



It will take one other season to complete the survey of the back country of Canterbury and Amuri. There will then be reliable maps on the scale of 2in. to the mile, showing natural features, altitudes, fences, or other occupation. These maps will be a great aid in the apportionment of country into runs and in clearing up doubts and disputes about boundaries.

#### SETTLEMENT SURVEYS.

An area of 302,895 acres has been subdivided into 2,484 sections, at an average cost of 1s. 4½d. per acre. This rate is nearly one-third less than the average of the last few years. The saving is mainly due to a larger average area in sections reducing the cost per acre. The most expensive surveys are, of course, those in the bush; and, when this natural difficulty is aggravated by the contiguity of old and inaccurate surveys which must of necessity be defined on the ground before the exact position of the adjacent Crown lands can be determined, the cost is often greatly increased.

As the Land Act of 1887 has so widened the scope of the selection of land on settlement conditions, that a settler is no longer restricted to the limit of 320 acres on deferred payment or 640 acres on perpetual lease, but may now select any area of second-class lands up to the limit of 2,000 acres, it has been deemed best in these altered circumstances, especially in the case of broken bush country, not to be at the expense of a completed sectional survey, but, instead, to grade and peg the centre-line of the roads, all the pegs being numbered in Roman letters, and before opening the land for selection to issue skeleton lithographed plans with every numbered peg shown. In this way the selector, with plan in hand, can visit the land and make his selection intelligently, the side lines being afterwards marked as required, without any previous expense having been incurred in the cutting of unnecessary survey-lines. On this system 140,000 acres have been recently treated at a cost of about 9d. per acre, the skeleton plans of some blocks of which have been issued, and others are now in the various stages of preparation and issue to the public.

#### NATIVE SURVEYS.

For the Native Land Court purposes of investigation of title, partition orders, and individualisation of title, 373 blocks, comprising 296,810 acres, were surveyed, 258 blocks of 125,715 acres, by staff surveyors, and 115 blocks, of 171,095 acres, by authorised surveyors.

For Native-land purchase, 14 blocks, covering 353,204 acres, of which 3 blocks of 87,160 acres, were surveyed by staff surveyors, and 11 blocks, of 266,044 acres, by authorised surveyors.

#### LAND TRANSFER SURVEYS.

There is nothing calling for special remark in this class of survey, except that in the amendment of the Land Transfer Act now before Parliament provision is specially made for compulsory revision of surveys, where that is deemed necessary, before acceptance of plans at the Land Registry offices. Experience has shown the necessity of having this power as a check on imperfect surveys.

#### GOLDFIELDS AND ROAD SURVEYS.

There has been very considerable activity in mining-surveys in connection with the numerous dredging-claims which have been taken up on the west coast of the Middle Island and on the beds of the rivers in Otago. There have also been the surveys of the usual quartz and alluvial claims. In all, 297 applications, of an area of 10,700 acres, were surveyed.

Of road-surveys, 316½ miles were laid off through Native and Crown-granted lands, in the exercise of rights reserved in the grants. The taking of roads through occupied land, whether belonging to Europeans or Natives, is usually attended with some remonstrance on the part of the owners, the most of whom, although they desire the road, yet think it should not be taken through their land.

Under the exigencies of a diminished staff, and the demands of local bodies for the definition of roads through Native blocks, the warrant to take roads has been intrusted, in several cases recently, to authorised surveyors in the employ of the County Councils or Road Boards. And this is a very reasonable arrangement from the point of view that the local bodies have afterwards to make and maintain the roads selected. But, on the other hand, the Natives complain bitterly of the unfairness of the local authorities in the exercise of the warrants. In future, either the staff surveyors will again have to take the work up solely or else the department will have to be well satisfied as to the intended placing of the roads, either before issuing the warrant to the authorised surveyor or before accepting the plan. It would

certainly be more satisfactory, in the conflict of interests already alluded to, that the staff surveyors only were charged with the execution of the Governor's warrant in the taking of roads.

#### PUBLICATION OF MAPS.

This important branch of the service is under the immediate direction of Mr. Barron, from whose report in the Appendix it will be seen that for the Survey Department and for other departments there are always arising demands for special services in this branch—such as maps for the Representation Commission, for the Midland Railway, for the report of the expedition to the Kermadec Islands, for illustrations of works on forestry, on grasses, and for other miscellaneous work. But the main work is in the preparation of plans for Crown lands for sale, of geographical maps of the colony, and of the survey districts, on the scale of an inch to the mile. The publication of maps on the one-mile scale is a work of great public utility, and all the attention possible is given to its furtherance, twenty survey districts having been issued during the year. In addition five county maps on this scale were prepared by the Auckland office, and published there by the trade.

#### EXHIBITS AT THE MELBOURNE EXHIBITION.

The two large maps of the colony, on a scale of eight miles to an inch, which were exhibited at the Indian and Colonial Exhibition of London in 1886, were retouched and sent on through the New Zealand Commissioners to Melbourne. Each map is 14ft. by 10ft. The one is a physical map showing all the lakes, rivers, and other natural features; the other shows the land tenure, and the latest statistics of the colony in population, in pastoral and agricultural and mining industries. Of published maps, mounted copies of the following have also been sent: New Zealand: scale, 25 miles to an inch, sheets 23 and 24; Auckland: scale, 4 miles to an inch; one map each of Nelson and Marlborough, Wellington, Hawke's Bay and Taranaki, and Otago: scale, 8 miles to an inch; besides a number of chromo-lithographs, lithographs, and photographs.

#### ROADS TO OPEN UP CROWN LANDS FOR SALE.

In the settlement of the Crown lands, the clearing and formation of road-lines through the bush, the bridging of rivers, and the drainage of swamps, are all works which come under the category of opening lands for sale, and their execution must go hand-in-hand with the survey of the land, else the settlement of the country would soon come to a stop. A perusal of the reports of the Chief Surveyors in the Appendix will show that a large amount of work has been done at many points in the opening-out of the Crown lands. In all, 118 miles of cart-road formed, 73 miles of bridle-track, 63 miles felled and cleared, and 78½ miles maintained, at a cost of £61,670, in the several land districts, as follows:—

In Auckland, 17·11 miles of cart-road were formed, 12·75 miles of bridle-road were felled and cleared, 38·2 miles were formed, 19·5 miles of road were maintained, and 5·55 miles of drains through swamps were cut; the total cost being £15,762 12s. 8d.; and the area of Crown land given access to is about 80,000 acres, and 21 miles of road were graded ready for contract.

In Hawke's Bay, 24·25 miles of cart-road and 5 miles of bridle-road have been formed, and 70 miles of road have been improved and maintained, at a cost of £6,680 17s. 2d.; the Crown lands receiving benefit being about 60,000 acres.

In Taranaki, 21·55 miles of cart-road have been felled and cleared, 7·9 miles have been formed, and 22 miles maintained, at a cost of £4,780 7s. 8d.; the Crown lands improved being about 21,000 acres.

In Wellington, 4·54 miles of cart-road have been gravelled, 6·9 miles formed, and 13·3 miles felled and cleared; 12·3 miles of bridle-road have been felled and cleared, and 12 miles formed; 35 miles of road have been graded ready for construction, and 37 miles have been maintained; at a cost of £10,586 12s. 7d.; the Crown lands improved amounting to over 70,000 acres.

In Nelson, 9 miles of cart-road have been formed, 2 miles metalled, 11 miles of bridle-road formed, and 9 miles of road improved, at a cost of £3,592 0s. 9d.

In Westland, 14 miles of cart-road have been constructed, at a cost of £2,539 12s. 6d., improving the value of 12,700 acres of Crown lands.

In Canterbury, 7·8 miles of cart-road have been formed, at a cost of £920 18s. 8d., improving the value of 5,000 acres of Crown lands.

In Otago, 24 miles of cart-road have been formed, and 6·75 miles of bridle-track, at a cost of £5,328 11s. 4d., improving the value of 60,000 acres of Crown lands.

In Southland, 3·4 miles of cart-road have been felled and cleared, 6·5 miles have been formed, and 5·5 miles gravelled, at a cost of £4,057 10s. 10d.; improving the value of 17,700 acres of Crown lands.

The total works for the year include 38 miles of cart-road felled, 118 miles formed, and 12.05 miles gravelled; 25.05 miles of bridle-road have been felled and cleared, and 72.95 miles constructed; 148.5 miles of road have been maintained in passable order, 10.4 miles have been improved, and 56 miles have been graded ready for construction: the drainage of swamps amounts to 5.55 miles.

The total expenditure on ordinary roads and tracks is £54,249 4s. 2d., and the expenditure on village-homestead settlements, including road-works and advances on the security of work done, is £11,738 19s. 1d.

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#### DEPARTMENTAL.

For the coming season the principal field-work will be the completion of the triangulations in Canterbury and Amuri, and the settlement-surveys in the several land districts. In the survey offices there will be the usual work of compilation and reduction of plans, of preparation of titles, of maps for publication, of descriptions and other miscellaneous work, and of attention to the requirements of the public. There is a constant stream of inquiry, both by personal interview and by letters, in connection with the numerous questions arising out of the settlement of the Crown and Native lands, the mining industry, the taking of roads, and the bringing of properties under the Land Transfer Act, each survey office, with its equipment of maps and experienced officers, being for its district the focus of intelligence on all such matters.

In conclusion, I have to express regret at the recent reductions made in<sup>3</sup> the department, whereby the services of thirteen surveyors and ten draughtsmen were dispensed with, from no fault of their own, but because of less work in several land districts, and partly in compliance with the instruction to reduce expenditure. Within the last two months four young surveyors, trained in the department and highly qualified, resigned their appointments, after a service of from five to eight years each. The strength of the department now stands at sixty surveyors, sixty-five draughtsmen, and eight accountants and clerks.

I have, &c.,

JAMES McKERROW,

Surveyor-General.

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

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#### HEAD OFFICE.

1st August, 1888.

The number of letters and other papers received and despatched is 8,966; the expenditure passing through the accountants' books amounted to £148,572 14s. 9d., for which 9,220 vouchers were certified, 960 of them being prepared in his office. Local authorities were paid £14,034 2s. 2d. under agreements sanctioned by the Appropriation Act, 18 of them being entered into during the past year.

In the drawing-rooms 20 survey districts were prepared for publication, 6 geographical maps of portions of the colony were drawn, 98 illustrations were made for the books of Messrs. White and Kirk, besides many for other papers published by the Government. Two maps on the scale of fifteen miles to an inch were drawn to show the post-offices and postal routes in the colony, and 1,000 of each were printed in four colours. The maps prepared for the Colonial Exhibition were brought up to date and new statistical diagrams placed on one of them. Miscellaneous work consisted of representation maps, sheep and other districts, Midland Railway valuations, descriptions. The maps for the coming property-tax valuations are now being revised. Mr. Farquhar computed the latitudes and longitudes of twenty trig. stations in the southern portion of the Middle Island, the triangulation of which was closed in the previous year. Mr. Farquhar's work is computed and drawn with his usual care and neatness.

The number of photograph negatives taken during the year is 549. The photolithographs and lithographs printed sum up to 520,275 impressions from 1,030 stones.

We have in hand four maps for issue to travellers and tourists seeking recreation in New Zealand. One will show the central warm springs and the lakes of the North Island, one will represent the Mount Cook glacier region, one the interior picturesque lakes of Otago, and the fourth will show the western lakes and sounds. I have to thank Mr. Huddleston, of the Hermitage, for information relative to the ice-region of Mount Cook.

A. BARRON,

## APPENDICES.

### APPENDIX No 1.

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

##### AUCKLAND.

*Major Triangulation.*—For the first time since the institution of the annual survey reports, eleven years ago, the returns under the heading of major triangulation are *nil*, none having been executed during the past year; indeed, but little of the province remains uncovered by this class of work, and there is no pressing necessity for completing it.

*Minor Triangulation*, as shown, 89,710 acres, is but the filling in of interstices in previously existing work, to enable the surveyors to properly connect their surveys. Mr. Baber's work, however, was undertaken specially to afford stations on to which the goldfields surveys could be connected, and its somewhat higher cost is due to the small size of the triangles and the heavy clearing on the bush hills.

*Rural and Suburban Section Surveys* are somewhat under the output for the previous year, and the cost per acre slightly less. There were surveyed 843 sections, containing 52,600 acres, the average size of each section being 62 acres, at a cost of 2s. 8d. per acre. A very large proportion of the work has been in forest-country, and much of it in isolated groups of a few lots. The small size of the sections is due to the limit of fifty acres allowed to village-homestead sections, a number of which were surveyed during the year. The cost per acre is increased by the fact of a large proportion of the roads having been also graded. Included in the total area given above are the sections resurveyed in order that grants might issue, and those in which the boundaries had never been marked on the ground, both provincial liabilities, the cost of the first being £822 17s. 8d. and of the latter £624 14s. 9d. In addition to the section surveys given, 47 sections, containing 5,582 acres, were surveyed for homestead selectors by the authorised surveyors, payment being deposited with the Receiver of Land Revenue before survey.

*Township Surveys.*—Under this head two old townships—Tokatoka and Grahamstown—have been resurveyed, as there were several applications for sections in them, and also for the purpose of issuing grants of former purchases, the original plans having been destroyed.

*Native Land Court.*—The department only surveyed 7 small blocks for the Native Land Court, though 76 blocks or divisions of blocks, with an area of 148,230 acres, were surveyed under instructions from the department by the authorised surveyors, the cost being defrayed by private individuals.

*Native Land Purchase Surveys.*—An area of 266,044 acres, in 11 blocks, were surveyed under the direction of this department by the authorised surveyors, the cost being met by the Land Purchase Department, and an equivalent in land has been, or is in process of being, acquired in repayment of the sums advanced.

*Gold-mining Surveys.*—None have been performed by the survey officers; but 164 licensed holdings and special claims, containing an area of 3,556 acres, were surveyed under the Mines Act by the authorised surveyors, the cost being first deposited with the Receivers of Gold Revenue. This class of work is a new feature in this branch of the department, and the examination of the plans has added considerably to the work to be done, and for which no extra provision has been made. It is very creditable to the surveyors engaged on them that so few errors are detected by the careful examination the plans receive.

*Roads, Railways, and Water-races.*—Nearly the whole of the 125 miles of road surveyed has been in exercise of the rights reserved in the Native grants, and much of the work has been graded roughly as well.

*Other work* includes such items as reports on land, inspection of road works, office-work not connected with surveys shown in the return, defining old boundaries, officers' leave, and other small items which cannot be shown in the tabular forms.

*Land Transfer Surveys.*—Mr. Foster has passed 474 plans and subdivision plans, showing an area of 21,126 acres; and I regret to say has 43 plans on hand, an amount of arrear-work which I see no chance of overtaking with the present strength of that branch.

*Field Inspection.*—Since the transference of the late Inspector to Napier, only one survey has been inspected, as there is no one now to do the work. I cannot spare the time myself, and the necessity of keeping the other surveys up to date prevents my detaching any of the District Surveyors to the duty.

*Office-work.*—This has progressed much as usual, but the recent reduction of the staff has caused the accumulation of a large amount of arrears, which are likely to be increased by the necessity of clearing off the extra work for the Property-tax Department. During the year the Chief Draughtsman has had drawn and lithographed five more maps of the counties, making eleven in all now published, on the lin. scale, whilst two other counties are nearly ready, leaving three to be added to complete the whole land district. These maps prove of the very greatest service, and have saved their cost over and over again. In several cases they have been coloured, and furnished to County

Councils, to aid land selectors in choosing lands. The draughting branch of the department has performed work for other departments amounting to £633 8s. 6d. The Crown-grant branch has placed 3,232 marginal plans on the Crown grants, certificates, and Native title forms, whilst Mr. Sturtevant has drawn also 741 marginal-plans, making a total of 3,973 such plans. The work is quite up to date in this branch. The correspondence shows no sign of decrease; indeed, judging by the criterion of the two past months, there is a considerable increase, as many as 18,000 letters and parcels (exclusive of telegrams) having been received and despatched during the year. Mr. Johnston, the accountant, has passed 1,733 vouchers, representing the expenditure on surveys, roads, home-steads, land purchase, and State forests, amounting to £37,393 4s. 3d.

*Work for the ensuing Season.*—The surveyors have on hand a good deal of work, the plans of which were not furnished in time to appear in this year's returns, and they have, in addition, instructions sufficient to keep them employed for some time to come, without counting the numerous applications on hand in the office. The dispersive character of the surveys in this district is a source of constant delay and additional expense, all of which, in some measure, retards settlement; but, as little triangulation remains to be done, the surveyors now get at their section-work more expeditiously than formerly. The throwing open of lands for selection before survey will bring in occasionally the aid of the authorised surveyors, when selectors deposit the fees, but hitherto this has not been taken much advantage of. Our duties for the coming season will consist in surveying applications for lands, and in exercising the road-rights in Native blocks.

During the past year two of the cadets, Messrs. H. H. Murray and A. V. Harrington, passed on to the grade of Assistant-Surveyor. It was with deep regret that I had recently to report to you the sad death of the former through typhoid, brought on by exposure and over-anxiety about his work. Mr. Murray was one of the most promising of the many young men who have entered the department, and had gained the highest respect and liking from his brother officers. We have also lost the services of four surveyors by retrenchment and one by retirement, and six draughtsmen through the former cause. The district under my charge has also been reduced in size by the addition of Cook County to the Land District of Hawke's Bay.

S. PERCY SMITH, Assistant Surveyor-General.

#### HAWKE'S BAY.

*Amendment of Land District Boundaries.*—In consequence of the alteration of boundaries of the Auckland and Hawke's Bay Land Districts effected by "The Land Act Amendment Act, 1887," I assumed control of the Poverty Bay District shortly after the passing of that Act; therefore, in reviewing the year's operations, it appears to me to be convenient to treat of the district as at present constituted, seeing that the returns and reports are only made up once a year.

