

1939.
NEW ZEALAND.

DEPARTMENT OF LANDS AND SURVEY.
SURVEYS

(ANNUAL REPORT ON).

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

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The SURVEYOR-GENERAL to the Hon. the MINISTER OF LANDS.

SIR,—

Wellington, 12th July, 1939.

I have the honour to present herewith the report on survey operations for the year ending 31st March, 1939.

I have, &c.,
H. E. WALSH, E,
Surveyor-General.

The Hon. Frank Langstone, Minister of Lands.

REPORT.

THE work executed by the staff in field and office during the year ended 31st March, 1939, is set out in the various tables attached hereto and in more detailed form in the extracts from the reports of the Chief Surveyors appended.

The large increase on previous years shown in last year's report has been maintained, this year again showing some 20 per cent. increase in the work as a whole on that of last year. As was anticipated, housing surveys show a decrease, more especially in the preliminary stages. Road and railway surveys show an increase, and from the present indications a further increase may be expected this year. Control surveys, which last year had to give way to more urgent work, also shows an increase.

FIELD.

Geodetic Triangulation.—The area completed this year comprised the most difficult in New Zealand, the mountainous country in Nelson and Marlborough. Eleven of the stations are over 5,000 ft. in altitude, three of these being between 7,300 ft. and 7,800 ft. Weather conditions were expected to be difficult, and proved so, except in two of the higher stations, where favourable conditions were fortunately experienced. An additional observer was placed on the party, and as the lightkeepers were, in the circumstances, out of touch, a portable radio transmitter was installed in charge of the principal observer and the lightkeepers equipped with receiving-sets. Radio communication proved to be exceedingly valuable, and considerable time was saved, thus utilizing to the best advantage the favourable weather conditions.

The number of main stations occupied was seventeen, with a further seven comprising the base net at Culverden. Subsidiary stations to the number of fifteen were also occupied, and these will allow of third-order work being carried out without the interposition of further second order. Five additional stations have been fixed by three or more intersections, and five lighthouses were also fixed by intersection. Latitude and azimuth were observed at seven of the geodetic stations.

The triangle closes are larger than formerly, being 0.80 second, against 0.66 second last year but this may be expected under the severe conditions. Of the thirty-seven main triangles closed twenty-seven are under 1.0 second and the maximum 2.2 second. In the twenty-six triangles forming the base net twenty-three are under 2.0 second, the maximum being 3.5 second. In the subsidiary work of sixty triangles the average close is 0.98 second and the maximum 3.19 second. A base line 7 miles in length has been laid out and the net observed. The measurement is being deferred until at least two further base lines in the South Island have been located, in order that the three may be done at the same time.

During the year a new Tavistock geodetic instrument was in use and is giving good results. The Wild instrument has been reconditioned by the makers and is being returned.

Triangulation.—No second order (other than that already noted in connection with the geodetic work) has been done during the year, but areas in Auckland, Gisborne, and Hawke's Bay comprising some 284 square miles are returned under this heading.

Topographical.—By ground methods an area of $\frac{1}{2}$ square mile was contoured to 5 ft. vertical intervals in the Nelson District for the purpose of laying off a town and works site in connection with the development of the iron and steel industry at Onekaka. Other scattered areas principally for land-development purposes were surveyed in various districts.

Aerial work in Hawke's Bay was continued, and the ground control is now nearing completion.

Standard Surveys.—This work, although showing an increase over last year, is still being deferred for more urgent work. The principal item comprises some 44 miles within the City of Auckland.

Precise Levelling.—Work in the Canterbury District was continued from time to time, but owing to other more urgent work the surveyor was unable to make great progress.

Rural Surveys.—A total of 128,000 acres of rural lands were subdivided, Otago returning 72,000 acres, mostly runs. The cost per acre over the whole was 10 $\frac{1}{4}$ d., and were the run surveys omitted, 1s. 8d., which is remarkably low.

Native-land Surveys.—These still remain at a low figure, 13,671 acres. The average cost of those which passed through the Department was 2s. 4d. per acre.

Town and Suburban.—One hundred and forty-two sections, averaging 10 acres each, are returned under the heading of suburban, the average cost per section being £9 8s. Town lots (excluding those for housing which are listed separately) comprised 268 in number, costing £3 3s. per lot.

Housing.—An area of 525 acres was subdivided into 2,277 building-lots during the year, and preliminary surveys were made of a further 927 acres. The total cost of £6,125 represents the full-time services of nearly six survey parties. The cost per lot this year is £1 15s.

Roads and Railway.—Although the mileage completed this year is slightly below that of last year, it is much higher than former years. This work is in arrears, there being in sight about two years' work at the present rate of progress. The present year should, however, see this reduced to more workable proportions.

In order to preserve survey marks on roads from destruction during reconstruction, there has been done a considerable amount of work on preliminary surveys returned under the heading of "Other Work."

Inspections.—These were again insufficient to form a complete check, and with few exceptions were only instituted when office check disclosed discrepancies with prior surveys. They disclose generally good accurate work, but the ground marking is rather weak, more especially as to those marks which should form a permanent reference to the survey.

Accuracy.—The average close per mile as disclosed by staff surveyors' reports is 0.23 link for town surveys and 0.35 link for rural surveys, thus indicating a high degree of accuracy.

Other Work.—The amount of this item is £4,279 12s. 10d., and this may be subdivided as follows: Location of boundaries and pegs not amounting to a complete survey, £1,582; investigational surveys for title or check purposes, £544; maintenance of survey marks on roads under reconstruction and trig. stations, £793; surveys and plans of street accidents and for proceedings in Court, £350; and for office routine, reports, leave, &c., £1,011.

OFFICE.

Plan Examination and Recording.—The number of plans for examination and records shows a slight increase on the high total of the previous year, and the staff, therefore, has been very busy. It has been possible to keep this work up to date, but only by sacrificing other less-urgent work. The particular class of work which has suffered is the drawing for lithography of our standard 1 in. to 1 mile maps.

As forecast in last year's report, uniform systems of recording surveys and of drawing the standard publications have now been put into operation. The value of this will increase as time passes and more of the publications as redrawn become uniform in style.

Computing Branch.—The arrears of tidal analysis have been much reduced, this work being now practically up to date. The amount of triangulation now coming forward for computation and adjustment is more than the present staff can cope with, and there is an accumulation which it is hoped may be reduced during the coming year.

In accordance with usual custom, the times and heights of high and low waters for 1940 for the seven standard ports—Auckland, New Plymouth, Wellington, Lyttelton, Dunedin, Bluff, and Westport—were carried out on the tide-predicting machine at the Tidal Institute, Liverpool University, from the harmonic constants computed in this branch. Co-ordinate values for points along the coast of the North Auckland peninsula have been computed and supplied to the Admiralty survey ship, H.M.S. "Endeavour," now carrying out a hydrographic survey in those waters.

Map Publications.—Details of these are set out in the tables and report of the Assistant Surveyor-General (Mr. R. G. Dick). It may be noted that the sales to the public show a slight increase on the previous year, but this is more than offset by a diminished return from official sources. The extent to which departmental maps are used by private publishers may be gauged by the amount of the royalty fees collected, a sum of £487 for this year.

Aerial Mapping.—The progress of this work has been rather slow, due to want of trained staff and equipment, but it is anticipated that these will be overcome during the coming year and that a considerable speeding-up will result in that urgent work.

Town Schemes.—The analysis of the 259 schemes approved during the year shows that the reserves set aside equal approximately 7 per cent. of the total area of the lots, while new roads constitute about 9 per cent. of the total area, thus indicating a tendency towards ribbon development.

Warrants for Title, &c.—The number of Warrants for certificates of Title issued during the year was 242, and 13 proclamations of road-lines under the Native Land Act, 1931, were dealt with.

International Federation of Surveyors.—The sixth Congress of the Federation was held in Rome from 6th to 10th October, 1938. Mr. R. E. Gilmour, as the delegate of the Dominion, attended the meetings of Section 3, Town and Country Planning, and the exhibition of Photogrammetry (Section 2). An interesting account of the work of the Congress and of the tour through the Pontine Marshes, now reclaimed, with its new towns planned and built within the last few years, was supplied by Mr. Gilmour, as well as copies of the papers read at each of the five sections.

PROPOSED OPERATIONS, 1939-40.

Geodetic Triangulation.—This work will be extended southwards from the base net at Culverden to the base at Waitaki. The work on the Canterbury Plains will necessitate the use of high steel towers to raise the line of sight above plantations, &c. The height of the towers proposed to be used will be 90 ft.

A further base will be laid down in Southland to control the southern end of the triangulation, and it is anticipated that the three bases in the South Island will suffice for the geodetic work.

Triangulation.—Second- and third-order work is to be put in hand in the Auckland and North Auckland districts, enabling a complete revision of the old work based on Mount Eden; and similar work is to be done in Wellington and Taranaki covering the closely settled area. That in Taranaki has been almost completed in the field, several tie lines being all that remains to be done.

Surveys.—Sufficient work is in sight to keep the present field staff fully occupied for the year, and with urgent work which will be forthcoming from time to time the staff will be kept busy.

Office-work.—This work continues to increase, but the staff, which of recent years has been largely junior, is assuming better proportions and should be able to cope with the additional work.

STAFF.

I regret to have to record the death of Mr. S. T. Kennerley, Draughtsman, of Auckland, a very promising young officer.

Mr. R. W. Collins, Senior Draughtsman, Wellington, retired after forty-four years' service. His great knowledge, especially of early survey and historical records, will be missed.

APPRECIATION.

I wish to express my appreciation of the manner in which the staff has carried out its duties, both great and small, during the year. In particular, I would commend those junior officers who, by diligent study and application, are making themselves worthy of the Service.

H. E. WALSH, Surveyor-General.

APPENDIX.

CHIEF SURVEYORS' ANNUAL REPORTS.

AUCKLAND AND NORTH AUCKLAND DISTRICTS.

(R. L. INNIS, Chief Surveyor.)

FIELD OPERATIONS.

The present field staff consists of nine surveyors, while Mr. J. W. Webster, Registered Engineer, has carried out some engineering surveys for the Housing Department.

During the year Mr. A. C. Haase was promoted to the position of Chief Surveyor, Blenheim, Mr. W. S. M. Organ was transferred on loan to the Samoan Administration, and Mr. A. M. Linton was transferred to development work in the Bay of Plenty. Mr. N. J. Till, formerly Acting Field Inspector, North Auckland, resumed duty as a surveyor. Mr. F. W. Bailey was appointed to the staff, and is now working in the North Auckland district, where previously Mr. Organ was stationed.

Of the staff surveyors, Mr. H. Gavin is engaged principally on development work in the Hauraki Plains and little of his work is included in the survey returns.

Triangulation.—The permanent signals built at many stations in the district during the past few years are proving very helpful. It was hoped to carry out further second- and third-order triangulation during the year, but unfortunately, owing to pressure of other work, this could not be done. Only two small areas of triangulation were completed for the control of standard and road-deviation surveys. In the coming year it is hoped to extend the triangulation and to control all extensive road-deviation surveys in terms of the new trig. work.

Topographical Surveys.—One area of approximately 19,000 acres is returned under this heading, but cannot be classed as topographical survey proper, being more in the nature of sketch plan of an area under offer to the Crown for consideration of possible development. Approximately 360 acres of contour survey and spot levels for the Housing Construction Department have been executed by staff and contract surveyors.

Standard Surveys.—Mr. A. C. Haase completed 16 miles of rural standard surveys along the Auckland-Hamilton Main Highway. Unfortunately, at the date of his transfer the ground marking of approximately a further 15 miles had been carried out, and this remains unsurveyed owing to lack of staff to undertake the work. It is hoped to finish this work during the coming year.

Mr. H. M. Kensington completed the Auckland City standard survey during the year. Practically the whole of the Auckland City is now covered by a standard survey, and future work in this area will be of a maintenance and revision nature. It appears to me that some revision of the city work should be carried out periodically, as disturbance of the street necessary for repair and maintenance of gas, water, and other services apparently causes more disturbance of standard marks than can be tolerated. Mr. Kensington now has in hand the standard survey of Mount Eden Borough, and it is anticipated that this will be completed early in the coming year.

In deviation surveys of main highways it is thought to be advisable to carry out the survey to a standard of accuracy approaching that of rural standard traverse, while ground marks of a permanent nature have been used.

I am of opinion that consideration should be given to the extension of standard surveys both town and rural as soon as possible, as it would appear that a very large percentage of the older survey marks have disappeared. It is very desirable that surveys to preserve the positions of remaining marks should be carried out with the least possible delay. The policy of referencing important survey positions along highways which were to be surfaced or deviated has proved invaluable during the past year, as in many cases, though the actual survey marks have disappeared during road improvements, reference marks are readily picked up.

Rural Surveys.—Little special comment is required under this head on the work returned. Little large subdivision was carried out, the work consisting mostly of a rearrangement of boundaries of existing sections and a resurvey for title purposes of defective original surveys. As mentioned above, loss of survey marks has proved costly in a large percentage of the work carried out by staff surveyors.

Town and Suburban.—Only one town subdivision of any size was carried out during the year. This is the Town of Muriwhenua, on the Ninety-mile Beach, North Auckland, to provide sites for summer residences, for which a demand exists.

Native-land Surveys.—Little work under this head was carried out by the staff during the year, but approximately 6,500 acres was surveyed by contract surveyors. Of this area, arrangements for survey of a little over 1,000 acres were made through this Department, and for the balance arrangements were made for survey costs between the surveyor and the interested parties. It is anticipated that during the coming year the staff will be called upon to carry out a larger percentage of the Native surveys, as surveys of development areas are difficult to arrange at contract rates.

Housing Surveys.—The staff was able to undertake a large percentage of the housing surveys in the earlier months of the year, but during the last few months practically the whole of the housing surveys has had to be let by contract owing to pressure of other work on the staff.

Field Inspections.—A number of field inspections were carried out during the year, and generally the standard of surveys inspected was quite good. In one or two cases, however, the standard of work was definitely poor, and the surveyors concerned were called upon to correct their work. As, however, it has been possible only to inspect surveys the quality of which was regarded as doubtful, on examination of the plan the percentage of poor work was not unduly high.

In the coming year I hope to carry out more frequent inspections, as it would appear that periodical inspection of surveyors' work has a good effect on the quality.

Survey Operations for the Coming Year.—It would appear that the present staff will be fully engaged during the coming year and that it will be impossible to undertake many desirable surveys owing to the amount of current work in hand.

My thanks are due to the field staff for the keen and efficient manner in which they have carried out their duties during the past year, which has been a most strenuous one for the whole staff.

OFFICE WORK.

The present staff consists of seventy-four at District Office and thirteen at Land Transfer Office.

The return of office-work shows some increase on the work of the past year. I have to report as follows on the various branches of the office.

Plan-examination Branch, Land Transfer Office.—The work of this branch has been considerably in arrear for most of the year, but appears to be more up to date at present. This is no doubt due to the increased experience of several officers recently transferred to that branch.

Examination Branch, District Office. Here, again, the work of the branch has been in arrear for most of the year owing to shortage of staff and the inclusion in the staff of the branch of a number of officers without previous experience there. Arrears of work, however, are being slowly overtaken. The work of this branch has proved increasingly difficult during the year owing to the intricacy of many road-deviation surveys and the indifferent quality of many early surveys, which new surveys must respect.

Native Branch.—Again the staff of this branch has been fully engaged, principally on investigation in connection with petitions. The position has been much relieved by the transfer of Mr. P. B. Wright from Gisborne to this office, permitting the officer in charge, Mr. O. A. Darby, to devote almost the whole of his time to Native investigation.

Mapping Branch.—The staff of this branch has been again reduced, officers being transferred to other branches to cope with the current pressure of work.

Two officers of this branch are engaged wholly on work for the Valuation Department—one on loan to the local Valuation office and the other fully engaged in this office. The Valuation maps for the Whangarei County were prepared during the year by this branch.

Working-plan Branch.—The work of this branch has been very considerable during the year, a large amount of data being prepared for the Housing Department, while almost all staff surveyors' plans have been drawn by the branch. A number of officers are gaining experience in this branch, which naturally affects the efficiency.

General Draughting Branch.—Again this year it has been impossible to detail an officer of some seniority to assist in this branch, the staff consisting mostly of junior officers and cadets. Again the work of this branch shows an increase.

STAFF.

It is with regret that I have to record the loss by death of Mr. S. T. P. Kennerley, a most promising officer.

In conclusion, I wish to place on record my appreciation of the services of the whole of the staff, both field and office, for the loyal and efficient manner in which they have carried out their duties during a most difficult year.

GISBORNE LAND DISTRICT.
(J. S. STRAWBRIDGE, Chief Surveyor.)

FIELD-WORK.

