

1946  
NEW ZEALAND

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DEPARTMENT OF LANDS AND SURVEY  
**SURVEYS**

(ANNUAL REPORT ON)

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

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Wellington, 10th July, 1946.

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

SIR,—

I have the honour to present herewith my report on the survey operations of the Department for the year ended 31st March, 1946.

I have, &c.,

R. G. DICK,

Surveyor-General.

The Hon. the Minister of Lands.

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**REPORT**

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DURING the year the staff, both field and office, have been concentrated solely on works and activities that are of first priority. In the field, land-settlement surveys have fully occupied the available field staff to the exclusion of many other survey activities, such as topographical mapping, triangulation, standard traverses, and precise levelling. Urgent attention will have to be given to the need for a large increase in field staff, which can only be accomplished by the appointment of field trainees, as qualified surveyors outside the Service are not available. Staff surveyors are being attracted to the better conditions offered by other organizations in New Zealand and overseas.

The office staff has been augmented by the return of servicemen from overseas, who, as a whole, have settled down to their work with commendable zeal. However, this increase in staff has been offset by the demands made for many and various types of draughting services. The preparation of maps for the census employed the bulk of Head Office and district office staffs for some two or three months during the year, while, almost immediately following the taking of the census, the preparatory work for the Representation Commission entailed the employment of the majority of the Head Office staff. Practically no work has been done to overtake the accumulated areas of

recording and cadastral mapping. Land dealings, both private and State, have almost reached record figures, with a consequent increase in survey plan examination, recording, and general draughting.

The following briefly summarizes the various activities carried out by survey and draughting branches of the Department during the past year:—

### ROUTINE ACTIVITIES

#### LAND SURVEYS

The following table summarizes the various classes of survey work carried out by staff and contract surveyors for the year ending 31st March, 1946. In this year's return the cost of topographical mapping is shown. Up until 31st December, 1945, this work was costed as part of the military mapping programme. The cost thus shown includes an amount of £4,056, which is the cost of services, such as transport and equipment, supplied to topographical mapping parties by the Army:—

#### *Summary of Field-work*

Class of Survey.	Area, Mileage, &c.	Average Cost.	Total Cost.
			£ s. d.
Minor triangulation .. ..	39 square miles ..	1-8d. per acre ..	190 12 8
Topographical mapping (1: 63360) ..	3,144 square miles	£4-82 per square mile	15,143 7 5
Topographical survey for settlement ..	139,261 acres ..	7-48d. per acre ..	4,337 8 0
Topographical survey for housing ..	25 acres ..	34-4s. per acre ..	43 0 0
Rural surveys .. ..	70,322 acres ..	3-09s. per acre ..	10,847 14 5
Village and suburban surveys (2 acres to 10 acres) ..	694 acres ..	36-64s. per acre ..	1,271 8 7
Town sections (including housing) ..	1,275 lots ..	£5-29 per lot ..	6,740 14 2
Standard traverse surveys .. ..	12 miles ..	£40-31 per mile ..	483 14 8
Maori land surveys .. ..	749 acres ..	7-52s. per acre ..	281 10 6
Road and railway surveys .. ..	68-75 miles ..	£51-57 per mile ..	3,545 7 0
Maintenance of survey marks .. ..	.. ..	.. ..	353 15 5
Inspection and investigation surveys ..	.. ..	.. ..	1,072 16 11
Location of boundaries and compass surveys ..	.. ..	.. ..	1,430 0 8
Special surveys (Armed Services) .. ..	.. ..	.. ..	208 6 3
Police Department (surveys and Court attendance) ..	.. ..	.. ..	131 4 2
Engineering surveys .. ..	.. ..	.. ..	355 1 7
Extra-urban planning .. ..	.. ..	.. ..	623 0 4
Miscellaneous (reports, &c.) .. ..	.. ..	.. ..	2,527 12 2
Total cost .. ..	.. ..	.. ..	49,586 14 11

In order to compare the above return with that of the previous year it is necessary to deduct therefrom the amount of £15,143 listed against topographical mapping, which item was not included in last year's return.

Under the heading of "Extra-urban Planning" is returned an amount of £623 which covers the cost of the preparation of data and a scheme of an area of 37,000 acres embracing the mining districts west of Huntly. The surveyor in charge of the party was responsible for the assembly of data covering all factors having any bearing on the present and future development of the mining district. The final scheme, which was prepared on behalf of the Raglan County Council, has been completed and forwarded to the local authority for action in accordance with the provisions of the Town-planning Act, 1926. The scheme is the first of its type prepared in New Zealand, and has been received by all parties concerned with satisfaction.

Preliminary surveys for settlement purposes have increased from 71,515 acres to 139,261 acres while the rural areas surveyed for title purposes, the

bulk of which being settlement lands, has increased from 45,495 acres to 70,322 acres. So far the field staff, at the expense of other work, have been able to deal promptly with all surveys of settlement and development work.

The following is a summary of the areas dealt with in the various districts for land-settlement purposes. The table shows the actual areas dealt with by the field staff, the cost of portion of which has not been included in the return of field-work pending completion of the illustrating plans and maps:—

*Surveys for Land Settlement*

District.	Preliminary Topographical Surveys.	Final Land Title Surveys.	Number of Units.
	Acre.	Acre.	
Auckland and North Auckland	36,467	15,401	119
Gisborne	3,400	5,072	14
Hawke's Bay	23,034	11,471	46
Taranaki	2,425	2,824	21
Wellington	23,400	7,546	35
Marlborough	6,755	2,060	9
Nelson	..	120	3
Westland	..	..	..
Canterbury	17,762	30,152	50
Otago	19,605	8,142	26
Southland	25,948	2,180	5
Te Kuiti (Development Branch)	22,570	1,468	15
Totals	181,366	86,436	343

The preliminary topographical surveys in most cases involve the preparation of a map illustrating all natural features, improvements, a general classification of the land concerned, and any other features that might have an ultimate bearing on the development of the area. Some land-title survey work is being held in abeyance until subdivisional proposals and development works are finalized.

Settlement-survey work is fairly evenly distributed throughout the various districts, except in the Nelson and Westland districts, where practically no settlement work is in view.

An analysis of the cost of field-work carried out by staff and contract surveyors in the various Chief Surveyors' offices is scheduled hereunder:—

District.	By Staff Surveyors.			By Contract Surveyors.			Totals.	Percentage.	Number of Surveyors.	
	£	s.	d.	£	s.	d.			Staff.	Contract.
Auckland and North Auckland	16,940	10	5	3,878	2	0	20,818 12 5	42.0	6	31
Gisborne	189	9	4	250	14	6	440 3 10	0.9	1	1
Hawke's Bay	2,191	9	10	257	0	0	2,448 9 10	4.9	3	2
Taranaki	661	5	5	110	8	11	771 14 4	1.6	2	2
Wellington	3,562	16	1	2,085	13	3	5,648 9 4	11.4	4	12
Marlborough	1,066	4	4	..	..	..	1,066 4 4	2.2	1	..
Nelson	2,149	0	0	151	5	1	2,300 5 1	4.6	1	1
Westland	363	5	5	140	9	11	503 15 4	1.0	1	2
Canterbury	5,817	5	8	826	15	3	6,644 0 11	13.4	4	4
Otago	2,366	10	8	809	0	2	3,175 10 10	6.4	2	5
Southland	5,769	8	8	..	..	..	5,769 8 8	11.6	3	..
Totals	41,077	5	10	8,509	9	1	49,586 14 11 (26,267 16 4)	100	28 (27)	60 (55)

Last year's returns are shown in parentheses.

It will be noted that approximately 17 per cent. of the survey work has been carried out under contract by private practising surveyors. This is due to the fact that the field staff have been concentrated on land-settlement surveys. The bulk of the work under the headings "Housing," "Road and Railway," and "Maori Land Surveys" has been carried out under contract. The number of contract surveyors employed by the Department has increased from 55 to 60, while the departmental field staff has only been increased by 1.