*Triangulation.*—No triangulation *per se* has been executed this year, but local extensions have been made for the purpose of governing the settlement- and road-surveys in progress in various parts of the district. Mr. Armstrong re-observed some triangles in Waimata District, covering an area of 4,016 acres, in order to clear up some doubtful determinations. This was done at a cost of 0.45d. per acre. Much of the minor triangulation in Poverty Bay needs similar treatment, but the field staff has been so much reduced that this desirable work must inevitably be postponed for the exigencies of other more pressing requirements. The same remark applies to some 600 square miles of triangulation still remaining to be done in Hawke's Bay. About 36,000 acres have been under settlement survey, 900 acres of this having been done by Mr. Armstrong at a cost of 1.37s. per acre.

*Settlement Surveys.*—Mr. Tone completed 7,157 acres at a cost of 1s. 0.43d. per acre. The same officer surveyed 6,461 acres, sufficient for purposes of selection, under the provisions of the Land Act of 1887; that is to say, as regards roads, boundaries, topography, and classification; in fact, everything is done except the marking of section-boundaries. The cost of this was 3.36d. per acre. Mr. Tone has also sufficiently surveyed about 8,000 acres at North Makaretu, in the manner just stated, to admit of the greater portion of this being offered under the Act above referred to. Before passing to the next item, I desire to call particular attention to the large area and small cost of this officer's work. Mr. Rich has surveyed about 12,000 acres, complete in all respects except marking of section-lines, at a cost of 1s. 8d. per acre, including trig. and topographical survey. About 1,400 acres was surveyed in the same manner by Mr. Wilson, at a cost of about 6s. 10½d. per acre. This exceptionally high rate is explained by him to have been brought about through his ill-health, exceptionally bad weather, and difficult country.

*Native Land Court Surveys.*—Thirty-three blocks, aggregating 17,972 acres, and consisting chiefly of subdivision-orders, have been surveyed by authorised surveyors at the cost of owners in Poverty Bay; and six blocks, totalling 4,893 acres, have been similarly treated in Hawke's Bay.

*Land Purchase Surveys.*—The boundary-survey of Waikopiro and Manawakaitoi Blocks, estimated to contain 84,400 acres, which was commenced by Mr. Watson and continued by Mr. Price, will probably be complete as to field-work before the report reaches you. Mr. Watson retired from the service in October last, his health having broken down.

*Roads, &c.*—In Poverty Bay District 65 miles of road-lines have been surveyed, in exercise of road-rights, at an average cost of £10 3s. per mile. In Hawke's Bay 9.3 miles have been laid out, at an average cost of £15 per mile.

*Standard Surveys of Towns.*—Mr. Busecke, the surveyor who attends to the Land Transfer branch at Gisborne, has spent twenty-two days, at different times, on the standard survey of that town, redefining some points which were obliterated, and determining permanently corners of blocks in relation to these points, for the purpose of street-alignments and for facilitating the work of the licensed surveyors. The Borough of Hastings has had a standard survey of the various private townships included under that name executed under the advice and supervision of this department. This work was much needed in connection with transactions under the Land Transfer Act.

*Survey of Education Reserve.*—Another work which was not paid for out of the survey vote, but which came under the supervision of this office, was a contract let by the School Commissioners for the subdivision of an education endowment of 5,000 acres.

*Land Transfer Surveys.*—In the Land Transfer branch, 102 plans, comprising 591 lots and 54,678 acres, have been dealt with at a cost of £210 11s. 3d. Mr. Weetman, the District Surveyor in local charge at Gisborne, has inspected Land Transfer and Native Land Court surveys covering 10,114 acres, and reports that generally the work is good as to technical accuracy, but that the ground-marking does not receive that attention which its importance demands.

*Field Inspection.*—The demands upon my time have left me but little opportunity for formal inspection, but the field-parties have been visited as often as possible, and the location of roads, ground-marking, &c., carefully looked into. No contracts have been in operation during the period under review. The bulk of the office-work at Gisborne has been in connection with the Native Land Court and road surveys, and there has been the usual demand for plans for the various instruments of title and numerous other purposes.

*Work in Hand and Proposed Operations.*—In the Poverty Bay District Mr. Armstrong has for the last three months been engaged in surveying the Arikihī and Waihora Runs, including several miles of roads to give access thereto, and it is estimated that it will take about six months to complete this work. From there he will go to Mangatokerāu to survey one or more roads through that block and to define its back boundary. In addition to these works he has about 80 miles of roads and 8 square miles of minor triangulation on his instruction list. Mr. Pickett, authorised surveyor, holds instructions for survey of certain Crown interests in four blocks situated in the Waiapu District, aggregating 4,382 acres. In the Hawke's Bay District proper the section-lines of lands which have been prepared for settlement by Messrs. Tone, Rich, and Wilson will have to be marked as the land is taken up, and some 30,000 acres of Nuhaka Block have to be prepared for settlement, besides about 15,000 acres at Tautane, which have not yet been touched.

G. W. WILLIAMS, Chief Surveyor.

#### TARANAKI.

*Field-work.*—The field-work executed during the year comes mainly under the headings of "Rural and Suburban" and "Native Land Court Surveys." Of the former there has been completed 21,303 acres, at a cost slightly over 2s. an acre. The rate is a little less than last year, and must be considered reasonable when it is borne in mind that the whole area is covered with forest and a considerable portion hilly, in which case the back boundaries are almost invariably traverses along the ridges. In the Native Land Court work we have had two classes—viz., block survey of 47,000 acres done at 2d. an acre, and the survey of partitions. These latter are subdivisions of the large Native reserves chiefly between Hangatahua and Taungatara made by the West Coast Royal Commission, the Natives having of late gone in largely for individualising the land. Of the amount so dealt with by the Native Land Court we have cut up 17,748 acres, two-thirds of which is forest, into 230 subdivisions, averaging 77 acres, at a cost of 10d. an acre. The whole of the cost, £1,156 18s. 5d., is made a charge on the land, by liens for survey, on the separate blocks or partitions.

*Other Work.*—The return shows £1,085 under the head of "Other Work." The principal items are in connection with the railway exploration, and £279 3s. 1d. in the back-pegging of 94 sections, comprising 8,686 acres, sold some years ago. Notwithstanding that much of the old survey was obliterated, and in nearly all cases the back boundaries were streams originally surveyed by compass, and which had to be properly traversed, the cost has been but 7½d. an acre. The work is now nearly completed, there being only 1,000 acres of small sections remaining to be done.

*Office-work.*—The office-work has been of the usual miscellaneous character; 945 plans have been placed on Crown grants, 138 on leases, 193 on Native titles, 645 on certificates of titles, and 21 surveyors' maps under the Land Transfer Act have been examined and passed, 20 block sheets have been compiled, and the maps of 24 surveys executed by the staff have been checked, and the property-tax maps of the district examined and revised. The work actually in hand is small, Messrs. Skeet and Humphries having 1,000 and 1,500 acres respectively of Native Land Court partitions, Mr. Climie 500 of settlement-work, and Mr. Dalziell 1,000 acres of back-pegging.

*Future Operations.*—The field staff for the coming year will be but three—Messrs. O'Donohoo, Climie, and Atkinson having been retrenched. Mr. Skinner also leaves the field, and comes into the office at draughtsman's salary. The services of Messrs. Caldwell and Douglas, of the office temporary staff, have also been dispensed with. Since the land in this district was thrown open, on the 21st March, under the Land Act Amendment Act of 1887, nearly 15,000 acres have been selected. It will therefore be necessary to devote our strength to sectional work, so as to keep well ahead of the demand. I would therefore propose that the block of 8,000 acres of level, good bush land about six miles eastward of Pungarehu and Rahotu be surveyed, and a few thousand acres eastward of Stratford. Some may be required in other directions as demand arises through the land at present open for selection being taken up. It is also probable that there will be a call to have a sectional survey made of 8,000 acres of the University Reserve inland of Patea.

THOS. HUMPHRIES, Chief Surveyor.

#### WELLINGTON.

It will be observed that the only triangulation effected comprised 27,665 acres, which was undertaken to govern the settlement surveys of the Waitotara and Mangatainoka Blocks.

After the winter recess the staff was almost wholly employed in the preparation of blocks of land for sale, with the result that about 41,000 acres of rural lands were sectionised, including areas

in Maungakaretu, West Waitapu, Mikimiki, Waitotara, and West Mauriceville Districts. The low cost of these forest surveys is very noticeable and creditable to the field officers, every allowance being made for the larger areas of the sections and other adventitious circumstances attending the work of the past season. In addition to this, the staff explored, graded, and located the roads, selected reserves, and mapped an area of over 112,000 acres for selection under "The Land Act, 1887." By this means tracts of country in various localities in this provincial district were prepared for application under safeguards to conserve and protect the public interests and requirements, the chief points of operation being in the Maungakaretu, West Waitapu, Otamakapua (Curl's Clearing), Waitotara-Omahine, Tiraumea-Makuri, Mangaone-Tiraumea, Kopuaranga-Wangaehu, West Mauriceville, and South-eastern Wairarapa Districts.

Besides the foregoing, this office had to do with the survey of 31,000 acres of rural and suburban surveys, which were executed by contract and authorised surveyors, bringing up the total area to 185,454 acres.

The town-section surveys comprised 149 acres by the staff, and 2,218 acres by the contract surveyors, the latter including the special-settlement townships of Parkville, Newman, Scarborough, and Ballance.

Of the Native Land Court surveys, totalling to 60,475 acres, the bulk of the area is made up by the Horowhenua Block.

The only Native land-purchase survey was that of the Mangatainoka subdivisions, a fraction of which—viz., 2,760 acres, is returned for the year.

Notwithstanding the close attention devoted to the settlement surveys, the staff found time to survey 63½ miles of roads and railways, to attend to a multitude of miscellaneous duties, including engineering surveys, preparation of plans and specifications for, and the supervision of, road-works.

It is suggested that the operations next spring should comprise trigonometrical and topographical surveys in the Upper Rangitikei and Mangawhero Districts; settlement surveys in the Upper Whanganui, Waitotara, Otamakapua, Pohangina-Oroua, Mangatainoka, and Puketoi Districts; Native Land Court surveys in Waimarino Block; and, if time permits, to legalisation surveys of roads through Native and freehold lands throughout this provincial district.

The ten staff surveyors' mean error of traverse is under 2 links in the mile. The results for the last four years are as follows:—

	Number of Chains.	Number of Stations.	Mileage.	Mean Error per Mile.
1887-88	95	4,911	266	2.0
1886-87	50	1,804	109	1.7
1885-86	101	2,275	149	1.6
1884-85	80	1,990	116	1.9

From this I conclude that the maximum error in the rough bush-country, such as the Wellington staff's operations cover, should be fixed at 4 links in the mile.

The office-work of the year exceeded in amount that for any similar period. The correspondence of the combined offices here comprised the receipt and despatch of 8,232 recorded and unrecorded returns, reports, and letters, exclusive of a vast amount of references and routine business; the book-keeping, &c., connected with the expenditure of £12,859 on staff surveys; and £9,050 on road-works; besides the classification, pricing, and computing, &c. of 150,000 acres of land thrown open for sale. It is but right that I should record my sense of the active and cordial co-operation of the field and office staff in this district, and of the able and zealous manner in which they have attended to their duties.

J. W. A. MARCHANT, Chief Surveyor.

#### MARLBOROUGH.

*Minor Triangulation.*—The stations of the subsidiary triangulation in connection with the section surveys have been observed, as in minor triangulation, and permanently marked, and as they are all available for future work I have classed it under the above heading in the general return.

*Topographical and Trigonometrical.*—The country operated upon extends from Jackson's Head to Forsyth Island, and connects the intervening gap between Mr. Goulter's Pelorus Sound and Mr. Wilson's Queen Charlotte Sound triangulations. The windy weather prevailing during the first two weeks, the rough and exposed nature of the coast, and the delays incidental to boating from place to place much retarded the progress of the survey.

The closures are as follow:—

Gore District:—

A-Z, Wilson's determination, Queen Charlotte Sound	...	25581.6	} 25576.1 (mean.)
A-Z, Goulter's determination, from base Takorika Ref.-D	25573.2		
A-Z, Goulter's determination, from base Onahau-Ref. Onahau	25579.0		
			Difference 5.5 = 1.7 per mile.

The triangulation is based on sides Takorika Ref.-D and Onahau-Ref. Onahau (Wilson), and carried from these sides to close on A-Z by a series of small triangles for 40 and 36 miles respectively, generally along the course of the waters of Pelorus Sound, and the coast-line from Forsyth Island to Jackson's Head; the closing may therefore be considered satisfactory, taking into account the smallness of the triangles and the distance from the bases.

*Section Surveys.*—Of the 6,547 acres returned, 1,940 acres, in 12 sections, were surveyed on applications, as requisitions came in from the Land Office. They are mostly in bush-country, and ground-marked front and back. The remaining 4,607 acres (revision), in 61 sections, are the resurvey and location of the balance of the old dispersive surveys alluded to in former reports. They are scattered about in twenty-six different localities, each requiring a special trig. connection,



chiefly in open country, front and direction pegs only put in. Of these, 39 are in Port Underwood, 1 in Pelorus Sound, and 21 in Queen Charlotte Sound. In several of the bays in Port Underwood a very great difference was found to exist between the coast-line and that shown on the old plans, whilst in others they appear to be no better than mere sketches. In two cases sections on the old plans were found on resurvey to be in different bays altogether, and in four places only were there any indications of the original ground-marking to be found. In connection with this work, there were 20 closed traverses, the mean error being 1·7 per mile. I am glad to be able to report the completion of these erratic blocks; their relative positions can now be correctly established on the working-block and record-maps, whereby the dealing with the adjacent Crown lands will be much facilitated, as well as materially reducing the cost of future surveys.

*Town Section Survey.*—This allotment is part of an old river-bed, the stream having been diverted into a new channel. Surveyed under instructions (S. G., 10929/1) for Borough of Picton. The boundaries of five abutting allotments had to be determined.

*Road and Railway Surveys.*—Two separate land-plan surveys on the Picton-Blenheim Railway, for the Public Works Department.

*Office and Land Transfer Work.*—During the year 27 surveyors' plans have been received and checked, and 14 block sheets, 5 Crown grants, and 2 Land Transfer record-maps were prepared. In the Land Transfer branch 16 plans were examined and passed. These represent dealings with 83 original sections, in 39 allotments, embracing an area of 14,533 acres. Five applications, 4 leases, 75 mortgages, and 79 transfers were examined; and 49 certificates of title, representing 98 marginal plans, prepared. The Crown Lands Department made the usual demands for certificates in lieu of grants, timber, pastoral, deferred-payment, and miscellaneous licenses, small grazing-runs, and perpetual leases, descriptions for Proclamations, tracings, &c. The requirements of the Public Works Department, and the various Road Boards, in the examination of railway land-plans, and deviations, and exchanges of roads, were attended to.

The work done for the Property-tax Department consisted in the revision of plans and schedules for the coming triennial assessment, searching particulars in the Deeds' Office of subdivisions made during the last three years, and preparing subdivisional plans, schedules, &c. The office staff were engaged on this work for about six weeks.

*Proposed Operations.*—The work of this season commences with 4,100 acres of section survey, the greater portion on application for sale, perpetual lease, and small grazing-runs. Exploration, grading, and specifications for clearing a driving-track up the Rai Valley, from the main road at the junction of the Rai and Brown Rivers to the head of the Rai, and thence over the dividing-range into Tuna Bay, Tennyson Inlet, about 17 or 18 miles. Grading and specifications for forming track from Ti Mautua-a-Maui Bay, Kenepuru Sound, to Wet Inlet, Pelorus Sound. It is anticipated, from the recent discovery of gold in Cullen's Creek, at Mahakipawa, and other indications, that this part of the district will turn out a payable field. Should this prove correct, there will, no doubt, be a demand for mining surveys in the locality. At present true bearing is not available, and our knowledge of the topography is very meagre indeed. To meet these, and the wants of a mining population, I would recommend an extension of the Linkwater triangulation over some 20,000 or 25,000 acres of the Mahakipawa country; and I propose to do this if circumstances require it. We shall also have the usual calls for section and other surveys on requisitions from the Land Office and other sources to attend to. Of these I can form no estimate as to what may be required.

HENRY G. CLARK, Chief Surveyor.

## NELSON.

*Topographical and Trigonometrical Survey.*—Mr. W. D. B. Murray has triangulated 20,062 acres in the Pelorus, in connection with sectional work, at a cost of 3d. per acre, and traversed 43 miles of bay and coast-line, picking up and connecting a number of old surveys, and establishing permanent stations for future reference. This work has been absolutely necessary, as the old maps of the coast-line of this part was taken from the Admiralty chart, and was not sufficiently accurate to locate land surveys. Messrs. Smith and Thompson have completed the field-work of a block of country between the Boyle and Waiau Rivers, of which there was no topography. This is required by the Waste Lands Board for the apportionment of area under application which has been made for frontages to valleys, thus leaving country at the back shut up, for which no rent has yet been received, and for which no one is responsible under the Scab or Rabbit Acts. 96,000 acres have been covered, and the plot is now in hand; when completed the subdivision boundaries that are decided upon can be easily marked on the ground. About 30,000 acres more remains to be done to complete the triangulation from the Hurunui Saddle to Mount Franklyn, and the main range of mountains forming county and other boundaries will then be defined, and replace the sketch boundaries hitherto in use, and the cause of constant disagreement between plans. The field-work of the triangulation extended by Mr. J. Snodgrass from the Mokihinui to the Karamea circuit in last year has not been completed this season, as that officer has been fully employed on mining and other current surveys. A number of trig. stations in the Kaiteriteri and Takaka Districts have been renewed by Mr. T. Sadd in connection with sectional work.