The year has been a favourable one for survey work. A comparison with the previous year shows a slight decrease in land-transfer and Native surveys, which has been compensated for by an increase in rural surveys and in surveys of land to be taken for roads and other public purposes. The increase in the last-mentioned class of survey is expected to be maintained during the present year, as a number of road-deviation surveys are in hand and the survey of the Gisborne section of the Gisborne-Napier Railway was commenced in the latter part of the year under review.

Triangulation Surveys.—The third-order triangulation covering the Poverty Bay flats and surrounding country was completed early in the year. An area of 410 square miles was covered at a cost of 14.63s. per square mile.

Standard Surveys.—During the year the rural standard traverse over the Poverty Bay flats was extended a further 22½ miles, making a total of 56½ miles completed to date. This work is being carried out during intervening periods between more urgent surveys. It is now nearing completion, as only 7 miles remain to be traversed.

Rural Surveys.—The work dealt with under this heading consisted of a number of small surveys in various parts of the district. Altogether an area of 3,785 acres was subdivided into thirteen sections at a cost of 1s. 4d. per acre.

Native-land Surveys.—An area of 794 acres of Native land was partitioned into two blocks at a cost of 0·94s. per acre.

The subdivision of a further area of 1,145 acres into sixteen blocks was carried out privately under the provisions of section 493 of the Native Land Act, 1931. The cost of this work is not available.

Housing Surveys.—These surveys were confined to the pegging of house-sites at Gisborne and Opotiki and the layout of 58½ chains of sewer line over the Gisborne housing block. Altogether an area of 9·5 acres was subdivided into forty-eight building-sites.

Inspection Surveys.—One inspection survey was made during the year to adjust a reported inaccuracy in old work. No serious error could be established in the old work, and the reported inaccuracies appeared to be due to the unstable nature of the country.

OFFICE-WORK.

The volume of office-work compares favourably with the previous year.

Plans compiled amounted to 40, and 97 diagrams were endorsed on Court orders and 47 on Crown leases. One hundred and seventeen valuation, 105 field data, and 208 general tracings were made. Fourteen record sheets were compiled. One survey-district map was drawn for photo-lithographic reproduction, and the original of the Auckland sheet 5 was revised. Thirty-eight plans, 21 tracings, and 72 lithos were mounted.

Nine town-scheme plans covering an area of 15 acres 3 roods 37·06 perches subdivided into thirty-three allotments were examined and recommended for approval. No new roads were included in the proposals, as they were all subdivisions of previous schemes. One plan set aside an area of 1 acre 2 roods 38 perches as a recreation reserve. Three sittings of the Native Land Court were attended.

STAFF.

In June, Mr. P. B. Wright, Senior Draughtsman, was transferred to Auckland, and Mr. R. A. Anderson, of this office, was promoted to the position. The consequential vacancy was filled by the promotion and transfer in of Mr. N. J. Neal, of the Napier office.

Mr. M. M. Bee was appointed to the staff as Draughting Cadet in April, and Mr. A. Boys as Draughting Assistant in September.

I desire to place on record my appreciation of the manner in which all members of the staff have carried out their duties during the year.

HAWKE'S BAY LAND DISTRICT.

(P. W. G. BARLOW, Chief Surveyor.)

FIELD OPERATIONS.

The Survey field staff at present consists of two surveyors, Messrs. A. J. Wattie and D. B. Hopperft. Mr. Elder, cadet, is attached to Mr. Wattie's party, and Mr. Eden, cadet, to Mr. Hopperft's party.

Triangulation Surveys.—Under this heading an area of approximately 100,000 acres was undertaken in the Pohui and Tarawera districts in order to control the road deviation surveys on the Napier-Taupo Main Highway.

Standard Surveys.—No work under this heading has been carried out during the year other than maintenance of permanent marks.

Rural Surveys.—The work returned under this heading comprises the resurvey of Forest Gate Settlement (6,680 acres), Lindsay Settlement (5,400 acres), Manga-a-toro Settlement (13,073 acres), part of Tangoio Settlement (2,637 acres), and Sections 4, 5, 6, and 7, Block XI, Waitara Survey District, containing 2,247 acres. The field-work of these blocks is completed, and the surveyors are proceeding with the balance of Hatuma (30,000 acres) and the balance of Argyll Settlement (19,795 acres).

Town and Suburban Surveys.—The work under this heading comprises eleven sections of Mahora Settlement, totalling 389 acres, adjoining the Hastings Borough. This is a redefinition survey.

Native-land Survey.—The work during the year under this heading consisted of the compilation of eight plans having twenty subdivisions and containing 988 acres.

During the year six investigations were made in respect of appeals by Natives against the Crown. Three of these cases, Nuhaka No. 1, Mangaoparaka, and Mahia, have been heard. Fifty Court-order diagrams were drawn.

Housing Surveys.—During the year under review small subdivisional surveys have been made by staff surveyors in the boroughs of Napier, Hastings, Dannevirke, Woodville, and Havelock North. In addition, subdivisional surveys were made by private surveyors in the boroughs of Waipawa and Wairoa.

Field Inspections.—One statutory survey by a private surveyor was inspected and reported on by Mr. Hopperft. The work was found to be satisfactory.

OFFICE-WORK.

My office staff at present consists of a senior draughtsman, twelve draughtsmen, and two cadets. Of these, Mr. W. J. Burton is still on loan to the Department of Scientific and Industrial Research at Hastings. This staff has been fully employed during the past year on both reconstruction and routine work. There still remains a large amount of reconstruction work to be carried out.

Reproduced Plans.—The amount of £129 10s. 6d. was paid out to private surveyors for the reproduction of twenty-three plans during the year. In addition to these, twenty-two land-transfer plans to the value of £71 2s. were reproduced by the office staff. Half the value of all land-transfer plans was recovered from the Lands and Deeds Department. The number of plans reproduced by private surveyors is rapidly decreasing. Mr. Rochfort is practically the only one who is in a position to reproduce plans, but he is too busy to do this work.

The following is the total number of plans reproduced by the office staff during the year: Crown, 9; statutory, 11; land transfer, 22.

Land Transfer.—During the year 168 plans, comprising an area of 37,333 acres 1 rood 36 perches and containing 704 lots, were approved.

Statutory Plans.—Twenty-four plans were approved.

Standard Lithography.—During the year, Clive and Wakarara Survey Districts 40-chain maps have been drawn, while Heretaunga, Kidnapper, Waimarama, Oero, Te Mata, Maraekakaho, and Matapiro have been revised. So far, this work has not yet been published. Tahoraite district is being drawn, leaving five districts yet to be drawn.

Record Maps.—The drawing of record maps is being pushed ahead as quickly as possible, but there still remains a great deal of this work to do. Title-record maps on various scales from 2 chains to 20 chains to 1 in. are being drawn for the Deeds Department.

Rural Standard Traverse Adjustment.—The adjustment of rural standard traverses has been brought nearer completion during the year.

The final adjusted co-ordinates, in terms of transverse Mercators projection of approximately 450 miles of standard traverse were obtained, bringing the total of adjusted work to approximately 1,300 miles.

The length of standard traverse which remains to be adjusted is approximately 100 miles, and this will be carried out as soon as the necessary field control and revision can be carried out by the staff surveyors.

TARANAKI LAND DISTRICT.

(NELSON CLAY, Chief Surveyor.)

Triangulation.—Owing to the closing error in the rural standard traverse exceeding the total of 10 links, a system of triangulation to localize the error was considered necessary.

During the year the services of Mr. W. G. Nelson were made available for this work, and a complete system of triangulation round Mount Egmont was put in hand.

Considerable difficulty was experienced in obtaining a strong scheme of triangulation, owing to the circular route around Mount Egmont and the conical nature of the country covered.

Numerous plantations and hedges through which lines of sight had to be cut further hampered the work.

To overcome these difficulties two satellite stations were used, one on the top of a rata stump 46 ft. above the ground and the other on a totara stump 15 ft. above the ground.

Towers were erected 10 ft. in height at each end of the Eltham—Okaiawa base line in order to elevate the line of sight above the intervening hedges and plantations.

Eight hundred and thirty square miles were covered by this triangulation at a cost to date of £1,337 1s. 9d., or £1.61 per square mile. A total of eight-seven triangles from forty stations were observed at an average cost of £33.43 per station. The average closure without taking spherical excess into consideration was 2.76 seconds, and the maximum closure 8.1 seconds.

In addition to the triangulation, five connections were made to the rural standard traverse involving approximately $4\frac{1}{2}$ miles of standard chaining.

In order to complete this work further observing on three stations is required, and a further six connections to the rural standard traverse involving approximately $5\frac{1}{2}$ miles of standard chaining is necessary.

Observations were to have been taken in conjunction with this work to determine, if possible, what affect Mount Egmont has in deflecting the plumb line from the vertical. This work also has still to be carried out.

Village and Suburban.—Two separate surveys are included.

Town-section Surveys.—These include eight separate surveys of fifty-four sections, five of these, comprising fifty sections, being for the Housing Department.

Roads and Railways.—Altogether, 4 miles 3 chains of roads in four separate surveys of 0.5, 0.25, 1.88, and 1.41 miles were carried out.

Native Land Court Surveys.—The total area of Native Land Court surveys completed during the year amounted to 1,272 acres, of which 351 acres were done by private surveyors under authority and 921 acres by a staff surveyor.

Native Land Court Work.—The authorities to survey issued during the year for west coast settlement and ordinary Native lands total ten, covering twenty-two subdivisions of an area of 686 acres. The total area on hand under authority by surveyors at 31st March, 1939, is 181 acres.

Of authorities issued prior to the 31st March, 1938, an area of 629 acres, covering five subdivisions, held by two authorities have been completed and plans received during the year.

The total area of Native Land Court surveys completed during the year amounts to 1,272 acres.

The number of plans endorsed (to comply with Judge's instructions) and forwarded to the Registrar, Native Land Court, for attachment to partition orders total forty-six.

The area of Native land placed on diagrams amounts to 1,723 acres.

Two hundred and eighteen plans have been forwarded for use at Native Land Courts.

The survey costs (including cost of examination of plans and interest due) collected for ordinary Native Land Court and west coast settlement surveys amounted to £357 9s. 6d.

Owing to the isolation of this office with regard to the Native Land Court officials, solicitors, and surveyors, a great deal of extra correspondence and supply of data is required to be supplied. The outward correspondence entailed the writing of 392 letters. Five vouchers, amounting to £95 13s. 6d., covering twelve subdivisions and totalling 552 acres, have been prepared in this branch and sent on to the Accountant for payment to contract surveyors.

When necessary, an officer has attended the sittings of the Native Land Court for the purpose of producing plans and giving assistance to the Court and carrying out usual detail work.

Nine applications for charging orders amounting to £18 16s. 10d. were forwarded to the Native Land Court, and thirteen liens amounting to £80 0s. 1d. covering thirteen subdivisions were released. Eighteen plans covering an area of 3,506 acres were compiled for Native Land Court use. Two plans for office record and ten tracings have also been made in this branch during the year.

WELLINGTON LAND DISTRICT.

(J. D. CLAPPERTON, Chief Surveyor.)

FIELD-WORK.

Triangulation.—Work under this heading comprises 366 square miles of revision near Wellington. New signals have been built on four trigs., and much bush-cutting is involved. This work is not yet completed.

Standard Surveys.—The Western Hutt Road widening survey for the Public Works Department incorporates a standard traverse—6 miles—which was completed this year.

Other standard work comprises protective traverses alongside existing standards which are likely to be disturbed by road-improvements. A total of 10 miles 35 chains has been completed in Greytown, Ashhurst, and the Feilding district.

Rural Surveys.—Various small areas, as follows—Land for reserve at Paremata Redoubt; land for Ohakea Aerodrome, near Bulls; land for Natives near Foxton; part of Avery Estate, Pahiatua, showing river erosion; part of Ahiaruhe Settlement, Carterton showing erosion: A total of 235 acres.

Suburban Surveys.—Several small areas, comprising part Hutt Valley Settlement industrial area, land donated at White's Line East for scenic reserve, land in Ngaio Gorge for oil depot, a total of 54 acres.

Town Surveys.—Most of the work under this heading was housing subdivision, which is given under the next heading. The balance comprises various isolated areas—Part Section 531, Town of Wellington, for Government buildings; part Hutt Valley Settlement; old Post-office site at Pahiatua; police-station site at National Park; two small areas at Wilkinson's corner, National Park; bath-site at Ohakune: A total of 1 acre 1 rood 30 perches.

Housing Surveys. Much work was undertaken in this connection, the following areas having been cut up in accordance with the requirements of the Housing Construction Department—Sunshine Estate, Karori; Nicholls Estate, Nevay Road, Miramar; Cudby Berkett Estate, Malone Road, Lower Hutt; Fearon's area at Carterton; Gear Co.'s area adjoining Lever Bros., Petone; Lucas' area, Calcutta Street, Khandallah; part of Pitt Settlement, Randwick Road, Lower Hutt; Robertson's Estate, Waiwhetu Road, Lower Hutt; Brightacre's Estate, Campbell Street, Karori; Johnsonville area; Kells and Wilkinson area, Malone Road, Lower Hutt; Ngaio Garden Suburb, Karamu Street; Wairarapa's Trading Co.'s area, Featherston: A total of 81 acres and 326 sections.

In addition to the above, various areas offered by the public for housing have been inspected and reported on, and amendments have been made to several subdivisions at the request of the Housing Department.

Housing surveys in Palmerston North, Wanganui &c., have been made by private surveyors, whose accounts at Government schedule rates have been paid by the Housing Department.

Native Surveys.—One of these (of part Raetihi Block) was made by a staff surveyor, and four others by private surveyors, a total of 3,875 acres and fourteen partitions.

Other Native plans received were office compilations.

Field Inspections.—An inspection was made of a survey of road deviation.

Roads.—Road widening and deviation surveys for Public Works Department were Western Hutt Road, 6 miles; Haywards-Pahautanui Road, 7 miles; new Silverstream Bridge Road, 15 miles; stock route in Ngahauranga Gorge, 10 chains.

Other road surveys consisted of the placing of reference tubes to protect existing work along roads which are being reconstructed, sealed, &c., as follows—Gladstone—East Coast Road, 3 miles 20 chains; Western Lake Road, 4 miles 10 chains; Linton—Palmerston North, 1 mile 60 chains; Stewarts Line, 2 miles; Wanganui—Fordell, 5 miles 12 chains: Total mileage, 29 miles 47 chains.

OFFICE-WORK.

Draughting-room.—Forty-chain maps of Mangawhero, Maungakaretu, Tiriraukawa, Pukeokahu, Horotea, and Taumata Survey Districts, also Wellington street map, have been revised.

Plans compiled in office were twelve Crown, thirteen other Departments, five Native, and three land transfer, a total of thirty-three.

Plans drawn from field notes were nineteen Crown, forty-eight other Departments, and one Native, a total of sixty-eight.

Diagrams drawn were 234 on Warrant titles, 286 on leases, 2 miscellaneous, and 58 Native, a total of 580.

Twenty-three plans of town schemes were examined and forwarded for approval.

Tracings prepared were 1,487 Crown, 514 other Departments, &c., 23 Native, and 13 land transfer, a total of 2,037.

Plan forms and publications disposed of amounted to £62 10s. 4d.

Housing-work has been considerable, consisting of correspondence, interviewing, inspecting, as well as making tracings, prints, and drawing-plans from field notes.

Work has also been done for the Valuation Department, consisting of searching titles and compiling tracings of various ridings.

Other work includes many tracings for private surveyors, local bodies, other Departments, Field Inspectors, and office use generally, also much searching, correspondence, and attendance on public.

Statutory Plans and Computing Branch.—One hundred and forty-one statutory, 50 Crown, and 10 Native plans received; 123 statutory, 49 Crown, and 9 Native plans approved; 27 statutory, 2 Crown, and 3 Native plans requisitioned; 42 statutory, 21 Crown, and 4 Native plans under action; 119 tracings, in duplicate, sent for Proclamation; 152 Proclamations and *Gazette* notices recorded; 14 Warrants issued for titles to closed roads; 199 plans recorded; and 102 land-transfer dedications recorded.

Examination fees payable by local bodies, &c., £94 14s. 6d.; examination fees payable by other Departments, £71 6s.; and examination fees not recoverable, £41 4s. 6d.: £207 5s.

Native Branch.—Eight authorities were issued for surveying 3,950 acres in nineteen partitions. Ten plans were received covering 7,343 acres in twenty-two partitions. Nine plans were approved covering 4,285 acres in twenty-two partitions. Fifty-eight diagrams were forwarded to Native Land Courts.

The sums of £435 7s. 1d. principal and £355 0s. 5d. interest were received in payment of survey liens, a total of £790 7s. 6d.

Much work has consisted of investigation of Native claims, &c., and frequent visits have been made to Native Land Courts in various places.

Correspondence, searching, and attendance on the public has occupied much time.

Litho-room.—Lithos, plans, &c., numbering 663 have been mounted; 232 sun-prints were made; 280 parcels were made up for despatch.