#### FIELD-WORK IN HAND

The following land-title surveys are either in hand or awaiting action. This return shows a slight increase on the previous year, which indicates that there will be little opportunity of putting in hand a number of urgent surveys:—

Rural and settlement surveys	..	..	62,785 acres
Maori land surveys	..	..	1,031 acres
Road and railway surveys	..	..	154 miles
Town section surveys (housing)	..	..	4,000 sections
Topographical surveys	..	..	3,200 sq. miles

#### TOWN SCHEME SUBDIVISIONS

The following table summarizes the number of plans, saleable lots, and areas set aside as roads and reserves dealt with in accordance with the provisions of section 16 of the Land Act, 1924, for the year ending 31st March, 1946:—

District.	Number of Plans.	Number of Saleable Lots.	Area : Recreation Reserves.	Area : Roads.	Total Area.
			A. R. P.	A. R. P.	A. R. P.
Auckland and North Auckland	202	2,190	64 0 12	98 2 32	936 0 0
Gisborne	5	17	..	0 2 23	9 2 06
Hawke's Bay	7	56	..	0 0 15	29 1 03
Taranaki	5	8	..	0 0 11	9 0 21
Wellington	38	377	9 0 06	17 2 02	138 3 08
Marlborough	11	51	1 1 10	0 0 20	72 0 04
Nelson	24	218	3 3 32	6 0 15	66 0 23
Westland	4	13	..	..	7 3 02
Canterbury	70	561	3 2 03	4 2 14	176 3 13
Otago	19	122	1 1 02	4 1 34	41 1 07
Southland	1	2	..	..	0 2 04
Totals	386 (271)	3,615 (2,552)	83 0 25	132 1 06	1,487 1 11 (969 2 10)

Last year's returns are shown in parentheses.

In no year of the Department's history has there been such activity in the closer subdivision of land in counties. The number of saleable lots on the subdivisions approved has increased from 2,552 to 3,615. This activity has necessitated considerable investigation of proposed subdivisions by both district and Head Office staff to ensure that any proposed development accords with town-planning principles. Definite arrangements have now been made with the Main Highways Board in order to ensure that closer subdivision on main and State highways makes adequate provision for increased traffic.

Steps have been taken in many instances to limit ribbon development and ensure that subdivisions develop compactly, thus reducing the cost of services subsequently required by the owners of the lots of the subdivisions.

It is hoped that legislation, which has been under review for some time, will be brought down at an early date to provide for many aspects of housing development that will accord with modern methods and economy of services.

#### OFFICE WORK (PLAN EXAMINATION)

The office work carried out in connection with the examination and checking of land-survey plans for the year ending 31st March, 1946, is scheduled hereunder:—

District.	Plans placed on Instru- ments of Title	Survey Plans examined and approved.			
		Crown.	Other Depart- ments.	Maori.	Land Trans-fer.
Auckland and North Auckland ..	11,610	133	232	38	683
Gisborne .. .. .	683	7	13	2	53
Hawke's Bay .. .. .	1,484	25	14	4	110
Taranaki .. .. .	983	8	28	4	59
Wellington .. .. .	4,224	16	103	6	274
Marlborough .. .. .	422	10	6	1	31
Nelson .. .. .	1,598	19	22	..	154
Westland .. .. .	792	20	10	..	21
Canterbury .. .. .	3,733	82	87	4	274
Otago .. .. .	1,826	39	41	..	138
Southland .. .. .	915	2	22	..	33
Totals .. .. .	28,270 (24,943)	361 (272)	578 (510)	59 (72)	1,830 (1,489)

Last year's returns are shown in parentheses.

A further increase of 15 per cent. to 20 per cent. in this class of work is revealed this year. Arrears in plan-examination work, on which title registrations are dependent, have been kept within bounds by the employment of staff on overtime when occasion arises.

#### OTHER OFFICE WORK

During the year the following miscellaneous work has been carried out by the office staff, last year's returns being shown in parentheses.

Record plans (revised or redrawn) ..	164	(47)
Cadastral maps (revised or redrawn) ..	49	(17)
Tracings .. .. .	5,485	(4,842)
Photostats and prints .. .. .	34,405	(40,333)

It is pleasing to note that during the year there has been an increase in the number of record and cadastral maps drawn or revised. This work, which forms the basis of all land dealings, rating, &c., has fallen into serious arrears, which will have to be reduced by a concentrated and special effort as soon as staff is available.

There is now no demand for photostats and prints by the armed services, which accounts for the falling-off in the number handled during the year.

## CENSUS, 1945

Work on the preparation of enumerator and sub-enumerator maps was continued during the year. At the close of last year, 169 enumerator maps, in duplicate, had been forwarded to the Government Statistician for the demarcation thereon of the sub-enumerator district by the enumerators. These enumerator maps were then referred to the Chief Surveyor of each district concerned for the preparation of 1,352 sub-enumerator maps, each sub-enumerator district being divided into population mesh blocks. These maps were then referred to Head Office for final check and subsequent submission to the Government Statistician. The last of these maps were handed over by the first week in August, in readiness for the census which was taken in September.

## REPRESENTATION COMMISSION

Immediately following the census map preparation the Head Office staff commenced the preparation of population map for subsequent use by the Representation Commission for the determination of electoral boundaries. The final adult population figures were made available by the Government Statistician by the third week in February. Final and complete maps were ready for the use of the Representation Commission for its first meeting on 18th March. At the close of the year Head Office staff were fully engaged on the preparation of descriptions and maps of the provisional electoral boundaries for publication in the *Gazette*. A considerable amount of map work will be entailed in the coming year before the final results of the findings of the Representation Commission are available.

## WARRANTS

During the year 84 warrants for certificates of title comprising 344 items and 15 Proclamations of road-lines under the Native Land Act, 1931, were dealt with.

## MAP SALES

During the year the ban placed on the sale of topographical maps (1:25000 and 1:63360) prepared for the Army Department was lifted. These editions are in popular demand, good use being made of them for all types of development work and planning. It is anticipated that the first editions of these series will be out of print at an early date. The following schedule shows the maps sold and issued during the year:—

Class of Map.					Sold for Cash or Credit.		Free Issues and Office Use.		Totals.	
					£	s. d.	£	s. d.	£	s. d.
Survey districts and counties .. .. .	..	..	..	..	788	7 9	716	16 3	1,505	4 0
Towns .. .. .	..	..	..	..	306	1 7	189	11 0	495	12 7
Territorial .. .. .	..	..	..	..	394	16 3	233	5 6	628	1 9
Topographical .. .. .	..	..	..	..	2,487	16 0	764	12 6	3,252	8 6
Miscellaneous .. .. .	..	..	..	..	386	7 4	97	15 6	484	2 10
Totals .. .. .	..	..	..	..	4,363	8 11	2,002	0 9	6,365	9 8

The total return from sales in the previous year was £2,893.

## SUMMARIZED EXPENDITURE

The following schedule sets out the salary expenditure for the year ending 31st March, 1946, apportioned to the various classes of work. The relative expenditures for the previous year are shown in parentheses:—

	£	s.	d.	£	s.	d.
General (Crown surveys, records, investigations, tracings, diagrams, and general office work) .. .. .	58,879	6	7	(34,300	15	4)
Triangulation .. .. .	728	5	3	(882	1	11)
Topographical mapping .. .. .	14,659	15	3	(4,218	5	6)
Standard traverses .. .. .	185	9	4	(591	8	10)
Survey maintenance (standard blocks and trig. signals) .. .. .	281	17	5	(144	6	6)
Precise levelling .. .. .	43	1	2	(1,807	19	3)
Inspection and investigation .. .. .	772	19	9	(708	11	2)
Town scheme plans (section 16, Land Act, 1924) .. .. .	821	7	5	(464	15	4)
Land settlement (topographical and schemes) .. .. .	4,212	11	10	(2,274	7	7)
Tidal analysis .. .. .	134	14	6	(295	15	2)
Work for:—						
Native Department .. .. .	1,658	9	4	(1,450	9	1)
Lands and Deeds Department .. .. .	14,048	8	4	(9,863	15	6)
Public Works Department .. .. .	5,041	18	3	(4,439	6	4)
Housing Department .. .. .	2,660	0	4	(1,442	3	5)
Other Departments .. .. .	7,543	3	7	(31,349	0	1)
Total .. .. .	£111,671	8	4	(£94,233	1	0)

The sharp decline in the work done for other Departments is due to the transfer to departmental expenditure of the cost of topographical mapping, which prior to 31st March, 1945, was carried out for the Army Department.

