

1948  
NEW ZEALAND

---

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, 22nd July, 1948.

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 ending 31st March, 1948.

I have, &c.,

R. G. DICK,

Surveyor-General.

The Hon. Minister of Lands.

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**REPORT**

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THIS year has been unique in that not only has the volume of work been maintained at a higher level than in any previous year, but also the Department has been called on to undertake wider responsibilities in connection with the production of maps and charts for civil and defence purposes.

The recruitment of office staff has been kept at the maximum of available applicants, but is not yet sufficient to cope with the accumulation of work and the new responsibilities mentioned above. The shortage of surveyors is a serious handicap to progress in essential survey operations urgently required for a multitude of purposes. Some benefit will be derived as new recruits to the office staff gain more experience and as survey cadets at present in training qualify as surveyors.

Due to the demand for the services of surveyors both within and outside the Service, it has not been possible to attract surveyors into the Department. The number of staff surveyors has been further reduced to twenty-six, practically all of whom are engaged on land-settlement surveys. Basic survey works such as topographical mapping, precise levelling, survey control traverses, and survey maintenance are, however, entirely at a standstill. This state of affairs will seriously handicap progress in many fields of engineering, scientific, and national development. It will be necessary to at least double field staff if any attempt is made to deal adequately with this work.

Reference will be made in the detailed report which follows to the serious position that has arisen in regard to arrears of work, staff shortage, and additional functions and responsibilities.

### ROUTINE ACTIVITIES

The following schedule summarizes the field-work carried out by staff and contract surveyors for the year ending 31st March, 1948:—

#### SUMMARY OF FIELD-WORK

Class of Survey.	Area or Mileage, &c.	Average Cost.	Total Cost.	
			£	s. d.
Geodetic triangulation .. .. .	.. .. .	.. .. .	3,291	7 10
Minor triangulation .. .. .	1,693 square miles	13-42s. per square mile	1,135	17 9
Topographical mapping (1 : 63360) .. .. .	784 square miles	£5-30 per square mile	4,156	16 0
Topographical survey for settlement .. .. .	227,639 acres .. .. .	6-41d. per acre .. .. .	6,081	5 7
Topographical survey for housing .. .. .	566 acres .. .. .	45-96s. per acre .. .. .	1,300	13 9
Rural and settlement surveys .. .. .	132,271 acres .. .. .	2-66s. per acre .. .. .	17,578	10 3
Village and suburban surveys .. .. .	746 acres .. .. .	67-87s. per acre .. .. .	2,531	12 11
Town and housing section surveys .. .. .	2,149 lots .. .. .	£4-44 per lot .. .. .	9,547	9 7
Maori land surveys .. .. .	1,851 acres .. .. .	8-75s. per acre .. .. .	810	1 5
Standard surveys .. .. .	9-5 miles .. .. .	£50-56 per mile .. .. .	480	7 8
Road and railway surveys .. .. .	41-75 miles .. .. .	£54-66 per mile .. .. .	2,282	6 1
Maintenance of survey marks .. .. .	.. .. .	.. .. .	710	9 7
Inspection and investigation surveys .. .. .	.. .. .	.. .. .	1,699	3 9
Precise levelling .. .. .	.. .. .	.. .. .	64	2 9
Location of boundaries and compass surveys .. .. .	.. .. .	.. .. .	1,138	9 0
Police surveys and Court attendance .. .. .	.. .. .	.. .. .	254	3 0
Extra-urban planning .. .. .	.. .. .	.. .. .	1,253	2 4
Miscellaneous .. .. .	.. .. .	.. .. .	2,751	2 6
Total cost .. .. .	.. .. .	.. .. .	57,067	1 9

This summary comprises all classes of survey work carried out by staff and contract surveyors, the bulk of the expenditure being confined to three items—namely, (i) topographical surveys for land-settlement, 227,639 acres (192,563); (ii) rural and land-settlement title surveys, 132,271 acres (90,308); and (iii) town and housing section surveys, 2,149 lots (1,614), last year's figures being shown in parentheses.