A total of £88 3s. 3d. was received by Sub-receiver.

Monthly and annual reports were prepared for the Chief Surveyor, also monthly return of summarized expenditure and monthly return of sales.

Assistance was given with Native work when required, amounting to seventy-one days during the year.

Complete stock-taking of lithos was made, and figures handed to the Accountant.

One hundred and thirty-seven lithos, valued at £29 1s., were received and added to stock; 282 lithos, valued at £64 15s. 6d., were transferred to Head Office.

One thousand and forty lithos, valued at £205 19s. 9d., were disposed of as under:—

	£	s.	d.
Cash and credit	66	11	6
Transfer voucher	30	12	3
Free to other Departments	42	11	6
Office use	66	4	6
	<hr/>		
	205	19	9
	<hr/>		
Discounts	11	12	3

A certain amount of time was involved in the layout and design of the addition to this office and the fittings being installed therein. The new wing has been occupied since October last.

It is hoped to have the photostat machine in operation at an early date in a room specially designed for it, but considerable delay is being experienced in obtaining the necessary fittings.

CHANGES IN STAFF.

A notable change was the retirement of Mr. R. W. Collins, Senior Draughtsman, on 30th September last, after forty-four years' service. He was succeeded by Mr. C. H. Wright, who arrived from Auckland on 1st May, 1938.

Other changes are: Mr. J. H. Buttress arrived from Nelson on 1st April, 1938; Mr. W. G. C. Gasquoine arrived from Nelson on 4th July, 1938; Mr. P. G. Harlen resigned on 31st October, 1938; Mr. T. Hindley arrived from Head Office on 22nd November, 1938, and resigned on 31st March, 1939; Mr. C. T. Brown arrived from Head Office on 31st January, 1939; and Mr. T. C. Woodford arrived from Head Office on 27th March, 1939.

CONCLUSION.

I wish to express my thanks for the manner in which all members of the staff have carried out their duties under the capable supervision of Mr. C. A. Gordon, Land Transfer Draughtsman, and Mr. R. W. Collins, and latterly Mr. C. H. Wright, Senior Draughtsman.

MARLBOROUGH LAND DISTRICT.

(A. C. HAASE, Chief Surveyor.)

FIELD-WORK.

Rural.—Returned under this heading are 9,572 acres, at a cost of 0·7s. per acre. Much of this work consisted in cutting off bush areas on the higher slopes of Crown leaseholds.

An area of 3,560 acres is also returned under this heading in work administered by other Departments. This consisted of a periphery survey of Lake Grassmere, which has been reserved for Air firing and bombing purposes. Little survey work was required, and the cost worked out at 0·13s. per acre.

Village and Suburban.—Three sections comprising 8·3 acres were surveyed at a cost of 44·45s. per acre. These consisted of isolated areas in the Sounds laid out for seaside-residence purposes. An area of 51·4 acres divided into six sections was also surveyed for aviation purposes at a cost of 17·56s. per acre.

Housing Survey.—Sixteen sections were surveyed in the Borough of Blenheim for the Housing Department at a cost of £1·64 per section.

Native land Surveys.—One block of 25 acres, comprising five subdivisions, was surveyed at a cost of 12·96s. per acre.

Rural Road Standard.—The survey of 8 miles of the Havelock-Canvastown Road was completed at a total cost of £12·36 per mile.

Roads and Railways.—Five miles and a half of roads were surveyed for the Department at a cost of £17·33 per mile.

A total of 5·65 miles of roads were surveyed for the Public Works Department at a total cost of £247 0s. 7d. This comprised a number of small surveys, some in outlying districts where travelling and location of old marks proved expensive, and the remainder a number of small deviations on the main highway made necessary by road-alignment improvement. The field-work of 10 miles of the South Island Main Trunk Railway, south end, was completed, and about 15 miles at the north end. The plans were not completed at the end of the year, and the survey costs will be carried forward to next year's returns.

Other Work.—Nineteen items are included in this return, at a total cost of £140 5s. 11d. The work comprises standard and survey maintenance, levelling-work, investigation surveys, surveys for police of sites of motor accidents, definition of boundaries, field inspections, and other miscellaneous surveys.

Proposed Operations, 1939-40.—Additional subdivisional surveys of subdivision of Crown leases totalling 11,520 acres will be put in hand.

It is estimated that approximately 23 miles of road surveys will be required by the Public Works Department before the end of the year, due to the realignment and deviation of main highways contingent on proposed sealing operations.

About 40 miles of Railway land-plan survey may also be required, although this work will probably run into the 1940-41 period.

A revision survey of the Picton standard survey may also be put in hand.

About 13 miles of rural road standard survey of the Blenheim-Nelson Main Highway will be undertaken when opportunity permits, but work during the current year will probably be confined to offsetting old marks, and final survey will await completion of new alignment of permanent road construction.

OFFICE-WORK.

Thirty-three Crown plans were examined and passed and forty-one for other Departments. Twenty-seven plans were drawn in the office from field notes and sixty-seven plan copy tracings made. One photolithograph survey-district map was drawn.

Ninety-six diagrams were placed on leases and eight on warrant certificate of title. Six hundred and thirty-six tracings were made, 39 lithographs and tracings mounted, 1,031 searches made, 59 deeds and other instruments passed, and 13 written.

Land Transfer.—This work is carried out by the ordinary draughting staff in conjunction with other duties. Twenty-three plans were examined and passed, comprising 4,578 acres divided into sixty-two lots.

Two hundred and forty-two diagrams were placed on certificate of title and twenty-four on miscellaneous documents. One hundred and six deeds and other instruments were passed. Twenty-eight plans were traced for the Valuation Department. Miscellaneous services were rendered, including attendance on surveyors, searching, and compilation of plans for certificate-of-title purposes.

The monthly examination of stamps was made for the Stamp Duties Department.

STAFF AND GENERAL.

During the year Draughting Cadet I. D. Maffey was transferred to the Christchurch office and Mr. W. H. Forbes appointed in his stead.

To cope with the demands for surveys both by this and other Departments, Mr. R. H. Clark was appointed as a temporary surveyor during the year.

Mr. J. Gilbert was transferred from the Invercargill office to a field cadetship.

Mr. A. C. Adamson joined the staff as temporary draughtsman.

In conclusion, I have to record my appreciation of the loyal co-operation and close attention to duties of the technical staff. Increased demands for surveys has thrown much of the plan-work on the draughting staff, whose energies have been taxed to the utmost to deal with current work.

During the coming year their time will be fully occupied in dealing with current work, and it will be practically impossible to deflect the services of the small trained staff of this office to the compilation of the new record plans proposed to be instituted for our official records.

NELSON LAND DISTRICT.

(A. W. CRAIG, Chief Surveyor.)

The survey work completed in this district for the year ending 31st March last has been mostly in connection with the requirements of other Departments, and the surveyors employed, two staff and two contract, have been kept well occupied in the completion of the work required. The surveys made for this Department are mostly those described generally under the heading of "Other Work." They have entailed a fair amount of investigation and work for their completion.

The completed work is as under :—

FIELD-WORK.

Topographical Surveys.—Some 316 acres were completed with contours at 5 ft. intervals, for the special purpose of a town subdivision scheme. The ground was broken in places and a good deal of scrub-cutting was necessary in other places, and these facts contributed materially to the cost of the survey. A further area of 500 acres with a similar contour was completed for the Iron and Steel Department.

Standard Surveys.—The development of close subdivision at Riwaka, adjoining Motueka, necessitated the establishment of a standard survey of some $7\frac{1}{2}$ miles to cover the area dealt with, and a satisfactory basis for further surveys in this locality has now been established.

Rural Surveys.—Only four surveys of this class were made during the year. Each was separate from the other, and all were scattered over the district, so that the cost of the work was fairly high.

Town and Suburban.—One survey was made under this heading, a suburban section of some 38 acres being cut out.

Housing Surveys.—Areas of $9\frac{1}{2}$ acres in three separate surveys were subdivided into fifty-seven lots for housing purposes. About half this work was done by contract survey. The price runs out at about £1 per lot for the staff surveyor's work and about £1 4s. per lot for the work done on contract.

Field Inspection.—Very little of this work could be undertaken during the year, only two inspections of the private surveyors' work were made, and in each case the standard of work disclosed was found quite satisfactory.

OFFICE WORK.

The year's work in the office covers the examination of 184 plans, of which 118 were for the Land Transfer Department, 51 were for local bodies and other Departments, and 15 were for this Department; 1,046 diagrams were endorsed on instruments of title, of which 821 were land transfer and 225 were leases and Warrant titles; 30 plans were compiled, and 13 surveyors' plans were drawn; 1,074 tracings were made for survey data for other Departments and for office use; 122 mountings were made, and 80 sun-prints taken; 98 reports on mining applications were supplied to the Warden's Court; 17 index maps were drawn, 2 survey-district maps were drawn for lithographic reproduction, and 1 map was published; 1 survey-district drawing was revised and printed.

I have again to record my appreciation of the efficient service and hearty co-operation in the work of the Department that has been evident among the draughting staff of this office, and without which the work put through could not have been completed.

WESTLAND LAND DISTRICT.

(J. W. McINTYRE, Chief Surveyor.)

FIELD OPERATIONS.

For the first ten months of the year field-work was hindered due to excessive rainfall, the second highest yet recorded in this district; accordingly, the cost of rural work is lightly in excess of that of the past few years.

As regards triangulation, topographical, standard, and Native surveys, there are no returns to send forward.

Rural Work.—The rural surveys comprised 1,684 acres of hilly to undulating bush-covered land, partly for scenic and partly for settlement purposes, chiefly the former. Most of the scenic areas are close to and in full view of main highways, and mostly comprise magnificent stands of dense virgin forest.

Town and Suburban Surveys.—This work, comprising 218 acres, covers chiefly subdivisions of Crown lands to meet the demand for building-sites in boroughs and the more closely settled areas in various parts of the district, together with areas under 50 acres required for aerodrome and settlement purposes.

Housing Surveys.—Three surveys covering fourteen building-sites were carried out by the staff during the year, all in the Town of Hokitika. On these sites houses are under construction, and a number will shortly be ready for occupation. To supply the demand in Greymouth a subdivision of about 30 acres at Cobden is being carried out by a private surveyor for the Department of Housing Construction.

In the Town of Hokitika the Director of Housing has under consideration further areas for building-sites. At a small cost for draining, these will all make excellent sites, and in some cases will require surveys to redefine boundaries.

Field Inspections.—Five field inspections of private surveyors' work were completed during the year. A good standard of accuracy has been maintained, but the ground marking calls for improvement, particularly in placing the more important control traverse points in positions not likely to be disturbed. The field staff is setting an excellent example of this work, and every endeavour is being made to have the private surveyor realize the importance of such work.

Traverse closures indicate that a high standard of work has been maintained. From closures of varying distances totalling 7.52 miles covering 107 stations in undulating to hilly, mostly bush, land, disclose an error of 0.17 link per mile on the meridian and 0.44 link on the perpendicular.

For the coming year the field staffs have ample work in hand for the next twelve months. The greater part of the work shall be in defining areas for scenic purposes adjoining or close to the main south highway in South Westland. A number of road-deviation surveys will also be required by the Public Works Department, as well as applications for building-sites and Crown leaseholds in various parts of the district.

OFFICE-WORK.

Plans approved during the year numbered eighty-seven, classified as follows: Crown, 44; Land Transfer Department, 29; and other Departments, &c., 14. This is one plan less than last year. All staff surveyors' plans have been drawn from field notes by the draughting staff. Two hundred and eighteen mining applications were reported on for the Warden's Court, 108 lithographs were coloured, 1,049 general tracings were prepared; of these, 727 were for this Department and 322 for other Departments. Fifteen notices for scenic reserves were printed, 41 plans and tracings were mounted, 37 sun-prints taken, and 1 tracing for sale-plan purposes prepared. Ten new and 44 renewals of timber licenses were recorded.

Diagrams examined and passed numbered 363, and placed on instruments of title 460. One original tracing was prepared for lithographic purposes, and three original tracings revised for the reprinting of sheet 1, Grey County—the reprinting has been held over pending legalization of portions of permanent State forest areas.

In order that a uniform system of dealing with survey records as set out in Technical Circular No. 55 may be carried out, plans in the safe have been separated, renumbered consecutively, and placed in their respective drawers. This entailed a considerable amount of work, which can only be carried out at intervals with the small staff available. A considerable amount has yet to be done in compiling new index maps, registers, and amending the old plan numbers on record-sheets, &c.

With the able assistance of the Senior Draughtsman and other members of the draughting staff very good progress has been made in this work, which, together with the routine office duties, should keep the draughting staff fully engaged for the ensuing year.

CANTERBURY LAND DISTRICT.

(Mr. T. W. PRESTON, Chief Surveyor.)

FIELD-WORK.

Field Staff.—Messrs. C. L. Cox and A. D. McLaren continued their duties in this district as staff surveyors during the whole of the past year, Mr. Cox having with him Mr. C. W. Williams as survey cadet. As Mr. T. P. Gibson, survey cadet, left for England in March, 1938, Mr. McLaren commenced the year without a survey cadet, but was joined by Mr. T. E. Miles on the 1st July.

The services of eight contract surveyors have been required from time to time during the year to cope with the large amount of subdivision surveys necessitated by the activities of the Housing Department.

Precise Levelling.—This work was continued by Mr. C. L. Cox throughout the year, though much of his time was spent on other urgent surveys.

The Christchurch–Sumner–Lyttelton circuit was completed in November, 1938, the closure for the 31-mile circuit being 0.029 ft. Approximately half comprised hilly country up to 1,100 ft. in elevation.

Fifty-five miles of double levelling were completed during the year at a cost of £15.614 per mile (excluding cost of putting in bench marks).

The Christchurch–Timaru line is now completed from Christchurch to the Rakaia River. Mr. Cox reports that on the flat country on this line, on account of shimmer during the middle of the day, it is necessary to commence work at daylight and to suspend operations at midday until conditions improve in the evening, usually an hour or two before sunset. He is at present averaging over 1 mile of levelling per working-day.

Rural Surveys.—The only rural survey carried out during the year comprised an area of 1,066 acres recently acquired at Ashley Downs by the State Forest Service.

Village and Suburban Surveys.—Forty-two sections were surveyed comprising 139½ acres. Three of these sections were for the housing scheme, the balance comprised school-site, additional lands for defence, and miscellaneous surveys.

Town Surveys.—Some 76 acres of town lands were surveyed into 363 sections, 352 of these sections being for the housing scheme, five of the remaining sections were in connection with the site of the new post-office in the city, the others being at Lyttelton and South Rakaia.

Housing Surveys.—These surveys are included under the headings of "Village and Suburban" and "Town," and comprised altogether 355 sections of a total area of 105½ acres.

Roads.—Twenty-three miles of road survey carried out comprised mostly work necessitated by the activities of the Main Highways Board and the Housing Department. Approximately 1 mile of road was redefined for this Department in the administration of Crown lands.

Inspection Surveys.—Only one inspection was made during the year, and this revealed that further inspections were desirable. They could not be made, however, owing to shortage of staff.

Other Work.—Survey maintenance rendered necessary by roading operations of County Councils and Main Highways Board was carried out, and necessitated the insertion of thirty-two covers and nine plates to protect existing major survey marks. One trigonometrical station was moved owing to Public Works Department's ground operations, and was replaced in a convenient position nearby and co-ordinated to the existing trigonometrical net. Surveys for the Police Department in respect to accident cases, preliminary level and building fixation work for the housing scheme, and levels for drainage of Crown properties comprised the balance of this work.

Proposed Field Operations, 1939-40.—(a) *Precise Levelling:* There still remains some 85 miles of this work to be completed, and it is hoped to complete it in the coming year, although the necessity of employing Mr. Cox on other urgent survey work greatly retards progress.

(b) *Rural Surveys:* There are some 5,221½ acres of this class of survey in view, mostly in connection with the re-allotting of uneconomic areas in settlements.

(c) *Town Surveys:* A total of 107¾ acres, comprised mainly of subdivision required for the housing scheme.

(d) *Standard Maintenance:* It is anticipated that a further considerable amount of this class of work will be necessary during the coming year, as in the past.

(e) *Roads, &c.:* The 109¾ miles of road survey in view consists almost wholly of deviations, &c., carried out or being carried out by the Main Highways Board, and includes 36 miles of traverse in connection with the Public Works Department irrigation work.

(f) *Inspections:* As opportunity permits, it is intended to inspect the work of at least each surveyor in private practice in this district.

OFFICE-WORK (GENERAL).

Eighty-three plans were examined and passed, compared with ninety for the year 1937-38, and 440 diagrams were placed on instruments of title, leases, &c. Increases are recorded in the number of tracings and photostats, these being 1,748 and 1,357, as compared with 1,602 and 1,263 respectively for the previous year. Forty-four Town Schemes were approved, being an increase of 1, while 2 were not recommended.