The total expenditure apportioned among the various Chief Surveyors' offices is as follows:—

District.	Expenditure.	Percentage.
	£ s. d.	
Head Office .. .. .	9,571 10 1	8.6
Auckland and North Auckland .. .. .	35,555 10 0	31.8
Gisborne .. .. .	3,435 0 7	3.1
Hawke's Bay .. .. .	8,378 14 9	7.5
Taranaki .. .. .	4,758 1 0	4.3
Wellington .. .. .	13,910 15 5	12.4
Marlborough .. .. .	3,401 4 2	3.0
Nelson .. .. .	5,095 18 0	4.6
Westland .. .. .	1,307 10 6	1.2
Canterbury .. .. .	12,000 17 7	10.7
Otago .. .. .	6,339 1 7	5.7
Southland .. .. .	7,917 4 8	7.1
Total .. .. .	111,671 8 4	100

## SPECIALIZED ACTIVITIES

As already indicated, most of the activities under this heading have been held in abeyance. A brief statement of the present state of progress is given hereunder:—

*Triangulation*

*Geodetic Triangulation.*—Arrangements have been made for the reloan of base-line-measuring equipment from the Tanganyika Government for the measurement of the three base-lines in the South Island and the remeasurement of one of the North Island bases. The tapes are to be standardized at the National Physical Laboratory, Great Britain, to be available for use at the beginning of 1947.

*Second and Third Order Triangulation.*—Except for the erection of a few signals in the Southland District, no work has been carried out under this heading.

### *Precise Levelling*

No precise levelling has been undertaken during the year. Instructions have been received from the Public Works Department to establish permanent mean sea-level datums in the Bay of Plenty district. It is anticipated that tide gauges will be set up at two or three convenient stations to be connected by precise levelling traverse and extended to provide accurate datum levels for drainage and river control. This work will be put in hand early in the coming year.

### *Topographical Mapping*

Two small mapping parties have been operating in the Thames (Auckland) and in Central Otago on 1:63360 mapping.

No field-work has been carried out on the 1:25000 series. Six map sheets of the Wellington area have been drawn and are awaiting publication.

The following schedules show the present position in respect to the 1:25000 and 1:63360 series:—

#### *1:25000 Series*

—				Area (Square Miles).	Number of Sheets.
Maps published as at 31st March, 1945	..			1,100	28
Maps published during year	..	..		..	..
Mapping on hand	..	..	..	1,330	26
Totals	..	..	..	2,430	54

#### *1:63360 Series (Provisional)*

—	North Island.		South Island.		Total.	
	Area (Square Miles).	Sheets.	Area (Square Miles).	Sheets.	Area (Square Miles).	Sheets.
Published at 31st March, 1945	16,123	65	22,825	72	38,948	137
Published during year ..	1,327	4	1,275	5	2,602	9
Drawings completed ..	586	2	1,046	4	1,632	6
Mapping in hand (completed)	6,145	21	3,842	12	9,987	33
Totals .. ..	24,181 (22,255)	92	28,988 (27,770)	93	53,169 (50,025)	185

Last year's totals are shown in parentheses.

Mapping parties were reduced during the year to two small parties. A total area of 3,144 square miles was mapped on the 1:63360 scale. The field-work on a number of map sheets has been completed and are awaiting drawing.

The Department is carrying out a number of detailed topographical surveys of special areas required by the State Hydro-electric Department, the Forestry Department, the Public Works Department, and the Mines Department for special development purposes. The work carried out will in many instances be incorporated subsequently in the published topographical map series.



The report of the Assistant Surveyor-General gives details of work carried out by the Head Office staff and the Honorary Geographic Board.

#### REGIONAL AND WORKS PLANNING

Towards the end of the year arrangements were made with the Commissioner of Works to put in hand the preparation of regional survey data for subsequent works and regional planning. It has been decided to adopt the procedure and methods recommended by the Department for the illustration of the various land features and factors that will have a bearing on subsequent planning. Each factor, such as land slopes, population densities, vegetation, communications, land uses, &c., will be reproduced on a transparency in terms of the 1:63360 map series. These transparencies can thus be inter-related for study purposes.

For this purpose it is proposed to set up a small staff at Head Office who will carry out the work in accordance with priorities fixed by the Commissioner of Works.

#### SURVEY BOARD

Two examinations were held for the qualification of surveyors during the year, the results of these examinations being as follows:—

---	September, 1945.	March, 1946.	Totals.
Number of candidates.. ..	34	37	71
Passed full examination .. ..	4	2	6
Obtained credits in subjects .. ..	30	25	55

The number of pupils registered during the year were as follows:—

Lands and Survey Department .. ..	6
Private Surveyors .. ..	16
Total .. ..	22

Messrs. R. G. Dick (Surveyor-General) and C. K. Grierson were appointed by the Board as delegates to attend a conference of reciprocating Boards to be held in Adelaide, South Australia, in April, 1946.

#### GENERAL

I wish to express my appreciation of the excellent service rendered by all members of the staff during the past year. Urgent and difficult tasks have been efficiently carried out to the credit of all concerned.

## APPENDIX

## HEAD OFFICE, TECHNICAL STAFF

(J. D. CLAPPERTON, Assistant Surveyor-General)

During the year the staff has been hard pressed to meet the growing demands for special drawings and data, both for our own and other Departments. This has meant putting aside much routine work, particularly that of keeping up to date our standard publications.

*General Draughting and Map Publication.*—A special map of New Zealand was prepared for the Tourist Department for overseas publicity purposes. This map has many unique features and is the first of its type to be prepared by the Department. Many smaller maps of individual resorts were also prepared for that Department. The Department of Agriculture has also called for the preparation of special drawings to illustrate articles in their *Journal*, and numerous drawings of varying types have been undertaken for other Departments.

A start was made in the preparation of a new series of 4-mile topographical maps based on the information contained in the mile series, but owing to pressure of more urgent work little progress has been made.

*Census.*—This necessitated the preparation of 338 enumerator maps which were distributed to our district offices, where the preparation of the sub-enumerator maps—totalling 1,352—was carried out. All maps were then returned to this Office, where a comprehensive check of each map was made prior to forwarding on to the Census Department. After the completion of the census, population maps covering the whole of New Zealand were prepared for the Representation Commission.

*Map Publications.*—The table below is a summary of the maps published during the year, together with the cost of printing. In the case of the topographical maps, approximately 6,000 of the 1 : 250,000 series and 30,000 of the 1 : 63360 series were printed for the Army Department.

*Summary of Printing Costs of Map Publications for Year ended 31st March, 1946*

Class of Map.	Number of Issues.	Number of Maps printed.	Total Cost.	Average Cost per Map.
Topo. Maps—			£ s. d.	s. d.
1 : 25000 .. .. .	6	10,490	584 16 8	1 1
1 : 63360 .. .. .	12	37,549	1,888 15 2	1 0
Survey Districts—				
80 chains .. .. .	26	6,235	265 9 8	0 10
40 chains .. .. .	16	848	106 17 4	2 6
Counties .. .. .	6	1,500	253 5 5	3 5
Boroughs .. .. .	3	1,550	149 17 3	1 11
Territorial and 4-mile .. .. .	7	5,150	276 10 4	1 1
Miscellaneous .. .. .	7	4,810	245 11 0	1 0
Totals .. .. .	83	68,132	3,771 2 10	..

## COMPUTING BRANCH

*Geodetic Triangulation.*—The computation of astronomical latitudes and azimuths of geodetic stations was proceeded with.

*Tidal Analysis and Special Computations.*—No new tidal analyses were carried out during the year. New geodetic and transverse Mercator tables to replace older tables in use by the Department were completed and are now in the hands of the printer.

*Representation Commission.*—Much preparatory work for the use of the Commission in fixing electoral boundaries was performed by the staff in the latter part of the year.