The larger expenditure under topographical mapping (1 : 63360) is an amount brought forward from previous years for topographical maps published during the year. No actual field-work was carried out under this heading during the year.

The item "Extra-urban planning" covers the cost of the preparation of basic maps for various extra-urban planning requirements and includes the preparation of two schemes at Tekapo (South Canterbury) and Wanaka (Central Otago), which are nearing completion.

Except for the item "Geodetic triangulation," which is dealt with later in the report, the schedule bears out the fact that essential basic control surveys are falling into serious arrears.

## SURVEYS FOR LAND-SETTLEMENT

District.					Preliminary Topographical Surveys.	Final Land Title Surveys.	Number of Units.
					Aeres.	Aeres.	
Auckland and North Auckland	..	..	..	..	21,024	16,411	121
Gisborne	..	..	..	..	8,931	20,230	19
Hawke's Bay	..	..	..	..	21,298	12,424	34
Taranaki	..	..	..	..	4,216	1,129	17
Wellington	..	..	..	..	29,559	5,917	33
Marlborough	..	..	..	..	13,268	10,580	8
Nelson	..	..	..	..	950	380	2
Westland	..	..	..	..	..	571	9
Canterbury	..	..	..	..	28,451	13,722	36
Otago	..	..	..	..	71,782	9,127	12
Southland	..	..	..	..	28,152	8,001	14
Totals	..	..	..	..	227,631 (141,312)	98,492 (61,209)	305 (219)

(Last year's figures are shown in parentheses.)

This table summarizes the actual areas, for land-settlement purposes, dealt with in the field during the year, part of the costs of which will be carried forward to the following year.

It will be noted that there has been a considerable increase in output over the previous year. So far the major portion of this work has been carried out by staff surveyors, but with the increase in land purchases it will be necessary during the coming year to let out more of this work on contract to private practising surveyors.

## COST OF SURVEY WORK APPORTIONED TO THE VARIOUS DISTRICTS

District.	By Staff Surveyors.		By Contract Surveyors.		Totals.	Percentage.	Number of Surveyors.	
	£	s. d.	£	s. d.			Staff.	Contract.
Head Office	3,291	7 10	..	..	3,291 7 10	5.8	1	..
Auckland and North Auckland	13,927	1 4	4,967	5 5	18,894 6 9	33.1	6	33
Gisborne	2,161	13 1	..	..	2,161 13 1	3.8	2	..
Hawke's Bay	3,190	1 0	220	4 4	3,410 5 4	6.0	3	3
Taranaki	2,398	4 0	145	0 6	2,543 4 6	4.5	2	2
Wellington	5,298	19 7	4,287	14 10	9,586 14 5	16.8	2	19
Marlborough	1,288	9 8	172	18 6	1,461 8 2	2.6	1	1
Nelson	1,744	1 5	..	..	1,744 1 5	3.0	1	..
Westland	330	18 4	494	17 11	825 16 3	1.4	..	1
Canterbury	5,279	12 0	1,027	8 10	6,307 0 10	11.0	3	7
Otago	2,660	19 5	1,686	12 8	4,347 12 1	7.6	3	5
Southland	2,493	11 1	..	..	2,493 11 1	4.4	2	..
Totals	44,064	18 9	13,002	3 0	57,067 1 9	100.0	26	71
	(40,848	1 6)	(8,764	8 6)	(49,612 10 0)		(27)	(59)

(Last year's figures are shown in parentheses.)

This table analyses the apportionment of the cost of surveys carried out under the authority of the Chief Surveyors of the various districts. More use has been made of the services of contract surveyors, the number of contracts issued being 87. It is intended to make still more use of the contract system during the coming year.