Fifty working-plans were plotted and drawn, as also were seventeen new 20-chain record maps and three further 20-chain maps of the tacheometrical contour survey being carried out by the Public Works Department for irrigation purposes. Four new record maps of townships were compiled. Revisions for lithographic purposes covered the Christchurch 20-chain streets map and index thereto, three of the 40-chain survey-district maps, and two county maps (40 chain).

The work for the Valuation Department comprised one hundred standard-size sheet tracings, while the draughting-work for the State Forest Service has been executed as required by the District Office.

A considerable proportion of the time of the draughting staff has been taken up with work incidental to the offers of land for the housing scheme, there being 325 offers investigated, searched, inspected, and reported on during the year. Eighty-six offers, comprising 122 acres 1 rood 1·4 perches, and estimated to produce 503 sections, were accepted in the period under review. In general, the recording, indexing, and routine office-work has been carried out and kept up to date.

LAND TRANSFER BRANCH.

A slight decrease is shown in the returns of this branch, plans approved being 240, as against 268 for the previous year, and diagrams placed on instruments of title 2,486, compared with 2,614. Recording and indexing have been kept up to date, and 73 tracings were prepared for the Valuation Department.

STAFF CHANGES.

Mr. T. P. Gibson, Survey Cadet under Mr. A. D. McLaren, left for England in March, 1938, on extended leave, and was replaced in July by Mr. T. E. Miles.

Messrs. R. O. G. Magnus and R. H. W. Rainey, Draughting Cadets, left the Department during the year, the former resigning as from 23rd December and the latter transferring to the Department of Scientific and Industrial Research as from the end of July.

Mr. G. H. Wilton, Draughtsman, left the district at the end of July on transfer to Auckland.

Four Draughting Cadets commenced duty in this district during the past twelve months, Mr. R. B. Spear and Mr. I. D. Maffey on transfer from New Plymouth and Blenheim respectively, and two new appointees, Messrs. D. C. Morse and D. B. McC. Rainey.

Messrs. B. Osborne and J. Crawshaw were employed during the year as temporary draughting assistants, but Mr. Crawshaw was transferred at the end of February to the Housing Department, Wellington.

GENERAL.

I have pleasure in recording that Mr. J. A. Whitcombe was successful in obtaining his first-class certificate in draughting and Mr. O. H. Wilton his second-class certificate in computing.

OTAGO LAND DISTRICT.

(H. A. ADAMS, Chief Surveyor.)

FIELD-WORK.

The survey staff comprises three surveyors, Messrs. F. S. Little, J. C. Meale, and A. J. Houlston, and one Survey Cadet, Mr. W. S. Boyes, attached to Mr. J. C. Meale. It would be of advantage to have another Survey Cadet attached to Mr. F. S. Little for assistance with standard surveys and road deviations therewith. This appointment would relieve the surveyor of purely routine work such as plotting and calculations, and thus enable the more-important phases of field-work to be expedited. This class of work offers good experience for cadets, and should prove invaluable to them when called upon to carry out this class of survey work.

There has been ample work on hand to keep three parties fully engaged in the field. Several large run areas are under review for subdivision, and with the State-highway surveys in hand and in view, coupled with the rural standard work carried out in conjunction therewith, also housing surveys and spotting surveys in general, more than sufficient work is anticipated to keep three parties in commission in this district during the ensuing season.

The city standard survey of Anderson's Bay and Tainui, which work has been retarded owing to more urgent housing and run subdivisions, is, I am pleased to say, progressing more satisfactorily, and an early completion of the work is anticipated. Pending further authority to extend the survey to incorporate those streets in various parts of the city which have still to be standardized, the surveyor will transfer his activities to highway standard work which has been authorized, at the same time completing the Proclamation survey for the Public Works Department of the deviations concerned.

Triangulation.—Maintenance-work to the extent of £24 19s. has been performed during the year. No new work has been carried out, but with the extension of the primary triangulation over this district a considerable amount of revision of minor triangulation will be required. With the extension of roads in Western Otago further triangulation will be rendered necessary at an early date. This work will be of assistance, and can be carried out in conjunction with any topographical survey of the alpine regions when this work is undertaken.

Except for certain mountainous areas in Western Otago, the district is controlled by minor triangulation with the exception of the South Clutha basin, in the vicinity of Otanomomo. This was not done in the early days, and, although since controlled by a rural standard survey by Mr. Langmuir and Mr. Burton, an effort should be made to bridge the existing gap between Glenomaru and Kaitangata districts by directly connecting these districts by a network of large triangles. This work can be done when the rural standard work referred to is brought up to date by Mr. Little, Staff Surveyor, at an early date. The work will no doubt be required in connection with the coastal survey now being carried out by the Admiralty.

Topographical.—An area of 583 acres of contoured topography was completed by Mr. A. J. Houlston. This comprised the Town of Pembroke, and was undertaken in connection with a town-planning scheme for this locality. Several small areas for the Housing Department were contoured.

Recent explorations in Western Otago disclose that official maps of this area are in certain parts inaccurate, and a large area in Humboldt, Humboldtside, and Forbeside Survey Districts is unmapped. With improved access this locality is growing in popularity with trampers, and further topographical work is indicated.

Standard Surveys: Rural.—Field-work has been completed for a length of 18 miles between Milton and Balclutha. This was carried out in conjunction with the survey of road deviations on the main highway between these places. Field-work has been commenced on the standard traverse of the Dunedin-Waitati (via Leith Valley) Main Highway, a distance of 9.5 miles. At an early date field-work will be commenced on the Balclutha-Clinton Main Highway (20 miles) and Dunedin - Dukes Road Main Highway (7 miles). These standard traverses will be carried out in conjunction with the survey of deviations on the main highways.

Further State-highway surveys are anticipated next season—viz., on the Milton-Roxburgh and the Lindis-Cromwell State Highways—and opportunity should be taken to carry out a rural standard survey in conjunction with the Proclamation surveys of the various deviations involved.

On the completion of the Balclutha-Waiwera section, opportunity will be taken to complete the plan-work of the Otanomomo rural standards on the Lower Clutha basin and bring the work up to date by completing the circuits where required. This work should be extended through Port Molyneux to link up with the seaside resort at Kaka Point, terminating at Willsheer Bay Domain, an extension of approximately 2 miles.

Owing to obstruction by plantations, &c., the trigs. on the lower Taieri Plain are in many cases obscured, with the result that the stations are of little practical use. Consideration should be given to establishing rural standard blocks along the roads which traverse the Taieri Plains, linking up with the Dunedin - Dukes Road - Dunedin (through Green Island Borough) rural standard circuit, which is being undertaken forthwith. It will be of inestimable value when carrying out rural surveys on the plains, and the work should be undertaken at the first available opportunity. An extension from Green Island Borough to Brighton, which highway is now paved, should be included.

Other rural standard work which is urgently required is the extension of the Balclutha-Milton State Highway (recently completed) to Dunedin, thereby completing the highway from Dunedin to Clinton. The completion of the present programme will leave this gap, and as the highway has already been surveyed and finally graded and paved it is expedient that this section be undertaken first opportunity.

The State highway north from Dunedin is now paved practically all the way from Waitati to Waitaki, extending through Oamaru. On the completion of the rural standard survey of the new deviation, Dunedin to Waitati via Leith Valley and Pigeon Flat—the work now being in hand—consideration might be given to the advisability of extending the rural standard traverse to Oamaru, and finally to Waitaki, to link up with Canterbury.

Standard Surveys: City.—The field-work of the standard survey of the Anderson's Bay area of Dunedin City is approaching completion, and the plan-work therewith is well in hand. A total length of 8.5 miles has been completed.

To bring the standard survey of Dunedin City up to date, a further length of 6.8 miles is required. This comprises new streets in subdivisions which have been laid out subsequent to the original standard survey and streets on the outskirts of the city which were not included in the original standard-survey programme. I propose taking the matter up with the City Corporation, with a view to getting their approval to the proposed extension. In the meantime there is ample rural standard and housing-survey work on hand to keep the surveyor fully engaged.

Standard surveys of Oamaru and St. Kilda Boroughs are urgently required, and the matter has been submitted to the Borough Councils concerned. Mosgiel, Baledutha, and several small boroughs in Central Otago might with advantage undertake standard surveys. Opportunity has been taken, while carrying out several inspections in Cromwell, to establish permanent marks in several streets and to protect old marks likely to be removed during drainage operations now being carried out in the borough. The rural standard work recently authorized runs through the centre of Green Island Borough. Opportunity should be taken to extend this work to the principal streets in the borough. This borough immediately adjoins the city, is rapidly growing and improving as an industrial and residential area, and the extension of the city standards to incorporate this borough is becoming a necessity, and should be undertaken before the existing survey marks are lost.

Rural Surveys: Subdivisions.—A total of 71,867 acres is returned, at a cost of 3.12d. per acre. This comprises the subdivision of runs in Lindis, Kakanui, and Swinburn Survey Districts, and a small area in Kaitangata Survey District. The work has been carried out satisfactorily and the closures have been excellent generally. The area of rural surveys on hand is 9,027 acres, comprising a run subdivision of 8,760 acres and smaller isolated surveys.

Rural Surveys: Roads.—Road surveys completed comprise a total of 29.35 miles, at a cost of £17.85 per mile. The survey of the new road to Westland has been completed up to the Westland District boundary at Haast Pass. An extensive programme of road-work—principally State highways—is in hand, and further work is anticipated on State highways during the ensuing year.

Town and Suburban Surveys.—Village and Suburban surveys completed comprise an area of 249.95 acres, at a cost of 15.65s. per acre. Town surveys comprise an area of 26.74 acres—twenty-three sections—at a cost of £5.44 per section, being various small surveys throughout the district. The resubdivision of the Town of Frankton is under consideration, while the Town of Brighton View Extension is held up pending further investigation.

Town Schemes: Scheme plans approved amounted to twenty-two, comprising 169 lots. The area of reserves was 1 acre 1 rood 17.37 perches, roads 3 roods 10.4 perches, saleable area 44 acres 3 roods 23.78 perches: Total area, 47 acres 11.55 perches. Further subdivisions on the outskirts of Brighton may be anticipated owing to the improved access and establishment of a golf-course.

Native-land Surveys.—One small survey is returned under this heading, being a site for a Centennial memorial church at Otakou. Native work in this district is limited.

Housing Surveys.—Preliminary: Under this heading a total of 7.68 acres, at a cost of £5.29 per acre, is returned.

Subdivisions: A total of 16.5 acres, comprising fifty-eight allotments at a cost of £2.71 per allotment, is returned. Although this work has ceased, there is still a fair amount of work on hand in the larger blocks. This work will be attended to as the development work proceeds by the Housing Construction Department, and current work in Dunedin and other centres will be attended to as required.

Field Inspections.—Eight field inspections were made during the year. The results disclose satisfactory work by private surveyors operating in this district. Further general inspections of work executed by individual surveyors will be carried out next season, and evidence of any faulty work will be investigated forthwith.

OFFICE-WORK.

The return of plans approved shows a slight increase on the previous year. Crown plans approved totalled 42, while plans approved for other Departments and local bodies totalled 67. Twenty-four plans were compiled and 32 plans were drawn for surveyors. Twenty-eight tenure maps were drawn for Lands Office. Three hundred and thirty plans were recorded, 1,400 office and 394 tracings for other Departments were made, 235 lithographs were mounted, and 207 lithographs were coloured. Three hundred and two diagrams were placed on leases, 160 mining applications were dealt with, and 794 searches were made. Twenty survey-district lithographs were revised and forwarded for printing. Seven county maps were compiled and forwarded for reproduction.

The Land Transfer Draughtsman reports an all-round increase in the out-turn of work. Some 222 plans, comprising an area of 2,971 acres, were approved, 3,912 diagrams were placed on instruments of title, and 2,063 dealings were passed.

Sale of lithographs amounted to £95 4s. 6d.; free issues, £11 1s. 6d.; issues for office use, £60 4s. 3d. Cash sales of protractors and publications amounted to £31 3s. 4d.; protractors and publications for office use amounted to £12 19s. 8d. Fees for plan examination, tracings, and map-mounting amounted to £259 5s. 2d.

The sale of lithographs for the year shows a substantial decrease on the previous year. This is due partly to the inability of this office to supply orders for various compilations owing to stocks of survey-district lithographs being exhausted. The preparation of county maps from survey-district lithographs is held up pending the reprinting of certain of these lithographs now out of stock. The preparation of survey-district lithographs, showing tenures, for Field Inspectors is proceeding. A considerable number of Land Office tenure maps require to be redrawn, but owing to other requirements progress in this direction is slow.

A plan index based on a card system has been completed, resulting in a considerable saving of time. It also provides a sectional index, which will be of considerable assistance when the allotment books are rewritten.

The result of the departmental examinations indicates a commendable zeal on the part of the office staff, which, as indicated by the number of entries, will be upheld during the coming year.

I have to express my appreciation of the work carried out by the survey and draughting staff, and their loyal co-operation during the past season.

SOUTHLAND LAND DISTRICT.

(T. S. McMILLAN, Chief Surveyor.)

FIELD-WORK.

Triangulation.—The only work carried out under this heading consisted of placing a reference tube adjacent to a trig. station in the Borough of Riverton which was being endangered by road-construction work.

Standard.—City: Owing to the reconstruction of the footpaths in the City of Invercargill, it was necessary to alter the levels of nine standard stones.

Rural: Permanent marks were placed adjacent to five standard stones on the Invercargill-Gore Main Highway which were liable to be disturbed by road construction. The cost of carrying out these alterations has been recovered from the Invercargill City Council and Main Highways Board respectively.

Rural.—Four rural surveys, containing a total area of 375 acres 26 perches, comprised in six sections, were made during the year. The average cost per acre was 4-30s.

Village and Suburban.—The total area surveyed under this heading was 24 acres 1 rood 21 perches, contained in twelve subdivisions, at an average cost of £2 0s. 6d. per acre.

Towns.—Seven town surveys were completed, containing a total area of 28 acres 3 roods 15 perches, comprised in 133 sections. The average cost per section was £1.

Roads.—Some 4.43 miles of road were traversed, exclusive of roads on surveys under other headings. These consisted mainly of road-deviation surveys for the Main Highways Board. The average cost of the work was £34 18s. per mile.

Housing.—Of the seven town surveys referred to under the heading of "Towns," four were made for the Housing Department, having a total area of 24 acres 3 roods 31 perches, contained in 115 subdivisions, at an average cost of 15s. 6d. per section.

Other Work.—The principal items under this heading are work done for the Police Department in connection with motor accidents, &c., opening up boundaries on Lora Settlement, and levelling for the Housing Department.

Traverse Closures.—The mean traverse closure of surveys carried out by the staff surveyor amounts to 0.20 links per mile on the meridian and 0.23 links per mile on the perpendicular over traverses totalling 9.6 miles controlled by ninety-eight stations.

Proposed Operations.—The surveys in hand are as follows: State housing subdivision, Invercargill; location of boundary, Wyndham Survey District; proposed scenic reserve, Wyndham Survey District; resurvey of sections, Oteramika Hundred; road-deviation survey, Invercargill-Kingston State Highway; school-site, Nightcaps; and location of tracks, Sounds National Park.

OFFICE-WORK.

Land Transfer Branch.—Seventy-two plans were examined and approved containing a total area of 40,848 acres 2 roods 18-29 perches, comprised in 215 lots. Also, 1,046 diagrams were placed on certificates of title and 609 dealings were examined and passed.

Computing.—Ten Crown plans, 25 statutory plans, and 6 housing subdivision plans, containing a total area of 2,285 acres 3 roods 2-31 perches, were examined and approved. Fifty-five tracings, 44 traverse sheets, and 75 schedules accompanying the various plans were also examined. Four scheme plans containing 12 acres 2 roods 8.7 perches, comprised in fifty-three lots, were approved.

Draughting.—One hundred and sixty-seven diagrams were placed on various Crown and education-reserve leases, and 56 diagrams comprised in five Governor's Warrants were placed on certificates of title. Ten plans were compiled and 1 plan redrawn. Seventy-six lithographs were coloured, 6 plans, 2 tracings, and 185 lithographs mounted, 135 plans recorded, 52 sun-prints made, 130 lease descriptions checked, and 389 searches made in the Land Transfer Office. The total number of tracings prepared was 478, made up as follows: 226 working data, 167 miscellaneous, and 85 for the Valuation Department.

Lithographic Draughting.—The redrawing of the New River Hundred map, which was commenced during the year, is progressing satisfactorily. One original drawing was revised and reprinted. Owing to the urgency of other work and the dearth of trained draughtsmen it has not been possible to devote a great deal of time to this work.

General.—Two hundred and sixty-one applications for subsidy under Scheme No. 4B and thirty-five applications for relief under Scheme No. 4A were received and dealt with. At the close of the year there were ten in receipt of relief under the latter scheme. The recording of land transactions on the office records has been attended to.