*Aerial Branch.*—The drawings of six 1 : 25,000 sheets have been completed during the year. Three are now at the printers and three are awaiting final check. Two sheets of the Fiji topographical survey were completed and handed to the printer, one sheet being published. The third and last sheet is well in hand and will shortly be ready for printing.

A considerable amount of photogram-metrical work has been carried out for the Forestry, Scientific and Industrial Research, and Public Works Departments. Included in these were two dam-sites calling for more precise work—contours being given at 20-foot intervals.

Five hundred and forty photographic items, including prints, enlargements, and pin-up mosaics, were undertaken for various Departments.

The area covered by photography for all mapping purposes during the year was approximately 5,500 square miles. A total of 16,575 prints were received, of which the bulk have been recorded.

*Draughting and Computing Examination.*—Owing to so many of the younger members of the staff being absent with the Forces, this examination had not been held since 1941. It was again instituted this year, when 44 candidates presented themselves, the following numbers being successful: First Grade Draughting, 6 passes; Second Grade Draughting, 5 passes; First Grade Computing, 2 passes; and Second Grade Computing, 8 passes. Many others succeeded in procuring partial passes.

#### HONORARY GEOGRAPHIC BOARD

The annual meeting of the Board was held on Thursday, 11th October, 1945, all members being present. One hundred and twenty-six place names were considered, and 96 of these were approved. It was decided that another bulletin, including all the decisions of the Board, should be prepared for publication.

The Board also resolved that steps should be taken to empower it with statutory authority.

In conclusion, I wish to express my appreciation of the manner in which all members of the staff have carried out their various duties.

#### AUCKLAND AND NORTH AUCKLAND LAND DISTRICTS

(W. TRAILL, Chief Surveyor)

##### FIELD-WORK

*Settlement Surveys for Rehabilitation of Returned Servicemen.*—These surveys have been given priority, and during the year thirty-four blocks, totalling 36,467 acres, have been topographically surveyed for purchase, development, or subdivisional scheming. Twenty-six blocks, of a total of 15,401 acres, have been surveyed into 119 units, and there are at present under survey, nine blocks, totalling 7,468 acres, being subdivided into sixty-eight units. Four staff surveyors are constantly engaged on this work, and as yet no contract surveyors have been instructed.

*Other Rural Surveys.*—The majority of these surveys have been in connection with the issue of title of portions of Crown land selected by adjoining Crown tenants or owners as additions to their present holdings.

*Suburban Surveys.*—A few small areas, totalling 18 acres, of Crown land in close proximity to towns have been surveyed.

*Housing and Town Section Surveys.*—None of these surveys have been undertaken by staff surveyors, but contract surveyors have again carried out the Housing Department's subdivisions. They have completed the survey of 1,043 lots and have in hand 2,182 lots, which represent in the main, large subdivision in the Tamaki and Mount Roskill areas.

*Native Surveys.*—The work carried out by the staff consisted of the definition of two small Crown interests in Native blocks. Under eighteen authorities, 911 acres were surveyed by contract surveyors.

*Road Surveys.*—Staff surveyors carried out 16·7 miles of road surveys, and of this 11·7 miles was in connection with rehabilitation work. The remainder 5·5 miles was for other Departments, and contract surveyors completed 2·76 miles for the Public Works Department.

*Maintenance of Survey Marks.*—The only work of this nature has been the offsetting of standard blocks which may be moved in new street formation, and the renewing of standard block covers which have become worn by pedestrian traffic. Several trig signals have been repainted as opportunities occurred.

*Inspectional and Investigational Surveys.*—Shortage of staff has not permitted more inspectional surveys, but it was necessary that two be undertaken. Eleven investigational surveys were carried out for the purpose of ascertaining the correctness or otherwise of boundary definition of plans under examination.

*Topographical Mapping Surveys.*—Apart from the topographical surveys in connection with rehabilitation, one surveyor has been wholly engaged and two partly engaged in the topographical surveys of 1,626 square miles for the 1 : 63360 series of maps. Much of this was in the rough and rugged portions of the Coromandel Peninsula.

*Triangulation Surveys: Standard Surveys.*—It has not been possible to undertake any of this class of work.

*Other Work.*—This embraces pegging and redefinition surveys, police surveys for Supreme and Magistrates' Courts, reports on town scheme subdivision, miscellaneous reports, &c., and field-work for regional planning areas.

*Office Work.*—The present staff, excluding servicemen still with the Forces or on leave without pay, consists of 58 officers at district office and 14 at the Land Transfer Office, and I have to report that there is a marked increase in the volume of work carried out by each of the several branches.

*Land Transfer Branch.*—Through increase of work this branch is considerably in arrears, and with the additional number of private subdivisions—both town and rural—it would appear that it will be some time before this can be overcome. During the year 818 plans have been received and 683 examined and approved, leaving 200 awaiting examination. In addition to plan examination, 10,174 diagrams have been endorsed on titles and 186 miscellaneous documents checked.

*Road Legalization and Plan Checking Branch.*—In this branch the work is still increasing, 485 plans have been received, 365 examined and approved, and 84 are waiting to be examined.

Investigations resulting from the discrepancies in former surveys have occupied the usual amount of time; these investigations arise out of the routine issue of warrant titles, leases, and plan examination.

It is to be noted that 222 town schemes were received and dealt with.

One hundred and nine contract surveyors' accounts, amounting to £4,963 12s. 6d., have been examined and certified correct, and 914 plans have been placed on instrument of title.

*Native Branch.*—The staff of this branch have again been fully engaged in Native land investigations and the checking of plans, 35 of which have been received, 38 approved, and 16 are awaiting examination. During the year 18 authorities have been issued to survey Native land and 25 Native Land Courts attended.

*Mapping Branch.*—With the return to the staff of the more experienced servicemen from overseas it has been possible to extend the activities of this branch to the extent of preparing 43 record maps and revising 1 borough map for the printing of lithographs. In addition, 4 basic maps have been prepared from Office records of extra-urban and town-planning districts and 422 sub-enumerator maps for census purposes.

*Topographical Mapping Branch.*—The small staff available for this work have prepared 3 maps of the 1:63360 series, and have another 3 in hand. In addition, co-ordinated plotting points were provided for photographs covering the proposed 1:25000 maps of the Whangarei and Kamo districts.

*General Draughting Branch.*—The volume of work has again increased, and during the year 307 plans have been made from the staff surveyors field notes or official records. Using topographical maps, official records, and aerial photos, 93 peripheral tracings for land purchase valuations, and land development were compiled. Thirty-four composite maps covering large areas have been prepared for local bodies. Eighty-nine technical descriptions with and without plans, and 453 tracings for various purposes have been made. Photostats numbering 19,970 and helio-prints numbering 3,754 have been taken, and 372 instructions for surveys issued.

Up to the present 26 officers have returned from service with the Forces, and I would record my pleasure in the manner in which they are rehabilitating themselves, after absences up to five and a half years. They display a keenness and enthusiasm which promises well for their future and for the future of the Department.

#### GISBORNE LAND DISTRICT

(J. S. STRAWBRIDGE, Chief Surveyor)

#### FIELD-WORK

*Settlement Surveys: Rehabilitation.*—Topographical surveys for the purpose of preparing the final schemes of subdivisions have been carried out over an area of 3,400 acres; and 14 sections, of a total area of 5,072 acres, have been surveyed.

*Village and Suburban.*—The surveys under this heading comprised 3 stock paddocks, 2 roadman's cottage-sites, 1 school-site, 1 hall-site, 1 dental-clinic site, 1 additional area for railway purposes, and 2 of settlement land for exchange purposes. The area dealt with was 16 acres 3 roods 24 perches.

*Housing.*—An area of 19½ acres in the Borough of Gisborne was subdivided into 81 building allotments. The length of new road within the subdivision was 44 chains.

*Road Surveys.*—These covered a length of 4¼ miles of road in 4 surveys. All these surveys were deviations or definitions of portions of existing highways.

*Rural.*—The only work under this heading was the survey of an area of 189½ acres for a rifle range.

*Native.*—Only two plans were received under this heading. One was for a survey of 1 acre under section 493 of the Native Land Act, 1931, and the other was the subdivision of an area of 6½ acres by compiled plan.