## FIELD-WORK IN HAND

The following summarizes the field-work awaiting action which it is hoped to put in hand during the coming year :—

- (1) Geodetic triangulation .. .. . Longitude observations.
  - (2) Second and third order triangulation (Rotorua-Taupo district) 3,000 square miles.
  - (3) Standard traverses (Rotorua-Taupo district) .. 90 miles.
  - (4) Precise levelling—
    - Waikato Valley .. .. . 90 miles
    - Rimutaka Tunnel .. .. . 20 miles
    - Hutt Valley - Wellington .. .. . 30 miles
    - Wanganui City .. .. . 20 miles
- 160 miles.
- (5) Topographical mapping (1 : 25000 and 1 : 63360), (Rotorua-Taupo District) .. .. . 2,000 square miles.
  - (6) Topographical surveys for land-settlement .. 110,000 acres.
  - (7) Land title surveys for settlement .. .. . 250,000 acres.
  - (8) Town and housing sections .. .. . 6,000 lots.
  - (9) Maori land surveys .. .. . 1,700 acres.
  - (10) Road legalization surveys .. .. . 200 miles.

This programme lists only those works which are urgently required and for which instructions have been issued. It is essential to proceed with the mapping of the Rotorua-Taupo district in order to have data available for the closer study of the potentialities of the large undeveloped areas in this region for land and forest development, with its many ancillary problems of communications, electric-power (hydro and thermal), tourist development, &c.

The accomplishment of such a programme is entirely dependent on the availability of field staff.

TOWN SCHEME SUBDIVISIONS  
(Land Subdivision in Counties Act, 1946)

The following table summarizes the number of scheme plans, saleable lots, areas set aside as Crown land, and reserves and cash received in lieu of land dealt with in accordance with the provisions of the Land Subdivision in Counties Act, 1946, for the year ending 31st March, 1948 :—

*Town Scheme Subdivisions, 1947-48*

District.	Number of Plans.	Number of Saleable Lots.	Cash Payments in lieu of Reserves.	Areas set aside.		Area : Roads.	Total Area.
				Crown Land.	Reserves.		
Auckland and North	204	2,984	£ s. d. 1,675 2 9	A. R. P. 1 3 24	A. R. P. 94 0 21	A. R. P. 135 3 20	A. R. P. 1,350 2 29
Auckland							
Gisborne ..	12	37	43 12 0	..	0 2 04	0 0 02	14 1 13
Hawke's Bay ..	16	77	586 3 10	..	0 0 23	2 1 23	45 3 31
Taranaki ..	14	26	40 8 6	..	..	0 1 15	39 1 00
Wellington ..	48	1,343	309 12 2	0 2 23	104 0 22	57 3 38	571 2 22
Marlborough ..	16	70	202 1 0	..	0 1 09	1 1 33	40 1 39
Nelson ..	55	167	880 7 11	0 1 24	1 1 33	3 3 33	116 1 18
Westland ..	2	19	30 6 4	..	..	0 1 06	4 1 24
Canterbury ..	124	783	2,965 4 0	4 1 28	5 3 17	10 2 21	363 0 15
Otago ..	28	238	222 12 11	0 2 35	4 2 06	3 0 18	127 1 28
Southland ..	19	71	140 3 0	0 3 19	0 0 09	1 3 39	20 0 25
Totals ..	588 (617)	5,815 (6,732)	7,095 14 5	8 3 33	211 0 24	218 0 08	2,693 3 04 (2,567 1 00)

(Last year's figures are shown in parentheses.)

Although there has been a slight falling off in last year's totals, nevertheless, the number of saleable lots dealt with is still exceptional.

The Act has been in operation for just over twelve months and has worked smoothly and with a beneficial effect on future urban development. It was necessary to correct two or three anomalies by the insertion of four clauses in the Land Laws Amendment Act, 1947, to provide for machinery matters affecting title registration.

An effective liaison has been maintained with the local authorities, who have in all cases co-operated with the Department.

Except for the Auckland District, where steps are being taken to reduce the accumulated arrears, all work is up to date. In addition to the scheme plans dealt with, each district handles numerous applications for exemptions from the provisions of the Act. The procedure in these cases requires the consent of the local authority before exemption may be granted, thus involving additional routine work.

