 0	..	..	..
<i>Wellington—</i>						
Waimarino to Tokaanu	61	0 0	..	..	..	..
Napier—Murimotu Road	74	0 0	..	..	..	..
<i>Taranaki—</i>						
Junction Road from Inglewood eastward to Ngatimaru	220	0 0	5 0	..	..	..
<i>Hawke's Bay—</i>						
Waiomatatini to Hicks Bay	15	0 0	..	4 25	..	..
<i>Nelson—</i>						
Sandy Bay Road	250	0 0	0 25	..	..	..
Roads—Riwaka, Takaka, and Collingwood	200	0 0	0 75	..	..	..
Lyell—Westport Road	833	0 0	..	..	225	..
Bridges on road, Nelson to Reefton and Greymouth	5,296	0 0	..	..	..	..
<i>Marlborough—</i>						
Main Road through Pelorus District and Rai Valley	2,309	0 0	5 3	..	..	..
Road, Kaikoura to Clarence	953	0 0	4 3	..	..	..
Pelorus and Queen Charlotte Sound	272	0 0	..	5 61	..	..
<i>Canterbury—</i>						
Christchurch—Hokitika Road, construction in Bealey Valley	522	0 0	1 6	..	..	..
<i>Otago—</i>						
Bridge over Clutha at Cromwell, subsidy of £1 for £1	266	0 0	..	..	..	..
To West Coast Sounds	519	0 0	..	26 50	..	..
Taieri Bridge, subsidy of £1 for £1	666	0 0	..	..	318	..
<i>General—</i>						
Miscellaneous works	749	0 0	..	..	..	..
Total	17,622	0 0	262 6	36 56	663	..
ROADS—GRANTS-IN-AID.						
<i>Under Roads and Bridges Construction Act—</i>						
Total required to meet engagements for the year	127	0 0	..	..	..	..
<i>Under Local Bodies' Finance and Powers Act—</i>						
Moiety of balance of subsidies to Local Bodies for 1888-89	74	0 0	..	..	..	..
<i>Contingencies—</i>						
Work for unemployed	1,180	0 0	10 0	..	..	..
Total	1,381	0 0	10 0	..	..	..
ROADS TO OPEN UP LANDS BEFORE SALE.						
<i>Auckland—</i>						
Okaihui to Victoria Valley	73	0 0	..	0 14	20	7,000
Herd's Point to Takahue	559	0 0	5 10	..	20	20,000
Waimamaku to Pakanae	209	0 0	..	3 40	63	5,000
Paparoa to Waikiekie	63	0 0	..	1 28	30	1,200
Wairua to Helena Bay	211	0 0	4 0	4 0	54	2,000
Whangarei through Taheke	26	0 0	0 49	..	18	1,500
Puhoi to Makarau	70	0 0	..	3 0	..	..
Omaha	138	0 0	1 8	2 0	88	5,000
Wairua Bridge and Road	35	0 0	..	..	127	10,000
Opuawhanga to Whananaki	8	0 0	..	..	..	..
Carried forward	1,892	0 0	10 67	13 77	420	51,700

No. 9.—STATEMENT of EXPENDITURE, &c., on ROADS under the Control of the SURVEY DEPARTMENT, for the Twelve Months ended 30th June, 1890—*continued.*

Work.	30th June, 1889, to 30th June, 1890.		Roads, &c., constructed, im- proved, or maintained.			Area of Land rendered better accessible.
			Cart- road.	Bridle- road.	Length of Bridges con- structed.	
	£	s. d.	M. ch.	M. ch.	Ft.	Acres.
Brought forward	1,392	0 0	10 67	13 77	420	51,700
ROADS TO OPEN UP LANDS BEFORE SALE—<i>continued.</i>						
<i>Auckland—continued.</i>						
Whaingaroa to Mangapiko	9	0 0	..	1 3	20	10,000
Whangaroa to Waitetuna	163	0 0	0 16	..	15	3,000
Waerenga to Wangamarino	381	0 0	3 2	..	71	3,000
Awaroa Swamp, drains and roads ..	100	0 0	..	..	..	3,000
Kawhia to Waipa	195	0 0	..	..	..	..
Waingaro to Akatea	340	0 0	1 6	..	25	6,000
Mata to Kaurua	127	0 0	0 8	..	66	..
Akaaka Swamp	258	0 0	..	..	..	3,000
Drain, Te Aroha	115	0 0	..	..	..	600
Hunua District	1	0 0	..	..	..	..
Puriri to Tairua	43	0 0	..	..	..	..
Rotorua to Waitapu	275	0 0	22 0	..	..	..
Huka Falls to Puketarata	73	0 0	5 0	..	..	..
Tatarika Drains	100	0 0	..	..	..	..
Purchase of roads to Crown lands ..	20	0 0	..	..	..	..
Miscellaneous	1,808	0 0	0 16	1 0	144	5,000
Totals, Auckland	5,400	0 0	42 35	16 0	761	85,300
<i>Hawke's Bay—</i>						
Tologa to Mangatokerau	64	0 0	..	1 50	..	* ..
Tologa to Arakihi	294	0 0	..	4 6	..	20,300
Ormond to Waiapu	151	0 0	..	5 78	..	49,150
Ormond to Opotiki	474	0 0	60 0	..	..	..
Makaretu	181	0 0	..	..	..	..
Tautane Reserve	753	0 0	1 73	..	..	14,000
Manawatu Bridge subsidy	500	0 0	..	..	..	..
Miscellaneous	144	0 0	..	..	..	..
Totals, Hawke's Bay	2,561	0 0	61 73	11 54	..	83,450
<i>Taranaki—</i>						
Pukearuhe to Mokau	151	0 0	16 40	..	..	..
Roads east of Waitara (Ngatimaru) ..	93	0 0	..	..	..	..
Roads east of Stratford	289	0 0	2 0	..	..	..
Huiroa District	134	0 0	..	..	..	..
Eltham and Branch Roads	510	0 0	..	..	83	..
Roads inland of Mokoia	279	0 0	..	..	..	..
Alfred Road	16	0 0	2 8	..	..	6,000
Rotokare and Branch Roads	443	0 0	12 40	..	..	9,600
Mokau Punt	220	0 0	..	..	..	..
Pukearuhe inland	174	0 0	6 0	..	..	..
Miscellaneous	345	0 0	1 48	4 18	..	..
Totals, Taranaki	2,654	0 0	40 56	4 18	83	15,600
<i>Wellington—</i>						
Kairanga Drain	83	0 0	..	..	..	..
Pahiatua to Palmerston North	38	0 0	..	..	..	..
Pahiatua, Mangaone, and adjacent blocks	400	0 0	..	4 0	..	10,000
Rangitumau, Wangaehu, Kopuaranga ..	324	0 0	..	..	..	..
Mangatainoko District	116	0 0	..	..	..	5,000
Tiraumea Bridge and Road	307	0 0	..	..	..	..
Tutaekara Road	243	0 0	..	1 0	..	5,000
Mangaone to Tiraumea	556	0 0	2 5	..	..	15,000
Tiraumea to Makuri	763	0 0	..	12 0	..	20,000
Puketoi	666	0 0	..	3 20	..	7,000
Makakahi Bridge to Mangahao	276	0 0	2 56	..	..	5,000
Mauriceville West	381	0 0	4 20	..	..	5,000
Mount Baker Valley	3	0 0	..	..	..	..
Tararua	32	0 0	..	..	..	..
Road, Orua River	300	0 0	1 2	..	..	15,000
Toritea Road	100	0 0	..	..	..	..
Wanganui to Murimotu	463	0 0	6 0	0 57	..	20,000
Otamakapua	798	0 0	..	3 66	..	20,000
Waitapu Block	67	0 0	..	..	..	..
Maungakaretu	157	0 0	..	2 31	26	..
Waitotara to Omahini	68	0 0	..	..	..	..
Otaki to Foxton	194	0 0	..	..	..	..
Waitotara Valley	400	0 0	3 30	..	..	10,000
To purchase roads to Crown lands ..	152	0 0	..	..	..	..
Miscellaneous	261	0 0	..	..	..	..
Totals, Wellington	7,448	0 0	19 33	27 14	26	137,000

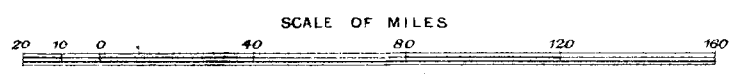
No. 9.—STATEMENT of EXPENDITURE, &c., on ROADS under the Control of the SURVEY DEPARTMENT, for the Twelve Months ended the 30th June, 1890—*continued.*