## OFFICE WORK

*Land Transfer and Computing Branch.*—The following plans were examined and approved: land transfer, 53; Survey Office, 20; and Native, 2.

In addition, 145 traverse sheets were checked, 657 diagrams were endorsed on certificates of title, and 108 Proclamations coloured off.

*General Office Work.*—Nine plans were compiled for various legalization purposes, 15 diagrams were endorsed on Crown leases, and 11 on Court orders. Forty tracings were prepared for the Valuation Department, 20 in the preparation of field data, and 252 for general purposes. Three hundred and twelve sun-prints were made and 206 tracings and lithos mounted.

*Town Schemes.*—Four plans of town subdivisions were approved by the Hon. the Minister of Lands under the provision of section 16 of the Land Act, 1924. These covered an area of 6 acres subdivided in 15 allotments. The subdivisions called for the dedication of 7 chains of new road.

The work has been steadily increasing during the year, and I desire to record my appreciation of the manner in which all members of the staff have carried out their duties.

## HAWKE'S BAY LAND DISTRICT

(A. J. WATTIE, Chief Surveyor)

## FIELD WORK

*Settlement Surveys: Rehabilitation.*—During the year both field and office staff have been mainly employed on this work. Preliminary surveys showing details of fences, buildings, water-supply, soil types, &c., are required for all blocks, and during the year 20,228 acres were plane tabled for this purpose by staff surveyors and 2,806 acres by contract surveyors.

Nine different areas were subdivided into 39 sections, of a total area of 8,665 acres, by staff surveyors, and one area, of 2,806 acres, were subdivided into 7 sections by a contract surveyor.

*Standard Surveys.*—No work under this heading has been carried out during the year.

*Road and Railway Surveys.*—Under this heading 4.4 miles of new road was laid off.

*Housing Subdivision.*—Under this heading 2 surveys were made by staff surveyors having 57 lots and an area of 17 acres 1 rood 34 perches.

*Native Land Survey.*—Work done under this heading: 1 subdivisional survey having 2 lots and containing 38 acres 2 roods 16 perches, 5 compiled plans having 11 lots containing 76 acres 2 roods 21 perches, 3 pre-earthquake plans reproduced having 22 lots and containing 201 acres 1 rood 34 perches, 20 Court orders endorsed, 7 Court tracings.

## OFFICE WORK

During the year the office staff have been employed for the most part on rehabilitation work, and in this connection 24 plans have been prepared from Surveyor's field notes. Other work carried out included the following: 17 record maps drawn and 1 revised; 8 sale posters drawn; 601 tracings; 334 lithographs and tracings mounted; 685 sun-prints prepared; 32 diagrams placed on warrant titles, and 60 on Crown leases.

*Land Transfer.*—During the year 110 plans, having 519 lots, comprising 12,852 acres, were approved. Two hundred and forty-six traverse sheets examined and filed, 784 transfers and other instruments examined and approved or reported on to the District Land Registrar, 8 pre-earthquake plans reproduced.

*Crown Statutory and Native Plans.*—Twenty-five Crown plans, 14 statutory, and 4 Native plans have been approved.

*Lithographs.*—No work under this heading has been completed during the year, but the redrawing of Taradale Town District is 90 per cent. completed.

*Aerial Photos.*—During the year a complete photo index has been prepared, and the photographs filed in a special cabinet.

Of the work done in the draughting-room, the sum of £1,573. 14s. 8d. was collected from other Departments by quarterly voucher and £80 10s. 6d. from private surveyors and the public debit note.

I wish to take this opportunity of expressing my appreciation of the manner in which all members of the staff have carried out their duties during the past year.

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TARANAKI LAND DISTRICT  
(N. J. TILL, Chief Surveyor)

FIELD WORK

*Settlement Surveys: Rehabilitation.*—One topographical survey of an area of 2,425 acres at Manutahi was carried out by Mr. J. C. Meale, and sketch topographical plans of other areas have been prepared from photos and other topographical information in this Office. Seven blocks of 21 sections and a total area of 2,824 acres have been surveyed for settlement, and 2 blocks of 8 sections and a total area of 740 acres are in hand.

It has been possible to handle these surveys without handing any over to private surveyors.

*Other Surveys.*—Several town and investigational surveys were also carried out during the year and two housing subdivisions and one periphery survey were given out to private surveyors.

OFFICE WORK

Ninety-nine plans, 130 traverse sheets, and 37 tracings were examined and approved.

Of the above plans, 59 were land transfer, 4 Native, 18 road and statutory, 4 town schemes, 2 compiled of Crown lands, and 7 surveys of Crown land.

Eight hundred and sixty-two tracings and 282 sun-prints were prepared, 270 plans, tracings, &c., were mounted, 73 record maps revised and 20 new record maps were drawn.

The work has been steadily increasing during the year, and I desire to record my appreciation of the manner in which all members of the staff have carried out their duties.

## WELLINGTON LAND DISTRICT

(T. S. ROE, Chief Surveyor)

## FIELD-WORK

During the year field operations have been confined mainly to rehabilitation land-settlement surveys. Topographical surveys of 16 blocks, comprising a total area of 23,400 acres, have been completed. Eight blocks of a total area of 7,546 acres have been subdivided into 35 units. Topographical surveys in hand or awaiting survey, 7 blocks, 16,000 acres; and 4 blocks are being subdivided or awaiting survey into 12 sections, total area, 2,600 acres. Several large blocks are being developed and will be subdivided at a later date. In most cases a complete topographical survey has been made, showing contours, fences, buildings, areas in bush, scrub, swamp, &c., and areas in grass or crops, with a description of the types of pastures or crops. On flat areas a comprehensive level survey has been made to facilitate drainage schemes.

In some cases subdivisional surveys have been carried out by contract surveyors, and as the work is increasing it will in future be necessary for most of this work to be done by contract surveyors. The surveyors are now equipped with well-appointed trucks fitted with box-van bodies, which greatly assist in carrying out the work expeditiously and efficiently.

The mapping party, under the charge of Mr. W. Watson, carried on operations in the Wairarapa district until August last, when it was found necessary to disband the party, as the field staff was required for more urgent rehabilitation land-settlement surveys. It is hoped that field staff will be available in the near future to continue this most important work, until the whole of the district has been covered.

It was hoped that a start would be made on the revision and extension of the Wellington standards, but again, owing to shortage of staff, this very necessary work has had to be postponed.

No triangulation work has been done during the year.

Complaints have been received from private surveyors that several trigs around Wellington City and the vicinity have either been destroyed or obscured by trees; also in a number of instances the signals are down. I hope that it will be possible to carry out the necessary repairs in the near future, and also that revision of minor triangulation can be proceeded with.

An extensive topographical survey for the Housing Department in the Porirua-Titahi Bay area has been commenced. Mr. J. P. Arthurs is in charge of operations, and the work is being done by stadia survey to allow for 5 ft. contours plotted on a scale of 1 chain to an inch.

One inspection survey was carried out by Mr. A. E. Christian, and an investigation survey by Mr. N. J. Gardiner; but more inspections are necessary to ensure that a high standard of work is maintained, both as to measurements and ground marking.

A series of levels were taken by Mr. N. J. Gardiner to check the tide gauge installed on the Wellington wharf. He also carried out a survey for Army Department at Wrights Hill, fixing a miniature range.

Housing and various legalization surveys were all done by contract surveyors.

## OFFICE WORK

Rehabilitation land-settlement operations and urgent work for other Departments has occupied most of the time of the draughting staff, so that routine work has been somewhat neglected. Although a number of draughts-



men have returned from military service, the shortage of trained draughtsmen and computers is still a problem in this Office.

An investigation into the map record system in the Valuation Department was carried out, and proposals formulated for the long-term work involved in the completion of an entirely new set of record maps for that Department. The work has been commenced by the draughting staff of this office, and is proceeding satisfactorily.

Base maps have been prepared for Regional Planning Councils, and investigation into the formulation of standard methods carried out.

The photostat machine is in constant use. Approximately two-thirds of the photostat prints produced are for other Departments, local bodies, or private surveyors.