Staff.—Mr. C. W. J. Pierson was successful in passing the Computer's Examination (Second Grade). The vacancy caused through Mr. J. M. Gilbert's transfer to the field staff was filled by the appointment of Mr. C. A. George as a draughting cadet. The numerical strength of the office is eight, of which three are cadets and one has just completed his cadetship. Such a preponderance of cadets does not make for maximum efficiency. Nevertheless, I wish to record my appreciation of loyalty and enthusiasm displayed by all members of the staff in the efficient discharge of their duties.

GEODETTIC SURVEY.

(T. W. PRESTON, in charge.)

The party was employed during the year on geodetic triangulation on high mountainous country in Marlborough and Nelson and part of North Canterbury. A number of subsidiary stations were included in the scheme to facilitate breaking down into second-order lengths at a later date.

During the reconnaissance an endeavour was made to avoid the highest ranges, and select stations at lower altitudes, but this was found to be impracticable without considerable loss of strength, and eventually a scheme was adopted to give fairly complete coverage over the whole of the northern part of the Island.

Exceptionally severe weather conditions were encountered during the winter and spring of 1938, and field-work was at a standstill for a period of two months during the winter. During September and October, with snow still lying heavily on the high levels, the party was engaged in preparing the Culverden base line for measurement and in observations on the base net stations. Further snowfalls, extending until January, made the high stations still very difficult of access, but during the last three months ideal weather conditions have prevailed and good progress has been made.

Only three comparatively easy stations remain to be occupied to complete the work southwards to and including the Culverden base net, and it is expected that these will be completed early in April.

The radio equipment supplied in September last has given every satisfaction. The performance of the transmitter and the eight receivers was considerably better than that specified, and apart from minor servicing to several receivers no repairs were necessary. It is considered that the radio equipment has already paid for itself from the point of view of time saved by the whole party. It proved particularly valuable in the high mountainous country in Marlborough and Nelson, when frequently both observers and lightkeepers were camped at distances of one or two days' travel from the nearest telephone. On many stations, on account of the dangerous access, attendance at their stations at night by the lightkeepers could not be insisted on, and communication by lamp signals was not possible.

The working-conditions of the men employed have been considerably improved with the introduction of radio. A second transmitter is required, however, for the use of the second observer.

Costs are increased somewhat over last year. The increase is due in part to the necessity of employing additional men on account of the number of "two-men" stations and in part to the slower progress over much more difficult country.

Twelve second-order signals were erected during the year—six each in the Marlborough and Nelson Districts. One 25 ft. tower (of wood) and one 10 ft. stand were erected at the Culverden base terminals and subsequently dismantled.

The new geodetic Tavistock theodolite No. 38116 was brought into use in September last, and is now giving satisfactory service. It was found that several weeks elapsed before the observers became fully at home with the instrument. Owing to its weight (63 lb. in case, as against 35 lb. in case for the Wild) the Tavistock has been kept on the more accessible stations when possible.

Mr. R. P. Gough commenced duty as observer in August last, and his appointment has considerably accelerated progress.

Six new lamp reflectors and cases were purchased during the winter and were fitted out as signal lamps by chainmen, making a total of seventeen lamps, but even this number is found inadequate at times with two observers working simultaneously.

During the winter recess several chainmen were employed on repairs to equipment and construction of new equipment. Additional equipment and materials were purchased, and stores ledger cards were prepared for all items.

Triangle closures are rather higher than in previous years. During the spring and early summer exceptionally bad observing-conditions prevailed. On very few nights were the lights clear and steady. On many stations the lights were woolly and weaving throughout the whole period of the observations, and often it was found necessary to wait for better conditions even though all lights were showing. Two stations were reoccupied on account of excessive triangle closures. When the weather cleared in February and pressure became high generally, closures improved considerably.

Stations occupied —							
Geodetic	..	..	..	..	..	..	17
Base net	..	..	..	..	..	..	7
Subsidiary	..	..	..	..	..	..	15
							—
							39
							—
Additional stations fixed by intersection	..	..	..	..	..	..	5
Lighthouses fixed (from two directions only)	..	..	..	..	..	..	5
Astronomical stations	..	..	..	..	..	..	7
Stations requiring two visits	..	..	..	..	..	..	2
Stations reoccupied for astronomical observations	..	..	..	..	..	..	3
Stations reoccupied for reobservations	..	..	..	..	..	..	2
Triangles closed	..	..	..	..	..	..	123
Area covered (square miles)	..	..	..	..	..	..	9,060
Cost	..	..	..	..	..	..	£5,470
Cost per square mile	..	..	..	..	..	..	..12s. 1d.
Cost per station occupied	..	..	..	..	..	..	..£140 5s.
Permanent signals erected	..	..	..	..	..	..	12
Old signals reconditioned	..	..	..	..	..	..	1

Details of Triangle Closures.

	Number of Triangles.	Average Closure.	Seconds.								Maximum.
			0.0 to 0.5.	0.5 to 1.0.	1.0 to 1.5.	1.5 to 2.0.	2.0 to 2.5.	2.5 to 3.0.	3.0 to 3.5.	3.5 to 4.0.	
Geodetic ..	37	0.803	11	16	6	2	2	..	..	..	Seconds. 2.210
Base net ..	26	1.123	8	6	5	4	1	1	..	1	3.539
Subsidiary ..	60	0.976	17	21	12	5	1	2	2	..	3.189

Mr. W. G. Nelson, who took charge of the field-work as from 1st March, 1939, reports as follows :—

“ Reconnaissance was commenced in Canterbury Plain area during March. It was found impossible to cover this area with figures possessing required strength unless use were made of high towers.

“ In order to meet this difficulty it is intended to establish stations on two water-towers each 120 ft. in height and to purchase two ‘ Bilby Towers ’ for the purpose of elevating observer and his instrument, also lamp, above the level of the plains. As these steel towers are comparatively light, and may be erected, dismantled, and re-erected on various sites rapidly, it is considered that the initial cost will be more than recouped by the saving in cost of materials for and erection of the old-type wooden towers. Further, New Zealand timbers are hardly suitable for use in construction of high towers, and American timber, which is costly, would require to be used in the absence of steel towers.

“ It is proposed to make use of small hydrogen-filled balloons as an aid to reconnaissance on plains.”

HEAD OFFICE, DRAUGHTING BRANCH.

(R. G. DICK, Assistant Surveyor-General.)

Map Publication.—The following tables summarize the map publications and sale credits in district and head offices.

Table 1A.—Summary of Printing-costs of Map Publications for the Year ended 31st March, 1939.

Class of Map.	Number of Issues.	Number of Maps printed.	Total Cost.		Average Cost per Issue.		Average Cost per Map.	
			£	s. d.	£	s. d.	s.	d.
Survey districts, 40 ch. ..	23	1,271	190	0 0	8	5 6	3	0
Survey districts, 80 ch. ..	30	7,500	230	3 8	7	13 6	0	8
Counties	3	1,200	146	12 10	48	14 7	2	6
Boroughs	1	450	34	11 0	34	11 0	1	6
Territorial and 4-mile ..	9	4,600	215	0 9	23	17 9	1	0
Miscellaneous	9	3,975	293	6 5	32	11 9	1	6
Totals	76	18,996	1,109	14 8	..	..	..	..

TABLE 1B.—Summary of Map Sales and Credits for the Year ended 31st March, 1939.

Item.	Credits.					
	£	s.	d.	£	s.	d.
Sale of lithographs to the public	1,710	9	9			
Sale of lithographs to other Departments	850	2	4			
Lithographs issued free to other Departments	775	14	9			
Lithographs for office use	935	0	4			
				4,271	7	2
Sale of publications and plan forms				387	12	9
Search fees				13	15	0
Royalty fees				487	14	6
Total				5,160	9	5

TABLE 1c.—Summarized Statement of Sale and Disposal of Lithographs, Publications, Plan Forms, and Search Fees from 1st April, 1938, to 31st March, 1939.

District.	Survey Districts, 80 ch.		Survey Districts, 40 ch.		Counties.		Cities.		Boroughs.		Towns.		Four-mile Series.		General Maps.		Miscellaneous.		Topographical.		Publications.		Plan Forms.		Search Fees.		Totals.	
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.
Auckland and North Auckland	153	12 6	101	1 9	318	4 0	97	10 0	60	19 6	14	5 3	62	14 0	11	3 6	20	5 0	0	..	30	12 3	192	15 6	7	14 0	1,070	17 3
Gisborne	5	17 6	2	17 0	27	17 6	..	..	13	16 0	..	..	11	6 6	0	8 0	2	4 3	0	3 6	..	..	8	4 6	0	..	72	14 9
Hawke's Bay	14	7 0	13	6 10	29	9 5	..	..	11	13 1	..	..	15	19 0	0	7 6	1	13 6	0	..	3	12 4	17	15 0	0	8 0	108	11 8
Taranaki	34	12 6	46	14 6	30	7 9	5	4 0	9	6 0	2	0 0	15	7 0	0	4 0	..	..	4	1 0	0	7 0	19	2 6	0	..	167	6 3
Wellington	49	12 6	33	9 6	44	11 3	18	1 3	16	19 3	6	12 0	25	5 0	6	13 6	0	16 0	4	9 8	5	12 6	56	7 10	0	..	268	10 1
Marlborough	26	17 6	3	18 6	6	15 3	..	..	8	19 0	2	10 0	9	18 0	0	6 6	0	4 0	0	..	..	..	..	..	0	..	64	17 9
Nelson	33	3 0	10	5 0	40	7 3	5	10 0	3	6 0	0	4 0	10	19 0	0	16 0	4	17 6	6	1 0	..	..	4	12 0	0	17 0	137	9 3
Westland	3	7 6	5	5 0	28	13 9	..	..	5	14 6	6	14 6	10	2 0	1	10 0	0	8 0	0	5 0	..	..	16	6 6	1	..	79	11 6
Canterbury	64	1 3	33	15 0	78	0 5	12	12 6	24	15 0	0	11 6	76	5 6	6	0 6	6	8 0	1	6 0	5	2 0	47	19 6	1	6 0	358	3 2
Otago	104	15 0	4	5 0	0	17 6	17	16 0	15	0 3	6	15 6	28	16 0	4	3 0	10	7 0	1	10 6	4	1 6	42	6 0	0	8 0	241	1 3
Southland	51	2 0	6	4 6	9	4 0	55	12 0	8	2 0	7	7 0	11	2 6	5	18 6	0	9 0	0	12 6	0	18 9	14	17 6	1	17 0	173	7 3
Head Office	239	15 0	..	..	398	6 9	119	0 6	67	4 3	12	1 6	330	16 1	157	0 5	182	13 2	22	8 4	..	..	..	..	..	..	1,529	6 0
Totals	781	3 3	261	2 7	1,012	14 10	331	6 3	245	14 10	59	1 3	608	10 7	194	11 5	230	5 5	40	17 4	58	13 1	434	0 4	13	15 0	4,271	16 2

(1) PRINTING-COSTS.

Although there is a slight decrease in the total expenditure for printing-costs compared with the previous year (£1,223), it is satisfactory to note that there has been a considerable increase in the number of cadastral maps published from new and revised drawings. This increase in the publication of cadastral maps will require to be maintained, particularly when more staff can be released from the routine work for lithographic draughting.

(2) MAP SALES AND CREDITS.

Table 1b, which summarizes the map sales and credits of the Department, shows that, although there is a fall in the total credits, the cash receipts from the public for the purchase of lithographs has increased from £1,594 to £1,710. Last year's map sales were increased above normal on account of the large number of maps used in connection with the Electoral Boundary Commission.

Table 1c sets out in detail the sale of lithographs and publications in various districts. The cadastral maps (survey district and county) and the New Zealand 4-mile series are greatly in demand, and sales compare favourably with last year.

(3) LITHOGRAPHIC DRAUGHTING.

Centennial Atlas.—Work on this proposed publication has proceeded steadily during the year. The scope of the contents of the atlas has been considerably extended, and it is not expected that all of the final drawings will be available for printing until the end of the year.

The data for many of the special historic and economic maps is being collected by research officers attached to the staff of the Internal Affairs Department. This research work has tended to slow up the drawing of the final maps, necessitating the transfer of Mr. C. T. Brown to the Wellington District Office.

The following maps have been completed to date: New Zealand 10-mile series (in eight double pages), Tasman's chart, Cook's chart, Tuki's map, Maori map of South Island, Pacific explorations, Antarctic explorations, physical map of New Zealand, New Zealand dependencies, and world map.

The following maps are under preparation: Population maps (four periods), forest maps (four periods), climatological maps (seasonal and monthly), provincial and county map, and coastal navigation map.

The supervision of the staff preparing the atlas drawings has been carried out by Mr. R. C. Airey, Inspecting Draughtsman. His time has been fully occupied in co-ordinating the work carried out by the research officers and advising them in respect to the methods of reproducing in map form the data collected. The collection of the data for the many special historic and economic feature maps has almost been finalized, and should all be available for map-preparation early in August.

Special Feature Maps.—The following special feature maps have been completed or are in the course of preparation:—

- (1) Wellington City Street Map: This map was completed, and is now in the hands of the Government Printer for publication.
- (2) Aviation Strip Maps: The publication of these maps has been considerably delayed, and they are only now available for sale. The Government Printer has experienced considerable difficulty in coping with the increased demand for published maps during the current year. These strip maps are invaluable to air pilots, and are in considerable demand.
- (3) Soil Maps (Hawke's Bay): The Department still continues to give draughting assistance to the Scientific and Industrial Research Department for the preparation of maps of the soil surveys of Hawke's Bay.
- (4) Pasture Maps (Hawke's Bay): Two detailed pasture maps comprising eight survey districts in Hawke's Bay have been completed, and are now ready for publication. This work is being carried out at Head Office for the Scientific and Industrial Research Department.

General Maps.—The lithographic draughting carried out by District Officers shows in most cases a considerable improvement. The adoption of a uniform standard of draughting is tending for greater efficiency in this class of work, the results of which are well illustrated in the high standard of draughting of officers preparing the Centennial atlas.

In addition to the routine survey-district and county maps, the following special feature maps have been completed by district offices during the year ended 31st March, 1939:—

Napier Street map	..	..	..	..	Ready for publication.
Christchurch Street map	..	..	..	..	Revised for reprinting.
Invercargill Street map	..	..	..	..	Published.

Aerial Survey Mapping (Mr. R. J. Crawford).—Owing to unforeseen circumstances, such as gaps in the original photographic work of the Hawke's Bay area and the necessity to remove the aerial-mapping staff to new quarters after the Aitken Street quarters had been damaged by fire, the final plotting of sheet No. 141 is not yet completed. The final drawing of sheet 134 has been completed, and will be forwarded to the Government Printer for publication shortly.

It is contemplated that during the coming year a start will be made on the plotting of sheets 46, 47, 48, 51, and 52. The photographing of this area will be commenced early in May by a special photographic flight attached to the Air Force.

In anticipation of the purchase of two Zeiss multiplex projectors, the flying is being carried out to obtain at a scale of 1 in 23,760 (30 chains to 1 in.). The Air Force are employing a special plane purchased for the purpose, and it is anticipated that the work will be of high standard.

The staff has been increased by the addition of an experienced draughtsman. In order to cope with the programme arranged for the Department by the Mapping Committee of the Organization for National Security, a further increase in the staff will be necessary. The services of approximately six additional draughtsmen will be required, in addition to an augmented field staff.

Draughtsmen and Computers' Examination.—At the annual examinations held in October, 1938, forty-one candidates presented themselves for examination. The results were as follows:—

First-Grade Draughtsmen—	
B. E. Andrewes (Hokitika).	
J. H. Cook (Napier).	
C. E. Leikis (Napier).	
J. A. Whitcombe (Christchurch).	
Second-grade Draughtsmen—	
D. A. Macmorland (Nelson).	
W. McRae (Napier).	
G. W. Markham (Auckland).	
J. N. Whibley (Napier).	
Second-grade Computers—	
A. J. Gillon (Dunedin).	
R. A. Innes (Dunedin).	
C. R. Lanning (Auckland).	
K. W. Loan (Blenheim).	
J. A. McRae (Dunedin).	
P. R. Malthus (Head Office).	
T. E. Miles (Hokitika).	
S. M. Noble (Housing Department).	
C. W. J. Pierson (Invercargill).	
O. H. Wilton (Christchurch).	

Standard of Length.—During the year there were thirty-three bands, comprising 200 chains, tested with the standard bands in the custody of Head Office.

Scheme Plans.—The following table (1b) sets out in summary the number of town-scheme plans dealt with under section 16 of the Land Act, 1924.

TABLE 1b.—Summary of Town Scheme Subdivisions dealt with under Section 16 of the Land Act, 1924, for the Year ended 31st March, 1939.