*Sectional Surveys.*—During the year 247 sections, containing 35,641 acres, have been surveyed, at an average cost throughout of 1s. 10d. per acre. Most of these are adjoining old sections, the boundaries of which have to be run again, the old pegs having disappeared. Mr. G. H. Bullard has surveyed the isolated applications made down the Buller and other valleys, which had accumulated for two years, the cost of which is always large in such a mountainous part. There are no arrears of survey within the block set apart for the Midland Railway, except one or two in the Amuri, the boundaries of which have yet to be determined by the Waste Lands Board. The applications for land in other parts are slightly in excess of last year. The arrears of current

surveys amount to 125 sections, containing 18,883 acres. The department has assisted the Road Boards in surveys when officers have been working in the locality, but in a district where free selection before survey is in vogue the staff has more than it can do to prevent current applications falling into large arrears.

*Gold-mining and Mineral Leases.*—The number of these surveys are about the same as last year, being 129, covering 3,848 acres, at an average cost of 9s. 5d. per acre. The bulk of the applications have been in the Reefton and Westport Districts, with a few beach-claims in the Grey, and one or two mineral leases at Collingwood. Although the results from the Owen Goldfield have been disappointing, a hopeful feeling has again arisen owing to prospects of silver ore having been traced for a considerable distance, and about 17 applications for leases are awaiting survey there. Thirty-five applications are in arrear of survey, made chiefly within the last two months.

*Town Section Survey.*—Mr. Montgomerie has brought 185 sections in the Town of Reefton within standard survey, and the Town of Westport yet requires to be done.

*Other Work.*—In this is included 43 miles of coast and bay traversed by Mr. Murray in the Pelorus, referred to under topography. The work done for other departments amounts to £32 13s. 11d. refunded, and £86 4s. 5d. for the Property-tax Department.

*Office and Land Transfer Work.*—In the latter 3 Crown grants and 182 certificates of title, in lieu of Crown grants, have been issued, requiring 546 plans. Also 169 certificates under the Land Transfer Act, with 338 plans; 151 plans examined and passed; 26 plots and registrations, and 9 tracings; 39 certificates of title drafted, to be checked and passed, with 28 still in arrear. In the former, 4 Crown-grant record-maps have been made. A new plan of Town of Nelson in four sheets, on a scale of 2 chains to an inch, has been made to replace the old one in use, it being worn. Three new trig. and 65 new block sheets have been prepared, and 186 surveyors' plans have been checked and recorded on new and old block plans. Plans and schedules of the Property-tax Department posted up. There have been 277 leases and licenses, with 595 plans prepared; and 69 mining leases in duplicate have been checked, and plans and descriptions supplied. There have been 1,900 letters received and answered, and 296 vouchers passed for survey-fees.

*Work for the coming Season.*—Mr. Murray will have completed in July the work in Pelorus Sounds, and it is proposed he should do the same work over the bays on the west side of Blind Bay, locating and connecting the old section-work, and establishing permanent stations for future reference. Messrs. Smith and Thompson have in hand between three and four months' plotting. They will finish the back triangulation left this season, and mark off boundaries of applications as decided upon by the Land Board. They will also establish a few standard survey stations in the Culverden District for Land Transfer surveys. Mr. Montgomerie has arrears of mining surveys and the current applications to survey in the Reefton District, and Mr. Snodgrass the same in the Westport District. Mr. Bullard goes to the Owen to survey mining applications, after which it is proposed he should proceed to Mr. Snodgrass' assistance. Mr. F. Greenfield will survey applications in the Nelson District, and Mr. T. Sadd, after completing applications at Takaka, will proceed to the Collingwood District, where surveys are falling into arrear, owing to no officer being placed there, the most pressing surveys having been done by an authorised surveyor. Connection of triangulation between Mokihinui and Karamea is partly done, also survey of special-settlement block, Little Wanganui, begun, but held over on account of pressure of current work, should be completed. I may add that very bad weather has prevailed throughout the past season, which, in a mountainous district like Nelson, adds greatly to the cost of work by detention. No less than sixty-five days' loss from this cause occurred on the West Coast.

JOHN S. BROWNING, Chief Surveyor.

#### WESTLAND.

*Major Triangulation.*—Under this heading appears an expenditure of £139 8s. 6d. against which there is no acreage placed. It comprises the cost of Mr. Roberts's office-work, calculations and plotting in connection with the triangulation which Mr. Murray completed during the previous year.

*Rural and Suburban Surveys* amount to little this year. They consisted principally of five-acre suburban sections within the Grey coal reserve and isolated sections scattered through the district.

*Town Surveys* returned this year comprise the standard and resurvey of the Native portion of Greymouth, and the survey of Dobson, Wallsend, and Brunnerton Townships.

*Goldfield Surveys.*—In connection with these surveys there has been a very great increase of work, owing partly to the gradual development of the Cedar Creek reefs, but more particularly to the springing up of a new class of mining, that by dredgers. From Greymouth down to Bruce Bay, a stretch of coast-line of nearly a hundred and fifty miles, most of the known auriferous beaches and likewise the beds of a number of our rivers have been taken up in special claims and licensed holdings, with the view of working them by suction- and bucket-dredgers. The pressure from these surveys was very great for a time, and I had therefore to avail myself of the assistance of some of the authorised surveyors.

*Arrears.*—I much regret that the surveys in arrear at the beginning of the year could not be overtaken. There still remain 175 sections, out of a total of 16,296 acres, to be surveyed, and the number of record-maps still wanting is also very considerable. The current demands upon the decreased staff, especially during the past four months, have kept the officers fully employed, and it will take some time before they will be able to clear off arrears.

GERHARD MUELLER, Chief Surveyor.

## CANTERBURY.

*Minor Triangulation and Topographical Surveys.*—As proposed in my report last year, four of the staff surveyors have been engaged on this work, to enable me to get more reliable plans made of the pastoral country proposed to be re-let next year in Canterbury. Mr. Welch has been employed on the Okuku and Noble Survey Districts, situated in the northern part of the province, adjoining the Hurunui River; Mr. Hay in the Mount Somers and Hutt Survey Districts, in the Ashburton County, embracing the head waters of the north branch of the Ashburton River; Mr. McClure has completed the Fox, Mount Peel, and Sinclair Survey Districts, in the Geraldine County, including the head waters of the Orari and the Havelock branch of the Rangitata River; and Mr. Brodrick has been engaged in completing the triangulation of the North Tekapo and Godley Survey Districts, in the Mackenzie country, embracing the northern part of Lake Tekapo and the Macaulay, Godley, and Cass Rivers. The work undertaken by these officers has been of the most arduous description. The unusually late fall of snow in the early part of October last year, the fierce and ever-recurring north-west gales which blew with such force during the past summer months, and the early fall of snow this autumn have all helped to retard the progress of the work, and necessitated the highest peaks being ascended again and again before satisfactory observations could be obtained. The average height of stations observed was over 4,500ft., a great many of them being over 6,500ft., and the highest 7,645ft. I am glad to be able to report that no loss of life has occurred, although Mr. Welch's party, whilst fording the South Hurunui River, were washed down it, barely escaping with their lives; and Mr. Brodrick had one of his men so badly frost-bitten that he had to be sent to the nearest hospital. The total area triangulated is 416,838 acres; and, besides getting the topographical features of this, the topography of 335,154 acres of the higher portions of the mountainous ranges extending far into the Southern Alps has been obtained by extending chain traverses to the sources of the various rivers and their principal tributaries, the peaks and leading ridges being fixed by cross-bearings, and the other topographical features by cross-bearings and carefully-prepared sketches taken from the various minor stations, the average cost of the triangulation and topography being 0.98d., and of the topography alone 0.35d. per acre, which includes every cost in connection with the field parties to the end of the season. The several surveyors and their parties pushed on the work with the utmost energy until they were compelled by the approach of winter to leave the high altitudes in which they had been camping. The calculations and topographical plans having been left to be completed during the winter months, I am unable yet to report definitely on the various closures which have been made with the previous work. The rough calculations, however, show satisfactory results.

*Sectional Surveys.*—These comprise revision surveys completed on the Peninsula by Messrs. Welch and Hay during last winter and in the early part of the spring, before commencing their trigonometrical surveys; a block of deferred-payment land in the Oxford Survey District, undertaken by Mr. Brodrick before he removed to the McKenzie country to start the triangulation there; some ordinary sectional surveys in the Geraldine County, executed by Mr. McClure in the early part of the season; and further sectional surveys, subdivision of educational reserves, mining, road, and other surveys undertaken by Mr. L. Mathias in the Ashley, Selwyn, Ashburton, Geraldine, and Waimate Counties; of this work, some 1,377 sections or allotments in all have been pegged on the ground, containing 18,799 acres, at an average cost of 1s. 1½d. per acre. This work being very similar to that reported on in previous years requires no special mention at my hands.

*Land Transfer Surveys.*—This work has, as in former years, been entirely supervised by Mr. Monro, the calculations and other work being done by his two assistant draughtsmen, Messrs. Cane and Leversedge, jun. Ordinary certificates for transfer and certificates in lieu of Crown grants having decreased in number, the draughtsmen have, since the 1st January last, drawn the plans on the duplicate and triplicate copies, which had been hitherto done by contract at a cost, on the average, of about £100 per annum, which sum is now saved to the department. The work in this branch of the Survey Department is approximately the same as last year; there is a decrease in the number of certificates issued in lieu of Crown grants owing to the arrears of work in the issue of titles from the Crown Lands Department being gradually overtaken; in other respects there is an increase in some of the work to be done, and a slight decrease in other items. Thirty-five new plans have been deposited, containing 480 separate allotments; 8 plans taking land for public works purposes, and 12 road-deviation plans have been checked and recorded; 157 applications to bring land under the Land Transfer Act, 353 ordinary transfers, 11 mortgages, and 25 leases were referred to Mr. Monro to check the descriptions or areas; 940 ordinary certificates, in duplicate, and 548 certificates in lieu of grants, with the usual copies, were done, necessitating 2,978 separate plans or marginal diagrams being drawn thereon; and, in addition to this, subdivision plans on a large scale were done, showing the titles issued under the Land Transfer Act in the Boroughs of Akaroa and Rangiora, in the Town District of Hampstead, and in part of the Riccarton District.

*Office-work.*—During the year 92 plans of sectional surveys of various kinds have been sent in by the field surveyors. Of these, and arrears remaining on hand last year, 70 have been checked and passed, 13 have been held over pending alterations being made, and 60 remain on hand; 7 new Crown-grant record-maps have been constructed, and the grants or certificates of title issued have been duly recorded thereon; 556 new certificates or grants, including 794 sections, containing 92,868 acres, have been prepared, checked, and passed on to the Land Transfer Department; 476 plans have also been put on 172 leases and licenses and their counterparts. Since the reductions made in the service last February, Mr. Shanks has taken charge of the work formerly supervised by Mr. McCardell, and most of the remaining draughtsmen can now work in the upstairs-rooms adjoining the upper safe, the others will work in a room adjoining the lower safe; and I think that a considerable saving of time will be effected by this bringing them nearer the fire-proof safes, much time having been hitherto lost by having to employ those officers, owing to want of space, at the

other end of the building. Very considerable progress has been made in reducing the arrears of mapping remaining on hand last year; 7 new survey district plans on the scale of 40 chains to an inch have been made, 10 district plans have been traced for photolithographing, 16 have been traced and mounted for use in the public room, and 3 more are in progress, and 5 districts have been corrected and brought up to date, to agree with the recent surveys. The topographical plans of the 7 districts triangulated during the past summer will be completed during the next two months, and will be immediately copied, so that the present run-boundaries can be marked on them. I shall then have sufficient data to go on with the new run-plans required during next year. On these plans I shall be enabled to show all the boundary- and subdivision-fences of the runs, and much detailed information respecting the character and grazing capabilities of the pastoral country proposed to be relet in 1889. The correspondence of the Survey Office is now so intermixed with that of the Crown Lands Department that it is impossible to define accurately the amount appertaining to each office. The inward and outward letters, circulars, &c., recorded during the year ended the 30th June last was 7,595. The transfer of Mr. Williams, the Chief Draughtsman, to undertake the duties of Receiver of Land Revenue, in place of Mr. Blakiston, who for many years held that appointment, and who, I regret, was one of those who lost his appointment under the general scheme of retrenchment ordered by the Government, has thrown a great deal of additional work on Messrs. Shaw and Bundeley, who now have the whole of the work in connection with the correspondence of the two offices to carry on and record. The correspondence during the last four months, since the change, shows little sign of diminishing, and it is only by the closest application on their part that it is not allowed to get in arrear.

*Retrenchment.*—I sincerely regret that the reduction in the office staff ordered by the Government has led to the retirement of Mr. McCardell. Mr. Leversedge, sen., also, who for many years was in charge of the public map-room, where his carefulness and attention to his duties were highly appreciated by the many applicants for lands in the Canterbury District, was, owing to the decrease of work in his branch of the office, one of the Canterbury officers who had to be retrenched. The compulsory retirement of officers after many years—perhaps a whole life-time—given to the public service of the colony, without any adequate retiring-allowance or without any pension, whilst other officers of perhaps shorter or not such valuable service retire with a good pension, simply because they happened to be appointed in the first instance by the General Government instead of the Provincial, is a great blot on the Civil Service of the colony, and is probably without parallel in any Crown or constitutionally-governed dependency of the British Government; and I doubt if in any Civil Service in the world would such glaringly unequal and unjust treatment of the public servants be tolerated.

*Proposed Operations, 1888-89.*—Four of the staff surveyors will still be employed in completing the triangulation of the pastoral country, and at the end of next season I expect that nearly the whole of it, excepting, perhaps, the country between the Ohau and upper part of the Hawea Lakes, will be completed. One surveyor will still be available to do the small amount of arrears remaining on hand, or such sections as may be taken up on the lands now thrown open for free selection, or that may be selected by the Midland Railway Company out of the lands set apart for them.

JOHN H. BAKER, Chief Surveyor.

## OTAGO.

*Topographical and Trigonometrical Surveys.*—Mr. District-Surveyor Strauchon has made good progress with Glenomaru District, but has not been able to finish this season. His return is 18,000 acres, at 2d. per acre.

*Rural Section Surveys.*—The acreage is now more than double what it was last year, and the cost per acre less than one-half. This low rate and large area is owing to the inclusion of the Deepdell Run, where an area of 43,745 acres was cut up into small grazing-runs and agricultural areas.

*Town Section Survey.*—Seventy-five allotments have been laid off in three localities, including the Township of Catlin, entirely in bush.

*Mining Surveys.*—The area laid off this year (1,568 acres) is a little more than last year, and the cost per acre (8s. 2d.) is a little under last year's average.

*Roads, Railways, and Water-races.*—The length under this heading is nine miles, at a cost of £83 5s. 11d. or £9 5s. 1d. per mile. Mr. Assistant-Surveyor Calder has finished the field-work of a survey for the Otago Harbour Board and Public Works Department adjoining the railway-line between Dunedin and Port Chalmers, but, as his plans are not yet finished, I have not included the work in this return.

*Other Work.*—Of the various items under this heading I may mention the completion by Mr. Langmuir of the standard survey of Lawrence, which will furnish valuable reference-points for future surveys. Mr. Strauchon has also done some good work in locating through and cross roads in the bush-country between the Nuggets and Catlin's River.

*Survey Inspections.*—During the year I have made twelve inspections of the field surveyors' work, visiting several of the surveyors more than once; and I inspected and reported on all the runs that fall in on March, 1889, with the exception of seven in Mr. Wilmot's district that he reported on. I have also made several inspections of roads and bridges constructed out of the vote to open up Crown lands before sale, and have made ten field inspections within a few miles radius from Dunedin.

*District Offices.*—Of the three district offices, Lawrence is under the charge of Mr. McLean, Queenstown under Mr. Adair; Naseby, having no resident draughtsman, is under the charge of the District Surveyor, Mr. D. Barron.

*Dunedin Office.*—During the year the following changes took place: Mr. Cadet Bartlett resigned on the 31st December, Mr. W. F. Browne's services were terminated on the 29th February, and

Mr. Cadet Wm. Calder resigned in June, to take effect on the 31st July current. From the detailed statement it will be seen that Mr. Skey, the Chief Draughtsman, with the assistance of Messrs. Browne, Wadie, Marsh, Stables, Calder, Bartlett, Morrison, Neill, and Manax, have, besides other incidental work, prepared and recorded 309 Crown grants and certificates of title, representing 24,100 acres; 150 perpetual leases, in triplicate; 59 pastoral leases, in duplicate; 42 deferred-payment licenses, in duplicate; 25 occupation licenses, in duplicate; 20 mining leases, in duplicate; 25 agricultural leases, in duplicate; 20 miscellaneous leases, in duplicate; 25 village special-settlement leases, in triplicate; and 38 small grazing-run leases, in triplicate. Mr. Nicolson has the custody of all maps in the safe, furnishes data for surveys, receives applications for unsurveyed lands, and attends to the public. Mr. Wadie completed the topography of Otago, and recorded new surveys and subdivisions on run-maps, adjusted run areas, and keeps a record of road-improvements to open Crown lands. Mr. Fynmore recorded 46 new and closed road-surveys on working-plans and road district and county maps, reported on 16 road matters, kept road records, and attended to the public in connection with road affairs. Mr. Thompson checked 162 staff surveyors' plans; 69 Land Transfer plans; 59 road- and railway-plans, in duplicate; 20 agricultural leases, in duplicate; and 6 mining leases, in duplicate. The accountant, Mr. Runcie, besides the correspondence and bookkeeping, recorded a *précis* of and indexed 3,477 letters received and sent, received, entered and numbered 284 plans, checked and tabulated the monthly survey and road reports, keeps and distributes stores, pays salaries and wages, despatches plans, parcels, and correspondence, and attends to all matters in connection with the office.

*Land Transfer Work.*—Mr. Treseder examined and checked 75 applications, 966 transfers, 625 mortgages, 297 leases, 143 transmissions, 731 draft certificates, and put 1,462 plans on certificates of title, besides ordinary work as it occurred.