The following is a summary of work carried out: 133 plans were received and 119 plans were approved; 5 Native plans were received and 6 were approved; 181 diagrams were drawn on warrant titles, 71 diagrams on leases, and 32 diagrams for Native Land Court orders; 37 plans of town schemes were examined and subsequently approved by the Minister; 155 tracings were made, 11 record sheets were drawn.

Maps of Wanganui and Palmerston North Cities were revised, and those of Wellington City and Upper Hutt are in hand. Six survey district maps were partly revised.

Seventy-two survey plans and 20 topographical plans were drawn, and 10,749 photostats were made.

Fourteen preliminary plots were made for a stadia survey of housing area at Porirua.

Census maps of sub-enumerator's districts were mounted and coloured.

Miscellaneous work included searches, preparation of survey data, colouring photostats and mounting, much of it in connection with rehabilitation.

Lithos amounting to £292 7s. 3d. and plan forms, &c., valued at £82 13s. 3d. have been disposed of.

Sub-receiver's cash amounted to £224 5s. 9d.

The sum of £381 0s. 4d., plus £297 4s. 7d. interest, was received in payment of survey liens.

*Land Transfer Branch.*—The work in this branch has increased considerably, both new plans, diagrams, and dealings show an increase of more than 50 per cent. during the last two years. Here again, owing to shortage of trained staff, the record maps are not up to date, and a considerable amount of redrawing of plans and maps is necessary. Two hundred and seventy-five plans were received, 274 were examined and approved, and 35 are awaiting examination. Three thousand, nine hundred and forty diagrams were drawn, 8 tracings made, 1 new plan drawn for office use, and 2,269 miscellaneous dealings checked.

In conclusion, I wish to express my appreciation of the manner in which all members of the staff have carried out their duties under the capable supervision of the Land Transfer Draughtsman, Mr. F. S. Little, and the Senior Draughtsman, Mr. C. H. Wright.

MARLBOROUGH LAND DISTRICT  
(G. W. NELSON, Chief Surveyor)  
FIELD-WORK

This year has seen the completion of the major survey work on the South Island Main Trunk Railway; minor additions or alterations and the preparation of the land plans still remaining to be attended to. Rehabilitation of servicemen by land settlement has brought a considerable amount of work; topographical and subdivisional survey and the precise search of several hundred of titles as well as the preparation of numerous tracings, plans, and prints.

*Settlement Surveys: Rehabilitation.*—Topographical surveys have been carried out over an area of 6,755 acres at an average cost of 41d. per acre, and subdivisional surveys, totalling 2,060 acres, providing nine units have been undertaken.

*Village and Suburban.*—One local survey undertaken for this Department cost 18.5s. per acre, but isolated and outlying surveys done for other Departments have averaged 641s. per acre.

*Housing Subdivisional Survey.*—Six lots in the Borough of Blenheim, totalling 1 acre 1 rood 39.5 perches, were surveyed at a cost of £2.73 per lot. A further survey of 31 lots in the Kaikoura is at present in hand.

*Road Surveys.*—Two miles of road survey were undertaken at a cost of £27.83 per mile, and one involved deviation survey, covering 8 chains, has cost £24 10s. 1d.

*Maintenance of Survey Marks.*—Standard maintenance in the Borough of Blenheim has called for the expenditure of £38 16s. 7d.

*Inspection and Investigation.*—An investigation of triangulation in the Sounds area, street alignment in Blenheim, and boundaries of the Beach Road, Kaikoura were undertaken, costing in all £68 14s. 9d.

*Other Work.*—Two miles of levelling in drainage work at the Wairau Pa and Speeds Farm Development Blocks, compass traverse of some 8 miles of fencing, and the investigation of water-supplies and road access in several servicemen's settlement blocks, the interpretation of aerial photographs for the investigation into the proposed Clarence River Hydro-electric Scheme, and the Survey and calibration of D/F Aerials for the Blenheim Aeradio Station were some of the undertakings included in the cost of £284 3s. 2d. accounted to "Other Work."

*Proposed Operations 1946-47.*—The completion of the South Island Main Trunk Railway land plans, the topographical and subdivisional survey of further blocks for rehabilitation and settlement of servicemen, the subdivisional survey of land for housing purposes, and the survey of main highways deviations are proposed to be undertaken. If possible, the completion of the Pelorus rural standard and Pelorus sound triangulation will also be taken in hand.

OFFICE WORK

The draughting staff has compiled or has drawn from the surveyor's field notes a total of 21 plans, and has examined 65 plans, of which 48 are approved, the balance being on requisition to surveyors. A further 18 plans await examination. The revision of five cadastral and two record maps were undertaken, 29 census maps prepared, and 48 diagrams drawn for Crown leases and miscellaneous documents. Four hundred and ninety-three tracings, 195 helio prints, 1,452 title searches, and 1,104 posters for settlement purposes were made, while 220 plans were mounted, and 2,070 aerial photographs indexed and recorded. Lithographs to the value of £1,820 are held in stock,

and disposals during the year amounted to £140 13s. 7d. During the year the Senior Draughtsman, as Secretary to several Domain and Scenic Boards, handled approximately £800 in cash receipts and a similar amount in expenditure.

*Land Transfer.*—Thirty-six plans were examined; of these, 31 were approved, the remaining 5 being returned on requisition to the surveyors. Three hundred and seventy-four diagrams were placed on titles and 177 searches made.

*Conclusion.*—In recording my appreciation of the co-operation of my staff, which has been most willingly and loyally given, I wish to compliment each of them on the diligent, conscientious, and efficient attention given to their duties.

## NELSON LAND DISTRICT

(A. W. CRAIG, Chief Surveyor)

### FIELD-WORK

*Military Mapping.*—The final work on some 347 square miles of military mapping was completed on the Cobb, Takaka, and Aorere sheets; the final drawing of these three sheets is well in hand and should be completed shortly.

*Topographical Survey for Development.*—A small area of 120 acres was covered to provide data for subdivision into three tobacco-growing units. Owing to the lack of survey work that could be found in the locality, extra work was required to connect from the nearest survey. The cost per acre on this small survey was therefore materially increased.

*Rural Surveys.*—Two surveys for returned servicemen were made under this heading. The previous titles were "limited as to parcels," and a good deal of work was involved in the survey. The third survey of 1,500 acres was an area required for hydro-electric-development purposes at the Cobb, and was in rough bush country.

*Village and Suburban.*—Only one Survey was made under this heading—a proposed village-site for the Public Works Department at Upper Takaka.

*Town Section Survey.*—One survey was made of a 32-perch lot on Crown land, and two surveys in different parts of the district were made for the Public Works Department. Travelling-costs in the latter case added to the cost of the work.

*Housing Surveys.*—Some 20 lots were laid off in two surveys by the staff surveyor at a cost of £4.2 per lot; and some 7 lots in three separate surveys were laid off by a private surveyor at a cost of £8.4 per lot.

*Standard Survey.*—Some 4 miles of this survey to the standard of city work was completed on the closely populated rural area between Richmond and Stoke; and a quarter of a mile of city standard work was done in streets not covered in previous city standard surveys, but now required by extension of residential subdivision in the city.

*Rural Standard Survey.*—A short distance of  $1\frac{1}{4}$  miles at Upper Takaka was covered in this survey, in the neighbourhood of the proposed village.

*Road Surveys.*—Some 4 miles of widening on the Stoke-Richmond State Highway was completed for the Main Highways Board. This work was commenced in the early part of the war, but had to be discontinued owing to military mapping work. A further survey of 6 miles of access road to the Cobb Power-house site was also completed.

*Maintenance of Survey Marks.*—This has covered the raising and replacing of quite a number of city standard blocks buried or removed in street formation operations.

*Inspection and Investigation Surveys.*—An increasing number of these surveys is required as time goes on, as more defects in the early surveys are brought to light. The work done during the past year was necessitated in investigating old work near Brightwater, when discrepancies in early land-transfer surveys were found.

*Other Work.*—This covered nine surveys and reports, the biggest item being a survey for the Public Works Department of a river-diversion channel at Takaka, some 1 mile in length, and which involved quite an amount of investigating and straightening out old titles.