Work.	30th June, 1889, to 30th June, 1890.	Roads, &c., constructed, improved, or maintained.			Area of Land rendered better accessible.
		Cart-road.	Bridle-road.	Length of Bridges constructed.	
	£ s. d.	M. ch.	M. ch.	Ft.	Acres.
ROADS TO OPEN UP LANDS BEFORE SALE—<i>continued.</i>					
<i>Nelson—</i>					
Little Sydney Road, Riwaka	145 0 0	..	2 12	..	2,000
Pigeon Valley to Motueka	172 0 0	4 40	..	..	3,000
Trass's Valley	100 0 0	0 60	..	..	2,000
Wakefield District	100 0 0	0 31	..	..	..
Dovedale	160 0 0	1 11	..	..	3,000
Wairoa Bridge	150 0 0	..	..	120	..
To purchase roads to Crown lands	107 0 0	..	..	..	..
Miscellaneous	124 0 0	..	..	..	..
Totals, Nelson	1,058 0 0	6 62	2 12	120	10,900
<i>Marlborough—</i>					
Rai Ronga and Whangamoa Roads	266 0 0	4 4	..	..	..
<i>Westland—</i>					
Hunt's Beach to Makawiho	10 0 0	..	3 0	..	4,000
Cook's River Flat	1,000 0 0	..	8 0	..	7,000
Pounamu to Teremakau	125 0 0	1 40	..	..	1,200
Miscellaneous	6 0 0	..	..	..	..
Totals, Westland	1,141 0 0	1 40	11 0	..	12,000
<i>Canterbury—</i>					
To Upper Ashley over Kuku Pass	75 0 0	..	..	..	..
Ohau Bridge, £1 for £1	800 0 0	..	..	..	..
Miscellaneous	77 0 0	..	0 30	..	..
Totals, Canterbury	952 0 0	..	0 30	..	..
<i>Otago—</i>					
Pembroke to Matukituki	250 0 0	1 53	..	..	50,000
Maniototo District	200 0 0	1 0	..	..	1,200
Gimmerburn District	100 0 0	0 34	..	..	3,400
Run 210	600 0 0	5 67	..	..	16,288
Rankleburn and Tuapeka West	150 0 0	1 8	..	..	1,500
Glenkenich, &c.	40 0 0	1 15	..	..	543
Kelso to Waikaka	1,000 0 0	2 74	..	..	2,000
Glenoamaru and Owake	485 0 0	1 20	..	..	2,000
Catlin's District	2,381 0 0	6 0	..	..	4,620
Waikawa to Catlin's	87 0 0	3 40	..	..	5,000
Riversdale, Switzers	500 0 0	..	..	..	5,000
Miscellaneous	645 0 0	..	..	..	330
Totals, Otago	6,438 0 0	24 71	..	..	91,851
<i>Southland—</i>					
Mossburn to Manipori	108 0 0	..	..	..	..
Seaward Forest to Deferred-payment Block	350 0 0	1 40	..	..	2,000
Appleby to Tisbury	143 0 0	0 24	..	..	..
Woodend to Bushy Point	100 0 0	3 40	..	..	1,500
Wyndham, <i>vid</i> Mimiha to Otarua	100 0 0	..	..	18	..
Boundary Creek Bridge to Mokoreta	150 0 0	..	..	26	5,000
Waikawa	648 0 0	..	5 0	8	10,000
Waikaka Siding to Waikaka Town	800 0 0	..	..	10	5,000
Horse Bridge, Wairaki River, £1 for £1 .. .. .	..	..	..	168	20,000
Stewart Island	221 0 0	..	14 0	..	..
Miscellaneous	339 0 0	..	..	..	..
Totals, Southland	2,959 0 0	5 20	19 0	230	43,500
Totals	30,577 0 0	206 74	91 48	1,220	478,701
VILLAGE SETTLEMENTS.					
Improvement of village settlements	3,091 0 0	..	..	..	..
Roads to village settlements	3,377 0 0	7 42	1 48	296	130,800
Assistance to village-homestead settlers	79 0 0	..	..	..	..
Total	6,547 0 0	7 42	1 48	296	130,800
ROADS.					
<i>Roads to give Access to Marton-Te Awamutu Railway—</i>					
North end	10 0 0	..	..	..	..
South end	89 0 0	..	..	..	..
Hunterville to Taurangarere	460 0 0	4 26	0 20	..	..
Total	559 0 0	4 26	0 20	..	..



S. PERCY SMITH
Surveyor General.

INDEX TO THE STATE OF THE PUBLIC SURVEYS IN NEW ZEALAND

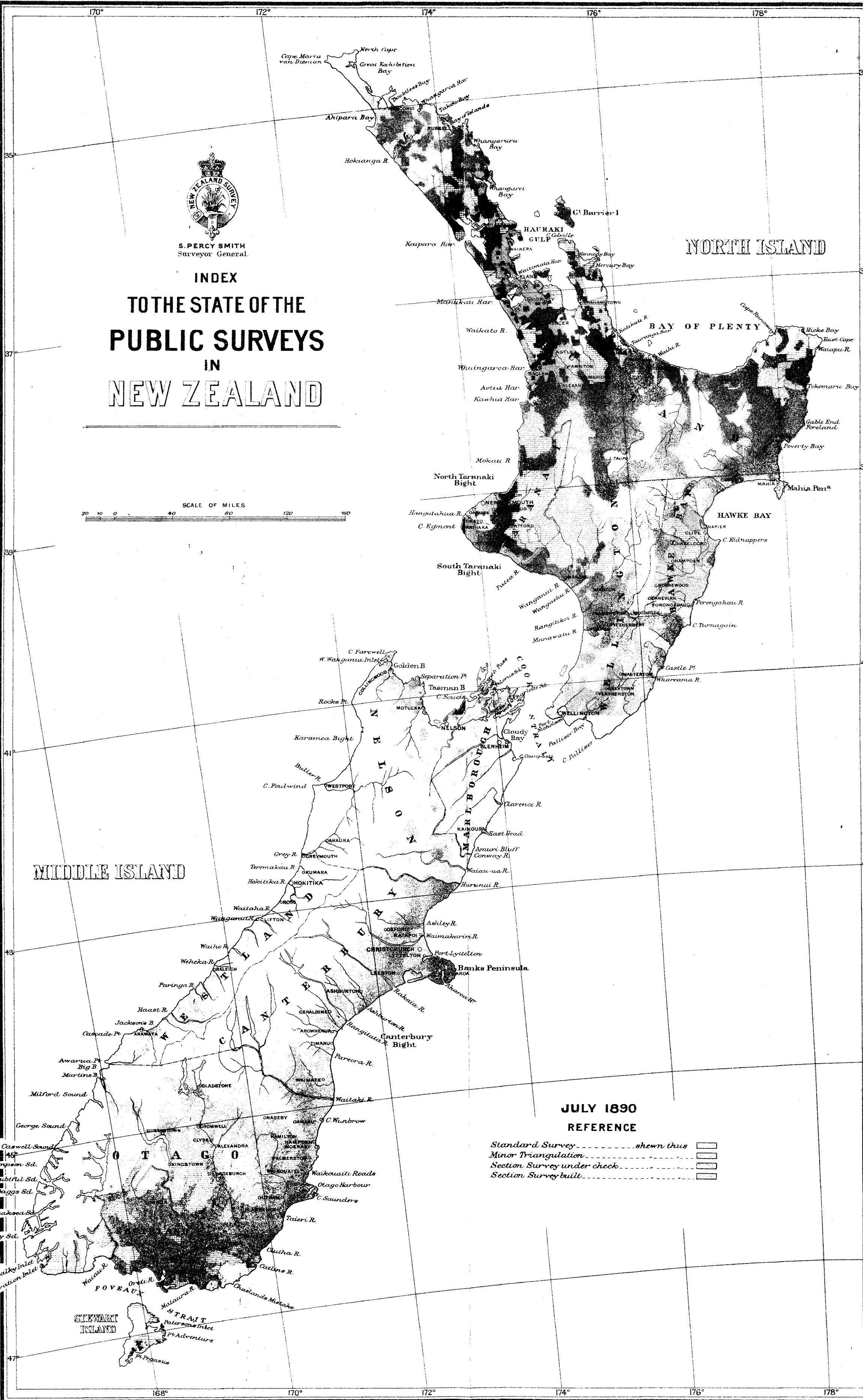


MIDDLE ISLAND

NORTH ISLAND

JULY 1890
REFERENCE

- Standard Survey ----- shown thus
- Minor Triangulation -----
- Section Survey under check -----
- Section Survey built -----



No. 10.—RETURN of FIELD-WORK executed by the STAFF and CONTRACT SURVEYORS, from 1st July, 1889, to 30th June, 1890.

PROVINCIAL DISTRICT OF AUCKLAND.

Main table for Provincial District of Auckland with columns for Surveyor and District, Minor Triangulation, Topographical Survey, Rural and Suburban, Town Section Survey, Native Land Court Survey, Gold-mining Survey, Roads, Railways, and Water-races, Detention by Native Opposition, Other Work, Total Cost of Surveyor and Party, and Remarks.

* Private surveys paid for by Natives.

LAND DISTRICT OF HAWKE'S BAY.

Main table for Land District of Hawke's Bay with columns for Surveyor and District, Minor Triangulation, Topographical Survey, Rural and Suburban, Town Section Survey, Native Land Court Survey, Gold-mining Survey, Roads, Railways, and Water-races, Detention by Native Opposition, Other Work, Total Cost of Surveyor and Party, and Remarks.

No. 10—continued.—RETURN of FIELD-WORK executed by the STAFF and CONTRACT SURVEYORS, from 1st July, 1889, to 30th June, 1890.

PROVINCIAL DISTRICT OF TARANAKI.

Surveyor and District.	Minor Triangulation.			Topographical Survey for Selection under "The Land Act, 1887."			Rural and Suburban.			Native Land Court Survey.			Gold-mining Survey.			Roads, Railways, and Water-races.			Other Work.	Total Cost of Surveyor and Party from 1st July, 1889, to 30th June, 1890.	Remarks.			
	Acres.	Cost per Acre.	Total Cost.	Acres.	Cost per Acre.	Total Cost.	Acres.	No. of Sections.	Cost per Acre.	Total Cost.	Acres.	No. of Secs. or Divs.	Cost per Acre.	Total Cost.	Acres.	No. of Sections.	Cost per Acre.	Total Cost.	Miles.			Cost per Mile.	Total Cost.	Cost.
<i>Staff.</i>																								
H. M. Skeet. Cape, &c.	8,331	36	1-08	448 4 8	297	5	1-46	21 15 0	..	..	..	..	145	2-88	418 11 3	197 15 9	723 7 11	Heavy forest. "Other work" includes redefining boundaries of old surveys, standard survey at Inglewood and Stratford, &c.
P. A. Dalziel. Huiroa	9,121	35	1-28	586 0 2	..	..	..	..	..	..	..	..	..	..	..	20 13 0	623 6 2	All heavy forest country; broken. "Other work" consists of back-pegging old work.
E. W. Buckeridge. Hawera	7,327	12	1-37	502 8 10	..	..	..	..	..	..	..	..	3	20	60 0 0	..	556 2 10	All heavy forest; broken country. Adjoining old surveys, necessitating a good deal of resurvey.
Taranaki Office	67 12 0	67 12 0	Harbour soundings, and scattered work.
<i>Contract Surveyors.</i>																								
R. H. Davies. Waitara	3,164	9	1-25	199 19 3	..	..	..	..	..	..	..	..	..	..	..	..	199 19 3	Rough forest country; adjoining old surveys on three sides, which were adopted.
Paid for out of deposits																								
T. K. Skinner	1,240	56	3-23	200 9 0	..	..	..	..	..	..	..	..	200 9 0	Chiefly open; adjoining very old surveys.
A. O. O'Donahoo. Ngaere	7,070	..	..	60 0 0	..	..	..	..	..	..	..	..	60 0 0	Partial resurvey of Pukengahu Block. Heavy forest country.
Means and totals	27,943	92	1-24	1,736 12 11	8,607	61	..66	282 4 0	..	..	..	..	148	3-23	478 11 3	286 0 9	2,431 17 2	

* Reconnaissance survey of roads to connect with Main Trunk line: a few miles roughly graded and chained.