*Lithographic Branch.*—Mr. Morrison reduced and drew two plans for photolithographing and nineteen on transfer-paper. Mr. Bain printed therefrom 4,050 lithographs, besides printing protractors, circulars, forms, &c., and mounted during the year 426 maps.

*Proposed Operations.*—Mr. Strauchon has still to complete the triangulation of Glenomaru District; and I think it will be advisable to throw a few triangles eastward from Waikawa and Mokoreta Districts towards Tautuku Bay. The extension of the standard survey of the City of Dunedin is urgently required, as complications are frequently arising in connection with Land Transfer surveys owing to the want of standard points over a great part of the city. I therefore propose that Mr. District Surveyor Langmuir shall undertake this work during the coming summer. In the Dunedin office there is an accumulation of arrears in consequence of the extra work required in the revising of the property-tax maps. When these are completed it will take some months to bring the back work up to date.

C. W. ADAMS, Chief Surveyor.

## SOUTHLAND.

*Field-work.*—The field-work during the year has been of a desultory character, the principal blocks for village special settlement, &c., purposes, having been laid off during the previous year. There have been completed during the year, under the head of rural and suburban surveys, 17 sections, containing 2,142 acres. Of these, 7 sections were sawmill areas and 10 were purchases. Ten sections were also laid off as special claims on mining-lease applications. The applications for these, for the most part, came in in a desultory way, and the work being necessarily more or less urgent, it was found much more convenient and desirable to get the surveys overtaken by private surveyors as they were needed, instead of moving either the staff surveyor from the blocks in hand or of attempting to let the work accumulate. It will be seen that, while the sawmill applications have fallen off as compared with last year, the number of mining applications has considerably increased. This is partly due, no doubt, to the prospects anticipated for the "Wellman" dredger and machinery of a similar kind that will be able, by the manipulation of large quantities, to make up for inferior quality in the case of the auriferous wash occurring in some of our river- and ocean-beaches. In regard to our staff surveyors, I have to state that Mr. Stauchon, whose district embraces part of the now extended Southland Land District, has been exclusively engaged ever since the extension in the Otago Land District. Mr. Hay also has during the year overtaken one or two special blocks in the Otago District, but has now returned, and is engaged with the subdivision of the Native reserves near Colac Bay. There are a number of Native reserves to subdivide in accordance with the decision of Mr. Mackay, Judge of the Native Land Court, and, as the most of these are bush-clad, the work of subdivision will take some considerable time. Mr. Hay's return for the year is exceptionally small, owing to the fact of his having done work in Otago, and to the additional fact that a bush block which he has in progress cannot be entered in the tabular column as completed, although the survey is in an advanced state. As already noticed, the sawmill applications have not been so numerous as during the previous year. The sawmill industry is flat, and doubtless there has been a good deal of over-production during the past, which overplus will require to be reduced ere the demand for fresh areas becomes very great. I need hardly say that the cost of surveys shown under the head of "Fee System" was borne exclusively by applicants, the survey-fees having been deposited in each case ere the surveys were undertaken. The work throughout the year has been of an exceptionally desultory and scattered character, no large blocks having been laid off in anticipation of settlement, as has been the case during previous years. The reason for this was that it was felt that a sufficient number of areas had been laid off for village settlement, &c., the lands already surveyed being apparently sufficient to meet the wants of small settlers for some time to come. The work for the coming year will consist largely of the subdivisional survey of a number of Native reserves, and of such sawmill, mining lease, and purchase applications as may come in. Doubtless some of the forests that have been denuded of sawmill timber, &c., may ultimately require to be subdivided, but I am not aware of any

pressing cases of this kind at present, at least in localities where it would be prudent to adopt this course.

*Office-work.*—During the year, in connection with the Land Transfer branch, 26 plans have been examined and passed. These plans embraced 41 original sections, which were subdivided into 570 allotments, comprising 2,798 acres. The certificates of title prepared during the year were 294 in number, involving 588 plans. The certificates prepared in lieu of Crown grants were 146 in number, involving 438 plans. The applications to bring land under the Land Transfer Act were 50 in number. These, of course, required, in some cases, careful examination by this office ere the District Land Registrar could act upon them. The number of leases dealt with, the diagrams and descriptions of most of which required examination by the Land Transfer Draughtsman, was 138. It would be difficult, if not impossible, to enumerate the various general items of work done by the office. These comprise, amongst other things, the preparation and working of the record-maps, the recording of fresh surveys on the various maps, the placing of plans on perpetual leases and deferred-payment licenses, and the usual routine of work which it would be needless to specify. The preparation of maps and schedules for property-tax purposes is a work which, when added to the usual pressure of current work, taxes all the time of the officers. I need hardly say that the recent extension of the land district entailed upon the office a large amount of extra work in getting up the various plans and books connected with the district that was added on. The chief items of work done for other departments, &c., will be found in the tabular return sent up along with this report. I have every reason to be satisfied with the various officers under me. They have done their duty ably, willingly, and conscientiously, and it has been a pleasure to work with them.

JOHN SPENCE, Chief Surveyor.

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## APPENDIX No. 2.

## AUCKLAND.

THE following report indicates the roadworks undertaken by the department during the year just terminated. It has been prepared by Mr. E. Fairburn, who has had a general charge of the whole:—

*Okaihau to Victoria Valley.*—At the date of last year's report 22 $\frac{3}{4}$  miles of this road had been formed, 10 miles as a cart-road and 12 $\frac{3}{4}$  miles as a bridle-road; also a bridge of 130ft. span, partly truss, had been built over the Mangamuka River. During the season there has been formed a length of 27 chains of cart-road and 203 chains of bridle-road, or 230 chains in all. The work, as stated in last year's report, and for reasons therein given, has been done by Maoris. The junction with the bridle-road lately opened by the Mangonui County from the Oruru Valley, alluded to in that report, has also been effected. There are at present two contracts in operation. Mr. G. G. Menzies, under Mr. E. Fairburn's supervision, has charge of the works.

*Lower Waihou.*—The works on this road which were nearly finished at date of last year's report have since been completed by the addition of 8 chains of bridle-road formation and 17ft. of bridging.

*Wairua to Helena Bay, Mimiha Branch.*—This road has been completed during the season, having been carried as far as the coast. It has been formed as a bridle-track from 6ft. to 12ft. wide. The total length is nearly 4 miles. The works on it done during the season are 50 chains formation, 6ft. to 10ft. wide, eight of which are lightly metalled; 10 chains of embankments, and 80 $\frac{1}{2}$ ft. of bridging. Mr. E. J. Fairburn has been in charge.

*Whangarei through Takeke.*—This road has been formed from 4ft. to 12ft. wide by village settlers. The total length at present formed is 177 chains. Of this a length of 87 chains was made this season, together with 64ft. of temporary bridging, which sort was adopted in order to secure that settlers should have access to their lots with the amount of money available. Mr. E. J. Fairburn has had charge.

*Mangapai to Māreretu.*—The contracts let on this road were completed in November last, the money allocated being thereby nearly expended. A total of 4 $\frac{1}{2}$  miles of 6ft.-wide bridle-track has been made, principally through forest, cleared 1 chain wide. The portion of the 4 $\frac{1}{2}$  miles constructed this season was 1 mile in length, the work done including 132ft. of substantial bridging, built at a very cheap rate, and by which some of the worst crossings in the district have been obviated and detours saved. Mr. Russell, under Mr. E. Fairburn's supervision, had charge of the works.

*Awaroa Swamp, Ottawa to Deeds.*—During the season a 14ft.-span bridge has been made over the Ottawa Stream, about 18 chains of approaches through swampy land formed, and 4 chains of the river-bed cleared and deepened. The work was under the supervision of Mr. J. T. Mellsopp, the Waipipi Road Board Inspector.

*Wairangi (or Waerenga) Road.*—During the season Mr. Haszard, in the process of cutting-up the surrounding lands for sale, has surveyed about 4 $\frac{1}{2}$  miles of well laid-out road up the main valley. The remarks in last year's report on this road would still apply.

*Waingarua to Akatea.*—This bridle-track, commenced in December, 1886, was finished in November last, the total work being 11 miles of 4ft.-wide track, plus 2 $\frac{1}{2}$  miles of 1ft.-wide benching, or 13 $\frac{1}{2}$  miles altogether. The work done this season comprises 5 $\frac{1}{2}$  miles of 4ft.-wide road, 2 $\frac{1}{2}$  miles of 1ft. benching, and 288ft. span of bridging. It has been performed by village settlers, and in a satisfactory manner. This road in itself will not open up much Crown land, but as it will in the future become the main outlet for a great deal of the district lying between Waikato and the West Coast it will be the means of opening out a good deal of country, much of which is of first-rate quality, through short branch roads being made to connect with it. Mr. F. H. Edgecumbe has had charge of the works.

*Waingarua to Waitetuna.*—During the season 110 chains of bridle-road, 6ft. wide, have been formed, and 181ft. of bridging constructed, including an 85ft.-span bridge over the Waitetuna River. A junction with the Raglan-Whatawhata coach-road has been made, completing the communication therewith from Huntly (and also Ngaruawahia, through the Akatea branch). A portion of the old track used by the settlers on the northern side of the Waitetuna River of about 60 chains has been worked in as a makeshift for the present. This portion, however, requires forming as side cutting in order to complete the grading throughout. Mr. Grut has been in charge under Mr. Fairburn's supervision.

*Kawhia to Alexandra.*—During the portion of the season ending the 30th April a surface-man was kept on this road. The punts at the Oparau Ferry have been repaired by fresh caulking; and the Whatiwhatihoe Bridge has been wedged and screwed up, and its approaches repaired. Mr. Fairburn has been in charge.

*Puriri to Tairua.*—During the season 4 miles of forest have been cleared 1 chain wide, the road along the same length formed 6ft. wide, and a total span of 164ft. of open culverts put in. The work which had been suspended during the autumn has lately been resumed, and tenders have been called for two contracts, comprising 40 chains in all. About three quarters of a mile of formation in addition to that already completed will reach the saddle on the main range, when the work done will begin to be useful for purposes of traffic, though not nearly so much so as if continued about 2 miles still further on, or 2 $\frac{3}{4}$  miles in all beyond present formation. Mr. A. B. Wright is in charge.

*Te Aroha Drains.*—Since the date of last year's report 4 $\frac{1}{2}$  miles of drains have been made of an average depth of 5ft., and 60ft. of bridging constructed. The work has been performed by village

settlers. These works were suspended for a few months, but were resumed lately, and three contracts let. Mr. A. B. Wright has charge of the works.

*Rotorua to Galatea.*—The principal work done on this road during the season has been clearing slips throughout the length of the already-formed road, doing some additional bridge and culvert work, and making some embankments. The items are— $15\frac{1}{2}$  miles of road repaired, 80ft. bridges and culverts, and 10 chains of embankments. Mr. J. C. Blythe has had charge.

*Rotorua to Paeroa.*—This road, the proposed route of which and the advantages to be derived from construction thereof were pointed out in last year's report, has been, during the season, surveyed and graded as far as the Waikato River. The work performed consists of  $13\frac{1}{2}$  miles of Proclamation survey. Mr. J. C. Blythe has had charge of this work also.

*Huka Falls Road.*—The work done on this road this season is as follows: 2 miles of formation 18ft. wide, repairs of damages by floods, and 71ft. of bridging, including a foot-bridge over the Huka Falls. The works have been under the charge of Mr. J. Howard Jackson.

*Taupo to West Coast, Waimarino Branch.*—The works carried out on this road since end of last season are as follows:  $4\frac{1}{4}$  miles of formation 16 $\frac{1}{2}$ ft. wide, 98 $\frac{1}{2}$ ft. of small bridges and culverts, and, in addition, 13,300ft. of timber for future bridge-building purposes have been cut and delivered on the road. The Lake Road has also been kept in repair, and plans and specifications have been prepared for the Whanganui, Mangatepopo, and Whakapapanui Bridges. Mr. Jackson has been in charge of this road also.

*Field's Track Branch of the West Coast Road.*—The work done has been as follows:  $5\frac{1}{4}$  miles of forest cleared 2 chains wide, and the track kept in fair repair from June to 31st January, 1888 (following), at which latter date Mr. Jackson, who was in charge, handed over the road to the Wellington Survey Department.

#### VILLAGE-SETTLEMENT ROADS.

The circumstances in connection with these roads were explained in last year's report. The following is a statement showing the respective works done on them during the season:—

*Ahipara to Herekino.*—Owing to the uncertain nature of communication on the West Coast, attributable to bar-harbours and various other causes, while that on the East Coast can be depended on to the hour once every week, this road, which joins on to the Ahipara-Kaitaia Road leading on to Awanui, a steamer landing-place on the East Coast, distant from Herekino Village Settlement about  $20\frac{1}{2}$  miles—of which  $12\frac{1}{2}$  miles are on an old road in very fair condition, the remaining 8 being new branch road—is of vital importance to above-named settlement, it having been found by experience that all dependence on traffic by way of Whangape, the port of Herekino, at least for several years, must be abandoned. The different contracts let for the formation of the Ahipara-Herekino Road were completed in the beginning of the autumn, the road being formed from junction with old road to the village as a dray-road, good in summer, or available for wheeled-traffic six or seven months in the year. It is necessary though, that, in addition, various soft places on the road should be metalled or fascined, it being the settlers only outlet, and they being exceptionally situated as compared with the other settlements. A sum of money has lately been authorised to be expended on new works on the road, which would go far to putting it in a fair condition, provided its expenditure could have been applied about four months earlier. But as owing to the wet season being well on, and the process of carrying out of the improvements most required would destroy the surface of the remainder of the road, therefore as much of the expenditure as is possible—having reference to the necessities of the settlers as to being provided with work, which are very pressing—should be deferred till dry weather sets in, discontinuing dray-work and taking to pack-horses. Accordingly, in the new work given that kind will be selected the carrying out of which will not injure the other portions of the road, such as side or outfall drainage, corduroying or fascining where the material is handy and can be carried by hand or barrow, and is not on Native land or outside limit of road. All the portion of the road (about seven-eighths of whole) which runs through Native land has been made by Native contractors, who are very jealous at the works additional to the original formation being given to the village settlers, and refuse to allow fascining material or gravel to be taken off their land except at exorbitant rates. At the same time, it is a necessity that the settlers should have the work, as many of them will not be able to exist without it. The particulars of work done are as follows: 691 chains of formation 16ft. wide, 492ft. of bridging, and 87 chains of embankments with ditches.

*Herekino Roads.*—These roads are in connection with the last named, and are those intersecting the settlement, chiefly through bush. Some of them are graded, and some cleared as pack-tracks, according as they are likely to be of future importance as forming parts of main branch-lines. With the work done, however, every settler is able to have communication of some sort between the main road and his land. The work carried out has been—4 miles formation 6ft. wide, 76ft. of bridging, and 20 chains of embankments, with ditches. In addition, about 2 miles of pack-tracks through the bush were made. Mr. R. McLeod has had charge of this, as well as that of the last-mentioned road, under Mr. E. Fairburn's occasional supervision.

*Takahue Roads.*—Since date of last report there have been constructed 140 chains road-formation 6ft. wide, and 74ft. of bridging under the supervision of Mr. H. Larmer, the County Engineer. No work has been done during the latter part of the season, but is about being resumed at present date, under the charge of Mr. R. McLeod, to a small extent.

*Fern Flat Roads.*—There have been formed 19 chains road 6ft. wide and 100ft. of bridging constructed. Mr. Larmer has had charge.

*Motukaraka Roads.*—Since last season 162 chains of road 6ft. wide have been formed, 16 chains of road widened from 6ft. to 14ft., and  $3\frac{1}{2}$  miles of road cleared of fallen timber.

*Punakitere Roads.*—Since date of last report a bridge of 89ft. span has been built over the Punakitere River, and one of 49ft. over the Mangakorari Stream, both flowing into the Taheka.



The whole of the works done during the season are—105 chains of formation 6ft. wide, 87 chains of track stumped 14ft. wide, 155ft. of bridging, and 3 chains of embankments.

*Waimamaku Roads.*—The works finished to date are—132 chains formation 6ft. wide, 317 chains track cleared 16ft. wide, and 48ft. of bridging. Mr. Cochrane had charge of the three last-mentioned roads up to the 5th May last. Some fresh works have lately been let on them, which are under the charge of Mr. G. G. Menzies.

*Hukerenui Roads.*—The works performed to date are—100 chains of formation 6ft. wide with bush cleared 1 chain wide, 44ft. of bridging, and 4 miles of main road repaired. The work was done under Mr. A. B. Wright's supervision. Some new works are being let on these roads, under the charge of Mr. E. J. Fairburn.

*Whananake Roads.*—Three miles and a half of road 5ft. to 10ft wide, and 10ft. of bridging have been completed, and some new contracts have lately been let. The work is under the charge of Mr. E. J. Fairburn, along with the next following-named roads.

*Parua Bay Roads.*—Two miles of road 5ft. to 10ft. wide, and 39ft. of bridging have been constructed during the season, and some new works have lately been let on these roads.

*Waitakerei Roads.*—One 12ft. bridge is the only new work done on these roads.

*Swanson Roads.*—The works done are 52 chains formation 14ft. wide, and 126ft. bridging. Mr. Sealey was in charge.

*Karaka Roads.*—The works are—67 chains formation 14ft. wide, 126ft. of culverts, and 3 chains of embankments. Mr. Sealey was in charge.

*Komakorau Drain.*—This drain, 84 chains 5ft. by 3ft. deep, has been made. The work was done by village settlers, and in a satisfactory manner, under Mr. F. H. Edgcombe's supervision.