#### OFFICE-WORK (PLAN EXAMINATION)

The following table summarizes the number of land-survey plans examined and instruments of title prepared for the year ending 31st March, 1948 :—

District.	Plans placed on Instru- ments of Title.	Survey Plans examined and approved.			
		Crown.	Other Depart- ments.	Maori.	Land Transfer.
Auckland .. .. .	18,162	204	205	70	1,050
Gisborne .. .. .	1,057	23	..	4	80
Hawke's Bay .. .. .	1,747	28	..	11	128
Taranaki .. .. .	1,281	16	32	14	117
Wellington .. .. .	7,431	39	105	11	363
Marlborough .. .. .	489	14	24	3	61
Nelson .. .. .	2,072	35	29	..	162
Westland .. .. .	811	30	4	1	37
Canterbury .. .. .	5,506	49	40	3	436
Otago .. .. .	2,372	35	52	..	168
Southland .. .. .	1,758	25	35	3	122
Totals .. .. .	42,686	498	526	120	2,724
Last year .. .. .	(36,338)	(419)	(477)	(70)	(2,399)

A further increase of approximately 15 per cent. in the receipt of land-survey plans for title purposes has taxed the office staff to the utmost in attempting to deal expeditiously with this current and urgent work. There has been an intensification in the training of computers which is having a beneficial effect, particularly as more experience is gained by juniors. The total arrears in plans awaiting examination throughout the Dominion is 837, compared with 926 in the previous years.

#### OTHER OFFICE-WORK

There continues to be a still greater demand for general draughting services for many and varied types of work. The following schedule sets out the output in classes of work that lend themselves to such tabulation :—

Record maps (revised or redrawn) .. .. .	123	(270)
Cadastral maps (revised or redrawn) .. .. .	41	(44)
Tracings .. .. .	7,000	(6,810)
Photostats and prints .. .. .	54,581	(48,064)

Last year's figures are shown in parentheses.

Due to other demands, the vital task of maintaining departmental record maps is falling into serious arrears. Staff that would normally have been employed last year on such records have been engaged on the production of land-holding maps for

the selection of land for settlement. These maps require the compilation of a schedule of land ownerships and the preparation of an index map on a scale of 1 mile to an inch illustrating the location of each separate land holding. This work will be completed during the coming year.

Still greater use is being made of the photostat machine for copying purposes. A new machine is to be installed in the Dunedin office which will relieve the draughting staff of the bulk of the tracing work, which is slow and uneconomic.

#### WARRANTS

During the year, 147 (189) warrants for certificates of title comprising 561 (740) items and 8 (12) proclamations of road-lines under the Maori Land Act, 1931, were dealt with.

#### MAP SALES

The following table summarizes map sales for the year ending 31st March, 1948 :—

Class of Map.	Sold for Cash or Credit.			Free Issues and Office Use.			Totals.		
	£	s.	d.	£	s.	d.	£	s.	d.
Survey districts and counties .. .. .	693	3	3	1,413	4	9	2,106	8	0
Towns .. .. .	438	0	9	263	11	0	701	11	9
Territorial .. .. .	749	14	11	337	12	3	1,087	7	2
Topographical .. .. .	2,025	1	0	739	10	6	2,764	11	6
Miscellaneous .. .. .	296	2	9	88	6	10	384	9	7
Totals .. .. .	4,202	2	8	2,842	5	4	7,044	8	0
Previous year .. .. .	(4,720)	10	1)	(2,132)	15	3)	(6,853)	5	4)

There has been a slight increase in the disposal of maps this year. No attempt has yet been made to popularize the sale of departmental maps, on account of the limited map stocks. However, it is hoped that, in view of additional stocks of topographical maps which may come to hand from other sources during the year, it may be possible to establish map-sales agencies throughout the Dominion.