PROVINCIAL DISTRICT OF WELLINGTON.

<i>Staff.</i>																												
L. Smith. Mangahao, Mangaone	..	..	..	..	..	..	4,928	58	2/1-6	525 3 4	4,316	4	1/1-73	247 6 5	..	..	..	..	..	..	..	..	485 15 4	695 1 8	Heavy forest country.		
J. D. Climie. Puketoi-Makuri	..	..	..	..	..	..	4,727	5	98 9 7	1,536	5	1/8	53 13 4	..	..	..	..	..	12	0 0	20 17 10	242 4 5	1,109 8 9	Rough forest country; difficult of access.			
J. Annabell. Wairoa, Omahine	..	..	..	..	..	..	6,963	27	1/11	655 13 0	..	..	..	..	..	..	..	..	9	9 8 0	84 13 9	166 6 4	1,172 16 4	Rough forest country; difficult of access. Selection survey cost 7-2d. last year. Cost increased by following ridges and spurs to give good fencing boundaries; also by other special causes.			
A. E. Ashcroft. Moutere and Mount Robinson	11,000	1-2	55 0 0	..	..	..	11,453	8	2-5	122 16 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
A. E. Ashcroft. Hautapu and Apiti	..	..	..	18,000	5-8	431 14 2	..	..	..	..	..	..	..	..	..	..	..	..	63	6 14 8	43 15 6	147 8 1	774 12 6	Selection survey in rough forest country; difficult of access.			
R. P. Greville. Mangaone	..	..	..	..	..	..	7,300	20	1/0-6	322 8 4	10	1	6/3-5	3 3 0	..	..	..	..	53	10 18 2	60 0 0	174 13 2	853 0 0	Heavy forest country. Selection survey cost 5d. in previous years.			
H. J. Lowe. Pohangina, &c.	..	..	..	12,000	5-2	256 5 0	7,959	29	1/11	451 10 3	..	..	..	..	..	..	..	..	14	20 0 0	25 0 0	89 10 6	572 15 1	Rough forest country; difficult of access. Selection survey of sectional area cost 5d. per acre.			
J. F. Frith. Mangaone and Kopuaranga	..	..	..	..	..	..	5,200	15	1/0-6	229 13 4	..	..	..	..	..	..	..	..	4	10 0 0	40 0 0	367 10 8	421 13 3	Heavy forest country. Selection survey cost 5d. in previous years.			
T. L. Humphries. Maungakaretu	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	616 4 8	Mr. Humphries was transferred to Auckland District.	
R. H. Reaney. Mangahao, &c.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	104 11 0	46 5 6	
G. T. Murray. Mangahao-Makuri	..	..	..	..	..	..	2,541	33	1/8	212 3 0	..	..	..	..	..	..	..	..	24-6	10 18 0	269 5 11	53 17 11	485 13 8	Heavy forest country.			
C. A. Mountfort. Ongo, &c.	..	..	..	..	..	..	6,080	53	1/7	495 9 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	627 13 8	Rough forest country; difficult of access.	
A. Dundas. Ongo and Apiti	..	..	..	..	..	..	7,850	39	1/0-6	346 14 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	286 18 6	Work executed in year 1887-88. Heavy forest country.
J. R. Annabell. Maungakaretu, &c.	..	..	..	10,910	5-6	253 8 7	..	..	..	..	2,273	1	3/4	33 0 0	..	..	..	..	73	14 14 10	110 12 4	9 4 0	367 3 0	367 3 0	Rough forest country; difficult of access.		
H. W. Climie. Makuri, &c.	..	..	..	6,858	5	142 17 6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	136 17 10	582 9 10	Ditto.
T. W. Hughes. Puketoi, &c.	..	..	..	16,500	4-1	281 5 4	406	2	1/5-67	29 18 0	..	..	..	..	..	..	..	..	15	9 18 6	148 18 0	137 8 0	430 14 11	430 14 11	"		
H. J. Lewis. Kaiwhata-Rewa	..	..	..	18,420	5-04	386 15 3	..	..	..	..	..	..	..	..	..	..	..	..	1	14 14 0	14 14 0	46 0 0	412 2 1	412 2 1	"		
A. Seaton. Mangahao	..	..	..	5,000	6-53	136 2 3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	346 14 4	346 14 4	"
C. Finnerty. Wairoa	..	..	..	..	..	..	1,044	5	1/11	100 0 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	100 0 0	100 0 0	Rough forest country. Selection survey cost 7-2d. in previous years.
Means and totals	11,000	1-2	55 0 0	92,415	5-16	1,986 17 8	63,260	294	1-12	3,545 2 11	6,599	6	1/0-3	283 9 5	..	..	..	..	76	10 15 3	817 17 4	2,448 5 9	9,414 9 3				
<i>Authorised Surveyors paid out of deposits.</i>																												
E. W. Seaton. Haurangi, &c.	..	..	..	..	..	..	6,020	7	1/11	299 4 7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	388 4 7	Rough forest country. Selection survey cost 3d. per acre in previous years.	
C. E. O. Smith. Haurangi, &c.	..	..	..	..	..	..	6,067	6	9-06	229 0 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	217 0 0	Ditto.	
T. Ward. Maungakaretu, &c.	..	..	..	..	..	..	7,284	12	1/0-3	328 15 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	168 15 0	168 15 0	Rough forest country; difficult of access. Exclusive of original cost of survey for Native Land Court and selection purposes.
N. H. Macdonald. Maungakaretu, &c.	..	..	..	..	..	..	7,049	6	9-02	265 0 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	150 0 0	150 0 0	"
A. O'Donahoo. Maungakaretu, &c.	..	..	..	..	..	..	6,527	5	8-09	220 0 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	165 0 0	165 0 0	"
F. Owen. Apiti, Ongo, &c.	..	..	..	..	..	..	5,150	25	1/0-6	227 10 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	157 0 0	157 0 0	Heavy forest country.
T. G. Mountain. Pohangina, &c.	..	..	..	..	..	..	700	1	1/	35 0 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25 0 0	25 0 0	Rough forest country. Selection survey cost 5d. in previous years.
J. King. Mangaone	..	..	..	..	..	..	1,426	5	8	47 5 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35 8 9	35 8 9	Heavy forest country. Selection survey cost 7-6d. in previous years.
J. Anderson. Apiti, &c.	..	..	..	..	..	..	1,987	1	7-24	60 0 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	45 0 0	45 0 0	Rough forest country. Selection survey cost 6-6d. in previous years.
H. Mitchell. Ohinewairau, Hautapu, &c.	255,098	..	2 1/2	2,657 5 5	The price per acre, subject to deduction for adjoining boundaries.
Means and totals	..	..	..	..	..	..	42,210	68	1/0-5	1,711 14	7,255,098	..	2 1/2	2,657 5 5	..	..	..	..	..	..	..	..	..	..	1,351 8 4		
Grand means and totals	11,000	1-2	55 0 0	92,415	5-16	1,986 17 8	105,470	362	1/11-96	5,256 17	6,261,697	..	2-7	2,940 14 10	..	..	..	..	76	10 15 3	817 17 4	2,488 5 9	10,765 17 7				

PROVINCIAL DISTRICT OF MARLBOROUGH.

R. F. Goulter (Staff)— Oriari, Linkwater, Gore, Hundalee, Mount Fyffe, Avon	..	..	..	..	..	..	10,751	47	1/11-4	511 1 10	..	..	..	..	29	1	12-8	18 10 6	..	..	..	..	..	..	89 7 0	667 16 10	Partly open, partly rugged bush country; scattered surveys (expensive). No cadet. * Revised.
A. D. Wilson (Authorized Surveyor)— Cloudy Bay	*1,148	5	7	33 9 0	6 19 0	6 19 0	Special claim; partly open, partly bush.
Means and totals	..	..	..	..	..	..	11,899	52	1/10-9	544 10 10	..	..	..	..	34	2	15	25 9 6	..	..	..	..	..	..	89 7 0	674 15 10	

No. 10—continued.—RETURN of FIELD-WORK executed by the STAFF and CONTRACT SURVEYORS, from 1st July, 1889, to 30th June, 1890.

PROVINCIAL DISTRICT OF NELSON.

Surveyor and District.	Topographical Survey.			Minor Triangulation.			Topographical Survey for Selection under "The Land Act, 1887."			Rural and Suburban.				Town Section Survey.			Native Land Court Survey.			Gold-mining Surveys.				Roads, Railways, and Water-races.			Detention by Native Opposition or other Causes.	Other Work.	Total Cost of Surveyor and Party from 1st July, 1889, to 30th June, 1890.	Remarks.				
	Acres.	Cost per Acre.	Total Cost.	Acres.	Cost per Acre.	Total Cost.	Acres.	Cost per Acre.	Total Cost.	Acres.	No. of Sections.	Cost per Acre.	Total Cost.	Acres.	No. of Allotments.	Cost per Allotment.	Total Cost.	Acres.	No. of Secs. or Divs.	Cost per Acre.	Total Cost.	Acres.	No. of Sections.	Cost per Acre.	Total Cost.	Miles.					Cost per Mile.	Total Cost.	Cost.	Cost.
J. Snodgrass. Buller and Karamea Circuits	..	d.	£ s. d.	..	d.	£ s. d.	..	d.	£ s. d.	5,870	26	1/5	415 15 10	..	..	£ s. d.	£ s. d.	..	..	£ s. d.	A. R. P.	s. d.	£ s. d.	..	£ s. d.	£ s. d.	..	£ s. d.	£ s. d.	..	£ s. d.	£ s. d.	One month's leave. Rough bush country; within goldfield. No cadet.
J. A. Montgomerie. Inangahua, Mawhera, Cobden	309	8	2/9-7	43 9 0	..	..	..	..	..	..	..	1,053	35	5/2-5	275 4 2	..	..	..	..	..	..	..	702 18 0	Rough bush country; within goldfield. Cadet three months.	
T. Sadd. Aorere, Takaka, and Waitapu	71,402	0-3	96 16 3	5,519	86	2/2-3	604 11 10	..	..	..	..	..	..	..	1,095	46	10/10-8	597 13 11	38ch	16 12	7	7 18 0	..	194 3 3	907 14 10	Heavy bush. Within goldfield. One cadet assisting.		
G. H. Bullard. Owen, Tainui, and Karamea	200,000	0-5	410 19 0	..	..	..	4,894	25	2/5-6	603 7 9	..	..	..	..	..	..	..	450	6	2/9-5	61 17 0	3	5 19	8	17 19 0	..	186 19 3	699 3 8	High bush country; within goldfield. No cadet.		
F. S. Smith. } Amuri Circuit {	157,813	1-25	821 18 10	..	..	..	50,756	6	0/9	1,903 7 0	..	..	..	..	..	..	..	267	5	6/	80 0 0	..	..	..	..	..	..	..	719 13 9	140,000 acres of trig. and topography nearly completed in field. Mountainous country. No cadet. Not in goldfield.	
F. A. Thompson. }	15,972	0-7	49 18 3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	623 14 4	..		
W. D. B. Murray. Waitapu, Totaranui, Kaiteriteri	75,000	2-25	703 2 6	1,163	11	1/8	96 18 4	57 6 2	862 3 0	Rough bush country; bays and inlets. No cadet.
F. A. Greenfield. Wai-iti, Wangapeka, Waimea	103,790	0-9	389 4 3	5,583	60	1/4	372 4 0	25 10 0	567 14 8	High bush country. Part goldfield. No cadet.
Authorised Surveyors	4,189	38	1/2-5	253 2 9	..	..	..	..	..	..	..	274	7	7/10	93 13 0	8	6 15	0	59 1 0	..	..	..	346 7 8	Partly on goldfield. Paid by fees.	
Means and totals	552,575	1-08	2,375 2 10	71,402	0-3	96 16 3	78,283	260	1/1-1	4,292 16 6	..	..	..	..	..	..	..	3,139	99	7/0-7	1,108 8 1	12	6 18	0	84 18 0	..	1,087 13 0	5,961 18 6	..		