#### SUMMARY of ROADWORKS executed in AUCKLAND.

Name of Road or Work.	Bridle-road.	Cart-road.	Graded in Addition.	Bridges not included in Roads.	Contracts in Force.	Area opened.
	Miles.	Miles.	Miles.			Acres.
Okaihau-Victoria ... ..	2·5	0·3	...	...	2	7,200
Lower Waihou ... ..	0·1	...	...	...	...	...
Wairua-Helena (Mimiha branch) ... ..	0·7	0·1	...	...	...	2,000
Whangarei through Taheke ... ..	1·1	...	...	...	...	1,500
Mangapai-Mareretu ... ..	1·0	...	...	...	...	1,200
Awaroa Swamp-Otawa to Deeds ... ..	...	0·25	...	...	...	3,000
Wairangi Road ... ..	...	...	4·5	...	...	...
Waingaro-Akatea ... ..	5·5	...	2·5	...	8	6,000
Whangaroa to Waitetuna ... ..	1·3	...	...	85ft.	...	...
Puriri to Tairua ... ..	4·0	...	0·5	...	2	...
Te Aroha Drains ... ..	...	...	...	4·5 miles	3	...
Rotorua to Galatea ... ..	...	0·11	...	80ft.	...	...
Rotorua to Paeroa ... ..	...	...	13·5	...	...	...
Huka Falls Road ... ..	...	2·0	...	50ft.	...	...
Taupo-Waimarino ... ..	...	4·75	...	...	...	25,000
Field's Track ... ..	5·25	...	...	...	...	...
Ahipara-Herekino ... ..	...	8·6	...	...	3	...
Herekino Roads ... ..	4·0	...	...	...	5	10,000
Takahue Roads ... ..	1·75	...	...	74ft.	...	5,000
Fern Flat Roads ... ..	0·25	...	...	100ft.	...	3,000
Motukaraka Roads ... ..	2·0	0·2	...	...	10	3,000
Punakitere Roads ... ..	2·3	...	...	138ft.	19	3,000
Waimamaku Roads ... ..	5·0	...	...	...	6	4,000
Hukerenui Roads ... ..	1·25	...	...	44ft.	1	3,000
Whananaki Roads ... ..	3·5	...	...	...	4	3,000
Parua Bay Roads ... ..	2·0	...	...	...	4	1,500
Waitakerei Roads ... ..	...	...	...	12ft.	...	400
Swanson Roads ... ..	0·7	...	...	...	...	400
Karaka Roads ... ..	...	0·8	...	...	...	...
Komakorau Drain ... ..	...	...	...	1 mile	...	...
Totals ... ..	44·15	17·11	21·0		67	82,200

S. PERCY SMITH, Assistant Surveyor-General.

#### HAWKE'S BAY.

THERE is less to return under this heading than for many years past.

*Ormond-Opotiki.*—From Opotiki 44 miles of horse-road have been maintained. In the Motu section 112½ chains have been widened from 4ft. to 8ft., and 114 chains have been cleared of bush

20ft. wide. There are still 22 miles which should be widened to make the road safe for stock-travelling. From Motu River to Poututu the road has been placed in good repair before the rainy season set in, as it is now used by a considerable number of travellers.

*Tolago-Arikihi.*—A gap of about  $2\frac{1}{4}$  miles of this road between the portion formed from Tolago Bay and the Arikihi Runs has been made, thus giving access to those runs from the coast. This cost £97 1s. 2d., with liabilities of £62 17s. 6d.; and when these are discharged the total cost will be £559 17s. 11d., including £279 19s. 6d. expended under the supervision of Cook County Council.

*Ormond-Waiapu Road.*—The Council has expended £83 17s. 6d. upon repairs to the Ormond-Waiapu Road.

*Rotokakarangu.*—Since the 1st July last £300 was voted for this road and £317 2s. 8d. expended. Up to the present time £1,350 has been granted by Government and £1,428 17s. 7d. has been expended. This has formed 6 miles of dray-track, including 64 pipe culverts, 4 timber culverts, and one 22ft.-span sawn-timber bridge, besides about 5 miles of 5ft. bridle-track from Cricklewood Junction towards Patere. If any further subsidy is voted it is intended to extend the dray-road as far as the funds will allow, at an estimated cost of £200 per mile.

*Makaretu.*—A subsidy of £50 was granted to the Makaretu Road Board to assist in the formation of a road to give access to a portion of the lands lately selected in that neighbourhood, and the work has been completed.

*Woodville.*—The Waipawa County Council agreed last year to subsidise £50 granted by Government by the same amount to form a passable road to the Woodville Special Settlement, and I believe the work has been completed.

*Wainui-Tahoraite Main Road and Branches.*—Since last report seven contracts have been completed and taken over. This extends the dray-formation to nearly 20 miles from Danevirke towards the sea-coast at Wainui. The cost for the year is £2,512 18s. 6d., and the total cost from commencement of work stands at £12,149 10s. 2d. It is estimated that the cleared but unformed gap on either side of the Akitio River of about 9 miles will cost about £3,700, including three small bridges which must be erected before the road can be considered to be in fair order for dray-traffic. Five men are at present employed on this road clearing up slips, opening water channels, and otherwise putting the road into fair order for the rainy season.

*Communication between Hawke's Bay and Wellington Districts.*—I have, in accordance with your request, indicated the best line to give communication between the Tautane District and the Crown lands in the Wellington District. The Wainui-Tahoraite Road and its branches will render more accessible some 60,000 acres of land, more than 40,000 of which yet remain in the hands of the Crown, and about 25,000 acres are to be offered for immediate selection.

*Total amount expended on Roads out of Votes to open up Crown Lands.*—Since the first votes to open up Crown lands were taken, in 1880, to the present time £37,808 has been expended upon roads giving access to lands which have been or are being prepared for settlement.

*Revenue handed over to Local Bodies for Road Works.*—The thirds to local bodies from lands taken up under the various systems of deferred payment since last report amount to £2,546 0s. 5d., which, carried to last year's total, makes £24,113 0s. 5d. from beginning of system.

G. W. WILLIAMS, Chief Surveyor.

#### TARANAKI.

THE only road directly under my supervision, and consequently omitted in Mr. Robinson's report, is that from Pukearuhe to Mokau. On this 16 miles only £98 8s. has been spent, and that in keeping the road open for horse-traffic. This is a very necessary work, as it is by this track alone that the Crown land north of the Mokau River can be reached. As I have shown in previous reports, a large sum of money would be needed to open it for dray-traffic; but it is to be regretted that a small sum is not available to form a horse-track over the Parininihi Range, and so avoid the risk of the present track under the cliffs and the climb up by the zigzag. This latter is, through constant attention, still available, but at any time a heavy slip from the cliff may take place, completely demolishing it, and thus cut off communication with Mokau.\*

THOMAS HUMPHRIES, Chief Surveyor.

*Inglewood to Waitara.*—Cost of work, £735 13s. 7d. Gives better access to about 2,000 acres in Blocks II. and III., Huiroa District, and leads to about 8,000 acres in the Ngatimaru District, east of Waitara. The work included the completion of two contracts for grading and forming the Junction Road, between the Suffolk and Tariki Roads, the formation being 15ft. wide; the completion of three small bridges, of a total length of 79ft., and the necessary approaches to them; the formation of 33 chains of Junction Road leading to the bridge now being erected over the Waitara River at Tarata; the widening of some of the points on the part of the Junction Road known as the "Zigzag," and the clearing away of slips from the cuttings at the same part; also the screwing-up and painting the Manganui and Maketawa Bridges, on the Junction Road, about ten months after their erection. It also included the completion of some contracts for felling about  $1\frac{1}{2}$  miles of the Rimutauteka Road and about 2 miles of the Bristol Road, both in Block XIV., Waitara District, the felling being done 1 chain wide, and a cartway cleared and grubbed in the centre 12ft. wide, making the roads fairly passable, excepting where culverts are required.

*Roads east of Waitara (£647 12s.).*—Opens up about 8,000 acres in Blocks III. and IV., Huiroa, and Blocks XV. and XVI., Waitara. This includes the felling and clearing cartway of about  $14\frac{1}{2}$  miles of the Junction, Kohete, Autawa, Pita, Oapui, Pukeho, Wiri, and Otaraoa Roads; also the

\* The formation of track over Parininihi Range is authorised.—J.M.

grading and formation of about 60 chains of Junction Road beyond Tarata (by the unemployed). The road-felling was 1 chain wide, the cartway being grubbed 15ft. wide on the Junction Road and 12ft. wide on the other roads. The formation was all 15ft. wide, and included drains and the necessary culverts.

*Waitara Bridge* (£250).—A contract was let in March last for the erection of this bridge, at a cost of £939 15s. Progress payments have been made on material and work to £250. The total length of the bridge will be 161ft., the main span will be 100ft. Owing to the lateness of the season when the contract was let, the contractors have great difficulty in getting the timber to the site, as, after it has been brought to Inglewood from Palmerston (150 miles), it has to be carted 11 miles along a mud-road, which is now in a very bad state. The work consequently progresses but slowly, and the contract time will be exceeded. The bridge when completed will give access to over 20,000 acres of Crown lands eastward of Waitara—Ngatimaru, which would otherwise have been inaccessible for settlement purposes, but which is now being rapidly taken up, and will be quickly settled after the bridge is completed.

*Roads east of Midhirst* (£183 10s. 3d.).—Opens up about 2,000 acres in Block X., Huiroa District. The work includes the felling of over a mile of the Croydon Road, and the clearing, grading, culverting, and forming of  $1\frac{1}{2}$  miles of the same road; also the excavation of two tunnels and some formation on the Cross Road. The felling was done 1 chain wide, and the cartway was grubbed and levelled 12ft. wide. The formation was of a width of 12ft. The tunnels were excavated through rock, and were 7ft. high by 5ft. wide, and were made to obviate the necessity of building a small bridge.

*Egmont Road* (£92 15s.).—This was the final payment for completing the formation of the road from Egmont Village to Mount Egmont Forest Reserve. The work was completed prior to the 30th June, 1887, but the final payment was not made until the 16th July.

*Roads east of Stratford* (£151 6s. 5d.).—This was for the felling of  $1\frac{1}{2}$  miles of the Campbell Road and about  $1\frac{1}{4}$  miles of the Mangawhero Road, both in Block XIV., Ngairi District. The road in each case was felled 1 chain wide, and the cartway was cleared and stumped 12ft. wide. The work gave access to about 1,000 acres in Blocks X. and XIV., Ngairi District, and also benefited the lands eastward of Mangimangi Stream, and which have recently been sold.

*Native Trust Blocks* (£634 13s. 1d.).—This includes the felling and clearing of about 60 chains, and the draining and formation of about 25 chains, Namu Road, Opunake; also the formation, draining, and culverting of  $3\frac{1}{2}$  miles of Waiteika Road, Opunake; the formation in each case being 12ft. wide; also the completion of the grading, culverting, and formation 20ft. wide of the Kahui Road, Opunake. The latter road leads to about 8,000 acres of Crown lands lying between the back line of the Parihaka Native Reserve and the Mount Egmont Forest Reserve, the land being of fair quality.

*Eltham Road* (£436 3s. 10d.).—This expenditure includes part of the cost of the erection of the Mangahumi and Taungatara Bridges (of a total length of 124ft.) and the screwing up and painting the bridges about ten months after their erection; also the completion of 1 mile 35 chains of Eltham Road between Taungatara Stream and Punehu Village Settlement; also the maintenance of the metalled road from the Main South Road, Opunake, to Punehu Village Settlement, over 6 miles.

*Bush Land inland of Patea* (£94 6s.).—This payment was for the completion of the felling of Kawaiti Road, Opaku District. The felling was done the usual width of 1 chain, and the cartway cleared and stumped 12ft. wide.

The total cost of roadwork for the year, including sundries, material, day labour, overseer, &c., was £3,479 15s. 8d., for which a comparatively large amount of work has been done, as the contracts have invariably been taken at very low rates.

The works at present in hand are the formation, culverting, and draining of about  $3\frac{1}{2}$  miles of Eltham Road (five contracts), from Punehu Village Settlement to Auroa Road; the erection of a cart-bridge over the Otiri Stream, Eltham Road; the felling a portion of Arawhata Road, Opunake; the grading and formation of part of Waiteika Road, Opunake; the formation of about 3 miles of Junction Road, Ngatimaru (nine contracts); the felling of portions of the Rotokare, Mangawhero, Meremere, and Allen Roads (ten contracts), in the Ngairi and Hawera Districts; and the erection of the bridge over the Waitara River at Tarata.

The survey of the block of land lying eastwards of Blocks IV., Huiroa, and XVI., Waitara, being now completed, I would strongly recommend the felling of the main road, Junction Road, through the block, about 7 miles, before the land is offered for sale. It gives intending purchasers a better opportunity of finding the various sections, and enables them to form a more correct idea of the features of the country.

G. S. ROBINSON.

#### WELLINGTON.

*Maungakaretu*.—The road party, under Mr. A. D. Wilson's supervision, formed about 5 miles of Hale's Line as a horse-road 5ft. wide, felling the bush 66ft. wide, and stumping and clearing the central part; the whole length of the road, about 7 miles, was also maintained, the total cost being £850. With the exception of a gap now being completed, this carries the road to beyond Trig. Station E, Run No. 41. The area of Crown lands immediately benefited is estimated at 24,000 acres. The Wangahau Road Board, having completed the road as far as Mangamaku, were paid the balance (£50) due to them.

*Feild's Wanganui—Murimotu Road*.—Mr. John Annabell reports that the Road party cleared scrub on 6 miles of this road, maintained the whole length of 30 miles as well as such a small party could, besides felling 35 chains 66ft. wide, forming 5 chains 4ft. wide, and constructing six small bridges and ten culverts. Two contracts, Nos. 50 and 53, have been let for the felling, stumping, and clearing of 240 chains of this road next the completed work at the Murimotu end, to cost

£268, the expenditure for the year being £279 17s. 2d. This road connects the settled districts with the whole of the Crown lands in Waimarino, Rangataua, and other blocks, which comprise an area of about 400,000 acres of Crown lands.

*Waitotara-Omahini.*—A road party was put on by Mr. John Annabell, and they formed 32 chains of the Ngutuera Valley Road 4ft. wide, built six small bridges and ten culverts, at a cost of £45 3s. 9d.; 7 miles of roads were laid out for contract; and tenders are being called for the Contracts Nos. 54, 55, and 56, comprising  $5\frac{3}{4}$  miles of roads to be felled, stumped, and cleared. The area of Crown lands to be opened is 14,000 acres.

*Tokomaru Block.*—The  $2\frac{1}{2}$  miles of Carry's Road were completed for dray-traffic, the expenditure out of vote last year being £612. A further sum of £100 is to be given towards the extension of this line to Mowhero. The only Crown lands affected are the 5,000 acres in Puketotara Block, which are, however, still very distant from the point mentioned.

*Otamakapua Block.*—Mr. Charles Feild and his party cleared, felled, and stumped the Peep o' Day Road, comprising  $3\frac{1}{2}$  miles, at a cost of £239 4s.; they repaired and renewed the Oroua Branch Road, cost £18 12s.; and repaired Kimbolton Road extension, cost £19 16s. The Kiwitea Road Board metalled  $2\frac{1}{4}$  miles of the Kimbolton Road within the Birmingham Block, at a cost of £260.

*West Waitapu-Otamakapua Block.*—The work on this block effected by Mr. Feild's party comprised the felling, stumping, and clearing of 408 chains on the Waituna Valley Road, and formation of a 7ft. horse-road for 140 chains on the same line; the stumping, clearing, and part forming of 95 chains on Williamson's Road; and the felling, stumping, and clearing of 109 chains on the extension of the latter, inclusive of 50 chains formation 6ft. wide. The same party also built five small rough bridges and five culverts, the cost of the works being £700 5s. The area of Crown lands directly benefited is 10,000 acres.

*Toroetea Road.*—Mr. Reaney supervised a gang of men, including village homestead settlers, in extending this road to the Tiraumea River. The length completed comprises 114 chains of dray-road, at a total cost of £961 15s. 8d. This line leads into the Puketoi country, and will benefit, at least, 20,000 acres of land. A wire-rope cradle-bridge was erected over the Tiraumea on this road, cost £37.

*Pahiatua Village Settlement Roads.*—The Hill Road was felled, stumped, and cleared, the length being 29 chains, and cost £21 15s. The Pukemikau Road for a length of 47 chains was felled only, cost £9 10s.; and 30 chains of the latter road was felled, stumped, and cleared, at a cost of £27, exclusive of supervision, &c. A contract, No. 40, has been let for the formation of  $46\frac{1}{2}$  chains on the middle road; the contract price is £55 2s. 6d.

*Mangaone Roads.*—The Central Mangaone Road, Contract No. 30, length  $3\frac{1}{2}$  miles, was completed. The work done comprised felling, stumping, and clearing, at a cost of £272. The  $66\frac{3}{4}$  chains in Contract No. 35, Tawataia Road, for similar work, were also finished, at a cost of £58. These roads connect the Tiraumea Crown lands with Alfredton and Eketahuna.

*Hefty's Road.*—This line, which leads into the Wellington Special Settlement Block and the Crown lands west of Mauriceville (7,000 acres), was felled, stumped, cleared, and formed as a horse-road for 33 chains, at a cost of £79 18s. 11d.

*Dreyer's Rock Road* is now being extended towards the Wangaehu, which is 3 miles back. About half the distance has been finished by felling, stumping, and clearing, and forming a 6ft.-wide horse-road. The cost to the 30th June was £217 12s., including the engineering survey, cost of Barron's party, and Mr. Crombie's supervision. The same party cleared out and renewed the formation on 242 chains on Barton's Wangaehu Road, at a cost of £113 1s. These works benefit about 10,000 acres of Crown lands.