District.	Number of Plans.	Number of Saleable Lots.	New Roads.			Reserves.			Reserves (Percentage of Saleable Lots).	Saleable Lots.			Total Areas.		
			A.	R.	P.	A.	R.	P.		A.	R.	P.	A.	R.	P.
Auckland and North Auckland	117	1,013	58	3	16·2	28	2	23·1	8	337	2	26·7	425	0	26·0
Gisborne	9	33	..	..	..	1	2	38·0	11	16	0	21·5	17	3	19·5
Hawke's Bay	8	43	1	0	07·2	0	1	20·8	2	16	2	23·0	18	0	11·0
Taranaki	1	2	..	..	..	..	..	..	..	2	0	30·5	2	0	30·5
Wellington	30	207	3	0	38·4	2	0	28·2	4	60	0	23·1	65	2	09·7
Marlborough	4	9	0	0	01·0	0	2	34·0	7	10	1	11·0	11	0	06·0
Nelson	7	97	4	3	27·3	4	3	22·9	19	26	0	01·1	35	3	11·3
Westland	14	110	0	0	03·9	2	0	20·9	6	34	1	36·4	36	2	21·2
Canterbury	44	407	7	3	01·9	5	1	30·1	4	149	0	38·0	162	1	30·0
Otago	22	163	0	2	13·5	1	1	35·4	3	45	0	02·6	47	0	11·5
Southland	3	14	..	..	..	..	..	..	..	3	0	34·1	3	0	34·1
Totals	259	2,098	76	1	29·4	47	2	13·4	7	701	0	08·0	825	0	10·8

The area dealt with is approximately equal to that of the previous year. There has been a slight decrease in the percentage of area set aside for the purpose of reserves, but a relative increase is shown in the area set aside for new road, which represents approximately 10 miles of new roading for subdivisional purposes.

Centennial Exhibition.—The layout for the Department's exhibit at the forthcoming exhibition has been finalized. Mr. G. L. Redward, of the Head Office staff, has been transferred to the Exhibition buildings to assist the designers in the designing-work. The technical branch of the Department has been fortunate in being allotted sufficient space to display and illustrate the various branches of the work of the Department. An attempt is being made to make the exhibit educational as well as interesting.

Table 1E.—General Summary of Salary Expenditure from 1st April, 1938, to 31st March, 1939.

Item.	(1) Survey.			(2) Plan Preparation.			(3) Plan Examination.			(4) Mapping.			(5) Records.			(6) Diagrams.			(7) Tracings.			(8) Investigation.			(9) General.			(10) Supervision.			Totals.					
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.			
Departmental (General) ..	8,637	17	7	2,328	3	6	2,016	19	0	5,114	15	6	4,576	2	6	1,155	12	6	5,812	0	2	2,191	19	3	11,224	9	9	4,193	16	9	47,251	16	6			
Triangulation ..	6,267	9	9	29	6	1	579	10	9	0	9	11	2	1	0				13	5	1			9	19	9	2	17	10	6,905	0	2				
Topographical ..	876	15	1	21	11	8	3	2	2	1,323	18	9							7	12	6	3	0	34	17	2			2,270	17	4					
Standard traverse ..	3,060	2	0	184	10	6	261	10	4										21	1	3	1	0	28	7	2			3,572	8	8					
Survey maintenance ..	699	16	2	26	7	6	18	1	2										21	14	0								795	18	9					
Precise levelling ..	654	10	2																										654	10	2					
Levelling ..	249	3	6	1	1	0																							252	19	3					
Inspection and investigation ..	615	2	5	17	18	9	6	12	10							0	15	2	27	18	0	34	10	2	0	19	3	4	3	6	708	0	1			
Scheme plans ..				22	4	8	144	6	2										2	19	9	37	17	3	5	13	6	121	19	6	339	4	11			
Land-development ..				335	3	11	16	7	3											26	10	8	72	3	0	4	13	10	4	7	6	505	5	7		
Tidal survey ..							186	4	4																						186	4	4			
Native Department ..	419	9	9	60	19	9	174	14	7	5	19	11							79	2	8	738	11	2	46	17	1	490	13	0	2,109	5	1			
Lands and Deeds Department ..				29	13	7	5,229	19	4											111	19	0	918	6	8	923	7	9	1,933	6	0	11,182	16	11		
Public Works Department ..	4,724	11	1	591	18	11	1,013	0	9	26	0	3	0	5	0	0	0	6	507	16	3	92	13	2	11	7	7	409	12	1	7,375	18	3			
Housing Department ..	3,272	4	0	396	6	8	574	0	4	0	3	1	4	8	4				796	7	4	665	14	11	167	7	1	881	19	3	6,698	11	0			
Other Departments ..	1,375	2	5	193	1	7	942	17	5	332	12	8	112	12	3	10	4	10	1,875	4	10	293	17	4	62	18	4	347	5	3	5,457	4	3			
Totals ..	31,187	7	10	3,926	9	8	11,167	6	5	6,804	0	1	5,025	7	1	2,992	14	9	9,306	6	3	4,959	13	8	12,460	18	3	8,435	17	3	96,266	1	3			

Table 1F.—General Summarized Statement of Salary Expenditure in various Offices from 1st April, 1938, to 31st March, 1939.

Item.	(1) Survey.			(2) Plan Preparation.			(3) Plan Examination.			(4) Mapping.			(5) Records.			(6) Diagrams.			(7) Tracings.			(8) Investigation.			(9) General.			(10) Supervision.			Totals.				
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.		
Head Office ..	5,458	16	5	10	0	0	979	7	1	4,411	4	2	204	10	4	0	12	2	574	1	9	46	11	11	1,254	3	5	234	18	6	13,174	5	9		
Auckland and North Auckland ..	7,410	9	6	1,835	6	10	4,558	3	0	62	18	4	1,614	19	8	1,211	11	9	2,862	11	9	1,920	19	9	4,019	7	2	2,926	17	10	28,423	5	7		
Gisborne ..	1,130	8	3	84	11	7	176	13	8	185	15	6	212	17	1	170	14	4	474	9	1	174	0	6	452	14	5	172	15	4	3,234	19	9		
Hawke's Bay ..	2,009	17	3	441	9	10	755	0	8	392	1	9	633	10	0	148	13	5	435	18	1	324	15	0	795	0	8	515	14	2	6,452	1	10		
Taranaki ..	2,659	0	10	142	11	5	304	17	3	275	4	2	300	14	11	140	15	5	366	0	3	102	15	9	1,130	17	3	896	3	3	6,319	0	6		
Wellington ..	2,158	3	8	411	15	9	1,576	2	0	411	9	5	137	9	11	494	6	2	1,236	12	5	1,435	2	10	1,801	14	1	1,385	18	6	11,048	14	9		
Marlborough ..	1,316	5	2	202	16	3	225	7	0	54	15	0	135	14	5	40	3	7	237	9	11	22	14	9	229	9	11	260	11	1	2,725	7	11		
Nelson ..	1,636	19	8	147	10	0	548	14	3	113	0	0	349	6	0	183	3	0	434	16	6	55	17	6	427	0	0	109	7	9	4,005	14	8		
Westland ..	1,035	18	1	112	19	4	176	12	2	66	18	9	128	1	3	69	13	0	232	3	11	50	8	2	322	13	9	174	2	5	2,369	10	10		
Canterbury ..	2,407	14	4	293	18	6	1,014	11	11	155	9	6	1,062	2	4	118	0	0	1,321	18	5	449	3	6	788	16	7	1,058	11	2	8,670	6	3		
Otago ..	3,363	15	4	203	17	1	565	11	9	384	9	4	151	18	0	280	4	2	970	18	6	352	10	6	767	4	2	368	1	3	7,418	0	1		
Southland ..	599	19	4	39	13	1	286	5	8	280	14	2	94	3	2	134	17	9	159	15	8	24	12	6	471	16	10	332	15	2	2,424	13	4		
Totals ..	31,187	7	10	3,926	9	8	11,167	6	5	6,804	0	1	5,025	7	1	2,992	14	9	9,306	6	3	4,959	13	8	12,460	18	3	8,435	17	3	96,266	1	3		

Expenditure.—Table I E shows a general statement of the apportionment of salary expenditure for the various classes of work carried out during the year.

Of the £6,804 expended on mapping, approximately £3,500 represents the salaries of officers engaged on the preparation of the Centennial Atlas and approximately £1,300 for work in connection with the aerial survey mapping. This emphasizes the fact that the general lithographic work in the Department is practically at a standstill, due to the concentration on the routine work. Approximately 40 per cent. of this routine work is carried out for other Departments.

The summary does not include the salaries of controlling officers nor the cost of materials and other overhead expenditure.

Table I F shows an analysis of the expenditure in the various districts and Head Office. The Auckland office, although showing the largest total expenditure of all districts, has the smallest expenditure on the item "Mapping." This is due to the large amount of routine work, which has depleted the lithographic draughting staff.

General.—As an outcome of the Inspecting Draughtsman's (Mr. R. C. Airey) inspection of District Offices, uniformity instructions have been issued to all District Offices. It is hoped by this means that a uniformity in the routine of all District Offices will be accomplished.

It has not been possible during the year for many districts to make much progress in the preparation and revision of record maps. Routine work has still maintained a high level, returns, generally, showing an increase on the previous year.

REPORT OF THE HONORARY GEOGRAPHIC BOARD FOR THE YEAR ENDED 31st MARCH, 1939.

The fourteenth annual meeting of the Honorary Geographic Board was held in the Surveyor-General's room on 7th July, 1938.

The following members were present: Messrs. Johannes C. Anderson (Chairman), H. E. Walshe (Surveyor-General), Hon. Sir Apirana T. Ngata, Messrs. M. Crompton-Smith, A. P. Harper, and R. G. Dick (Hon. Secretary).

The meeting stood for a moment in silence in respect for the memory of the late Right Reverend Bishop Williams of Waiapu.

The appointment of Mr. P. Te Herinui Jones was recommended by the Board to fill the extraordinary vacancy created by the death of the Right Reverend Bishop Williams of Waiapu.

The Board recommended that, when opportunity arises, the name of Lord Durham, who was associated with the early colonization of New Zealand, should be commemorated by placing his name on some prominent feature or locality in addition to the smaller features already named after him.

It was decided that the confirmation of new place names by the Board was conditional on their being possible of correct location on departmental maps.

The following is a list of the names dealt with and confirmed by the Board at the meeting.

All names marked with an asterisk (*) are confirmed subject to their correct location on departmental maps.

Name.	Survey District.	Description.	Origin of Name, and Remarks.
<i>Auckland.</i>			
Ngahinapouri ..	Alexandra-Hamilton	Farming district near Ohaupo ..	Correct spelling.
Tikorangi Hill ..	Onewhero ..	Hill near mouth of Waikato River	Correct name.
Whitianga ..	Otama ..	Town and harbour	Mr. A. L. Lee. Correct name.
<i>North Auckland.</i>			
Houhora ..	Hohoura East	Native block, trig., and harbour, Mangonui County	Referred by Head Office, Survey Department. Correct spelling.
Koutu ..	Hokianga ..	Post-office and Native block, Hokianga Harbour	Ditto.
Motumaire ..	Kawakawa ..	Small island opposite Russell ..	Correct spelling.
Port Whangarei ..	Whangarei ..	Port of Whangarei Town ..	Referred by Marine Department. Correct name.
Tokatu ..	Kawau ..	Point on Tawharanui Peninsula	Referred by Lands and Survey Department. Correct name.
Waewaetorea ..	Bay of Islands	Island in Bay of Islands ..	Referred by Marine Department. Correct name.
Waikare ..	Russell ..	River, inlet, island, and Native block	Referred by Marine Department. Correct spelling.
Whatuwhiwhi ..	Karikari ..	Native block, Mangonui County	Referred by Head Office, Survey Department. Correct spelling.

REPORT OF THE HONORARY GEOGRAPHIC BOARD FOR THE YEAR ENDED
31ST MARCH, 1939—*continued.*

Name.	Survey District.	Description.	Origin of Name, and Remarks.
<i>Taranaki.</i>			
Nihoniho ..	Ohura ..	Post-office, north-east of Ohura	Correct spelling.
Nukuhakari ..	Whareorino ..	Small bay and stream 23 miles north of Mokau	,,
Waiongana ..	Paritutu ..	Railway-station and stream ..	,,
<i>Gisborne.</i>			
Tuaheni ..	Turanganui ..	Point south-east of Gisborne ..	Referred by Head Office, Survey Department.
<i>Wellington.</i>			
Hinekura ..	Waipawa ..	Name of sheep-station 17 miles from Martinborough	Correct spelling.
Ngauranga ..	Belmont ..	Locality on Hutt Road 4 miles from Wellington	Approved spelling.
Takapu ..	,, ..	Stream and road off Johnsonville Porirua Highway	Referred by Head Office, Survey Department. Correct spelling.
<i>Nelson.</i>			
Onekaka ..	Waitapu ..	River and locality in Golden Bay	Correct spelling.
<i>Canterbury.</i>			
Kowai ..	Kowai ..	Bush in Tarawera County ..	Correct South Island spelling.
<i>Westland.</i>			
Mount Alec ..	Waitangi-Taona	Peak on Maximilian Range south of Wilczek Peak	By D. A. Carty.
Awatea Peak ..	Mount Napoleon	North-west of Mount Isabel, on Hooker Range	By A. Scott, from Chief Surveyor, Hokitika.
Cerberus Glacier ..	Waitangi-Taona	Glacier falling into head of Spencer Glacier from the ridge running from Drummond Peak to the Minarets	By D. A. Carty. Named after the guardian of Hell.
Christopher Col ..	Mount Napoleon	Saddle between Mounts Bannie and Vampire	By A. Scott.
Corry Glacier ..	Waitangi-Taona	Glacier falling from Mount Goldsmith into head of Spencer Glacier	By D. A. Carty, after Miss Ida Corry.
Divers Col ..	,,	A pass from Tasman Glacier in Spencer Glacier between Mounts Walker and Green	By D. A. Carty, after late S. D. Divers.
Edwards Glacier ..	,,	Glacier running north-west into Times Glacier between Mounts Green and Coronet	By D. A. Carty, after late Mr. Edwards.
Helena* ..	Mount Castor	Peak on Commissioner Range about a mile west of Mount Pollux	By Otago Section, New Zealand Alpine Club.
Johannes Glacier ..	Waitangi-Taona	Glacier falling from north-west of Elie de Beaumont into Burton Glacier	By D. A. Carty, after Johannes C. Andersen.
Leonard Glacier ..	,,	Glacier falling from Neophyte and Wilczek into Burton Glacier	By D. A. Carty, after Leonard O. Hooker.
Maximilian Range	,,	Range running from north of Elie de Beaumont to McFetrick Peak	By D. A. Carty. Named by Von Lenderfeld.
Montague Glacier ..	,,	Glacier falling from west peak of Elie de Beaumont into Spencer Glacier	By D. A. Carty, after C. E. Montague.
Neophyte ..	,,	Peak at north-west extremity of ridge between Burton and Callery Glaciers	By D. A. Carty. So named because on this massif Peter Graham had first climb.