#### OFFICE-WORK

Under this heading 202 survey plans have been received, of which 195 were examined and approved—154 land transfer, 22 for local bodies, and 19 for the Crown. Eleven plans were drawn in the office from the surveyors' notes and 13 plans were compiled. One thousand two hundred and fifty-eight diagrams were endorsed on certificates of title for the Land Transfer Office, 302 diagrams placed on Crown leases, and 20 diagrams on warrant titles. Four hundred and ninety-eight tracings were made for survey data for other Departments and for office requirements. Two hundred and fifty-nine mountings were made and 71 sun-prints taken. Four drawings were revised for publication, and a considerable number of plans were recorded on block sheets.

I have to record my appreciation of the work done by the staff of this office and of the happy relations existing amongst the members.

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#### WESTLAND LAND DISTRICT

(J. W. McINTYRE, Chief Surveyor)

#### FIELD-WORK

*Field Staff.*—This year there were no staff surveyors engaged on field-work. As time permitted, the more urgent departmental surveys were carried out by myself, leaving the remainder of the work to private surveyors.

*Town Section Survey.*—This work covers 12·47 acres, subdivided into 33 sections, mostly for residential sites.

*Road Survey.*—This item covers 1·25 miles of road deviations required mainly by the Public Works Department. In addition, 0·75 of a mile of road deviation was carried out by a private surveyor. Twenty-eight miles of road surveys are in hand, but, due to the importance of this work, it has been considered advisable to wait until a staff surveyor is available.

*Maintenance of Survey Marks.*—This item covers the alteration of the position of a trig. station, which was close to the edge of a large drain and was becoming undermined.

*Inspection and Investigation.*—Eight surveys were carried out covering inspections to ascertain if a reasonable standard of work was being maintained by private surveyors and dealing with differences of origin of bearings and disturbance of survey marks.

*Other Work.*—Under this heading 28 surveys were completed, and cover chiefly compass surveys, plans, and reports of agricultural or pastoral lands damaged by dredging operations, locations of boundary marks, &c.

*Proposed Operations.*—For the coming year there are 400 acres of rural land, 28 miles of roads, and a number of small surveys in hand, sufficient to engage a staff surveyor for the next three years.

## OFFICE WORK

*Staff.*—Due to the absence of officers on military service in the earlier part of the year, much of the office work had to be held in abeyance. Towards the close of the year the position improved when Messrs. E. McPadden and E. Wickes returned from military service and Mr. A. C. Adamson was transferred from Blenheim.

*General.*—Plans examined and approved during the year numbered 51, comprising 21 land transfer, 20 Crown lands, and 10 for other Departments. Most of the departmental plans are now prepared by the draughting staff. Five hundred and eighty general tracings were prepared and 109 mining applications reported on; 534 searches were made, 792 diagrams drawn, 107 sunprints taken, 74 maps mounted, 43 maps prepared for census, regional-planning, and land-sales purposes. The staff has had a very busy year, and I desire to record my appreciation of the loyal-co-operation and attention to duties of all officers.

## CANTERBURY LAND DISTRICT

(T. S. McMILLAN, Chief Surveyor)

## FIELD-WORK

*Settlement Surveys for Rehabilitation.*—These surveys occupied the major portion of the year for all the staff surveyors, 14 blocks being surveyed, providing 50 sections and totalling 30,152 acres, but the plans have not yet been completed of 6 of the blocks.

*Triangulation Surveys.*—No surveys under this heading were carried out during the year.

*Topographical Surveys.*—Seven topographical surveys were made of the blocks acquired for rehabilitation purposes, and these surveys covered 17,762 acres.

A 10 ft. contour survey was also made of 900 acres adjoining Hanmer Township for town-planning purposes in connection with the future extension of the township.

Form N.18 shows 243 square miles of contoured topographical survey which is contained in the 1 : 25000 series, Sumner, Christchurch, Lyttelton, Halswell, Styx, West Melton, and Lincoln Sheets, the field-work of which has been completed for some time and has been carried forward from year to year.

*Standard Surveys.*—No standard surveys were carried out.

*Precise Levelling.*—No surveys were made under this heading.

*Rural Surveys.*—Three thousand four hundred and sixty-nine acres of rural land were surveyed, and comprised resubdivisions of the Doyleston (4 sections), Mead (2 sections), and Lyndhurst (7 sections). Settlements, linen-flax-factory sites at Methven (1 section), and Leeston (2 sections) and severances caused by the Rangitata diversion race (8 sections).

*Village and Suburban.*—Some 77.65 acres, subdivided into 23 sections, comprised the work under this heading, and included a recreation reserve and a wool-shed site at Motunau, five racemen's cottage-sites in Mid-Canterbury, Housing Department purchases at Rangiora and Ashburton, plant and stores depots for the Public Works Department, a homestead-site at Medina, a sub-station-site at Temuka, and an area for defence purposes (Mead Settlement).

*Town Surveys.*—The only surveys of this nature were for the Housing Department as shown below.

*Housing Section Surveys.*—One hundred and eight sections, with a total area of 25.26 acres, were surveyed for the Housing Department, and these were located at Christchurch, Bryndwr, Lyttelton, Rangiora, Ashburton, and Timaru.

*Native Surveys.*—Two surveys of Native lands were carried out, and entailed the subdivision of 2 original sections into 5 new allotments, totalling 28·61 acres.

*Road Surveys.*—The 3·29 miles under this heading included the new highway from the City to Sockburn and a small road deviation survey at Duvauchelle.

*Maintenance of Survey Marks.*—Survey maintenance was rendered necessary by the activities of local bodies and required the inserting of twenty-two standard stone covers and the general protection of survey marks.

*Other Work.*—Other work included chain-testing, location of boundaries, a homestead-site and pipe-line easement at Port Levy, centre-line of proposed road in housing subdivision, and the completion of the partly surveyed portion of the Rangitata diversion race. This latter work was completed by a contract surveyor at day rates.

#### OFFICE WORK AND GENERAL

One hundred and seventy-three plans were examined and passed, compared with 47 for the previous year, and 270 diagrams were placed on instruments of title, leases, &c., while 356 tracings and 3,636 photostats were produced during the year and 70 town schemes were approved. In the offering of sections to returned servicemen 3,600 diagrams were prepared for use as sale plans.

Sixty-five working-plans were plotted and drawn, as were 28 topographical plans of areas in connection with the rehabilitation of returned servicemen. One sheet of the 1-mile provisional series was drawn, 13 cadastral maps were revised, and one 20-chain record map was compiled.

Miscellaneous work of investigation searching, &c., concerning blocks for rehabilitation, land sales, and descriptions for gazettal for various purposes occupied a considerable amount of the time of the draughting staff.

#### LAND TRANSFER BRANCH

Plans approved in this Branch numbered 274, and 3,338 diagrams were placed on instruments of title. Recording and indexing was kept up to date, 2 new index maps were drawn, and 128 tracings were prepared for the Valuation Department.

In conclusion, I would like to place on record my appreciation of the manner in which the staff under my control carried out their duties in dealing with the increased amount of work performed during the year.

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#### OTAGO LAND DISTRICT (H. A. ADAMS, Chief Surveyor)

##### FIELD-WORK

*Settlement Surveys: Rehabilitation.*—Topographical surveys for the purpose of preparing the final schemes of subdivision have been carried out over 17,630 acres, and, in addition, 8 single units of an area of 1,975 acres have had topographical surveys prepared of them.

This work is practically up to date, and, with the exception of 313 acres, was all carried out by staff surveyors.

The subdivisional surveys of five properties containing 6,284 acres, divided into a total of 14 farm units, have been completed, and the subdivision of a further 11,346 acres into 19 farm units is in hand.

As well as the above work, 7 single-unit properties have been redefined for the purpose of lifting limitation on titles. In this group 1,858 acres have been surveyed, 3 properties, totalling 803 acres, by private contract, and 1 unit, also by private contract, is in hand.

Owing to shortage of staff surveyors it will not be possible, in view of topographical survey requirements, to cope with all subdivisional work, and a large proportion of such will have to be allocated to private surveyors.

Progress may be retarded as all private surveyors are practically fully engaged.

*Triangulation (Third Order).*—One staff surveyor completed 32 square miles at a cost of £3 15s. per square mile.