*Dorset's Road.*—Contract No. 34, comprising  $2\frac{1}{4}$  miles of bushwork and dray-road formation on this road, was completed, at a cost of £739; and Barron's party, under Mr. Crombie's supervision, extended the line  $2\frac{1}{4}$  miles by felling, stumping, clearing, and forming the road for horse-traffic on final grades 6ft. wide, at a cost of £340 5s. 9d. The area of Crown lands benefited by these works, and which have nearly all been sold, is 6,500 acres.

*Mangaone-Tiraumea Roads.*—Mr. Greville laid off  $12\frac{1}{4}$  miles of roads in this district, and contracts have been let for the felling, stumping, and clearing of the whole length, the price being £863 3s. 7d. This expenditure will benefit all the Crown lands contiguous and to the eastward of the lines, amounting, say, to 15,000 acres.

*Pahiatua Rock Road.*—Contract No. 31, comprising bushwork and formation of horse-road on 2 miles of this road, was completed, at a cost of £352, and a contract, No. 42, is now being advertised to carry the road  $1\frac{3}{4}$  miles to the junction of the Mangaramarama Valley Road. The Crown has disposed of all the lands in this locality except 1,400 acres.

*Miscellaneous.*—The staff were employed in laying off roads in various parts of the district, in supervision of works, and miscellaneous surveys and reports. Mr. A. D. Wilson laid off  $4\frac{1}{2}$  miles of the Wangaehu Valley Road, made a survey and section of a proposed bridge site on the Upper Wangaehu, and also an engineering survey, and completed the specifications and plans of 2 miles of the Maungakaretu Ridge Road, and he opened up the old track, at a cost of £122 in all; Mr. Climie made surveys, took levels and cross-sections, and made plans, &c., of  $5\frac{1}{2}$  miles of the Tiraumea-Makuri Roads; Mr. Crombie laid off 6 miles of Dreyer's Rock extension and Barton's line; and Mr. Lowe prepared for contract  $6\frac{3}{4}$  miles of the roads on Crown lands west of Mauriceville.

J. W. A. MARGHANT, Chief Surveyor.

#### NELSON.

*Pigeon Valley to Motueka.*—The Waimea Road Board have completed their portion of widening this road into a dray-track, and the final payment made of £93 10s. The total length completed is 4 miles, at a cost of £500, opening out about 1,000 acres of land.

*Pretty Bridge Valley.*—This work was also in the hands of the Waimea Road Board, and the final payment made of £43 10s. The length is 2 miles, and a dray-road has been formed and metalled at a cost of £200, giving access to 1,370 acres leasehold and 600 acres freehold.

*Grey Valley, via Clarke River, to Maruia.*—The final payments for exploring and opening up a horse-track for 11 miles have been made. The total cost is £200. This track has been made to avoid a precipitous gorge, and the amount entrusted to the Grey County Council subject to supervision.

*Matakitaki Dray-road.*—Final payments of £279 6s. 3d. have been made, and 6 miles of dray-road has been completed, at a total cost of £1,128 6s. 3d., of which the Government contributed one-half, and the Inangahua County the other.

*Karamea to Mokihinui.*—One progress payment has been made on 21st December, 1887, of £300, for forming and metalling a dray-road, and the work is in hand by the Buller County Council under supervision. When complete this road will open up about 2,000 acres for a special settlement, and forms part of the main road between Karamea and Westport.

*Ahaura (Mason's) to Hauyiri.*—Contracts Nos. 32 and 33 have been completed, widening the horse-track to a dray-road, a distance of 5 miles, at a total cost of £1,461 5s., being heavy sidling throughout. Contracts and specifications for a further 12 miles are ready for letting when funds are available. These works have been all under supervision by the department.

JOHN S. BROWNING, Chief Surveyor.

*Teremakau—Bell Hill Road.*—Two miles were constructed at the Lake Brunner or Teremakau end of the road—viz., from the 7-mile peg to 9-mile peg. The country passed over by road is flat and easy for construction. The Crooked River, which is a good sized stream not crossable during floods, is crossed by a ford near the middle of this length. One mile was constructed at the Bell Hill end of road—viz., from the 2-mile peg to the 3-mile peg. The country passed over is rougher than at the other end of road, but was not very difficult. The bush was felled 20ft. wide; the formation is 6ft. wide, and the metal 3ft. wide on both these pieces of road. They were constructed under the immediate supervision of the Grey County, and cost £600 17s. 3d., the amount of Government subsidy being £600.

F. W. MARTIN, District Engineer.

#### WESTLAND.

*Pounamu to Teremakau.*—Making accessible about 1,200 acres of good agricultural lands (vote £500). The work was carried out by the Grey County Council under my supervision. Three contracts for half a mile each were let at the beginning of the year, and these were completed in December last. The vote has been expended, and there remains another 3½ miles to be constructed before the whole of that road is completed. The work consisted of clearing 33ft., formation 14ft., and metalling 10ft. wide.

*Gillespie's to Cook's River Flat.*—Giving access to 7,500 acres of superior agricultural lands (vote £1,450). Length, 8 miles; clearing 16ft., formation width 5ft., metal 3ft. wide. This road-construction was commenced in 1886, and completed in December, 1887. The payment of balance of vote made during the year amounted to £445 11s.

*Mahitahi to Paringa Road.*—Making accessible about 4,000 acres of land suitable for settlement (vote, £1,400). Length, 6 miles; clearing 33ft., formation 7ft., and metal 4ft. wide. About 4½ miles have been completed, and progress payments to the amount of £711 were made during the year. The whole of the work will be completed in a month or two.

I had also the supervision of the following goldfields tracks, which were constructed by the Westland County Council under Government subsidy: Cedar Creek dray-road, Okarito Forks to Teal Creek horse-track.

GERHARD MUELLER, Chief Surveyor.

#### CANTERBURY.

*Loburn—Kowai Road.*—The 2 miles 64 chains of this road noted in last year's report as in progress has been completed, at a cost, including additions and supervision, of £376 12s. 4d., of which only £350 has yet been passed for payment. A further tender has been called for to complete the formation of about a mile in length, the cost of which will probably come within the amount originally sanctioned to be spent on this road, and will open the whole distance for wheel-traffic. It is a useful stock-road, saving about 7 miles in distance between the Loburn and Amberley Districts, but it will not, I think, ever be much used for wheel-traffic; it opens up 5,000 to 6,000 acres of pastoral country, giving access to a small amount of inferior bush. The land is all included within the area set apart for the Midland Railway Company.

*Kuku Pass Road.*—This road laid out over the Kuku Pass into the Valley of the South Waipara and over Lee's Pass into the Okuku Valley, and thence by the low saddle into the back Ashley country, has been in hand for several years. The road over the Kuku Pass was engineered by Mr. Dobson, C.E., under the directions of the Ashley Road Board, who contributed to the cost thereof, and is a most excellent road, 20ft. wide, on good grades, fit for coach-traffic, but, as the expense of continuing this would have been largely in excess of the amount likely to be available for the work, and the probable traffic from the back country not warranting such an expensive road, the extension of it up the Waipara Valley and over Lee's Pass was only made 12ft. to 15ft. wide, fording-places being substituted for bridges over the creeks; the sum of £2,992 was expended on the road, as noted in Mr. Kitson's report last year. A further grant of £500 having been sanctioned, two contracts were let for 1½ miles of further formation between Lee's Pass and the Duck Creek; this has been completed. I inspected and passed the work in January last, and a progress payment, amounting to £262 1s. 3d., has been paid to the Ashley Road Board on account of this work. The

balance of the grant sanctioned, if judiciously expended in metalling a few chains of the formation in different places where it goes over very soft ground, and in forming a few chains of the road along the purchased land between Okuku Saddle and the Ashley River, will open the whole of the road for dray-traffic, a distance of 24 miles, and allow fencing and other material to be carted into the Upper Waipara and Okuku Valleys and into the back Ashley country, which had previously only been accessible for pack-horses. A large extent of pastoral country is opened up by this road, but, being part of the block set apart for the Midland Railway Company, I suppose that the Government will not sanction any further expenditure on it, and I have accordingly advised the Road Board to expend the balance of the grant in making the road passable for dray-traffic down to the Ashley River.

*Glentui Forest Road* ( $2\frac{1}{2}$  miles).—This road, made on the recommendation of the local authorities to open up the Glentui Forest and the Crown lands beyond the present freeholders, has been formed, and culverts and small bridges erected, at a cost of £852 5s. 9d: of this £500 was contributed by the Government, as noted in the last yearly report. A further sum of £100 was authorised on the 11th July, 1887, to be spent in metalling a portion of the road: of this £93 5s. 6d. has been spent, though only £80 has yet been passed; a voucher for the balance will be forwarded. Since then £150 more has been sanctioned for the further improvement of the road, and specifications have been prepared by the engineer to the Ashley Road Board, which I have approved of, providing for an extra coating of 5 yards to the chain of metal to be placed on the road up to the site of the present saw-mill. Some very bad slips have taken place on the sidings beyond the mill. These it is proposed to remove, and to cut the road at least 12ft. into the solid. It is also proposed to cut the road down into the creek at the end of the present formation, to make a good permanent ford, and a cutting out of the creek up the terrace on to the flat beyond it. This is as far as the money will probably go. As this takes the road about a quarter of a mile on to the Crown lands which are now hypothecated to the Midland Railway Company, I apprehend that no further Government grant will be made in aid of this road.

*Roads on Reserve 1,263* (village settlement at Pig-hunting Creek).—The road through Mr. Russell's land, to give access to the sections fronting on Pig-hunting Creek, has been opened out by the Levels Road Board, at an expenditure of £103 3s., of which £82 13s. 4d. is to be contributed by the Government. A further grant of £50 was sanctioned to open the road from the previously-formed road in the settlement up to the top of the hill, so as to give an outlet for the settlers who took up their selections in this part of the reserve. I am without any advice from the Levels Road Board as to whether this work is yet completed. It is probable that the death of the late Chairman of the Board, Mr. W. Moody, has delayed matters. I will, however, take steps to get the work carried out if not already done.

*Waihao-Hakateramea Road*.—This road was undertaken on the recommendation of the Waimate County Council, who undertook to pay half the cost thereof. Only £129 13s. 11d. has been passed for payment this year, which sum was spent in completing about a mile of formation in the Pentland Hills Road, near its junction with the Skevington Road. This amount, with the £1,598 2s. 2d. previously expended, makes the total expenditure to date £1,727 16s. 1d., of which one half—£863 18s.—has been paid by the Government. This has opened about 3 miles of the Pentland Hills Road and 3 miles of the Skevington Road, 13 miles of the former from Waihao Forks, and  $6\frac{1}{2}$  miles of the latter from its junction with the main road on the Waihaorunga Estate having been previously constructed by the County Council. There are still about  $1\frac{1}{2}$  miles of the Skevington Road to complete it to its junction with the Pentland Hills Road, and about  $3\frac{3}{4}$  miles of the latter road to form until it reaches the unsold Crown land between the head of the Waihao River and the Hakateramea Valley; but the country, as I stated in my report of the 14th June last, is, in my opinion, only suitable for pastoral purposes, for subdividing into small area runs.

JOHN H. BAKER, Chief Surveyor.

#### OTAGO.

THE Engineer of the Lake County reports that the improvements on the track to Martin's Bay, *via* Greenstone, are now completed, the total length formed being 32 miles 47 chains, of which 6 miles 60 chains have been done this season. Although there is now a fair means of access to the Hollyford Valley and Martin's Bay District, it is seldom taken advantage of. Since the completion of the track, one mob of about sixteen head of cattle has been brought over, and a few pedestrians have used the track. Of the £750 voted for this work an unexpended balance of £60 10s. 10d. remains. There are now only about seven souls in Martin's Bay Settlement, but as all the vacant land there has lately been reduced to 10s. per acre, possibly some of it may shortly be taken up.

Sutherland's contract for cutting track from the head of Milford Sound to Sutherland Falls is progressing fairly. The "Stella" brought me a letter from Sutherland dated the 15th June, in which he says he expects to finish in August. Captain Fairchild also informed me that what he saw of the track was very well cut indeed.

As regards the Western Lakes and Sounds, I would strongly recommend that any expenditure in connection with them should be in the direction of opening them up for tourist-traffic. Seeing that for magnificence of scenery they surpass anything else of the kind in the known world, I do not see why the stream of tourists visiting our shores should not be considerably augmented. In this connection I have just received reliable information that a chain of lakes extends almost all the way from George Sound to the north-west arm of the Middle Fiord of the Te Anau Lake, and I have great hopes that a passable track will be formed during the coming summer.

*Road through Block XIV., Lower Wanaka*.—There has been 1 mile 59 chains formed, culverted, and catch-water drains made, under the supervision of Mr. Black, County Engineer, and 2,407 acres of surveyed and 5,200 acres of unsurveyed land benefited by it.

*Martin's Bay, via Greenstone, Track.*—Of this track there have been 6 miles 60 chains completed bush cleared, culverted, corduroy- and foot-bridges formed; 25,600 acres of unsurveyed land benefited, and the Hollyford Valley and Martin's Bay Districts are fairly opened up. Mr. Black has had the supervision of the work.

*Road to Martin's Bay Settlement.*—Three miles of formation, bush-clearing, corduroy, culverting, and a number of foot-bridges almost completed. Supervised by Mr. Black.

*Road through Block IV., Nokomai.*—Of formation, 1 mile 26 chains; culverts, side- and catch-water-drains made; 1,000 acres of surveyed and 27,000 acres of unsurveyed land benefited by it. The work is under the supervision of Mr. Black. A further sum of £200 would open up a dray-road to Nokomai Saddle and valley of the Nevis.

*Track to Sutherland Falls.*—This is a track from the head of Milford Sound to the head of Arthur River, a distance of about 12 miles; formation, bush-clearing, side-drains, corduroy- and foot-bridges, and boat-shed, and hut in course of construction, under the supervision of the Chief Surveyor.

*Through Blocks I. and II., Lower Wanaka.*—Formed and culverted, 34 chains; and 4,000 acres of surveyed land benefited by it. The work under the supervision of Mr. L. D. MacGeorge. Road completed.

*To open up Block VIII., Kurow.*—Thirty-three chains of formation and pipe-culverting, 50 chains of formation, culverts, pipe-drains, and gravelled water-crossings; and second portion, 1 mile 10 chains formation, culverts, pipe-drains, and gravelled water-crossings: 1,600 acres of surveyed and 4,400 acres of unsurveyed land benefited. The whole under the supervision of Mr. C. Banks.

*To open up Block XIII., Moeraki.*—Ten chains first part and 61 chains second part formed, pipe-culverted and catch-water drains made, benefiting 1,700 acres of surveyed land. Supervised by Mr. C. Banks.

*To open up Block VIII., Kurow.*—Fifty chains formation, culverts, and pipe-drains connect roads already formed, and benefits 345 acres of surveyed land. Under supervision of Mr. C. Banks.

*To open up Block IX., Maniototo.*—Three miles formation, 6,000 acres of surveyed land benefited, and is an outlet for Upper Taieri, Gimmerburn, &c., via Taieri Lake. Supervised by Mr. R. H. Browne.

*To open up Blocks XVI. and XIV., Maniototo.*—Formation along steep rocky sidings close to Taieri Lake, 1 mile 15 chains, and 44 chains flat formation; the whole benefiting 5,400 acres of surveyed land. Work supervised by Mr. Browne. The sums spent in Maniototo County are part of the 1886-87 vote, no authority having been given to the county to expend the 1887-88 vote.

*To open up Blocks II. and VI., Upper Taieri, and VI., Gimmerburn.*—Fifty-seven chains land purchased and 114 chains fencing, benefiting 1,000 acres surveyed land; 40 chains formation, and bridge, 40ft. span, over Gimmerburn, benefiting 1,400 acres of surveyed and the whole of 11,200 acres of unsurveyed land. The work under the supervision of Mr. Browne.

*To open up Block V., Lauder (St. Bathans's to Tinker's).*—A bridge of 30ft. span has been built over Lauder Creek, benefiting 1,800 acres surveyed and 27,000 acres unsurveyed land. Work under supervision of Mr. Browne.

*To open up Blocks III. and IV., Rock and Pillar.*—Three miles 25 chains formed and culverted, 1 mile 40 chains formation, culverts, side-rock cutting, and pitched crossings; benefiting 9,556 acres of surveyed land. The work supervised by Inspector G. Cruickshanks. A further vote is needed to open up lands recently sold in Waihemo County.

*Road to Runs 171E and 171H.*—One mile 23 chains formed and culverted, benefiting 10,000 acres of unsurveyed land; the work supervised by Inspector Valentine. A further vote is urgently needed to form 60 chains near Waikouaiti River.

*Road on Pomahaka River, Greenvale District.*—One mile 51 chains formed and culverted, and under the supervision of Mr. J. Edie, and, with the following road, opens up 1,250 acres of surveyed land.

*Switzer's Track to Spylaw Creek.*—One mile 5 chains formed and culverted.

*Road, Beaumont to Miller's Flat, via East Bank of Clutha.*—Thirty-four chains Minzion Creek to Miller's Flat formation, also various bluffs widened. Supervisor of the work, Mr. Edie. Surveyed land benefited 2,600 acres.

*Lawrence to Waipori, via Bungtown.*—Forty chains Bungtown Flat gravelled, 51 chains Bulger's Flat gravelled, benefiting 8,000 acres of surveyed land. Mr. Edie supervising work.

*Tokomairiro River.*—Bridge built over the north branch of the river. Mr. Alexander Nelson supervising.

*Catlin's Road.*—Forty-five chains formed and metalled. Supervised by Mr. Paterson. Benefits 8,600 acres. Outlet for large area in Glenomaru, Catlin's, and Woodlands. Metalling to be proceeded with next year.

*Hunt's Road.*—Thirty-six chains bush-clearing, formation, culverts, &c., almost completed, benefiting 3,800 acres; under the supervision of Mr. M. Paterson.

By the above it will be seen that a total of 46 miles 19 chains of road has been improved, benefiting 61,958 acres of surveyed land and 113,900 acres of unsurveyed.