Name.	Survey District.	Description.	Origin of Name, and Remarks.
<i>Westland</i> --continued.			
Mount Park ..	Waitangi-Taona	Peak on Maximilian Range between head of Callery and Whymper Glaciers	By D. A. Carty, after Park, first man to write of his explorations in this region in 1891.
Mount Peter ..	„	Peak on Maximilian Range south of Mount Alec	By D. A. Carty.
Mount Roderick ..	„	Peak on Maximilian Range north of Elie de Beaumont	By D. A. Carty, after Rod Syme.
Stevenson Glacier..	„	Glacier falling into Times Glacier from Divers Col	By D. A. Carty, after late T. R. B. Stevenson.
Styx Glacier ..	„	Glacier falling into Spencer Glacier just south of Cerberus Glacier	By D. A. Carty. Name is associated with mythical Hell.
Twain Col ..	Mount Napoleon	Col between Mount Eric and Maunga Ma	By A. Scott. Change from pass to col.
Wicks Col ..	Mount Sefton	Col between Pioneer and Blizzard Peaks	By A. Scott.
Wilezek Peak ..	Waitangi-Taona	Peak on Maximilian Range at its junction with range separating the Burton and Callery Glaciers	By D. A. Carty. Named by Von Lenderfeld.
<i>Otago.</i>			
Abruzzi Glaciers ..	Humboldt and Forbes	Hanging glaciers on Dart slopes of Johansen and Nansen Peaks	By Otago Section, New Zealand Alpine Club.
Aeroplane* ..	Matukituki ..	Peak two miles east of Mount Aspiring on divide	Ditto.
Amphion Peak* ..	Humboldt ..	Peak on south side Park Pass Glacier	By Otago Section, New Zealand Alpine Club, after Amphion, a son of Jupiter.
Apollo* ..	Mount Pollux	Peak on main divide, apparently $\frac{3}{4}$ mile east of Mount Castor	By Otago Section, New Zealand Alpine Club.
Aspinall* ..	„	Peak on ridge at head of Albert Burn, south of Mount Lois	Ditto.
Aspiring Flats* ..	Matukituki ..	On Kitchener River ..	By Otago Section, New Zealand Alpine Club. Local name.
Barrington Peak*..	Humboldt ..	West of Hidden Falls Creek ..	By Otago Section, New Zealand Alpine Club.
Bedford Valley ..	„ ..	Valley at head-waters of Cascade River	Ditto.
Beresford Peak ..	Humboldtside	Peak between Olivine and Barrier Rivers	„
Ben-Nagar ..	Forbes ..	Peak west of Lochnagar Lake	Suggested as more descriptive than Mount Lochnagar.
Bernard Peak* ..	„ ..	On main divide south-west of Mount Ian	Otago Section, New Zealand Alpine Club, after Major Bernard Head.
Betty Peak ..	Humboldt ..	Peak at junction Olivine and Dart Barrier Ranges	Otago Section New Zealand, Alpine Club, after wife of A. D. Jackson.
Birley Glacier* ..	Forbes ..	Glacier apparently north-east of Mount Earnslaw	Otago Section, New Zealand Alpine Club, after late H. Birley.
Black Peak ..	Earnslaw ..	Peak between Earnslaw and Rees Rivers	Otago Section, New Zealand Alpine Club. Local name.
Bledisloe Gorge ..	Matukituki ..	On east branch of Matukituki River above Kitchener Creek	Otago Section, New Zealand Alpine Club.
Blockade Peak ..	Humboldt ..	Peak blocking west end of Olivine Ice Plateau	Ditto.
Brenda Peak ..	„ ..	Peak north of Fohn Saddle ..	Otago Section, New Zealand Alpine Club, after mother of one of the party.
Buscot ..	Beunmore ..	Telephone-office under hill of same name	Referred by Post and Telegraph Department. Correct spelling.

Name.	Survey District.	Description.	Origin of Name, and Remarks.
<i>Otago—continued.</i>			
Byrniera Range* ..	Humboldt ..	Range west of Hidden Falls Creek	Otago Section, New Zealand Alpine Club. In memory of prospector.
Lake Castalia* ..	Mount Pollux	Lake apparently 1 mile east of Mount Castor	Otago Section, New Zealand Alpine Club. Discovered and named by E. Miller and party, 1933.
Cleft Peak* ..	Forbes ..	Peak north of Lochnagar Lake	Otago Section, New Zealand Alpine Club.
Climax Peak ..	Humboldt ..	Peak north-east of Mount Gates	Ditto.
Corinna Peak ..	.. ..	Peak north of Fohn Saddle ..	..
Courtenay Peak ..	.. ..	Peak east of Alabaster Lake ..	..
Cow Saddle* ..	.. ..	Open flats bounded by peaks of Chaos Group and the south Byrnieras	Otago Section, New Zealand Alpine Club. An old name.
Coxcomb Ridge ..	Matukituki ..	East of Mount Aspiring on divide	Otago Section, New Zealand Alpine Club. Name by late Major Head.
Darkness Peak* ..	Humboldtside	Peak apparently north of Mount Ark	Otago Section, New Zealand Alpine Club.
Desperation Pass* ..	Humboldt ..	Pass over Dart Barrier to Joe River	Ditto.
Derivation Icefall	.. ..	Between Gino Peak and Mount Gates; supplies Joe River Glacier with ice.	..
Destiny Peak ..	.. ..	Peak east of Climax Peak ..	..
Dilemma Glacier ..	.. ..	Small hanging glacier on Joe River side of Stefansson Peak	..
Mount Dot* ..	Hollyford ..	Smallest mountain in district at end of ridge south-west of Stick-up Creek	By Miss M. B. Byles.
Dredgeburn Glacier	Humboldt ..	Glacier at head of Dredgeburn River	Otago Section, New Zealand Alpine Club.
Earnslaw Glacier ..	Dart and Earnslaw	Glacier on south-east face of Earnslaw Massif	Ditto.
False Col ..	Humboldt ..	Uncrossable col between Nansen and Johansen Peaks.	..
Fastness* ..	Matukituki ..	Peak about 3½ miles east of Mount Aspiring	..
Ferrier Peak* ..	Forbes ..	On main divide south-west of Mount Ian	Otago Section, New Zealand Alpine Club, after Charles Ferrier.
Fiery Col* ..	Humboldt ..	Col between Mount Tantalus and Fiery Peak	Otago Section, New Zealand Alpine Club.
Fiery Peak* ..	.. ..	Small peak on spur west of Mount Tantalus	Ditto.
Fohn Lakes* ..	.. ..	Two lakes on Fohn Saddle ..	..
Fohn Saddle ..	.. ..	Saddle giving access to Olivine River from Beansburn	Otago Section, New Zealand Alpine Club. From "fohn," meaning "nor-wester."
Frances Glacier* ..	.. ..	Glacier on south-west flank of Mount Sir William	Otago Section, New Zealand Alpine Club.
Frenchman Peak* ..	.. ..	Peak west of Hidden Falls Creek	Ditto.
Gable Peak ..	Forbeside ..	Peak at junction of Olivine and Five Fingers Range	..
Mount Gates ..	Humboldt ..	Peak at head of Joe River Glacier	..
Gino Peak ..	.. ..	East of Betty Peak	Otago Section, New Zealand Alpine Club, after Gino Watkins, explorer.
Glacier Col ..	.. ..	Col leading from Margaret Glacier to head of Joe River Glacier	Otago Section, New Zealand Alpine Club.
Glengyle ..	Cascade ..	Peak at head of Rob Roy Glacier	Ditto.
Grant Glacier ..	Forbes ..	Glacier south-east of Mount Head	Otago Section, New Zealand Alpine Club. Named by Malcolm Ross.

Name.	Survey District.	Description.	Origin of Name. and Remarks.
<i>Otago—continued.</i>			
Halfway Peak ..	Hollyford ..	Peak halfway between Parauui and Puketuroto	Miss M. B. Byles.
Harrison ..	Milford Sound	River flowing into Harrison Cove, Milford Sound	By Miss M. B. Byles, after first discoverer.
Head	Forbes ..	Peak about two miles north-east of Mount Cerberus	Otago Section, New Zealand Alpine Club. Named and climbed by H. F. Wright, 1914.
Headlong ..	„ ..	Peak at head of tributary of Dart River	Otago Section, New Zealand Alpine Club.
Hedin Peak ..	Humboldt ..	Peak east of Betty Peak ..	Otago Section, New Zealand Alpine Club, after explorer S'ven Hedin.
Hester Pinney* Creek and Waterfall	Matukituki ..	Creek flowing west into East Branch, Matukituki River; waterfall on creek	Otago Section, New Zealand Alpine Club.
Intervention Ridge	Humboldtside	Ridge bounding north-west side of Olivine Ice Plateau	Ditto.
Intervention Saddle	„	Saddle running from Forgotten River to Barrier River	„
Irvine Peak ..	Humboldt ..	Peak east of Terminal Peak at head of Beansburn	„
Jean Batten Peak*	Upper Wakatipu	Peak on Ailsa Mountains ..	By Major P. Mackenzie, after famous airwoman.
Joe Glacier ..	Humboldt and Forbes	Glacier at head of Joe River ..	Otago Section, New Zealand Alpine Club.
Johansen Peak ..	Humboldt ..	Peak south-east of Stefansson Peak, Dart Barrier Range	Otago Section, New Zealand Alpine Club, after Nansen's lieutenant of "Fram."
John Inglis Glacier	Forbeside ..	Valley glacier between Passchendaele and Gable Peaks	Otago Section, New Zealand Alpine Club, after late Professor Inglis.
Kitchener River ..	Matukituki ..	River flowing east into East Branch, Matukituki River	Otago Section, New Zealand Alpine Club.
Lapith .. .	Earnslaw ..	Peak 1 mile north of Mount Ferguson	Ditto.
Leary Peak ..	Forbes ..	Peak apparently 1 mile north of Mount Earnslaw	„
Leda*	Mount Pollux	Peak on divide apparently $\frac{1}{2}$ mile east of Mount Mercury	„
Lennox Pass*	Dart ..	Pass south-west of Black Peak ..	Otago Section, New Zealand Alpine Club. Local name.
Little Ben-Nagar	Forbes ..	Peak south-west of Lochnagar Lake	Suggested by Board as more descriptive than Lochnagar.
Lois*	Mount Pollux	Peak on ridge at head of Albert Burn	Otago Section, New Zealand Alpine Club.
Luncheon Col*	Forbes ..	Col west of Leary Peak ..	Ditto.
Mallory Peak ..	Humboldt ..	Peak 20 chains east of Irvine Peak at head of Beansburn ..	Otago Section, New Zealand Alpine Club, after Everest climber.
Margaret Glacier	„ ..	Glacier between Hedin and Stefansson Peaks	Otago Section, New Zealand Alpine Club, after Miss M. Holloway.
Maud Francis Glacier	Cascade and Matukituki	Glacier at head of tributary of West Branch, Matukituki River	Otago Section, New Zealand Alpine Club.
McClimont Peak ..	Humboldtside	Peak above Intervention Saddle	Ditto.
Memorial Icefall ..	Humboldt ..	Falling into Olivine Ice Plateau from Destiny Peak	„
Mercury* ..	Mount Pollux	Peak on divide apparently $\frac{1}{2}$ mile east of Mount Apollo	„
Merkel Glacier ..	Humboldt ..	Valley Glacier at source of Beansburn	„

Name.	Survey District.	Description.	Origin of Name, and Remarks.
<i>Otago—continued.</i>			
Minos Peak*	Humboldt ..	Peak at junction of Nox and Chaos Ridges	Otago Section, New Zealand Alpine Club, after "Minos," son of "Zeus."
Mystery Lake*	.. ..	Lake near Cosmos Peaks on Brideburn face, and drains into junction of Brideburn and Dart River	Otago Section, New Zealand Alpine Club.
Nansen Peak	Forbes ..	Peak on main divide east of Johansen Peak	Otago Section, New Zealand Alpine Club, after the explorer Nansen.
Nereus* ..	Dart ..	Peak at head of North Routeburn	Otago Section, New Zealand Alpine Club, after sea god.
Lake Nerine*	Humboldt ..	Lake on Mount Nereus ..	Otago Section, New Zealand Alpine Club.
Lake Never-never*	Milford Sound	Lake at source of Harrison River	By Miss M. B. Byles. Reminiscent of trip by Miss Byles.
Ngapunatoru*	.. ..	Pass above source of Harrison River	By Miss M. B. Byles. Means "three tarns."
Niobe Peak	Humboldt ..	Peak at apparent head of Beansburn	Otago Section, New Zealand Alpine Club, after "Niobe," a daughter of "Tantalus" and wife of "Amphion."
North Col*	Dart ..	Pass at head of North Routeburn	Otago Section, New Zealand Alpine Club.
Oblong ..	Wilkin ..	Peak about 4 miles south-east of Mount Castor	Otago Section, New Zealand Alpine Club. Change to Mount Acolus rejected.
O'Leary Pass*	Forbes ..	Pass to the south of Ian Massive, Dart Barrier Range	Otago Section, New Zealand Alpine Club, after William O'Leary ("Arawata Bill").
Olivine Ice Plateau	Humboldt and Humboldt-side	Crevasseless neve between walls formed by Blockade, Climax, Destiny, Passchendaele, Gable Peaks, and Intervention Ridge	Otago Section, New Zealand Alpine Club.
Parachute*	Matukituki ..	Col between Mounts Aspiring and Aeroplane	Otago Section, New Zealand Alpine Club. Named with Aeroplane Peak because of attempt to supply food to party by aeroplane.
Park Pass*	Humboldt ..	Pass to Hidden Falls from Upper Flats to Rockburn	Otago Section, New Zealand Alpine Club.
Park Pass Glacier ..	.. ..	Glacier between Amphion and Poseidon Mounts; source of Rockburn	Ditto.
Passchendaele Ice-fall	.. ..	From between Destiny and Passchendaele Peaks, and falls into Joe River Valley	..
Passchendaele Peak	.. ..	Peak north of Destiny Peak ..	..
Pic d'argent*	Humboldtside	Peak apparently west of Mount Ark	..
Pickelhaube*	Mount Pollux	Peak on divide apparently 7 to 8 miles south of Mount Castor	Otago Section, New Zealand Alpine Club. Named by H. F. Wright.
Poseidon Peak	Humboldt ..	Peak at head of Park Pass Glacier	Otago Section, New Zealand Alpine Club. After a form of the name "Pluto."
Possibility Col	.. ..	Col between Betty Peak and Mount Gates	Otago Section, New Zealand Alpine Club.
Prospector Peak* ..	.. ..	Peak west of Hidden Falls Creek	Ditto.

Name.	Survey District.	Description.	Origin of Name, and Remarks.
<i>Otago—continued.</i>			
Puketuroto*	Hollyford	Peak at end of ridge west of Stick-up Creek and overlooking Lake McKerrow	By Miss M. B. Byles. Name means "Lake mountain."
Pyramid Col	Forbes	Col between Osonzac Twins and Mount Clarke	Otago Section, New Zealand Alpine Club.
Quarterdeck	Cascade	Pass between Mounts Joffre and French	Otago Section, New Zealand Alpine Club. Named by late Major B. Head.
Rabbit Pass	Mount Pollux	Pass north of Pickelhaube	Otago Section, New Zealand Alpine Club. Discovered and named by C. E. Douglas in 1890.
Rees Saddle	Forbes	Saddle between headwaters of Rees River and Snowy Creek	Otago Section, New Zealand Alpine Club.
Rob Roy*	Matukituki	Peak at head of Rob Roy Glacier	Ditto.
Rob Roy Creek*	Cascade	Creek flowing south from Rob Roy Glacier into West Branch, Matukituki River	"
Rob Roy Glacier	Cascade and Matukituki	At head of tributary of West Branch, Matukituki River	Otago Section, New Zealand Alpine Club. Local name.
Ruth Flat	Matukituki	Apparently near Ruth Stream	Ditto.
Ruth Stream	"	Stream flowing east into East Branch, Matukituki River, north of Kitchener River	Otago Section, New Zealand Alpine Club.
Serpentine Range	Humboldtside	Humboldt Mountains	Ditto.
Sir William	Forbes	Peak apparently 1 mile south-east of Mount Cerberus	Otago Section, New Zealand Alpine Club. After Sir William Sim.
Slab Look-out*	Hollyford	Conspicuous long slab slope directly above junction of two headwaters of Stick-up Creek	By Miss M. B. Byles.
Solution Col	Humboldt	Col between Climax and Destiny Peaks	Otago Section, New Zealand Alpine Club.
Stefansson Peak	"	Peak on Dart Barrier Range east of Betty Peak	Otago Section, New Zealand Alpine Club. After Viljalmur Stefansson.
Sugarloaf Pass*	Dart	Pass between Mount Momus and "Sugarloaf" hill	Otago Section, New Zealand Alpine Club.
Sunset Peak	Humboldt	Peak north of Fohn Saddle	Ditto.
Sysiphus*	Matukituki	Peak between East Branch, Matukituki River, and divide	"
Tantalus Peak	Humboldt	Peak north of Niobe Peak	"
Terminal Peak	"	Small Peak above Olivine and Forgotten Rivers	Otago Section, New Zealand Alpine Club. Suggested change from "Termination."
The Furies Ridge	Humboldtside	Long rock ridge running west of Mount Gyroc	Otago Section, New Zealand Alpine Club.
The Tower	"	Peak overlooking south branch of Andy Glacier and neve of Barrier Glacier	Ditto.
Turret Head*	Dart	Peak at south-west end of Mount Earnslaw Peaks	"
25 Mile Creek	Forbes and Earnslaw	Branched tributary of Rees River	"
Twin Icefall	Humboldt	Feeds Joe River glacier from flanks of Climax and Destiny Peaks	"
Tyndall Glacier	Cascade	At head of Snowy Creek on south flank of Mount Tyndall	"
Unknown Lake*	Humboldt and Dart	Lake in basin formed by Nox, Chaos, and Minos Mountains; drains into Beansburn	"

Name.	Survey District.	Description.	Origin of Name, and Remarks.
<i>Otago—continued.</i>			
Wairereata* ..	Milford Sound	Falls on Harrison River ..	Means "falls of dawn."
Lake Waitaki ..	Kurow ..	Post-office at Waitaki Hydro Power Works	Change from "Waitaki Hydro."
Welshman Peak* ..	Humboldt ..	Peak west of Cow Saddle ..	Otago Section, New Zealand Alpine Club, after Barrington, who first entered valley in 1864.
Wilmot ..	Matukituki ..	Saddle between East Branch of Matukituki River and divide	Otago Section, New Zealand Alpine Club.
Wright Pass* ..	Forbes ..	Pass north of Mount Earnslaw ..	Otago Section, New Zealand Alpine Club, after H. F. Wright.
<i>Southland.</i>			
Whakaea ..	Wakaia ..	River, plain, and post-office 32 miles from Gore	Correct spelling.