PROVINCIAL DISTRICT OF WESTLAND.

Surveyor and District.	Topographical and Trigonometrical Survey.			Topographical Survey for Selection under "The Land Act, 1887."				Rural and Suburban.				Town Section Survey.			Native Land Court Survey.			Gold-mining Surveys.				Roads.			Detention by Native Opposition or other Causes.	Other Work.	Total Cost of Surveyor and Party from 1st July, 1889, to 30th June, 1890.	Remarks.					
	Acres.	Cost per Acre.	Total Cost.	Acres.	Cost per Acre.	Total Cost.	Acres.	No. of Sections.	Cost per Acre.	Total Cost.	Acres.	No. of Allotments.	Cost per Allotment.	Total Cost.	Acres.	No. of Secs. or Divs.	Cost per Acre.	Total Cost.	Acres.	No. of Sections.	Cost per Acre.	Total Cost.	Miles.	Cost per Mile.					Total Cost.	Cost.	Cost.		
Staff District Surveyor. W. G. Murray. Cascade, Jackson, Arawata, Macfarlane, Okuru, Arnott, Matakitaiki, Bruce Bay, Karangarua	39,240	0-53	87 16 4	..	..	..	12,960	3-1	169 7 9	2,220	22	2/1-9	239 13 4	..	..	..	..	..	..	..	..	..	..	..	..	22-25	18 8 6	8	410 0 6	..	23 11 8	835 0 9	Heavy bush and broken country within a goldfield, and the most expensive district in New Zealand. Detached and isolated section surveys; road surveys through dense forest country.
Staff Assistant Surveyor. W. Wilson. Greymouth, Gillespies, Karangarua, Waiho, Okarito, Wataroa, Poerua, Wanganui, Oneone	19,888	1-21	100 9 0	..	..	..	50,000	0-25	52 12 0	4,858	40	1/11	474 6 4	30 3 6	47	1 9 7	69 13 2	..	..	..	50 0 0	1	6/2	15 12 0	..	..	..	..	..	..	..	625 7 0	Heavy bush and broken country within a goldfield, and very expensive district. Section surveys isolated and detached.
Contract Surveyors. J. N. Smyth. Okarito, Totara, Kanieri, Waimea, Otira	..	..	..	..	..	..	..	..	..	77	2	4/3	16 8 0	..	..	..	..	..	..	..	551 3 15	14	6/4	176 0 6	2-94	14 6 11	42 3 0	..	21 15 0	256 6 6	Heavy bush country; expensive district (goldfields). Gold-mining surveys, quartz-mining, and special claims inland, and special claims on sea-beach.		
E. J. Lord. Greymouth, Arnold, and Waimea	..	..	..	..	..	..	..	..	..	62	16	24/	74 6 0	..	..	..	..	..	..	..	270 0 36	5	5/6	74 6 0	..	..	..	..	..	..	11 6 0	125 11 0	Heavy bush country in a goldfield, and expensive district suburban section survey in densely-timbered country; gold-mining claims on sea-coast and beach.
H. J. Wylde. Greymouth and Waimea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	121 2-04	3	6/3	38 6 6	..	..	..	..	..	..	..	38 6 6	Heavy bush country in an expensive goldfields district.
Totals	59,128	0-76	188 5 4	..	..	..	62,960	0-84	221 19 9	7,217	80	2/2	804 13 8	30 3 6	47	1 9 7	69 13 2	..	..	..	993 2 15	23	6/1	304 5 0	25-24	17 18 3	452 3 6	..	56 12 8	1,880 11 9	..		

PROVINCIAL DISTRICT OF CANTERBURY.

Surveyor and District.	Topographical Survey for Selection under "The Land Act, 1887."			Topographical Survey for Selection under "The Land Act, 1887."				Rural and Suburban.				Town Section Survey.			Native Land Court Survey.			Gold-mining Surveys.				Coal-mining Survey.			Detention by Native Opposition or other Causes.	Other Work.	Total Cost of Surveyor and Party from 1st July, 1889, to 30th June, 1890.	Remarks.							
	Acres.	Cost per Acre.	Total Cost.	Acres.	Cost per Acre.	Total Cost.	Acres.	No. of Sections.	Cost per Acre.	Total Cost.	Acres.	No. of Allotments.	Cost per Allotment.	Total Cost.	Acres.	No. of Secs. or Divs.	Cost per Acre.	Total Cost.	Acres.	No. of Sections.	Cost per Acre.	Total Cost.	Miles.	Cost per Mile.					Total Cost.	Cost.	Cost.				
Joseph S. Welch. Selwyn and Akaroa Counties	..	..	..	..	..	..	7,146	26	4	138 9 0	..	..	..	..	..	..	1,538	100	5/5	419 7 6	..	..	..	..	..	..	..	..	..	..	128 17 0	695 3 11	Owing to the smallness of the subdivisions and disputes with Natives re boundaries, and consequent delays, the cost of the Native Land Court surveys is greatly increased.
James Hay. Selwyn County	..	..	..	..	..	..	9,250	72	1/0	481 10 7	9	36	12/10	23 2 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	580 10 5	Subdivision of Lake Ellesmere. Mr. Hay transferred to Hawke's Bay, 31st May, 1890.	
T. N. Brodrick. Waitaki, Mackenzie, and Geraldine Counties	189,297	0-37	291 16 7	89,267	0-74	275 5 0	..	..	..	54	2	1/8	4 10 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	76 14 1	741 18 6	Triangulation in high mountainous country. Road survey near Halden Station.
G. H. M. McClure. Waimate, Mackenzie, Geraldine	..	..	..	45,296	2-34	441 12 7	1,185	20	11-76	58 3 11	..	..	..	..	..	..	1,805	16	8-21	61 15 11	..	..	..	..	..	..	..	..	..	..	6 17 4	556 18 8	"Other work." Educational survey (cost refunded). Topographical survey under "The Land Act, 1887," entailed the re-marking on the ground of a large number of old sectional boundaries.
L. O. Mathias. Waimate, Ashburton, Geraldine	..	..	..	21,271	1	88 12 7	13,987	39	4-37	254 12 1	1	1-42	2 2 0	..	..	..	1,915	155	2/8	259 0 3	..	..	..	..	..	..	..	..	..	..	4 4 0	600 3 3	Includes subdivision of Native pah into seventy-five town lots. Delays owing to Native disputes greatly retarded and increased the cost of the Native Land Court surveys.
Contractors. McIntyre and Lewis. Selwyn County	
W. H. Dunnage. Selwyn County	55	2	2/7	7 3 6	484	2	1-95	47 0 0	54 3 6	..
Means and totals	189,297	0-37	291 16 7	89,267	0-74	275 5 0	66,567	1-91	530 5 2	31,678	162	7	946 11 1	9 36	12-9	23 2 0	5,258	271	2-84	740 3 8	484	2	1-95	47 0 0	4-13	70/	14 8 9	..	216 12 5	3,228 18 3	..				

No. 10—continued.—RETURN of FIELD-WORK executed by the STAFF and CONTRACT SURVEYORS, from 1st July, 1889, to 30th June, 1890.

PROVINCIAL DISTRICT OF OTAGO.