#### SUMMARIZED EXPENDITURE

The following schedule sets out the salary expenditure for the year ending 31st March, 1948, apportioned to various classes of work in both the office and the field. Relative figures for the previous year are also shown :—

	1947-48.			1946-47.		
	£	s.	d.	£	s.	d.
General (Crown surveys, records, tracings, investigations, diagrams, and general office-work) .. .. .	67,773	16	7	64,940	3	9
Triangulation .. .. .	1,958	2	6	3,024	1	4
Topographical mapping .. .. .	9,849	19	2	9,454	2	6
Standard traverse .. .. .	90	18	9	481	5	4
Survey maintenance .. .. .	627	4	3	516	10	0
Precise levelling .. .. .	329	14	5	648	1	2
Inspection and investigation surveys .. .. .	1,214	14	3	1,218	1	4
Town scheme plans .. .. .	4,450	1	0	1,431	14	0
Land-settlement (topographical and schemes) .. .. .	12,825	5	3	12,412	0	1
Work for—						
Maori Affairs Department .. .. .	3,275	8	3	2,523	11	11
Land and Deeds Department .. .. .	23,799	5	0	18,520	3	3
Public Works Department—						
General .. .. .	4,635	12	3	4,055	5	3
Housing .. .. .	3,445	2	1	3,070	0	2
Other Departments .. .. .	7,549	7	1	9,216	18	1
	<u>£141,824</u>	<u>10</u>	<u>10</u>	<u>£131,511</u>	<u>18</u>	<u>2</u>

The total expenditure apportioned among the various Chief Surveyors' and Head Offices is as follows :—

District.	Expenditure.		Percentage.
	£	s. d.	
Head Office .. .. .	11,467	6 4	8.1
Auckland and North Auckland .. .. .	44,413	14 6	31.3
Gisborne .. .. .	5,689	3 2	4.0
Hawke's Bay .. .. .	9,688	13 7	6.8
Taranaki .. .. .	7,921	15 11	5.6
Wellington .. .. .	18,318	8 7	12.9
Marlborough .. .. .	4,456	8 11	3.2
Nelson .. .. .	5,264	13 7	3.7
Westland .. .. .	2,157	0 2	1.5
Canterbury .. .. .	15,267	7 0	10.8
Otago .. .. .	10,098	13 9	7.1
Southland .. .. .	7,081	5 4	5.0
Total .. .. .	141,824	10 10	100.0

#### SPECIALIZED ACTIVITIES

The following sets out brief reports on survey work of specialized nature carried out during the year :—

##### *Triangulation*

*Geodetic Triangulation.*—(a) Base-line Measurements: The measurement of three base lines in the South Island and the remeasurement of two old base lines in the North Island, which was commenced in February, 1947, was completed during the year. The special base-line equipment loaned by the Tanganyika Government was used and a total distance of thirty-four miles was double-taped in the period February to August, 1947. After the tapes were re-standardized by the National Physical Laboratory, Great Britain, the equipment was returned to Tanganyika.

Preliminary computations show that the results obtained were excellent and compared more than favourably with similar work carried out in other countries.

(b) La Place Longitudes: Observations for La Place longitudes at six stations in each Island will commence in April, 1948, and it is anticipated will be completed by the end of the year. This work will finalize all observations for the geodetic triangulation of the Dominion which was commenced in 1911.

*Second and Third Order Triangulation.*—It was possible during the year to complete the observational work of a section of the second order triangulation in the Southland District, covering an area of 1,500 square miles with thirty-six stations. This will serve to correct the large discrepancies in the old triangulation carried out in that district in the 1860's and 1870's.

Later in the year it is hoped to develop second and third order triangulation in the Rotorua - Taupo - King-Country area for the purpose of controlling the topographical mapping of that area, which is required for national development purposes.

Owing to the shortage of staff it was not possible to complete the precise-levelling traverse required for the purpose of fixing the portals of the proposed Rimutaka Tunnel. Six of the twenty-two miles had been completed up to January, 1947. Further work on this project will be put in hand during the year.