C. W. ADAMS, Chief Surveyor.

#### SOUTHLAND.

*Waikaka, Wendon, and Greenvale.*—Mileage formed, &c., 2 miles nearly; acreage rendered better accessible, 1,500 acres. The work done on road under this heading extends from opposite Section 4, Block VIII., Wendon District, to Section 9, Block IX., same district. The work consists of 152½ chains formation, 136½ chains gravelling, 48 chains ditching, 4,000 cubic yards excavations, and 11 culverts.

*Waikaka Siding to Waikaka Township.*—Mileage gravelled, &c.,  $5\frac{1}{2}$  miles; acreage rendered better accessible, say, 5,000 acres. The work done on this road during the year comprises  $5\frac{1}{2}$  miles of formation, gravelling, and culverting. The road is formed at banks and cuttings to a width of 20ft., and the gravel is laid down at the rate of 25 cubic yards per chain. The work done begins about three miles from the Waikaka Siding and extends to where the road crosses the Waikaka Creek (near the township), there being, however, a break of some 3 miles near the northern end.

*Wyndham, via Mimihau, to Otarua.*—The work done on this road during the year consists only of the construction of a bridge over the Mimihau River, which bridge is now in progress. The bridge consists of one span of 40ft. (trussed) on piers of rubble masonry set in cement mortar.

*Road through Runs 177, &c.*—Mileage formed, &c., during year, 1 mile; acreage rendered better accessible, 5,000 acres. The work done on this road extends from the western boundary of Block III., Waikawa District, to near the head of Waikawa Harbour, and occurs at intervals where formation, side-drains, cuttings, &c., were most required. During the year the following works were executed—viz., 1 mile of light formation, 38 chains side-drains, 17,500 cubic yards of earthwork, and 21 water-openings varying in size from 9in. to 12ft. As this road has only lately come into the Southland Land District, I presume a fuller report will not be expected of me.

*Winton Tramway to Winton Forest.*—Mileage bush-felling and clearing, 1 mile nearly; acreage rendered better accessible, 500 acres. This work is in continuation of the work done during the previous year, and consists of 76 chains of bush-felling and clearing, and 40 chains ditching. It is designed to tap the Winton Forest from the Forest Hill Tramway.

*Wallacetown to Tomoporakau.*—Mileage bush-felling and clearing, &c.,  $\frac{1}{2}$  mile; acreage rendered better accessible, 100 acres. This work is simply an addition to the work done during the previous year, and comprises 40 chains bush-felling and clearing, 74 chains ditching with formation, and 21 chains outfall-drains, also 5 culverts. It is designed to tap the bush land lying south of Wallacetown.

*Waikiwi Suburban.*—Mileage formation, &c.,  $\frac{7}{8}$  of a mile; acreage rendered better accessible, 100 acres. This work consists of 32 chains formation and double-ditching, 69 chains of tussocking, three culverts, and one bridge 40ft. long over Waikiwi Stream. This is an extension of the work executed last year running from the Waikiwi Cemetery westward to and across Waikiwi Stream. I think that the diversion of the Waikiwi Stream, the adjacent land being meanwhile a permanent morass, will shortly be found by settlers in the locality to be an urgent necessity; and should steps be taken by private individuals or by the local body to have the stream diverted, I would recommend that any money already allocated, or which may be allocated to this road, be devoted to the purpose of diversion. A speedy outfall for surplus water is the main need in this locality, and nothing else will make the land serviceable.

*Seaward Forest to Deferred-payment Block.*—Mileage formed, tussocked, &c.,  $1\frac{1}{4}$  miles; acreage rendered better accessible, 5,000 acres. This work extends from Trig P., Oteramika Hundred, to near the south boundary of Block XII., Oteramika. The work done is simply an addition to what was done during the previous year, and consists of  $66\frac{1}{2}$  chains formation,  $54\frac{1}{2}$  chains gravelling, 133 chains ditching, 80 chains of tussocking, and 3 bridges. My report of last year shows the position of matters in regard to this road, and to the land opened up by it. Since the road was pushed through the bush, thus connecting the Crown lands south of Seaward Forest with the settled portions of Oteramika, a number of sections have been taken up. A beginning has thus been made in the way of settlement, and as a large extent of land is available between the Seaward Forest and the coast I have no doubt that, poor as the land is in places, it will ultimately be occupied by a good number of settlers. The advantage of having direct communication between Oteramika Bight and the coast was dwelt on in last year's report so I need not allude to the matter further. I may add that the opening up of the road through the bush has induced a large firewood traffic, and thus been a great convenience to some of the older Oteramika settlers. The drawback to this, however, is that the heavy traffic resulting has terribly cut up the gravelled road formed by the Government, and rendered it nearly useless for the new settlers south of the bush, for whom it was intended, the road being, of course, designed to open up Crown lands and induce fresh settlement, not to give bush facilities to settlers already established. It is well when both purposes can be served, but as the gravel in the locality of the road is light it is really unable to stand a heavy kind of traffic for which the road was never intended. Letters have been sent to me by settlers south of the bush complaining of the heavy firewood-traffic alluded to, and, on the other hand, a request has been made by the firewood men to have more money spent in improving the road. I may report on this specially later on.

*Road, Appleby to Tisbury.*—Mileage formed, &c.,  $1\frac{3}{4}$  miles nearly. Acreage rendered better accessible, 500 acres. This road runs along Seaward Bush Railway from near McQuarrie Street to a point some 23 chains east of Seaward Bush Township. The work, which is in an advanced state, consists of bush-felling, clearing, forming, and corduroying. The opening up of the road was an absolute necessity to a large number of the Seaward Bush settlers, and it will also ultimately help the settlement of the Crown lands south of Tisbury Siding. The settlers alongside the road supplemented the Government vote by their labour contracts having been taken by them at half the estimated rates. Considering the circumstances the work so far has been carried on well, its success justifying the plan which was adopted by the Government in expending the grant.

*General.*—All the works were executed under the supervision of Mr. C. H. Howarth, the County Engineer. The competition for the contracts having been considerable the works in nearly all cases were very cheaply done. In respect of gravel, the Engineer made the best of the material available, and showed his usual care and efficiency in carrying the works into effect.

JOHN SPENCE, Chief Surveyor.



No. 1.—RETURN of FIELD-WORK executed by STAFF and CONTRACT SURVEYORS, and of the Cost of the SURVEY. DEPARTMENT of New Zealand, from 30th June, 1887, to 1st July, 1888.

District.	Topographical Survey.		Minor Triangulation.		Topographical and Trigonometrical Survey.		Surveyed for Selection under "Land Act, 1887."		Rural and Suburban.		Town Section Survey.		Native Land Court Survey.		Native Land Purchase Survey.		Gold-mining Survey.		Roads, Railways, and Water-races.		Detention by Native Opposition or other Causes.		Miscellaneous Work.		Total Charges against the Survey Votes for Twelve Months.		
	Acres.	Cost per Acre.	Acres.	Cost per Acre.	Acres.	Cost per Acre.	Acres.	Cost per Acre.	Acres.	No. of Sections.	Cost per Acre.	Acres.	No. of Lots.	Cost per Acre.	Acres.	No. of Allotments.	Cost per Acre.	Acres.	No. of Sections.	Cost per Acre.	Miles.	Cost per Mile.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Auckland ..	89,710 0 9	d.	55,828	907 2/10-5 11 14-1	247 29/	s. (148,230 492)	7 2-6	d.	..	..	..	..	..	..	..	..	..	..	..	125 2	12 12 11	£	30 0 0	998 0 8	£	12,088 2 3	5,107 8 7
Hawke's Bay ..	4,016 0 45	..	8,554	29 1/8-2 26-325	86 5/8-25	*22,865	..	..	84,400	2 3-4	..	..	..	..	..	..	..	..	..	74-55	11 0 3	£	30 0 0	1,495 9 7	£	5,348 19 2	1,403 8 8
Taranaki ..	..	..	28,903	66 1/4-5	..	64,748	232 4-3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	£	1,056 12 11	£	4,410 12 10	1,209 0 5
Wellington ..	27,665 0 87	..	71,737-5	428 1/1-5 2,367-5	851 16/7-7	60,475	19 5-1	4-3	2,760	1 4-3	..	..	..	..	..	..	..	..	..	63-62	13 3 1	£	..	£	10,702 19 4	4,076 17 9	
Marlborough ..	15,200 0 75	..	6,547	73 1/6-4	1 1-100/	..	..	..	..	..	..	..	..	..	..	..	..	..	..	75	22 6 8	£	..	£	674 18 2	632 16 4	
Nelson ..	..	..	36,351	247 1/10	12 185 7/8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29-75	6 4 4	£	..	£	6,489 1 4	2,654 2 6	
Westland ..	..	..	342	65 6/7-5 212	458 18/8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	£	..	£	1,477 19 5	1,274 3 4	
Canterbury ..	335,154 0 35	..	18,775	317 1/1-25 14	18 36/	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13-57	6 17 6	£	..	£	3,536 0 9	3,815 1 8	
Otago ..	..	..	74,425	335 1/11-25 126	75 30/4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	9 5 1	£	..	£	5,020 18 1	3,502 19 11	
Southland ..	..	..	2,142	17 1/6	8 20/	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	£	..	£	305 8 3	1,215 4 4	
Head Office & Litho. Office	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	£	..	£	..	7,693 8 5	
Means and totals ..	335,154 0 35	136,591 0 9	535,840 1-1	140,761 9-4	302,894 2,484 1/4 2,885	1,929 11/2	125,715 258 4-77	171,095 115	87,160 3	266,044 11	3-4 10,700	297	6/8 1/2	316-44	11 5 7	60 0 0	6,516 6 1	50,000 9 7	82,564 11 6	16,091 19 9	£66,492 11 9	..	..	..	..	..	

\* Paid by Land Purchase Department direct.

Total expenditure .. .. £82,564 11 6  
 Less refunds .. .. 16,091 19 9  
 £66,492 11 9

## No. 2.—ABSTRACT of the SURVEYORS employed and of the WORK on HAND in each PROVINCIAL DISTRICT on 1st July, 1888.

Chief Surveyors.	Surveyors employed.		Work on Hand.					
	Staff.	Tempo- rary.	District.	Trig.	Settle- ment.	Native Block, &c.	Roads, Railways, &c.	Town.
S. P. Smith, A.S.G. ..	15	..	Auckland..	Acres. 44,800	Acres. 53,892	Acres. 400	Miles. 217 $\frac{3}{4}$	Acres. ..
Thomas Humphries ..	6	..	Taranaki ..	..	1,536	2,500	..	..
G. W. Williams ..	6	2	Hawke's Bay ..	5,120	37,900	165,476	102	..
J. W. A. Marchant ..	9	2	Wellington ..	192,000	318,665	535,325	231	67 $\frac{1}{2}$
J. S. Browning ..	8	..	Nelson ..	..	19,664	..	..	..
H. G. Clark ..	1	..	Marlborough ..	..	4,082	..	..	..
G. Mueller ..	3	2	Westland..	1,003,800	17,085	..	244	..
J. H. Baker ..	5	1	Canterbury ..	436,838	8,977	..	..	..
C. W. Adams ..	6	1	Otago ..	17,000	11,127	..	..	..
J. Spence ..	1	2	Southland ..	..	9,536	..	..	..
Totals ..	60	10	..	1,699,558	482,464	703,701	794 $\frac{1}{2}$	67 $\frac{1}{2}$

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

District.	Number.	Cost.	District.	Number.	Cost.
		£ s. d.			£ s. d.
Auckland .. ..	3,232	388 19 0	Westland .. ..	241	12 13 3
Taranaki .. ..	331	70 6 6	Canterbury .. ..	491	20 9 2
Hawke's Bay ..	622	146 1 6	Otago .. ..	713	425 0 0
Wellington .. ..	384	69 13 10	Southland .. ..	146	69 10 0
Nelson .. ..	185	167 8 0			
Marlborough ..	8	1 15 0	Totals .. ..	6,353	1,366 16 3

## No. 4.—LAND TRANSFER WORK.

District.	No. of Plans passed.	No. of Plans placed on Certificates of Title.	Cost.	District.	No. of Plans passed.	No. of Plans placed on Certificates of Title.	Cost.
			£ s. d.				£ s. d.
Auckland .. ..	132	741	668 18 4	Westland .. ..	358	346	28 2 1
Taranaki .. ..	21	106	57 6 8	Canterbury .. ..	147	936	544 7 8
Hawke's Bay ..	122	307	270 19 3	Otago .. ..	69	1,462	440 0 0
Wellington .. ..	113	672	201 2 6	Southland .. ..	26	588	182 0 0
Nelson .. ..	141	169	154 0 0				
Marlborough ..	16	98	26 0 0	Totals .. ..	1,145	5,425	2,572 16 6

## No. 5.—PHOTOGRAPHS.

Department.	Number of Plates taken during the Year.	Silver Prints.	Department.	Number of Plates taken during the Year.	Silver Prints.
Survey .. ..	321	558	Defence .. ..	32	..
Public Works ..	36	..	Crown Lands ..	23	2
Mines .. ..	12	..	Education .. ..	1	..
Marine .. ..	34	..	Census .. ..	9	..
Postal .. ..	9	..	Melbourne Exhibition ..	14	..
Telegraph .. ..	38	..			
Museum .. ..	20	..	Totals .. ..	549	560

## No. 6.—LITHOGRAPHIC PRINTING executed from the 1st July, 1887, to 30th June, 1888.

Department.	Number of Separate Printings.	Number of Impressions.	
		By Machine.	By Hand.
Survey .. .. .	412	113,050	32,498
Public Works .. .. .	241	41,600	11,514
Railways .. .. .	27	22,750	750
Colonial Secretary .. .. .	14	..	430
Justice .. .. .	16	250	1,185
Mining .. .. .	16	8,330	402
Premier .. .. .	2	500	2
Defence .. .. .	28	1,800	3,438
Registrar-General .. .. .	5	..	520
Education .. .. .	7	3,000	950
Telegraph .. .. .	17	23,175	608
Melbourne Exhibition .. .. .	29	17,300	170
Grasses .. .. .	48	120,000	..
Forests .. .. .	71	18,700	6,088
Geological .. .. .	23	25,640	8
Marine .. .. .	30	22,700	1,064
Treasury .. .. .	3	2,800	1
Native .. .. .	37	31,000	52
Customs .. .. .	1	300	..
Crown Lands .. .. .	1	..	100
Property-tax .. .. .	1	7,500	..
Patent .. .. .	1	..	100
Totals .. .. .	1,030	460,395	59,880

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

At the Head Office .. .. .	520,275 impressions.
Auckland .. .. .	4,400 impressions, 27 plans.
Dunedin .. .. .	4,050 " 21 "

Maps and photographs mounted at Wellington, 1,330; maps mounted at Dunedin, 426.

## STATEMENT of EXPENDITURE in the FORMATION of ROADS to OPEN UP LANDS for SALE, from the 1st July, 1887, to 30th June, 1888.