Surveyor and District.	Topographical and Trigonometrical Surveys.			Rural and Suburban.				Town Section Survey.			Native Land Court Survey.				Gold-mining Survey.				Roads, Railways, and Water-races.			Detention by Native Opposition or other Causes.	Other Work.	Total Cost of Surveyor and Party from 1st July, 1889, to 30th June, 1890.	Remarks.	
	Acres.	Cost per Acre.	Total Cost.	Acres.	No. of Sections.	Cost per Acre.	Total Cost.	Acres.	No. of Allotments.	Cost per Allotment.	Total Cost.	Acres.	No. of Sections.	Cost per Acre.	Total Cost.	Acres.	No. of Sections.	Cost per Acre.	Total Cost.	Miles.	Cost per Mile.					Total Cost.
<i>Staff.</i> John Strauchon. Glenomaru and South Molyneux	..	d.	£ s. d.	7,690	63	1/8	£ 642 8 1	£	4	7 14 4	30 17 6	£ ..	43 3 0	655 17 6	Two months or thereabouts have been taken up with surveys for the Southland office. Heavy bush land; ordinarily expensive to work. Not in a goldfield. No cadet.
David Barron. Gimmerburn, Maniototo, Naseby, Kyeburn, Lauder, St. Bathans, Poolburn, &c.	5,065	28	1/	253 19 6	27	109	10/	54 10 0	..	..	..	2,184	77	3/6	382 4 0	..	..	..	..	175 12 10	883 1 7	Open country. Within a goldfield. No cadet.	
John Langmuir. Bengier, Teviot, Tuapeka W., Tuapeka E., Waipori, and Maungatua	287	2	2 7 10	4,021	32	1/18	229 6 5	..	..	..	..	..	..	1,590	46	4/4½	347 12 5	7	6 5 2	43 16 0	..	49 10 0	657 5 5	Partly bush country. Cadet assisting.	
E. H. Wilmot. Shotover, Skipper's Creek, Cardrona, Kawarau, Dart, &c.	2,552	71	4/4½	557 12 2	..	..	..	..	182 17 0	653 11 4	Rough, open country. All spotting surveys. On the goldfields. No cadet.		
D. M. Calder. Moeraki, Awamoko, Woodland	2,910	24	2/4½	344 7 1	..	..	..	..	1,147	58	2/94	168 2 0	..	..	..	..	..	..	60 0 0	49 16 0	585 15 2	Native reserve. Bush, and hilly; difficult to lay off in exact areas to suit Natives. Woodland District, covered with dense forest. No cadet.	
W. D. R. McCurdie. Glenomaru and Catlins	5,000	41	2/2½	552 17 0	..	..	..	..	..	..	..	..	..	..	..	1-4	11 8 7	16 0 0	..	32 6 0	572 4 0	Heavy bush land. No cadet.	
<i>Temporary Surveyors.</i> G. Mackenzie. Glenomaru	50 1 9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50 1 9	Mr. Mackenzie left the Department before he had finished any surveys in the field.	
John Edie. Glenomaru	2,510	16	2/4½	301 6 6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9 16 10	207 19 10	All heavy bush.	
C. D. Price. Glenomaru	2,363	13	2/7	305 5 5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	199 12 10	Ditto.	
<i>Contract Surveyors.</i> G. M. Barr. Clutha	155 0 0	Clutha River survey.	
G. Mackenzie. Waipahi	130 0 0	130 0 0	Open land. Railway Reserve.	
H. W. Reid. Maniototo	2,410	15	/9	90 7 6	..	..	..	..	..	..	..	..	..	..	..	2	3 3 0	6 6 0	..	..	40 0 0	Native Reserve, Waikouaiti.	
																								96 13 6	Ditto.	
																									4,887 2 11	
<i>Fee System.</i> Charles Banks. Ahuriri	48	1	2/4	5 12 0	5 12 0	An application to purchase.
John Cumine. Maerwhenua	21	3	15/7½	16 8 0	33 18 0	Open country.
G. M. Barr. Cromwell and Bannockburn	159	4	5/9	45 14 0	92 10 0	Open, rough, broken country.
Robert Hay. Budle, Hummock, &c.	1,686	58	6/6	531 19 0	531 19 0	Ditto.
H. W. Reid. Maniototo and Swinburn	5	1	20/7	5 3 0	500	1	/11½	23 8 0	28 11 0	Open country.
L. D. Macgeorge. Lauder, Cairnhill, &c.	643	21	5/3½	170 13 6	170 13 6	Open country; very rough.
L. O. Beal, jun. Nevis, Lorn, Cardrona	1,120	28	6/1	340 5 6	78 17 6	Ditto.
John Edie. Greenvale	3	1	26/8	4 0 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4 0 0	An application to purchase.	
Means and totals	287	2	2 7 10	32,046	238	1-75	2,801 2 3	27	109	10/	54 10 0	1,147	58	2-94	168 2 0	10,424	307	4/7½	2,416 18 7	14-4	6 14 8½	96 19 6	60 0 0	673 1 8	5,833 3 11	

PROVINCIAL DISTRICT OF SOUTHLAND.

<i>Staff.</i> J. Hay. Pegasus, Lord's River, Mason, and Paterson District	..	..	..	..	..	..	..	..	..	..	..	..	..	..	874	19	6/10	299 19 6	..	..	..	..	..	..	864 4 0	£186 8s. 8d. carried forward from last year. The mining areas (tin) were densely bush-clad. In progress, some 55,000 acres of minor triangulation over country largely scrub-clad, topography and measurement of base-line included; cadet assisting. Work done on ground cost to date £720 1s. 6d.
J. Strauchon	..	..	..	..	..	..	..	..	..	..	..	255	4	1/7½	20 14 7	..	..	..	..	..	..	..	..	..	160 19 11	Surveyor chiefly engaged in Otago District. In progress, say 10 sections, embracing 2,500 acres, Waikawa District; partly bush. Cost to date, £140 5s. 4d. No cadet.
<i>Fee System.</i> T. S. Miller. Invercargill, New River, Kingston, Forest Hill, Campbelltown, Longwood, Eyre, Nokomai, Oteramika, Otago, and Waikawa	..	..	..	4,025	22	1/11-4	398 0 0	..	..	..	..	..	..	380	14	7/2-7	137 4 0	..	..	..	..	..	..	..	1,136 4 6	Comprising 13 special claims, &c., 1 coal area, 17 saw-mill areas, and 5 purchases.
H. R. Dundas. Pegasus, Waikawa, Longwood, Takitimo, and Oteramika	..	..	..	357	4	3/4-4	60 3 3	..	..	..	..	..	..	1,896	38	5/8-6	542 7 2	..	..	..	..	..	..	..	607 10 5	Comprising 7 special claims, 31 mining sections (tin), and 4 purchases.
J. Blaikie. Toetoes, Pegasus, Paterson's, Alton, Lindhurst, Eyre, Nokomai, and Anglem	..	..	..	225	2	2/3-2	25 10 0	..	..	..	..	..	..	1,136	23	6/5-7	367 19 6	..	..	..	..	..	..	..	388 14 6	Comprising 15 special claims and gold-mining leases, 7 tin-mining areas, 1 kaoline area, 1 saw-mill area, and 1 purchase.
W. Sharp. Longwood, Waikaia, Forest Hill, Invercargill, and Eyre	..	..	..	1,433	10	2/2-2	156 18 8	..	..	..	..	..	..	277	8	6/1-6	84 19 0	..	..	..	..	..	..	..	628 8 5	Comprising 7 special claims, 1 coal area, and 10 purchases, the latter mostly in bush.
W. Hay. Longwood, New River, Mabel, Winton, Invercargill, Wyndham, &c.	..	..	..	1,680	14	2/0-8	174 4 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	150 14 0	Comprising 13 saw-mill areas and 1 purchase.
J. Dalgleish. Eyre	..	..	..	200	1	1/8	16 13 4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Fees paid privately by applicant (purchase).
Total	..	..	..	7,920	53	2/1	826 9 3	..	..	..	..	255	4	1/7½	20 14 7	4,563	102	6/3-3	1,432 9 2	..	..	..	..	..	3,936 15 9	

APPENDIX No. 3.

RECONNAISSANCE SURVEY OF THE HEAD-WATERS OF THE OKURU, ACTOR, AND BURKE RIVERS,
WESTLAND.

ON the 18th April last I left for the South by the steamship "Waipara," and landed at the Okuru River, from whence I purposed starting on my exploration journey. My object in undertaking the work was twofold—firstly, to complete the topographical survey of the head-waters of the three rivers, and fill up what was marked on our old maps as "unexplored country;" and, secondly, to settle the question about practicable passes from the coast into the Lake Wanaka country. In 1868, while surveying a township reserve at the mouth of the Okuru, a Maori known by the name of Wakatipu Jack made his appearance at my camp, stating that he had come across the Southern Alps (Dividing Range) somewhere at the head of the Okuru or one of its tributaries, and had travelled down that river to the west coast. Aware that there was no practicable pass known to exist in that part of the Dividing Range but the Haast Pass, and that the mountain-chain at the head of the Okuru, Turnbull, and Waitototo was exceptionally high, I came, after severely cross-questioning the Maori, to the conclusion that he must be mistaken as to the route he came—that he somehow must have crossed at or near Haast Pass, and then afterwards found his way across some spur into the Okuru, and travelled down it to the coast. To this Maori incident I attached little value, and, indeed, it quite escaped my memory until, some four or five years ago, Mr. Roberts, the Assistant Geodesical Surveyor, while engaged at the trigonometrical survey of the Jackson's Bay circuit, reported to me that he had seen a low depression at the head of the Okuru from one of the highest inland trigonometrical stations of that district. The construction of the Otago Central Railway to the Wanaka Lake, and its ultimate extension to the West Coast, was then greatly agitated, and I made up my mind to explore the Okuru head-waters as soon as I had an opportunity of doing so, with the view of ascertaining whether an easier route for a railway could not be found down the Okuru than the line proposed—namely, down the Haast Valley. The result of my exploration in this respect has been most satisfactory. A saving in construction of at least £120,000 would be effected, as I shall show further on, by taking the line down the Okuru instead of the Haast.

To return to the journey: For about thirteen miles up the Okuru I could take packhorses, and by crossing and recrossing, and slowly ploughing through heavy bush tracks cut by the lessee of the Okuru Run for the purpose of taking stock up and down the river, I reached Staircase Creek. From that point the swagging of camp-equipment and provisions had to be done on men's backs.

The Okuru River is very different from the other Jackson's Bay district rivers: it is well bounded, and its bed is defined and permanent. There are practically no sand-spits or shingle-flats to be found in this river. From the sea up through the first five or six miles of flat country the primeval forest is growing up to the water's edge, and there are no river-encroachments upon the adjoining lands, as are so common in all the other rivers, which, as a rule, swing from side to side, and not infrequently convert half a mile and more of good settlement-lands into absolute waste by stripping the vegetation and soil and changing the ground into barren shingle-beds. The Okuru has, as stated, a well-fixed, deep, and permanent bed, and at only three places along its whole length are its waters divided into two branches or arms, and these also are running in well-defined channels, and their banks do not show the slightest signs of encroachment.

From the point where the flat land ceases and the ranges close in upon the river (where the railway-crossing is marked on plan) up to Princess Creek—a distance of about fourteen miles—the good agricultural lands on the banks of the Okuru vary from twenty to sixty chains in depth, and in many cases the mountain-slopes are gentle enough to admit of their being cultivated. The soil is exceedingly good, generally of a brown chocolate colour, and varying in depth from 2ft. to 5ft. We found it advisable in travelling up to ford the river five or six times, in order to avoid climbing over or rounding small spurs projecting to the edge of the water; but there is really no difficulty in the way of taking a dray-road of easy grade up either bank of the Okuru.

Before ascending to the head of the Okuru I examined the Actor River. With the intention of running out the Franklin Range to the head of the Actor, and returning by the Dividing Range and western slopes of Mount Salamis to the camp at the junction of the Okuru and Actor Rivers, I ascended Mount Glissa. After the second day's travelling along that range, however, I found myself stuck up at Howe's Knob by a tremendous gulch between it and Mount Franklin, and all attempts to cross that were in vain.