REPORT OF SURVEY BOARD FOR THE YEAR ENDED 31ST MARCH, 1939.

Members of Board.—The following are the members of the Board, appointed in accordance with the provisions of the Surveyors' Registration Act, 1928: Mr. H. E. Walshe (Surveyor-General), *ex officio* (Chairman), Messrs. G. H. Bullard, M. Crompton-Smith, C. K. Grierson, and A. H. Bogle: the two latter appointed on the recommendation of the New Zealand Institute of Surveyors.

Land Surveyors' Examination.—The following candidates were successful in passing the examinations held in September, 1938, and March, 1939, set respectively by the Tasmanian Board and the Victorian Board.

September, 1938—

W. N. Vautier (Gisborne).
J. B. Stevens-Jordan (Wellington).
J. E. Benham (New Guinea).

March, 1939—

B. A. Reeves (Nelson).
G. D. King (Dunedin).

Articles of Indenture.—During the year the following cadets were registered under articles of indenture to registered surveyors: R. E. Tonkin (Tauranga), A. Gallagher (Tauranga), E. Farnell (Auckland), T. A. Gillard (Morrinsville), W. G. Raphael (Christchurch), W. R. Hamilton (Gisborne), M. C. Rogers (Hamilton), and B. V. Wright (Wanganui).

The following survey cadets were appointed by the Lands and Survey Department, and are eligible to sit for the Land Surveyors' Examination on completion of the necessary field service: T. E. Miles (Canterbury), J. M. Gilbert (Marlborough), A. W. Eden (Napier), and G. E. Drake (Taranaki).

Registration of Surveyors.—There were 480 surveyors entered in the Register of Surveyors on the 31st December, 1938, an increase of three on last year's total.

Surveyors Act, 1938.—A new bill amalgamating the provisions of the Surveyors Registration Act, 1928, and Surveyors' Institute Amendment Act, 1928, drafted by the New Institute of Surveyors, was approved by the board.

This bill passed the House of Representatives and, with a few minor amendments, finally passed the Legislative Assembly. The new Act comes into operation on the 1st July, 1939, and, in addition to the provisions of the previous Acts, provides—

- (1) That no person shall be entitled to act as a surveyor unless he is the holder of an annual practising certificate issued by the Institute of Surveyors. This qualification is additional to the requirements of the Act in respect to the registration of surveys by the Survey Board.
- (2) That the Institute shall from time to time pay to the Board a sum, not exceeding £150 in any year, which may be required for the payment of expenditure lawfully incurred by the Board.

Other than these two major amendments the provisions of the new Act are practically identical with the provisions of the previous Acts.

Survey Regulations.—The Board has under consideration the preparation of new Survey Regulations. The final draft has been submitted to the Solicitor-General for comment, and it is hoped that the regulations will be ready for publication before the end of the year.

R. G. DICK, Secretary.

Table A.—Summary of Field-work.

Class of Work.	Area or Mileage.	Average Cost.	Total Cost.
			£ s. d.
Geodetic triangulation (first order)	9,060 square miles	12·1s. per sq. mile	5,470 0 0
Triangulation (second and third order).. ..	284 square miles	46·3s. per sq. mile	656 18 5
Standard traverses	70·24 miles	£53·81 per mile	3,779 9 1
Topographical survey for settlement	19,899 acres	6·62d. per acre	548 10 4
Rural survey	128,116 acres	0·86s. per acre	5,525 16 2
Village and suburban survey	1,436 acres	18·60s. per acre	1,335 7 1
Native land survey	7,059 acres	2·35s. per acre	831 0 5
Town survey	105 acres	£3·18 per section	852 12 11
Housing survey (section)	526 acres	£1·77 per section	4,035 3 11
Housing and town schemes (preliminary) ..	927 acres	45·10s. per acre	2,089 11 1
Road and railway survey	190·5 miles	£27·57 per mile	5,425 3 8
Other work .. .. .	..	..	4,279 12 10
Total cost of completed work .. .. .	..	..	34,829 5 11

Table B.—Areas of Rural and Native-Land Survey.

District.	Rural Survey.	Native Land Survey.
	Acres.	Acres.
Auckland and North Auckland	22,365	6,559
Gisborne	3,798	1,939
Hawke's Bay	12,965	..
Taranaki	345	1,271
Wellington	235	3,876
Marlborough	13,132	25
Nelson	289	..
Westland	1,684	..
Canterbury	1,066	..
Otago	71,867	1
Southland	375	..
Total	128,116	13,671

Table C.—Return of Field Work Executed by Head Office from 1st April, 1938, to 31st March, 1939.

District.	Geodetic Triangulation (1st Order).		Cost.
	Square Miles.	Number of Stations.	
Marlborough, Nelson, and Canterbury	9,069	39	£ s. d. 5,470 0 0

Table 1.—RETURN OF FIELD-WORK EXECUTED BY THE STAFF AND CONTRACT SURVEYORS ON LANDS ADMINISTERED BY THE LANDS AND SURVEY DEPARTMENT FROM 1ST APRIL, 1938, TO 31ST MARCH, 1939.

District.	Minor Triangulation.				Topographical Survey for Settlement.				Standard Survey.				Rural Survey.						
	Acres.	Cost per Acre.	Total Cost.	Acres.	Cost per Acre.	Total Cost.	Miles.	Cost per Mile.	Total Cost.	Miles.	Acres.	Cost per Acre.	Total Cost.	Acres.	Cost per Acre.	Total Cost.			
																	£	s.	d.
Auckland and North Auckland	35,100	0.76	..	111 13 10	19,000	0.74	..	58 8 10	44.30	68.28	..	3,024 18 0	22,355.5	2.08	2,322 1 8		
Gisborne	46,452	1.55	..	300 0 0	..	..	..	..	..	..	..	3,785.5	1.30	245 8 0	1.30	245 8 0	
Hawke's Bay	100,000	0.59	..	245 4 7	..	..	..	..	..	..	..	12,949.0	1.27	823 7 0	1.27	823 7 0	
Taranaki	345.3	1.75	30 2 10	1.75	30 2 10	
Wellington	10.44	25.64	..	267 12 10	235.4	6.60	77 14 0	6.60	77 14 0
Marlborough	8.00	42.36	..	338 18 3	0.70	296 0 10	0.70	296 0 10	
Nelson	316	224.05	..	295 0 0	7.50	19.73	..	148 0 0	266.6	10.06	134 4 5	10.06	134 4 5
Westland	1,683.6	4.34	365 7 8	4.34	365 7 8
Canterbury	80.30	..	195 1 6	..	..	..	..	71,867.2	0.26	946 8 10	0.26	946 8 10
Otago	375.2	4.30	80 14 11	4.30	80 14 11
Southland
Totals	181,552	0.87	656 18 5	19,899	6.62	548 10 4	70.24	53.81	3,779 9 1	123,435.3	0.86	5,321 10 2	..	..	..	..	..

District.	Village and Suburban Sections.				Town Section Survey.				Road Survey.				Total Cost of Completed Work.				
	Acres.	Number of Sections.	Cost per Acre.	Total Cost.	Acres.	Number of Sections.	Cost per Section.	Total Cost.	Miles.	Cost per Mile.	Total Cost.	Acres.	Other Work (Cost).	Total Cost.	Acres.	Other Work (Cost).	Total Cost.
Auckland and North Auckland	234.03	20	26.54	310 11 5	41.76	145	11.32	286 5 10	65.50	32.60	2,135 7 6	1,167 3 5	9,416 10 6	..	..	..
Gisborne	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hawke's Bay	389.00	11	4.87	94 14 9	1.00	4	3.67	14 13 6	..	..	..	29 5 0	574 13 0	..	..	..
Taranaki	7.50	7	114.63	42 19 9	3.15	7	4.49	31 9 5	..	..	..	450 0 10	1,628 0 8	..	..	..
Wellington	54.88	5	9.58	26 5 7	1.43	8	6.95	55 12 3	29.58	28.65	847 11 0	233 15 5	338 7 5	..	..	..
Marlborough	8.30	3	44.45	18 10 0	..	..	..	..	5.50	17.33	95 5 10	524 1 5	1,798 17 1	..	..	..
Nelson	12.30	7	104.07	64 0 0	5.50	7	2.14	15 0 0	..	..	..	112 1 5	860 16 4	..	..	..
Westland	210.12	7	14.67	154 2 2	10.66	22	5.08	111 16 11	4.80	23.12	110 19 9	297 0 0	953 4 5	..	..	..
Canterbury	70.13	19	26.75	98 15 1	0.50	2	7.50	15 0 0	0.97	39.34	38 3 2	267 16 6	414 14 9	..	..	..
Otago	61.20	5	29.36	89 17 0	21.17	15	4.80	72 1 0	3.32	12.66	42 1 0	168 16 11	1,514 6 3	..	..	..
Southland	8.58	3	49.82	21 7 6	2.95	11	1.43	15 14 6	..	..	..	87 11 11	205 8 10	..	..	..
Totals	1,056.04	87	17.35	916 3 3	88.12	221	2.79	617 13 5	109.67	29.81	3,269 8 3	3,394 19 10	18,504 12 9	..	..	..

Table 2.—RETURN OF FIELD-WORK EXECUTED BY THE STAFF AND CONTRACT SURVEYORS ON LANDS ADMINISTERED BY OTHER DEPARTMENTS FROM 1ST APRIL, 1938; TO 31ST MARCH, 1939.

District.	Rural Survey.				Village and Suburban Survey.				Town Section Survey.				Housing Subdivision Survey.							
	Acres.	Cost per Acre.	Total Cost.	Acres.	Number of Sections.	Cost per Acre.	Total Cost.	Acres.	Number of Sections.	Cost per Section.	Total Cost.	Acres.	Number of Sections.	Cost per Section.	Total Cost.	Acres.	Number of Sections.	Cost per Section.	Total Cost.	
																				£
Auckland and North Auckland	9.75	95.94	46 15 6																	
Gisborne	6.25	48.00	15 0 0	7.50	1	49.68	18 12 8	1.25	1	14.00	14 0 0	9.50	48	1.970	94 10 5					
Hawke's Bay	15.15	70.00	53 0 6	26.54	8	32.67	43 7 1	1.81	9	3.68	33 2 6	73.94	242	0.780	187 15 7					
Taranaki				7.02	2	84.59	29 14 2	0.59	4	6.30	25 4 2	13.80	50	3.450	172 9 4					
Wellington																				
Marlborough	3,560.00	0.16	28 10 0	51.40	6	17.56	45 2 9													
Nelson	22.70	40.53	46 0 0	40.50	2	12.70	25 14 4													
Westland				8.07	1	19.95	8 1 0	1.04	2	11.83	23 13 3	3.18	14	1.700	23 14 6					
Canterbury	1,066.44	0.28	15 0 0	84.00	13	67.50	114 15 2	5.76	16	3.60	57 13 6	69.73	345	1.590	548 17 4					
Otago				188.75	13	11.20	105 15 0	5.57	8	6.73	53 16 0	13.50	58	2.530	147 9 0					
Southland				15.80	9	35.54	28 1 8	0.95	7	3.93	27 10 1	24.94	115	0.775	89 12 5					
Totals	4,680.29	0.89	204 6 0	379.58	55	22.09	419 3 10	16.97	47	5.00	234 19 6	525.59	2,277	1.770	4,035 3 11					

District.	Housing and Town Schemes (Preliminary).				Native Land Survey.				Road and Railway Survey.				Total Cost of Completed Work.	
	Acres.	Cost per Acre.	Total Cost.	Acres.	Number of Sections.	Cost per Acre.	Total Cost.	Acres.	Miles.	Cost per Mile.	Total Cost.	Acres.		Other Work
Auckland and North Auckland	383.36	86.06	1,649 10 6	1,092.00*	30	4.71	257 0 1	2.25	21.95	21 95	49 7 9	325 5 2	4,584 16 11	
Gisborne				794.00*	2	0.88	35 0 0	4.92	21.12	193 18 0	29 5 2	310 6 3		
Hawke's Bay								3.70	39.01	144 5 9	28 0 10	489 12 3		
Taranaki				1,271.28	26	5.80	368 16 3	4.03	31.07	125 4 6	43 12 1	765 0 6		
Wellington				3,875.62	14	0.76	148 0 0	5.65	43.72	247 0 7	28 4 6	391 7 10		
Marlborough				25.00	5	12.96	16 4 1	5.80	36.89	214 0 0		691 19 4		
Nelson	500.00	13.64	341 0 0†					1.81	29.73	58 16 6	11 6 6	120 11 9		
Westland								22.21	26.17	581 4 9	130 7 5	1,505 18 9		
Canterbury	35.57	32.62	58 0 7					26.63	18.51	481 16 4	33 0 0	868 7 4		
Otago	7.68	106.77	41 0 0	1.10	1	109.00	6 0 0	4.43	35.00	155 1 3	79 15 8	380 1 2		
Southland														
Totals	926.61	45.10	2,089 11 1	7,059.00	78	2.35	831 0 5	80.83	26.07	2,155 15 5	884 13 0	10,854 13 2		

* Does not include Surveys paid for privately.—Auckland, 5,466.5 acres; Gisborne, 1,145 acres. † Onekaka Town Subdivision Scheme.

Table 3.—RETURN SHOWING SURVEYORS EMPLOYED AND WORK ON HAND AT 1ST APRIL, 1939.

Chief Surveyors.	Surveyors employed.		District.	Work on Hand.						Standard Traverse.		Triangulation.
	Staff.	Contract.		Topographical.	Rural.	Native.	Roads, &c.	Towns.	City.	Rural.		
				Sq. miles.	Acres.	Acres.	Miles.	Acres.	Miles.	Miles.	Sq. miles.	
R. L. Innes ..	10	31	Auckland and North Auckland	1	26,554-00	8	136-75	39-00	26-0	..	..
J. S. Strawbridge ..	1	2	Gisborne ..	..	53-50	..	0-62	8-75	..	7-00	..
P. W. Barlow ..	2	2	Hawke's Bay ..	..	66,146-00	..	..	..	..	15-00	..
N. Clay ..	2	..	Taranaki ..	..	6,625-00	194	10-85	62-75	..	5-75	..
J. D. Clapperton ..	3	5	Wellington ..	..	46-75	1,431	4-00	67-50	..	2-50	366
A. C. Haase ..	2	..	Marlborough ..	..	11,500-00	25	63-00	..	10-0	13-00	..
A. W. Craig ..	2	2	Nelson ..	..	150-00	..	13-00	..	..	..	..
J. W. McIntyre ..	2	..	Westland ..	..	763-00	..	5-21	0-25	..	..	..
T. W. Preston ..	2	8	Canterbury ..	..	5,221-50	..	109-75	107-75	..	..	..
H. A. Adams ..	3	..	Otago ..	..	9,027-00	..	32-00	63-00	8-5	30-50	..
T. S. McMillan ..	1	..	Southland ..	..	130-00	..	6-00	..	..	..	..
Head Office ..	1	..	..	2,200	..	..	..	..	..	..	..
Totals ..	31	50	..	2,201	126,216-75	1,658	381-18	349-00	44-5	73-75	366	

Table 4.—PRINCIPAL CLASSES OF OFFICE-WORK DONE FROM 1ST APRIL, 1938, TO 31ST MARCH, 1939.

District.	Plans placed on Instruments of Title.				Deeds and other Instruments passed.	Plans examined and passed.				Maps drawn for Lithography.		
	Crown.		Native Land.	Land Transfer.		Crown.	Native.	Land Transfer.	Other Departments.	Standard Publications.		
	Leases and Licenses.	Freehold.								Drawn.	Revised.	Sale Plans.
Auckland and North Auckland ..	885	1,176	607	11,299	6,937	343	48	812	298	4	..	..
Gisborne ..	47	..	97	481	..	13	7	47	42	1	..	..
Hawke's Bay ..	98	80	..	44	590	22	8	168	24	2	10	..
Taranaki ..	246	..	46	728	558	9	31	78	34	2	2	..
Wellington ..	288	234	58	4,744	2,349	49	9	265	123	7	..	..
Marlborough ..	96	8	..	266	165	33	..	23	41	1	..	..
Nelson ..	203	22	..	821	4	15	..	118	51	2	..	1
Westland ..	196	84	..	376	104	44	..	29	14	1	..	1
Canterbury ..	374	54	12	2,714	1,472	11	1	240	71	..	2	..
Otago ..	302	74	3	3,838	2,063	42	..	222	67	..	27	..
Southland ..	171	56	..	1,046	785	10	..	72	31	..	1	..
Head Office	28
Totals ..	2,906	1,788	823	26,357	15,027	591	104	2,074	796	48	42	4

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