Previous reference has been made in this report to the amount of this type of work that is required by other Departments in various parts of the Dominion.

## TOPOGRAPHICAL MAPPING (MAP SERIES)

No field-work was carried out under this heading. Maps published during the year comprise work that was completed in the previous year, the drawings of which were in hand. The summary of maps published to date is as follows :—

## 1 : 25000 SERIES

	Area (Square Miles).	Number of Sheets.
Maps published at 31st March, 1947 .. .. .	940*	32*
Maps published during year .. .. .	130	3
Mapping in hand .. .. .	1,044	28
Totals .. .. .	2,114	63

\* The number of sheets quoted in last year's report omitted three sheets previously published, and the area actually covered by the sheets was also overestimated.

## 1 : 63360 SERIES

	North Island.		South Island.		Total.	
	Area (Square Miles).	Number of Sheets.	Area (Square Miles).	Number of Sheets.	Area (Square Miles).	Number of Sheets.
Published at 31st March, 1947	18,036	71	27,162	86	45,198	157*
Published during year ..	872	2	436	1	1,308	3
Drawings completed ..	600	3	436	1	1,036	4
Mapping in hand ..	4,000	16	1,800	5	5,800	21
Totals .. .. .	23,508	92	29,834	93	53,342	185

\* Includes five sheets (one in North Island and four in South Island) accidentally omitted from previous year's returns.

It is hoped to proceed with the mapping of the Rotorua-Taupo region later in the year when it may be possible to release field staff from other urgent works. The production of topographical maps are essential to the development of this Dominion and are the only basis for the study and planning of works and programmes.

## AERIAL PHOTOGRAPHY

The services of N.Z. Aerial Mapping, Ltd., Hastings, has been fully employed during the year on the production of aerial photographs for all State Departments. This company still maintains a high standard of production and is now engaged in filling in photographic coverage of more difficult terrain where suitable weather conditions are limited.

Since the company commenced operations under contract in 1939, an area of 45,500 square miles has been covered with vertical aerial photographs on scales of 20 or 30 chains to an inch. Much of this coverage now extends beyond the areas that are comprised in the topographical map series, and, owing to shortage of staff, it will be many years before such photography can be used for mapping purposes. To make fuller use of existing photography it is proposed in the coming year to produce mosaic maps, particularly of unmapped areas, which will greatly assist in the study of the lands of the Dominion for many and varied purposes.

During the year the company photographed an area of 4,740 square miles, mostly on a basic scale of 20 chains to an inch. Much of the area covered was located in the Westland and Southland Districts, where timber-resource investigations are being carried out by the State Forest Service. Special surveys have also been carried out for river control and soil conservation purposes in various catchment districts.

## HEAD OFFICE

During the year it has not been possible to meet in full all the demands made upon the draughting and aerial survey staffs, but every endeavour has been made to fulfil the most urgent requirements. There has been no opportunity to revise many of our basic drawings, and this work will need to remain in abeyance till such time as further staff is available or the many calls from other Departments for special drawings are reduced.

## DRAUGHTING BRANCH

*Maori Social and Economic Advancement Act, 1945*

Little work on descriptions and plans for the many tribal districts and committee areas was carried out during the year, as final data necessary could not be supplied by the Department of Maori Affairs. It is anticipated that this data will be available shortly, and the work will again be put in hand.

*Other Work*

During the year the maps and transparent overlays of four regional areas, on a scale of 4 miles to an inch, were completed and published for the Commissioner of Works for use in regional planning.

A special and comprehensive publicity map of New Zealand with detail insets was drawn for the Tourist Department for overseas distribution, and many itinerary maps featuring special tourist areas were also prepared.

Hydrological maps for the Soil Conservation Council are being prepared, and the Department of Agriculture was supplied with many maps to illustrate articles in their journal.