The portion of the range between Mount Glissa and Howe's Knob is a most remarkable one. The slope towards the Actor, though very steep in most places, may be climbed almost anywhere; but on the west—the Okuru and Franklin Creek side—it drops down almost perpendicular from 1,500ft. to 2,000ft. On the slopes and on the top of Howe's Knob rocks of enormous size—many of them as large as an ordinary four-roomed cottage—are found covering the whole of the surface. Owing to this, travelling along the range was exceedingly difficult—it meant either risky jumping from rock to rock, or laborious crawling through the tough scrub growing between and under these masses of detached rock. The southern slopes of Mount Franklin, around by the two passes into the Turnbull and Young Rivers, and to opposite the two tarns shown on the west of Dragon Peak, below the dividing range, are very well grassed, and, though difficult of access now, will, I have no doubt, in years to come be put to profitable use as summer grazing-grounds. The pass into the Young River (a tributary of the Makarora) is too high to be ever of much use; the snow must, I believe, lie on it eight months out of the year.

I felt exceedingly disappointed that the impassable break between Howe's Knob and Mount Franklin compelled me to abandon the contemplated circuit of the Franklin Range and the Dividing Range; but I had the satisfaction of being able to obtain several sets of observations for the fixing of all prominent features. Under any circumstances I would not have been able to do much more than I had done, for while again descending into the Actor Valley the rain set in, and continued almost without intermission for four days, causing the rivers to run bank-high, and putting a complete stop to everything in the shape of exploring.

On the 1st May the flood had subsided, and we shifted camp to abreast Princess Creek, and on the 2nd we reached the top camp on the Okuru. From it I explored the Okuru headwaters and passes thereabouts. The pass, or, more properly speaking, the saddle, by which the Maori Wakatipu Jack must have crossed into Westland, separates a small branch of the Blue River from a small creek running into the Okuru River. It is a purely "razorback" saddle, not more than 10ft. wide on the top, and with sides dipping at an angle of 65° for about 1,500ft. into both the Blue River and the Okuru. In ascending this saddle a rope had to be used, and it is a puzzle to me how the Maori managed to get across it without some such help: it seems most likely that he ascended the gentler slopes at the side of this saddle, where the dense vegetation gives every facility for climbing, and that he made his descent into the Okuru from a point at least a thousand feet higher than the saddle itself. The altitude of the Maori Saddle is 4,170ft., and it could be pierced by a tunnel not exceeding 20 chains in length at an altitude of about 2,600ft. The working up to it from the Blue River side is very easy, as far as I could see—the Blue River Valley is a nice open one, and the hills slope gently into it; but the "get-away" from the Maori Saddle down the Okuru is very difficult—galleries would require to be cut into almost perpendicular rocky cliffs for a mile and a half between the saddle and the Princess Creek.

The other saddle—Topsy's Saddle—leading into another branch of the Blue River, is too high, and hence useless for practical purposes; moreover, the head of that branch of the Blue River itself, and as far down as I was able to see from various points of observation, is very gorgy, and bound throughout by steep rocky sidelings.

The Dividing Range at the sides of the Maori and Topsy Saddles rises to very great heights, and some of the peaks thereabout are visible from the sea-coast. One of these mountain-tops especially—Mount Bertha, 5,870ft. high—offered a splendid opportunity of fixing the surrounding country. From it the Open Bay Island, four miles off the mouth of the Okuru, is plainly visible, and the valley of that river is seen to extend, in almost a straight line, from the Dividing Range to the sea-coast. At the very head of the Okuru there are several grass-flats, but they are situated at such a height, and are so much shaded from the sun's rays by Mounts Argus and Actor, as to make it certain that for many months in the year these flats must remain covered with snow.

While at this stage of my narrative I may be permitted to digress somewhat, and introduce a subject which, though not directly connected with topographical surveys, does still somehow dovetail into that work: I refer to the rabbit "nuisance," and the ferret, weasel, and stoat "blessing." During the past summer several weasels and ferrets were caught and killed at the Okuru and Waiatoto settlements. These creatures were taken close to, and some within about a mile from, the sea-coast. To the question as to where they come from there could be only one answer: nobody introduced them into Westland, and hence they must have been the progeny of those imported by the Government, and must have found their way across the Dividing Range from either Otago or Canterbury, or both. But, in the absence of any signs of rabbits about the coast settlements, it is difficult to understand what brought these creatures over. This mystery was effectually cleared up on my exploration trip. We were prepared to meet with rabbits on the first day's travel inland, but we were disappointed. It was not until we got near the Actor, about nineteen miles from the sea-coast, that we noticed the first traces of rabbits, and it was not until we got to the very head-waters of the Okuru that we saw the rabbits in numbers. The ferrets and weasels, no doubt, came up to the Dividing Range with the rabbits, but as soon as they discovered our ground-birds—our kakapos, kiwis, wood-hens, blue-ducks, and such like—they followed up the more palatable game. This is what brought the ferrets and weasels down to the coast settlements, and the rabbits on our side of the dividing range will henceforth be left undisturbed and be allowed to spread as they please. Past experiences have satisfied me that rabbits never will do much mischief on the West Coast. Years ago they were turned out in several parts of Westland—parts most favourable to them, open lands and sandhills—but they all died out. The climate is evidently too damp for them, and they certainly will never thrive in our dense bush-country. But, as regards the ferrets, weasels, &c., they will thrive, and will continue to thrive until the extermination of our ground-birds, which has now begun, is fully accomplished. That I am not prophesying evil without good grounds I may prove by the following: In all my explorations on the coast, the certainty of getting a good supply of birds made it possible to keep the provision-swags, which men had to carry, within reasonable weights and dimensions. On this last trip of mine rather more than the usual amount of provisions was taken, but, in spite of this precaution, the party had to be put on short rations for the last three days—namely, one scone per man per day. The further inland the more plentiful the birds, used to be the rule; but that is reversed now. At the head of the Okuru and the Burke some nights passed during which we never heard the screech of the kakapo or the shrill whistle of the kiwi; and, as for blue-ducks, we saw only three during the whole time we were out. In former times, while camping near the head-waters of any of the rivers, the fighting of the kakapos amongst themselves, and the constant call of the other birds around the tent and camp-fire during the night, often kept people from sleeping. This has all changed now: at least in the southern part of the West Coast absolute stillness reigns at night, and there is nothing now to keep a traveller from sleeping except—owing to the absence of the birds—an empty stomach.

While passing through Southland lately my attention was directed to the wonderful adaptation of the Australian opossum to the New Zealand climate and New Zealand forests; and I would beg to

suggest that some compensation for the evil done in exterminating our ground-birds might perhaps in some measure be obtained on the West Coast by introducing opossums to it. Opossum-furs are of considerable commercial value, and would, no doubt, in a very few years range as an article of New Zealand export; moreover, opossums as an article of food are, I am informed, by no means to be despised.

To return to the exploration: I descended the Okuru from the top camp to the junction of Princess Creek on the 5th May, and next morning commenced ascending that creek with the view of finding my way into the Burke country. From the ranges up the Actor River a fairly good view of Princess Creek Valley was obtained, and the low depression between Mount Citheron and Mount Victor seemed to indicate a possible pass; and my examination of that part of the district confirmed the correctness of my surmise, and proved the existence of one of the easiest and best passes in the south. The ascent from the Okuru to it, and the descent into the Burke from it, by one of its small tributary creeks, is quite gentle, and the pass itself is a true pass, perfectly level on the top for about 60 chains, with an average width of about 20 chains. Its altitude is only 1,820ft., or about 30ft. lower than Haast Pass, and the vegetation on it consists of about 50 acres of swamp-grass, and around the edges of that, black scrub and light birch trees.

Abreast the pass, to the west of it, and about half a mile from the top of Mount Victor, there is one of the most imposing mountain-gateways I have seen. The Victor Range at that spot is cleft in two down to a level only about 300ft. to 400ft. higher than the pass I have been describing. The width at the bottom of this cleft is about 2 chains. The walls on both sides consist of solid rock rising to a height of about 1,500ft., with an inclination very little removed from the perpendicular, for the distance of the rock-walls from each other at that height seems to be only 5 or 6 chains. From thence the Mount Victor face continues to be steep to the very top of that mount (6,319ft. high), whereas on the other side of the gateway the slope towards the top of Mount Medeon is gentler. This gateway leads into Emil's Creek, and is, I believe, impassable. I much regret I could not, owing to our getting short of provisions, afford to spend a day or two over a thorough examination of this wonderful freak of Nature.

The descent of the Burke River was very arduous: it is a wild river, with cataracts following each other in quick succession, which makes travelling in the river-bed impossible. Being specially desirous of examining the east or inland side of that river, I picked my way down along its western bank, which is very much steeper, and hence more difficult than the eastern side; but I was compensated for the extra labour by being enabled to obtain a splendid view of the whole of the inland slopes, and to note special features of interest in connection with railway- or road-construction.

At the junction of Strachan's Creek with the Burke we found ourselves completely blocked. Strachan's Creek is a large creek tumbling down in a succession of cataracts and waterfalls between perpendicular rock-walls from 100ft. to 150ft. in height. As the span from bank to bank was too great, and there was therefore not the slightest chance of effecting a crossing by means of dropping a tree over the creek, we travelled up its southern side to an altitude of about 1,830ft. before we were able to descend into the creek-bed, and then, with the help of a few saplings which we managed to rest on big rocks lying in the centre of the creek, we effected a crossing. However, our troubles were not over, for another branch of that same creek, equally rock-bound, drove us up to the grass-line, where, at an altitude of 3,600ft., we camped for the night. But even in the open we found next morning that we could not cross that creek, and we had to follow it up to the very top of the spur—4,450ft. high. From that point—marked K on the map—the range and slopes on the inland side of the Burke, along which the railway-line will have to be taken, could be seen to great advantage, and after fixing the salient points we descended into the Haast Valley at a point near the junction of the Burke and the Haast.