AUCKLAND.		£	s.	d.	WELLINGTON—continued.		£	s.	d.
Okaihu to Victoria Valley ..	..	483	17	11	South Pahiatua Road ..	..	1,310	15	2
Wacenga to Wangamarino ..	..	1	4	8	Maungakaretu ..	..	987	0	3
Lower Waihou Road ..	..	77	18	3	Total, Wellington ..	..	£10,586	12	7
Paparoa to Waikiekie ..	..	11	2	3	NELSON.				
Awaroa Swamp, drains and roads ..	..	35	6	6	Karamea to Mokihinui ..	..	621	0	0
Otama to Deeds, drains and roads ..	..	75	0	0	Miscellaneous ..	..	383	14	1
Wairua to Helena Bay ..	..	334	13	0	Ahaura (Mason's) to Haupiri ..	..	1,875	8	7
Whangarei through Taheke ..	..	182	2	6	Takaka to Stockyard, Collingwood Road ..	..	257	14	1
Taupo, via Rotaira and Murimotu, to West Coast ..	..	2,161	11	9	Pigeon Valley to Motueka ..	..	93	10	0
Whangaroa to Kahuru ..	..	3	10	0	Dovedale ..	..	200	0	0
Kawhia to Waipa ..	..	178	7	8	Pretty Bridge Valley ..	..	49	3	10
Rotorua to Galatea ..	..	1,146	5	8	Grey Valley, via Clarke to Maruia ..	..	111	10	2
Wangaro to Akatea ..	..	377	17	6	Total, Nelson ..	..	£3,592	0	9
Akaaka Swamp ..	..	40	0	0	WESTLAND.				
Miscellaneous ..	..	3,362	5	7	Teremakau to Bell Hill Road ..	..	302	5	0
Ahipara to Herekino ..	..	2,379	6	8	Waikukupa to Cook's River Flat ..	..	392	5	0
Draining Tatarariki ..	..	50	0	0	Gillespie's to Cook's River Flat ..	..	445	11	0
Drain, Te Aroha ..	..	545	9	7	Cascade Valley Road ..	..	491	6	6
Mangapai to Mareretu ..	..	483	6	5	Pounamu to Teremakau ..	..	197	5	0
Puriri to Tairoa ..	..	567	15	9	Mahitahi to Paringa ..	..	711	0	0
Wairoa Ferry, Dargaville ..	..	299	18	11	Total, Westland ..	..	£2,539	12	6
Tairua to Whenuakito ..	..	100	0	0	CANTERBURY.				
Whangaroa to Waitetuna ..	..	1,148	5	4	To Upper Ashley over Kuku Pass ..	..	262	1	3
Matawhero to Whangape ..	..	500	0	0	Miscellaneous ..	..	13	19	11
Mauku Bridge (subsidy) ..	..	5	0	0	Waihao to Hakataramea ..	..	64	17	6
Huka Falls ..	..	1,212	6	9	Blackford Road ..	..	300	0	0
Total, Auckland ..	..	£15,762	12	8	Mount Grey Downs ..	..	200	0	0
HAWKE'S BAY.					Glentui Road ..	..	80	0	0
Maharahara Block ..	..	11	0	0	Total, Canterbury ..	..	£920	18	8
Victoria and Bush Mills Settlements ..	..	100	0	0	OTAGO.				
Tautane Reserve ..	..	3,926	8	4	Upper Clutha Block ..	..	327	7	0
Wairoa to Rotokakaranga ..	..	350	13	3	Pembroke to Matukituki ..	..	247	10	8
Makaretu ..	..	402	16	3	Beaumont to Miller's Flat ..	..	378	11	6
Miscellaneous ..	..	60	0	0	Miscellaneous ..	..	78	5	0
Te Ohu ..	..	206	18	7	Maniototo District ..	..	47	14	6
Tologa Bay to Arakihii ..	..	330	4	6	Ida Valley ..	..	250	0	0
Opetiki to Ormond ..	..	1,268	6	7	Kurow Run ..	..	333	6	4
Gisborne to Wairoa ..	..	10	15	8	Block XIII., Moeraki ..	..	167	10	8
Ormond to Waiapu ..	..	13	14	0	Blocks XVI., XIV., IX., Maniototo ..	..	540	0	0
Total, Hawke's Bay ..	..	£6,680	17	2	Block VI., Gimmerburn ..	..	400	0	0
TARANAKI.					Swinburn and Rock and Pillar ..	..	100	0	0
Roads east of Stratford ..	..	376	1	8	Run 210 ..	..	293	0	0
Miscellaneous ..	..	35	11	9	Silverpeak, &c. ..	..	220	0	0
Native Trust Blocks ..	..	645	0	0	Hindon ..	..	1,605	0	0
Road through bush, Eltham and branch roads ..	..	1,109	15	5	Switzer's Track to Spylaw and Clutha ..	..	690	5	8
Pukearuhe to Mokau ..	..	102	19	3	Bridge, Tokomairiro River, North Branch ..	..	250	0	0
Inglewood to Waitara ..	..	533	10	3	Total, Otago ..	..	£5,328	11	4
Roads east of Waitara (Ngatumarua) ..	..	899	0	1	SOUTHLAND.				
Roads east of Midhurst ..	..	238	0	0	Through Runs 177 and 257 ..	..	1,492	0	0
Bush land inland of Patea ..	..	585	6	0	Waikaka Siding to Waikaka Town ..	..	600	0	0
Egmont Road ..	..	148	18	0	Waikaka to Wendon and Greenvale ..	..	118	18	4
Waitara Bridge ..	..	105	15	0	Waimatuku Bush ..	..	63	0	0
Total, Taranaki ..	..	£4,780	7	8	Waikiwi Suburban ..	..	150	0	0
WELLINGTON.					Wallacetown to Tomoporakau ..	..	150	0	0
Otamakapua and Waitapu ..	..	906	16	0	Winton Tramway to Winton Forest ..	..	200	0	0
Momahaki Block ..	..	50	0	0	Seaward Forest to D.P. Block ..	..	300	0	0
Miscellaneous ..	..	156	15	0	Half-moon Bay, Stewart Island ..	..	33	12	6
Pahiatua, Mangaone, and adjacent blocks ..	..	318	11	10	Forest Hill Tramway ..	..	950	0	0
Tokomaru Block ..	..	612	9	0	Total, Southland ..	..	£4,057	10	10
Rangitumau ..	..	1,569	9	11	Total for the year ..	..	£54,249	4	2
Wanganui to Murimotu ..	..	128	18	4	VILLAGE SETTLEMENTS.				
Makakahi Road ..	..	161	3	8	Improvement of village settlements ..	..	£11,738	19	1
Roads, Wairoa Survey District ..	..	2	12	0					
Kimbolton Road extension ..	..	603	0	0					
Kimbolton Road to Orua ..	..	493	2	0					
Waitapu Block ..	..	339	8	9					
Mangatainoko Roads ..	..	1,946	16	2					
Tiraumea Bridge ..	..	999	15	4					



No. 8—continued.—RETURN of FIELD-WORK executed by STAFF and CONTRACT SURVEYORS, from 1st July, 1887, to 30th June, 1888.

Table with columns: Surveyor and District, Minor Triangulation, Topographical and Trigonometrical Survey, Rural and Suburban, Town Section Survey, Native Land Court Survey, Native Land Purchase Survey, Gold-mining Survey, Area surveyed for Selection under 'The Land Act, 1887.', Roads, Railways, and Water-races, Other Work, Total Cost of Surveyor and Party from 1st July, 1887, to 30th June, 1888, Remarks.

PROVINCIAL DISTRICT OF WELLINGTON.

Main data table for Provincial District of Wellington, listing surveyors like A. D. Wilson, A. Dundas, L. Smith, etc., with their respective survey details and costs.

PROVINCIAL DISTRICT OF NELSON.

Main data table for Provincial District of Nelson, listing surveyors like J. Snodgrass, J. A. Montgomerie, R. T. Sadd, etc., with their respective survey details and costs.

PROVINCIAL DISTRICT OF MARLBOROUGH.

Main data table for Provincial District of Marlborough, listing surveyors like R. F. Goulter, Arapawa, Cloudy Bay, etc., with their respective survey details and costs.

\* Revised.

Less railway-land plan surveys, and fees deposited for survey ..

66 2 6
608 15 8

No. 8—continued.—RETURN of FIELD-WORK executed by STAFF and CONTRACT SURVEYORS, from 1st July, 1887, to 30th June, 1888.

PROVINCIAL DISTRICT OF WESTLAND.

Table for PROVINCIAL DISTRICT OF WESTLAND. Columns include Surveyor and District, Major Triangulation, Minor Triangulation, Topographical and Trigonometrical Survey, Rural and Suburban, Town Section Survey, Gold-mining Survey, Roads, Railways, and Water-races, Other Work, Total Cost of Surveyor and Party from 1st July, 1887, to 30th June, 1888, and Remarks. Rows list various surveyors like G. J. Roberts, W. G. Murray, and J. N. Smyth.

\* Cost of calculations and plotting of field-work executed.

† Part of the cost of this (£188 0s. 7d.) eventually to be refunded by Native Department.

‡ Paid out of deposits by applicants for the surveys.

PROVINCIAL DISTRICT OF OTAGO.

Table for PROVINCIAL DISTRICT OF OTAGO. Columns include Surveyor and District, Major Triangulation, Minor Triangulation, Topographical and Trigonometrical Survey, Rural and Suburban, Town Section Survey, Gold-mining Survey, Roads, Railways, and Water-races, Other Work, Total Cost of Surveyor and Party from 1st July, 1887, to 30th June, 1888, and Remarks. Rows list various surveyors like John Strauchon, D. Barron, and J. Langmuir.

Topographical Survey.

PROVINCIAL DISTRICT OF CANTERBURY.

Table for PROVINCIAL DISTRICT OF CANTERBURY. Columns include Surveyor and District, Major Triangulation, Minor Triangulation, Topographical and Trigonometrical Survey, Rural and Suburban, Town Section Survey, Gold-mining Survey, Roads, Railways, and Water-races, Other Work, Total Cost of Surveyor and Party from 1st July, 1887, to 30th June, 1888, and Remarks. Rows list various surveyors like J. S. Welch, James Hay, and T. N. Brodrick.

\* Resurveys.

† This amount will be paid out of the applicant's deposits.

‡ 1,693 acres subdivided for School Commissioners.

§ 2,281 acres subdivided for School Commissioners.

No. 8—*continued*.—RETURN of FIELD-WORK executed by STAFF and CONTRACT SURVEYORS, from 1st July, 1887, to 30th June, 1888.

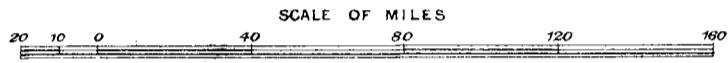
## PROVINCIAL DISTRICT OF SOUTHLAND.

Surveyor and District.	Rural and Suburban.				Town Section Survey.				Gold-mining Survey.				Other Work.	Total Cost of Surveyor and Party from 1st July, 1887, to 30th June, 1888.	Remarks.
	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.	Cost.		
<i>Staff.</i> John Hay. Jacob's River and Longwood	..	..	s. d.	£ s. d.	12	8	£ s. d.	£ s. d.	..	..	s. d.	£ s. d.	£ s. d.	£ s. d.	In progress, <i>i.e.</i> , near completion, 70 sections, 1,318 acres in bush, Colac Bay Native Reserve. Cost to date, £255 18s. 3d. Surveyor was surveying special blocks in the Otago District for greater part of year.
<i>Fee-system.</i> T. S. Miller. Longwood, Campbelltown, Invercargill, Jacob's River, and Otara	1,702	13	1 6	127 10 0	..	..	..	..	433	10	4 6½	98 5 9	..	225 15 9	Five of the surveys were saw-mill areas, and three of the other surveys were bush-clad. The mining surveys were partly special claims and partly mining leases.
J. Hannah. Invercargill, Wairio, and Mataura	275	3	1 7	22 4 0	..	..	..	..	..	..	..	..	..	22 4 0	Two purchases and one saw-mill area.
R. C. Taylor. Campbelltown	..	165	1 1 2½	10 0 0	..	..	..	..	..	..	..	..	..	10 0 0	Saw-mill area.
Means and totals	..	2,142	1 6	159 14 0	12	8	1 0 0	8 0 0	433	10	4 6½	98 5 9	41 10 0	563 8 0	

[Approximate Cost of Paper.—Preparation, nil; printing (exclusive of plans) 1,875 copies, £38 16s.]







  
**JAMES McKERROW**  
 Surveyor General.  
**INDEX**  
**TO THE STATE OF THE**  
**PUBLIC SURVEYS**  
**IN**  
**NEW ZEALAND**



MIDDLE ISLAND

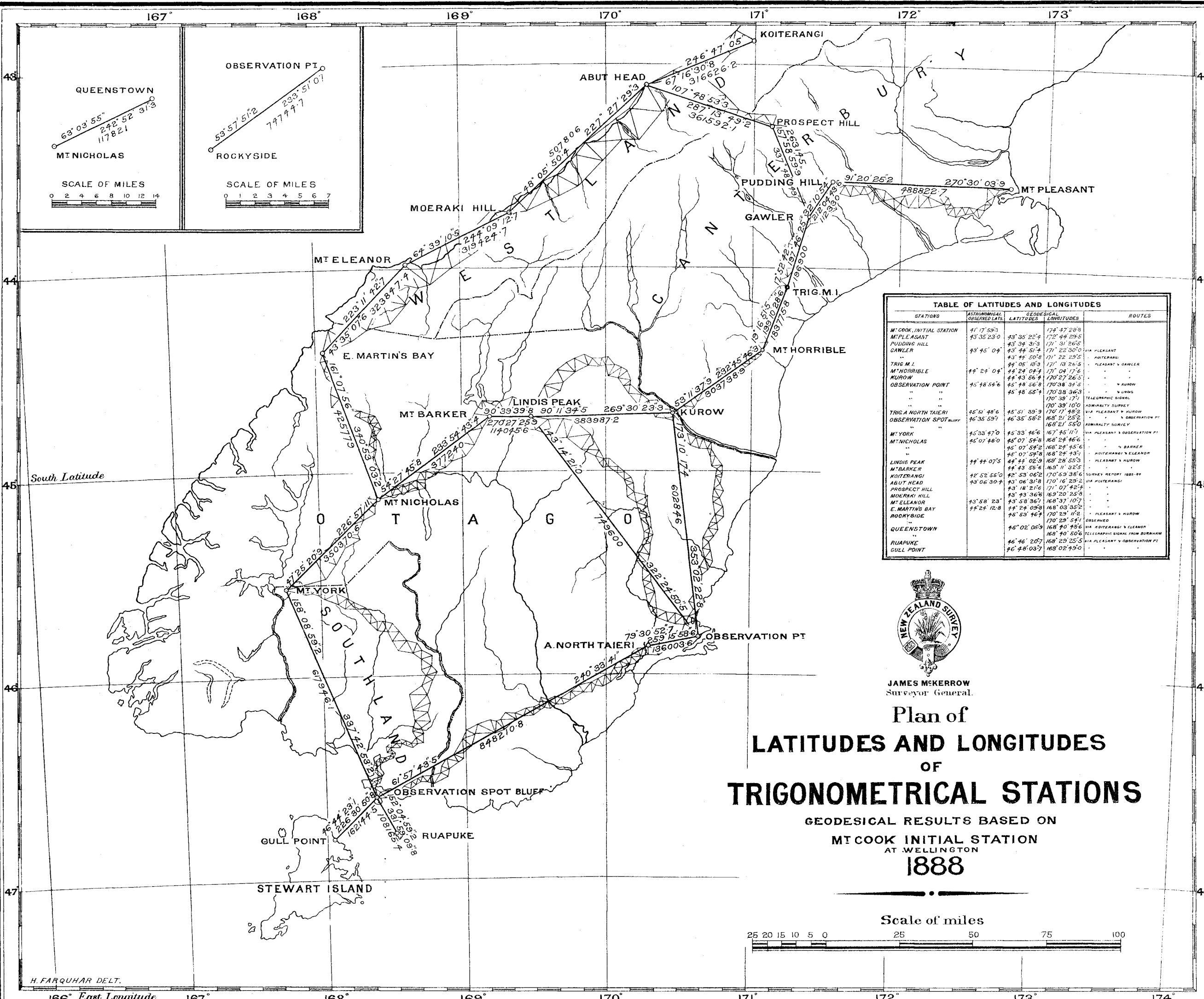
NORTH ISLAND

**REFERENCE**

- Standard Survey ..... shewn thus 
- Minor Triangulation ..... 
- Section Survey under check ..... 
- Section Survey built ..... 

**JUNE 1888**





**TABLE OF LATITUDES AND LONGITUDES**

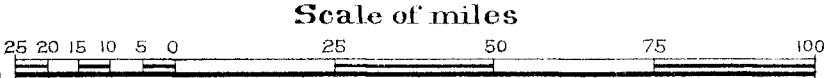
STATIONS	ASTRONOMICAL OBSERVED LAT.	GEODESICAL LATITUDES	LONGITUDES	ROUTES
M <sup>c</sup> COOK, INITIAL STATION	41° 17' 59.3	43° 35' 22.4	174° 47' 28.8	
M <sup>c</sup> PLEASANT	43° 35' 23.0	43° 39' 31.3	172° 44' 29.5	
PUDDING HILL		43° 44' 51.4	171° 31' 26.5	VIA PLEASANT
GAWLER	43° 45' 04	43° 44' 51.4	171° 22' 30.0	PUDDING HILL & GAWLER
TRIG. M.I.		44° 05' 38.3	171° 04' 17.6	
M <sup>c</sup> HORRIBLE	44° 24' 04	44° 43' 56.4	170° 27' 26.3	
MURROW	45° 48' 56.6	45° 48' 56.6	170° 38' 34.3	
OBSERVATION POINT		45° 48' 56.6	170° 38' 34.3	
"	"	"	170° 39' 17.1	TELEGRAPHIC SIGNAL
"	"	"	170° 39' 10.0	ADMIRALTY SURVEY
TRIG. A NORTH TAIERI	45° 51' 48.6	45° 51' 39.9	170° 17' 48.2	VIA PLEASANT & MURROW
OBSERVATION SPOT BLUFF	46° 35' 59.1	46° 35' 58.2	168° 21' 25.2	
"	"	"	168° 21' 55.0	ADMIRALTY SURVEY
M <sup>c</sup> YORK	45° 33' 47.0	45° 33' 46.6	167° 45' 11.1	VIA PLEASANT & OBSERVATION PT
M <sup>c</sup> NICHOLAS	45° 07' 48.0	45° 07' 54.8	168° 24' 46.6	
"	"	45° 07' 54.2	168° 24' 45.6	M <sup>c</sup> BARKER
"	"	45° 07' 54.8	168° 24' 43.7	MOERAKI HILL & ELEANOR
"	"	44° 44' 02.9	168° 28' 53.3	PLEASANT & MURROW
LINDIS PEAK	44° 43' 55.6	44° 43' 55.6	163° 11' 32.5	
M <sup>c</sup> BARKER	42° 52' 55.0	42° 52' 55.0	170° 59' 38.6	SURVEY REPORT 1883-BY
KOITERANGI	43° 06' 31.8	43° 06' 31.8	170° 16' 29.2	VIA KOITERANGI
ABUT HEAD	43° 18' 21.6	43° 18' 21.6	171° 07' 42.4	
PROSPECT HILL	43° 43' 36.6	43° 43' 36.6	169° 20' 25.8	
MOERAKI HILL	43° 58' 23	43° 58' 36.1	168° 37' 10.7	
M <sup>c</sup> ELEANOR	44° 24' 12.8	44° 24' 05.8	168° 03' 35.2	
E. MARTIN'S BAY		45° 53' 46.4	170° 29' 11.2	PLEASANT & MURROW
ROCKYSIDE		45° 53' 46.4	170° 29' 54.1	OBSERVED
QUEENSTOWN		45° 02' 05.9	168° 40' 48.6	VIA KOITERANGI & ELEANOR
"		"	168° 40' 50.6	TELEGRAPHIC SIGNAL FROM BURNHAM
RUAPUKE	46° 46' 20.7	46° 46' 20.7	168° 29' 25.5	VIA PLEASANT & OBSERVATION PT
GULL POINT	46° 48' 03.7	46° 48' 03.7	168° 02' 49.0	



**JAMES MCKERROW**  
Surveyor General.

**Plan of  
LATITUDES AND LONGITUDES  
OF  
TRIGONOMETRICAL STATIONS**

GEODESICAL RESULTS BASED ON  
M<sup>c</sup> COOK INITIAL STATION  
AT WELLINGTON  
**1888**



H. FARQUHAR DELT.