*Map Publications*

The table below is a summary of the maps published during the year, together with the cost of printing:—

TABLE "A"

Class of Map.	Number of Issues.	Number of Maps printed.	Total Cost.		
Topo maps—			£	s.	d.
1 : 25000 .. .. .	3	9,329	427	5	7
1 : 63360 .. .. .	4	10,688	623	2	8
	(1 reprint)				
Survey districts—					
40 chains .. .. .	35	8,833	402	17	7
80 chains .. .. .	34	1,486	259	14	7
Counties .. .. .	1	400	55	6	10
Boroughs .. .. .	4	914	236	8	8
Territorial .. .. .	4	1,800	220	16	4
Miscellaneous .. .. .	18	6,028	261	1	2
Totals .. .. .	103	39,478	2,486	13	5

## COMPUTING BRANCH

*Triangulation*

During the year the computations in connection with the astronomical determinations of latitude and azimuth for stations in the geodetic network were nearly finalized. The first adjustment of the main figures was commenced and is approaching completion.

*Base-line Measurement.*—Computations for the reductions of the field measurements were carried out in the field with the base-line party.

*Tidal Analysis*

Inspections of the tide-gauges at Westport and Lyttelton were made by the Chief Computer. No analyses for Westport have been made since 1922, but it is now intended to resume them with a new series commencing with the year 1938 as soon as the staffing position permits. The tidal analysis for Auckland, 1941, was repeated, using the method devised by the Liverpool Tidal Institute, and the hourly heights at Bluff for the year 1946 were measured and tabulated in readiness for analysis.

*Photogrammetric Control*

The co-ordinates of 15 runs, totalling 328 photographs, were computed in connection with topographical mapping.

## AERIAL MAPPING BRANCH

The main work has been in the plotting and contouring of the basic topographical work for the 1 : 25000 sheets of areas required by the State Forest Service and the Geological Survey.

The drawings of five 1 : 25000 sheets were completed—Petone, Christchurch, Greytown, Carterton, and Tuhirangi—and during the year three of the above sheets—Petone, Carterton, and Christchurch—were published, making the total of sheets now issued thirty-five.

The area covered by new photography was 4,740 square miles at a cost of £14,612, of which £1,554 was for special photography for other Departments.

A total of 7,898 new prints were entered in the register and 7,128 were numbered and recorded.

Altogether, 14,678 contact prints, 179 enlargements, and 214 mosaics were sold to other Departments and the public for a sum of £5,062. After payment of processing charges, £3,211 was available for credit towards the initial cost of photography.

During the year, 2,000 contact prints, 398 enlargements, 72 negatives, 40 gestafilms, and 100 dia positives were made by the branch and, in addition, 62 mosaics were built for other Departments. The preparation of twenty-eight 1 : 25000 sheets are in hand, five of which are well advanced.

## DRAUGHTING AND COMPUTING EXAMINATIONS

The examinations were held in October, when 97 candidates presented themselves. Passes were obtained as follows : First-grade Draughting, 8 ; Second-grade Draughting, 7 ; Second-grade Computing, 28. Many partial passes were granted.

## NEW ZEALAND GEOGRAPHIC BOARD

The New Zealand Geographic Board, constituted under the provisions of the New Zealand Geographic Board Act, 1946, held its first meeting on 24th and 25th July, 1947.

The Board considered 150 place-names submitted from various sources, of which 47 were approved and advertised for objection in the *New Zealand Gazette* of 18th December, 1947. Of the balance, 70 names were deferred for further consideration, while the balance of 33 were rejected.

In accordance with the requirements of the Act, the 1,700 names approved by the Honorary Geographic Board between the years 1924 and 1946 have been prepared for gazettal and will be published at an early date.

The members of the newly constituted Board are : Messrs. R. G. Dick (Surveyor-General), Chairman ; J. W. Heenan, C.B.E., LL.B. ; Sir Apirana T. Ngata, Kt., M.A., LL.B. ; Pei te H. Jones ; Arthur P. Harper, B.A. ; and Johannes C. Andersen, M.B.E.. F.R.S.N.Z. Mr. C. S. Wood, Lands and Survey Department is the official Secretary.