The Burke River is one of the most remarkable rivers in Westland, and the grand cañon it passes through between Strachan's Creek and the Haast junction rivals many of the famous cañons we read of in the Rocky Mountains of America. The Burke, between Strachan's Creek and the Haast junction, falls about 400ft. in a distance of barely $1\frac{1}{2}$ miles, and runs between rock-walls from 200ft. to 300ft. high—rock-walls not perpendicular, but absolutely undercut by the wear-and-tear of ages, for the width of the river at the bottom is nowhere less than 50ft., whereas on the top there are several places where a 10ft. or 12ft. bridge would span the terrible chasm. To look down it makes one shudder, for the depth is so great that nothing but a glimmer of the tumbling and boiling waters below can be seen now and then.

I would strongly urge that a bridle-track be constructed up to this place, to give tourists coming through the Haast Pass an opportunity of seeing one of Nature's grand works, the like of which is not to be met with anywhere in New Zealand.

Our arrival at the Haast Valley brought my exploration trip to an end—not that I had accomplished all I intended, for I purposed also to examine the head-waters of the Wilkin, with a view of finding out whether there was a pass into the Waiatoto River. Further exploration, however, was found to be impossible, for during the night succeeding our descent into the Haast Valley a heavy fall of snow took place, which proved to be the permanent winter coat, as it never again disappeared from the open grass-lands on the mountain-tops. I therefore spent a few days in examining the Haast Pass road, and then paid off and disbanded my party.

Now, as regards the railway route: In 1881 Mr. W. H. Clarke, an officer of the Public Works Department, under instructions from the Engineer-in-Chief, explored and reported upon the best route for a railway from Lake Wanaka to the West Coast *via* Haast Pass. This report and plan is now before me, and I have shown the route indicated by Mr. Clarke in red on the map accompanying this my report. With the information about the country then at hand, I must say, at the outset, that Mr. Clarke has recommended the best route that could be had—namely, across the Haast Pass and down the southern bank of the Haast River. With the data now available the route will have to be altered as shown in blue on my map—*i.e.*, after crossing the Haast Pass the

line will contour Hutchison's Range, up the east side of the Burke, across Mueller's Pass, and thence down Princess Creek and the north side of the Okuru, across it, and on to Jackson's Bay along the foot of the coast ranges. From the Haast Pass, 1,847ft. high, to Mueller's Pass, 1,820ft. high, the line will practically run on a level, and, with the exception of the first three miles near Haast Pass, where the country is rather broken by several small but deep-cutting creeks, the sideling is gentle, of good standing ground, and absolutely safe from slides, slips, or avalanches. From Mueller's Pass the line keeps along the southern slopes of Mounts Victor and Nenger Ranges, with a fall of 1 in 50, which will land it at Okuru River crossing where indicated on the map, at a place most suitable for bridging the river. From thence the route is perfectly easy and practically level to Jackson's Bay, crossing the Turnbull, Waitoto, and Arawata at good places for bridging, especially at the Arawata, where, at the spot indicated, both banks are solid rock, with a rocky islet, as if placed there for bridge-abutment purposes, in the centre of the river. The length of the route marked out by Mr. Clarke from Haast Pass to the Okuru River crossing is 45 miles; the length of the one from the Haast Pass to the Okuru River crossing recommended by myself is 28 miles, or 17 miles less than the other. Allowing for the construction of these 17 miles only an average of £6,000 per mile, a saving of £102,000 would be effected by the adoption of my route. But there is this in addition: that by the Haast Valley route the Burke River will have to be bridged, two to three miles of steep rock-faces and five bad bluffs will have to be passed, and some of the latter probably by driving tunnels through them; whereas along my proposed route there are no such difficulties. The route I have sketched out will of course not be free from rock-work, which will probably be heavier than I expect, but there is certainly not one-fourth of the rock-work plainly apparent on the surface of the country that there is on the Haast Valley route.

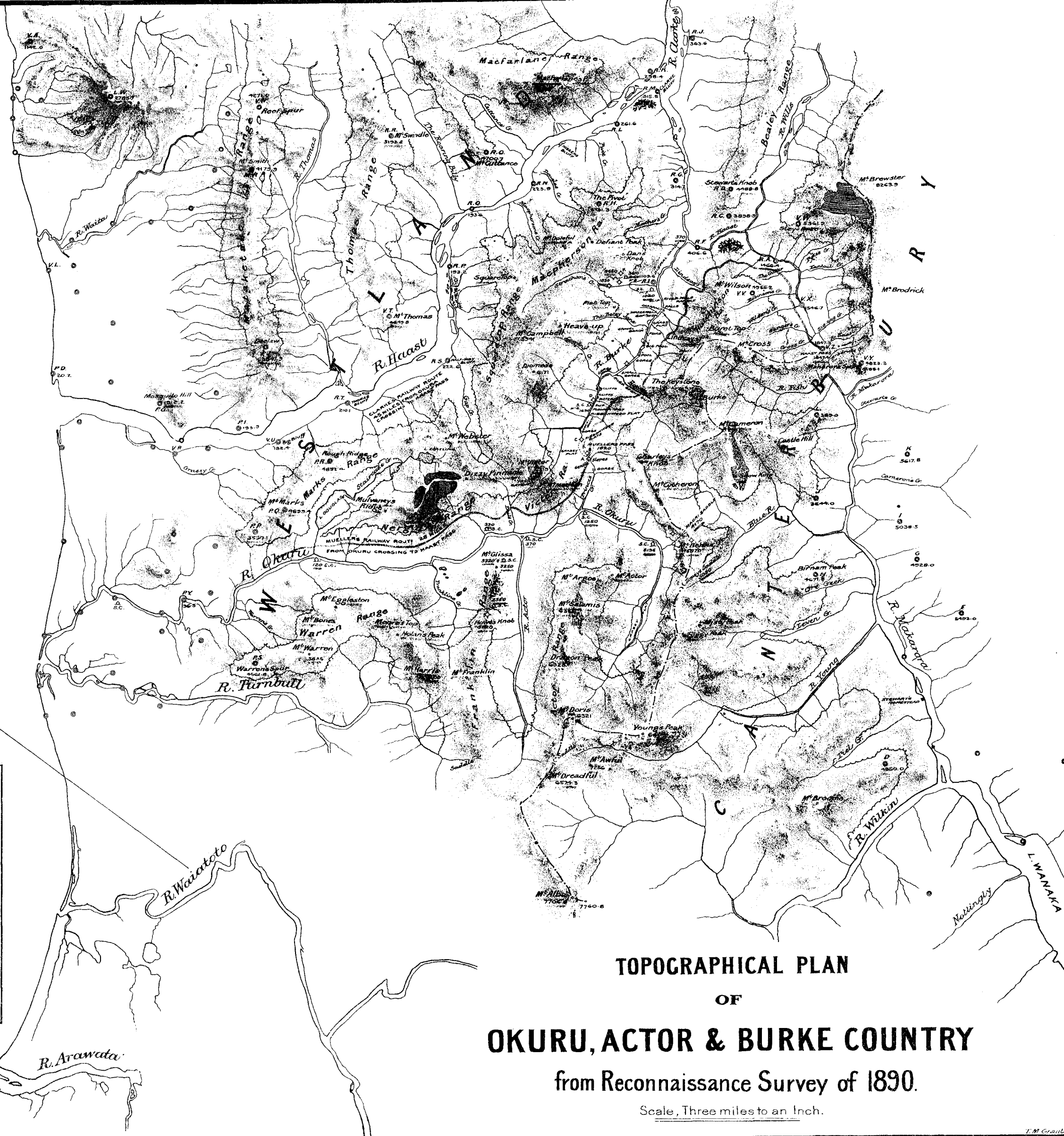
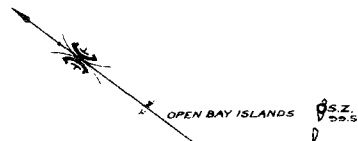
I have now only to add a few remarks in regard to the geological formation of the country which I explored. In the Okuru Valley, from the railway-crossing to the Actor junction, the formation is gneiss—strike, N.E.; dip, 60° E.: two miles below Franklin's Creek the high cliffs are entirely composed of it. One mile up the Actor, on the Mount Glissa side, the gneiss formation merges into mica-schist—strike, N.E.; dip, 70° southerly. At the head of the Actor River several quartz reefs (one of them jet-black quartz) crop out, which are running north and south, cutting the line of strike and dip, and with hanging-walls, soft casing, &c. The formation these reefs are enclosed in is a species of very close-grained green schist. At a point half-way between upper camp, Okuru, and the Maori Saddle the rock is contorted schist—strike, N.; dip, 50° E. In the Okuru River-bed, from about a mile below the Actor junction to above Princess Creek, there are to be found boulders of granite, green slate, and porphyry, mixed with quartz and serpentine. Where they come from I cannot say, not having come across these rocks in *situ*. At point D and point E, in Burke River Valley, the formation is also schist rock—strike N.E., dip 50° E., at point D; and strike N.N.E., dip 60° E., at point E. The river at point E is full of schist and blue, flinty, laminated quartz. At point H, at Strachan's Creek, down the Burke to junction with the Haast and up to the Wills River, the schist formation continues, and from thence up the Haast Pass Road the Torlesse slates come in.

GERHARD MUELLER, Chief Surveyor.



S. PERCY SMITH
Surveyor General.

N
A
E
C
O



Reference.

TRIGONOMETRICAL SURVEY	
Trigonometrical Stations	shown thus ©
Mountains of which meridional and perpendicular distances have been calculated	— " — M ^r Victor
Trigonometrical heights shown	— " — 8263.7
RECONNAISSANCE SURVEY	
Clinometer heights shown in black	— " — 1289
Aneroid heights shown	— " — 3320
Points from which observations have been taken	— " — 5.0
Camps	— " — 2.0
Boundary of Provincial District	— " —
Clarke's proposed Railway	— " —
Mueller's	— " —

Note. The Okuru and Actor Rivers, Prince's Creek, Burke River and parts of Warren's and Franklin's Creeks have been fixed by rough step traverses and compass bearings. Observation points fixed from mountain peaks and from stations trigonometrically determined.

G. Mueller, Chief Surveyor.
Westland.

TOPOGRAPHICAL PLAN OF OKURU, ACTOR & BURKE COUNTRY from Reconnaissance Survey of 1890.

Scale, Three miles to an Inch.

APPENDIX No. 4.

EXTRACT FROM MR. BRODRICK'S REPORT ON PASSES OVER THE SOUTHERN ALPS.