*Suburban Surveys.*—An area of 2 acres 2 roods 35 perches was surveyed by a staff surveyor at a cost of 88·7s. per acre.

*Town Surveys.*—Two staff surveyors and two contract surveyors surveyed 77 sections at a cost of £4·72 per section. The resurvey of part of Town of Wanaka accounted for 50 of these sections.

*Housing Surveys.*—A total of 142 sections were surveyed by three contract surveyors at a cost of £3·18 per section. Of these sections, 102 form part of the Corstorphine Housing Block, 29 sections in the Wakari district, 10 sections at Palmerston, and 1 at Mosgiel.

*Standard Survey: (Rural).*—Of the Leith-Waitati Road, 6½ miles were finalized at a cost of £30·6 per mile, which completes this work.

*Road Surveys.*—The Leith-Waitati Road survey was completed, comprising 6½ miles and 1½ miles of road deviations completed at Roxburgh, and two small road deviations of 1 mile at Waikouaiti and Clinton were also carried out, the cost for the 9 miles being £51·7 per mile.

*Inspection and Investigation Surveys.*—The inspection of 6 surveys was carried out at a cost of £7·2 per survey.

*Maintenance of Survey Marks.*—Reference marks for S.S. blocks, Dunedin City, were fixed at a cost of £1 16s. 1d.

*Proposed Operations.*—Completing rehabilitation surveys at Taieri and Awamangu and periphery survey of Island Block Farm Settlement, &c.

#### OFFICE WORK

*Land Transfer.*—During the year 138 plans were received for examination, and 130 plans containing 484 lots of a total area of 1,183 acres were approved.

One thousand one hundred and four dealings were examined and passed and 1,994 diagrams placed on instruments of title.

*Plan Preparation and Examination.*—During the year 82 plans were received, comprising 49 Crown and 33 for other Departments. Of these, 43 were drawn in the office and 21 were compiled from official records. Eighty-two plans were examined, including 46 Crown and 36 for other Departments, and 80 plans were approved, 39 of these being Crown and 41 other Departments.

*General Draughting.*—The final drawings for 1 in. provisional sheet S. 161 were completed, 2 index record maps were drawn and 4 block sheets redrawn, 6 tenure maps prepared, 134 plans recorded, 717 tracings prepared for office use, and 81 tracings for other Departments, 237 prints and 50 photo-stats were prepared, 574 lithographs and tracings mounted, including 18 scheme plans which were forwarded for approval. Sixty-five diagrams were placed on leases, and 225 searches made mostly in connection with land sales and properties offered to the Crown.

*Scheme Plans.*—Nineteen town schemes were received, 18 being approved. These comprised 121 saleable lots of a total area of 34 acres 1 rood 32·88 poles, road reserves 3 acres 9 poles, and reserves 1 acre 9·6 poles.

*Lithographs and Sundry Cash Sales.*—Sales of lithographs for cash amounted to £280 16s. 6d., a substantial increase over last year's sales; issued to other Departments, £41 1s. 9d.; and office use, £80 0s. 9d. The increase in office use over last year being on account of maps supplied for Regional Planning. The sale of protractor forms and departmental publications realised £28 0s. 9d., and for office use £4 17s. Maps to the value of £34 5s. were used in connection with the census, but this amount is not included in the above.

I have to express my appreciation of the work carried out by the survey and draughting staffs and for their loyal co-operation during the last twelve months.

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SOUTHLAND LAND DISTRICT  
(A. C. HAASE, Chief Surveyor)

FIELD-WORK

*Settlement Surveys: Rehabilitation.*—During the year topographical surveys of 14 properties, either acquired or under consideration and containing a total area of 25,948 acres, were completed at a cost of approximately 5d. per acre.

Two blocks, containing a total of 2,180 acres, were subdivided into 5 holdings, and the subdivision of a further 5,172 acres is in hand.

*Military Mapping 1:63360 (Provisional Series).*—Messrs. W. G. Nelson and R. P. Gough, assisted by civilian personnel, were employed on this work. Mr. W. G. Nelson left early in June, 1945, to take up his duties as Deputy Chief Surveyor, Blenheim, and since then Mr. Gough has been in charge of the field operations; 945 square miles were mapped in 575 topographer days, or an average of 1·6 square miles per topographer day. In conjunction with this work, erection of signals and field-work in connection with second-order triangulation was also carried out.

*Village and Suburban.*—Two surveys, one an addition to the Tuatapere Domain and the other a Crown land survey, were completed, containing a total area of 135 acres 3 roods 38 perches at a total cost of £94 8s. 1d., or 13·888s. per acre.

*Towns.*—Two surveys (excluding those for the Housing Department), one of 34 boat-shed sites at Lake Te Anau, and the other of 3 lots for a training-school site for the Rehabilitation Department in Invercargill, containing a total area of 3 acres 0 roods 2·07 perches, were completed at total cost of £55 14s. 6d., or £1·506 per section.

*Housing Subdivisions.*—Three surveys containing a total area of 3 acres 1 rood 4·3 perches comprised in 19 lots were completed at a total cost of £60 18s. 3d., the average cost per subdivision being £3·206.

*Roads.*—Five surveys, 2 for the Native Department and 3 for the Public Works Department, of a total length of 3·375 miles, were completed at a total cost of £172 10s. 7d., or £51·12 per mile.

*Other Work: Lands and Survey Department.*—This comprised compass traverses and levelling; the relocation of boundaries and the replacement of the Tide Gauge at Bluff.



*Other Work: Other Departments.*—This consisted of compass traverses and the relocation of boundaries on Native land development schemes, inspection of proposed State forest boundaries, work for the Police Department, and the examination of Land transfer plans.

*Proposed Operations.*—Work to be completed by Mr. H. M. Smith consists of 5,172 acres acquired for subdivision and settlement under the Servicemen's Settlement and Land Sales Act, 6 miles of road deviation, 6 acres 1 rood 34 perches for the Housing Department, a school-site, and a domain block of a total area of 8·5 acres.

#### OFFICE WORK

*Military Mapping.*—The master sheets of S. 150, Mossburn, and S. 162, Lawrence, were prepared for the field parties. The topographical detail has been completed on S. 162 and also S. 154, Middlemarch.

The final drawing of S. 161 was completed, and that of S. 159, Morley, practically completed.

*Land Transfer Department.*—Six members of the staff have been engaged part time on draughting and computing work for the Lands and Deeds Department. Of the 54 plans received and those in hand at the end of last year, 33 were examined and approved, containing a total area of 1,230 acres 2 roods 19·14 perches, comprised in 62 lots, 9 plans are in process of examination and 17 are awaiting action. Eight hundred and sixty-six diagrams comprised in 422 dealings were examined and passed, and 7 plans were recorded on index record sheets. In addition, 9 diagrams on transfers and leases were examined and general computations carried out in connection with the preparation of certificates of title.

*Plan Examination: Crown, &c.*—Twenty-four plans of surveys for local bodies, Housing and other Departments and of Crown land, containing a total of 1,172 acres 0 roods 11·7 perches, were examined and passed. Thirty-eight tracings, 42 schedules, and 26 traverse sheets accompanying the above were also examined. Fifty-one plans were received.

*Draughting.*—Forty-nine diagrams were placed on various Crown leases.

The following tracings were prepared and examined: Working data, 278; Miscellaneous, 211; Proclamation, 36; Poster, 4; Valuation, 18; total, 547.

Seven survey plans were drawn from field notes, and 1 record map compiled.

*General.*—Four hundred and forty-two lithos were mounted, 25 lease and Proclamation descriptions prepared, 669 lithos coloured, 239 sun-prints made, 389 searches made, 45 plans recorded, and 18 *Gazette* notices recorded.

*Conclusion.*—The end of hostilities has brought with it increased activities in all branches, and particularly work in connection with the investigation, inspection, acquisition, and subdivision of land under the Servicemen's Settlement and Land Sales Act, 1943. The return of personnel from the Services is slow, but it is pleasing to report that those who have returned are applying themselves to their work very well. Without exception, the co-operation of the staff has been splendid, and I wish to record my appreciation of their services.

*Approximate Cost of Paper.*—Preparation, not given; printing (760 copies, £45)