## NEW ZEALAND SURVEY BOARD

The Survey Board conducted two examinations for the qualification of land surveyors during the year, the results being:—

---	September, 1947.	March, 1948.	Totals.
Number of candidates .. .. .	76	72	148
Passed full examination .. .. .	6	12	18
Obtained credits in subjects .. .. .	56	51	107

The number of pupils registered during the year was—

Lands and Survey Department .. .. .	5
Private surveyors .. .. .	31
Totals .. .. .	36

There was a larger number of final passes (18) this year than there has been since 1930. The majority of the students that were absent with the Armed Forces have now completed their training.

The shortage of surveyors in the Dominion accounts for the increase in the number of pupils registered for training. It is probable that this shortage will be reduced to normal within the next few years as candidates qualify.

#### MILITARY MAPPING CONFERENCE AND COMMONWEALTH SURVEY OFFICERS' CONFERENCE, LONDON, 1947

In July, 1947, I was instructed to attend a conference of the military mapping authorities of British Commonwealth Nations and the United States of America, which was held in London in September, 1947, under the auspices of the Geographic Section of the General Staff of the War Office.

At the same time arrangements were made for me to attend the British Commonwealth Survey Officers' Conference, held in London concurrently with the Military Mapping Conference. I left New Zealand at the beginning of August, arriving in London in time to attend the Civil Conference, which commenced on 18th August.

#### COMMONWEALTH SURVEY OFFICERS' CONFERENCE

This Conference was attended by 150 delegates from the survey organizations of the British Commonwealth, British colonies, and United States of America. The majority of the heads of these organizations were present, thus affording delegates the opportunity of personal contact and discussions on technical subjects and modern developments in survey and mapping practice.

At the Conference some forty papers on survey and mapping subjects were read and discussed and opportunities made available for delegates to visit such famous survey organizations as Ordnance Survey, Geographic Section of the General Staff, and the Hydrographic Survey of the Admiralty, as well as other allied scientific institutions and scientific-instrument-making firms.

Special interest was evinced in a proposal for a basis of reciprocity in the training and qualification of surveyors throughout the British Commonwealth, which would eventually lead to uniformity of examination and methods and the interchange of personnel between the countries concerned. Such proposal will probably be discussed at the next conference of the New Zealand and Australian Survey Boards, which representatives of the British Commonwealth Nations will be invited to attend.

## MILITARY MAPPING CONFERENCE

This Conference was held immediately following the civil Conference and was of two weeks duration.

As a result of the deliberations of this Conference, Government has now approved of the setting-up of an organization to deal with the map and chart requirements of the three Armed Services. The policy of this new organization, which is in the process of formation, will be controlled by the Joint Services Mapping Committee, comprising representatives of the three Services, with the Surveyor-General, under the title of Director of Military Mapping, as Chairman.

This new organization will be responsible for the preparation and distribution of topographical maps (1 : 25000, 1 : 63360, 1 : 100,000, and smaller scales), aeronautical charts in accordance with I.C.A.O. (International Civil Aviation Organization) specifications, index and Service maps, and probably at a later date the preparation of nautical charts prepared from data supplied by naval survey ships.

To cope with this large programme of work it will be essential to have extended and centralized accommodation and additional staff. The work carried out by this section will be co-ordinated with similar civil survey requirements.

Following these Conferences, opportunity was taken of visiting mapping organizations, scientific institutions, and survey-instrument-manufacturing firms in Great Britain, Switzerland, and the United States of America, returning to New Zealand in November.

In addition to the personal benefit of added knowledge and personal contacts, the experience gained in this tour of duty will be of value to the Department in the adaptation of modern techniques and methods to survey and mapping practice in New Zealand. I am indebted to my professional colleagues and many others that I met overseas for their courtesy and kindness and their assistance in contributing to make the tour educational and interesting.

## THANKS

I associate myself with my controlling officers in expressing to both field and office staff our appreciation of the loyalty and co-operation of the staff during the year.

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