BETWEEN the point at the head of the Rakaiā River where Mr. Roberts crossed, and the Haast Pass, the Southern Alps have always been considered to form an impregnable barrier between the east and west coasts of the Middle Island, and I think no one ever succeeded in getting over till lately. It is therefore interesting, and may possibly be of use some day, to know that, taking advantage of the excellent opportunities we had while extending the topography of Canterbury, we have found two places where it is possible to get over the range—one, the Sealey Pass, at the head of the Great Godley Glacier, and the other over a saddle between the Huxley and Landsborough Rivers.

I will now give a short description of the road to each, commencing at the well-known lakes into which the rivers rising at the watersheds we crossed empty themselves.

Sealey Pass.

The Tekapo Lake, 2,321ft. above sea-level, is situated in the midst of a country the bareness of which is not relieved by a single tree, except where a few willows are growing round the different homesteads of the runholders, and these are so far apart that they can hardly be deemed a feature of the scenery. Its waters are of a slaty colour, especially in stormy weather, caused by the immense quantities of fine silt washed into it by the Godley River from the glacier at its head.

From the Tekapo Hotel, at the outlet of the lake, the road follows along its eastern shore till Richmond Station is reached; it then leaves the lake, and, traversing some low downs and flats, finally stops at Lilybank Station, situated between the Godley and Macaulay Rivers, and about twenty-four miles from the hotel. The road is a fairly good one, and wagonettes can be driven over it. It may be as well to remark that the Macaulay River, which has to be crossed, is rarely flooded so much as to be impassable, and is free from dangerous quicksands.

From Lilybank the road winds over the hummocks at the back of the station till the Godley River-bed is arrived at; and from there the river-bed is the only available route to the Great Godley Glacier. It is not, however, very rough, and may be ridden over comfortably enough, and here and there relief from the monotony of picking your way amongst the stones will be found by getting on to the grassy flats. Eight and a half miles from Lilybank is a shepherd's hut, made of iron, and pleasantly situated amongst some trees, chiefly totara and mountain-pines; and the remaining 6½ miles to the glacier must be done on foot or on horseback, because the river-bed gets so rough it is impossible to drive any farther. The terminal face of the Godley Glacier is 3,407ft. above sea-level, and about 39 miles from the Tekapo Hotel. A fairly good camp can be made on the shingle close to the glacier in the shelter of the rocks, and there is plenty of scrub for firewood on the hillsides, but no grass, and all horse-feed has to be packed. It was here we camped while doing our survey.

The terminal face of the Classen Glacier is the best place to camp, as there is plenty of grass and firewood there; but it is not convenient for excursions on the Godley Glacier. It was rather late in the season when we got up to the glacier (11th May, 1888), and the snow which had fallen made all our expeditions more arduous. On the 14th we continued our traverse along the track marked on the plan, and reached the top of Sealey Pass, which is 5,800ft. high, and 7 miles from the terminal face. The last few miles the snow was deeper, and at every step we sank above the knees. From the saddle we could see the bush in the Wataroa Valley, so we pushed on another 30 chains, to find that we were out of the snow, and had passed all the difficulties that lay between the pass and the Wataroa River. As where we were could only be a few miles from a track and wire foot-bridge on the West Coast side, it was with some reluctance that we were obliged to turn back: the weather looked threatening, and a heavy fall of snow would have cut us off from our camp, and delayed our work in a manner I did not think we ought to risk. The route over this pass would be a very interesting one to tourists, as the scenery is unequalled, the labour not great, and the road, except the 30 chains beyond the saddle, quite safe. About 20 chains on the West Coast side of the pass we were obliged to cut our footsteps and use the rope. The ice slopes into a very deep hole, and at times is swept by avalanches from above; and here great care ought to be taken to avoid them, as, of course, to be swept into the hole would be certain death.

The Sealey Pass was named after Mr. E. P. Sealey, a surveyor who visited it in 1871, accompanied by one man; and from that time till our trip no one had ever been there. Since then a party was organized to make the trip to the West Coast, and it succeeded in getting to the saddle, but very prudently turned back on meeting a dense fog. Mr. Sealey informed me that it was so foggy when they arrived on the pass in 1871 that they could see nothing, and only found their way back again by following their old footprints. During the last part of our return-journey the fog enveloped us, and made it very cold, unpleasant, and difficult to find our way. The scenery is very grand, but especially about the junction of the Grey and Godley Glaciers. Here huge blocks of ice have been forced up by the pressure, and the beautiful blue tints on them are surprising. The feeling of novelty is enhanced by the ceaseless thunder of the avalanches falling from numbers of different places all round.

Huxley Pass.

The Lake Ohau Station, situated at the north-east end of the lake of that name, is the last inhabited place on the route to the pass by which we discovered it was possible to cross the Southern Alps to the West Coast.

The Ohau Lake is a very pretty one, of a deep-blue colour, 1,717ft. above sea-level, flanked by steep hills, the dull-brown colour of which is relieved by clumps of elegant "birch" (*Fagus cliffortioides*), particularly along its eastern shore; and past and through these beautiful trees the

road winds along the edge of the lake to the station. In the summer, when the scarlet mistletoe is in bloom, a prettier drive can hardly be desired. Away to the north, looking over the six miles of flat at the head of the lake, an extensive view of the snow-capped peaks of the Southern Alps is seen, which adds to the beauty and grandeur of scenery which, for variety of form and colour, ranks, I think, next to the famous Lake Wanaka, about which so much has been written.

Although it is possible to drive to the Hopkins from the station, a distance of six miles, it is better to ride, because the road is not well formed, and the journey can be done more quickly and comfortably on horseback. From there to the fork of the Huxley River, which is as far as horses can be taken, the river-beds, which are smooth, and free from large stones, will have to be followed; but by taking advantage of the numerous grass-flats as they present themselves, to push ahead, the distance of sixteen or seventeen miles from the station can be done in four hours.

Though I have not space or time to describe, it must not be thought that the scenery on the road is dull or uninteresting; on the contrary, at every turn something pleasing strikes the eye—now a huge grey rocky peak standing against the sky, its boldness and bareness contrasting strangely with the stunted birch bush out of which it seems to spring; then a grassy flat, with trees and shrubs dotted over it in such a manner as to suggest that the hand of art had helped nature to make it look like a pleasure-ground; and so on in endless variety.

Having given a short description of the road as far as it is usual for people to go—though in the pursuit of wild cattle Mr. Maitland has been right up to the bend in the creek just below the saddle we went over—I will give a short narrative of our trip down into the Landsborough River to a point reached by Mr. Mueller on his visit of exploration from the west coast side of the Island in 1887. From the point marked C' on the plan, on the south side of the Huxley River, looking over the pass, we saw the sea on the west coast. This point is 6,930ft. above sea-level; and from there we also had an excellent view of Mount Déchen, which bears 4° 18' west of north from C'. It can be seen from many places on this side of the range, and looks as if it was a peak of the Southern Alps. It is snow-capped, and surrounded by glaciers, and is one of the most purely-white and interesting-looking mountains in the great chain.

On the 28th March, accompanied by Mr. Sladden, I left our camp near the fork of the Huxley, and went up on to the pass to fix its position with the prismatic compass; but when we got there the Landsborough River looked so near, we determined to visit it if we could kill any birds for food. Good luck bringing two keas (*Nestor notabilis*), which we knocked over with our sticks, we then hurried on, and reached the river before dark, the journey from the camp having occupied about eight hours.

Snow-grass, alpine plants, and scrub all grow close up to, and again on, the pass; and a few wild cattle are running within a mile of it on the Canterbury side. After the first quarter-mile, going down on the West Coast side, the creek is tolerably smooth for about two miles, after which for a mile it is one continuous series of waterfalls, and we were obliged to take to the bush and climb down by clinging to the trees and scrub. The last part of the journey was much easier, the country becoming flatter and the bush more open; and we soon found ourselves on a nice flat of blue-grass on the river's bank. There were no signs of rabbits or of anything having ever grazed on it. The grass stood in seed like a hayfield ready for mowing, but here and there through it we saw the well-beaten tracks of kiwis, kakapos, and wekas. The bush was principally beech, though a good many of the usual West Coast trees were mixed with it; amongst others the curious neinei (*Dracophyllum latifolium*) was very common. The luxuriance of the growth makes a very striking contrast with the stunted vegetation on the Canterbury side. The bush is full of the green-leaved trees cattle are fond of, and in it, and on the river-flats, numbers of them could be grazed; but they could not be got in from Canterbury, and I do not suppose grazing would be very profitable even if they could, because so many would go wild.

The track over the saddle could never be made anything but a passable footpath; but, in the event of gold ever being found in the Landsborough River, it would be as easy, judging by the account Mr. Mueller gives of his route into the place, to get provisions in from Canterbury as from the Coast, and perhaps a good deal easier, for without a very large outlay a packhorse could be taken to within a mile of the pass. It appears more than likely that Mr. Mueller determined the height of the saddle we crossed, and was under the impression that it was the watershed of the Hunter instead of the Huxley River, for his height of the Hunter saddle is 5,529ft., while I make the height of our pass 5,309ft. Mr. Mueller has marked on his plan that his altitude was obtained by aneroid and clinometer measurements, so that the difference of 220ft. between the two heights may be attributed to the inexact instruments he was obliged to use. It will be found that the position of our pass—43° 57' 50" south latitude and 169° 44' 20" east longitude, approximately—nearly coincides with what is shown as the Hunter Pass on the map of Mr. Mueller's explorations, 1887.

It rained off and on during the night, and without shelter we could not keep dry, though by keeping up a large fire we were warm enough. Having insufficient food, and being wet through, we thought it more prudent to return the way we went, without looking for a better track, than run the risk of having to stay out another night. The return-journey occupied twelve hours, as we had to work our way carefully round some dangerous places which had become more slippery since we went down, and also because it is a much stiffer climb out of the river than from the Huxley to the pass. I think possibly a better track than ours could be got by keeping more to the east, after getting into the bush, than we did. I had the misfortune to break my aneroid, and so have not been able to give as many heights as I would have wished. The Landsborough River is roughly placed on my plan from Mueller's survey. No known points were visible from the river to enable me to fix it.

T. N. BRODRICK.

[Approximate Cost of Paper.—Preparation, nil; printing (1,700 copies), £58.]

PLAN

OF THE

GODLEY VALLEY & GLACIERS

SHEWING ROUTE

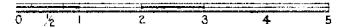
FROM

LAKE TEKAPO

T.N. Brodrick, Assist. Surveyor

1888-89

Scale of Miles



S. PERCY SMITH
Surveyor General.

John H. Baker, Chief Surveyor, Christchurch

