

1926.  
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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The SURVEYOR-GENERAL to the Hon. the MINISTER OF LANDS.

SIR,—

Wellington, 2nd July, 1926.

I have the honour to present herewith the report on survey operations for the year ended  
31st March, 1925.

I have, &c.,

Hon. A. D. McLeod, Minister of Lands.

W. T. NEILL,

Surveyor-General.

## REPORT.

THE main parts of the report for the year ending 31st March, 1926, comprise a summary of the operations of the field parties, grouped under appropriate headings, a brief account of the office-work performed, and extracts from the reports of the Chief Surveyors of the various land districts.

The attached tables, A, B, and 1 to 5 inclusive, contain a concise summary of the amount of work completed during the year under review. Fuller details are given in the report by the Chief Surveyors appended hereto.

Under the heading of "Rural Surveys" in Table B an area of 143,888 acres is shown as completed work, as compared with 90,837 acres for last year, an increase of 53,051 acres; and under the heading of "Native-land Surveys" the area of completed work is shown as 139,369 acres, a decrease of 72,378 acres as compared with last year's return.

The average cost per acre of rural-land surveys shows a decrease of 6d., while the cost per acre of the Native-land surveys is about the same as shown on last year's return. The above rates show that the work is being done at a reasonable price.

TABLE A.

Class of Work.	Area, &c.	Average Cost.	Total Cost.		
			£	s.	d.
Topographical surveys (contoured), by staff ..	550.2 sq. miles	£6.04 per mile	3,323	0	1
"    (sketch) by staff ..	15,596 acres	6.95d. per acre	451	12	0
Rural, by staff ..	142,368 "	1.80s. "	12,820	16	5
" by private surveyors ..	1,520 "	4.29s. "	326	0	0
Suburban, by staff ..	391.5 "	19.96s. "	390	13	10
Town, by staff ..	562 sections	£2.27 "	1,274	10	7
" by private surveyors ..	1 section	£9.45 "	9	9	0
Native Land Court, by staff ..	50,078 acres	1.92s. "	4,799	15	9
" by private surveyors ..	89,291 "	2.89s. "	12,905	0	5
Roads, &c., by staff ..	126.6 miles	£33.47 per mile	4,237	12	4
" by private surveyors ..	1 mile	£38.85 "	38	17	0

TABLE B.

Land District.	Rural Survey.	Native Land Court.
	Acres.	Acres.
North Auckland ..	6,851	7,332
Auckland ..	3,428	73,685
Gisborne ..	5,844	15,509
Hawke's Bay ..	8,289	8,856
Taranaki ..	18,079	1,160
Wellington ..	1,137	30,708
Marlborough ..	..	499
Nelson ..	565	..
Westland ..	5,141	..
Canterbury ..	3,108	787
Otago ..	77,242	585
Southland ..	14,204	248
Totals ..	143,888	139,369

### MINOR TRIANGULATION.

The erection of five permanent signals on stations in the vicinity of Wellington was completed. The observation of the angles is held in abeyance on account of pressure of work on settlement surveys in the Hutt Valley.

## SETTLEMENT SURVEYS.

The settlement surveys comprise Crown land and land for settlements. The bulk appears in Table A under the head of "Rural," the acreage shown being 143,888, while the remainder includes village and suburban and town lands, totalling 953 acres. The area surveyed in each land district is given in Table B, and further particulars of each block or settlement is set out in the reports by the Chief Surveyors.

## NATIVE-LAND SURVEYS.

An area of 139,369 acres was completed by staff and contract surveyors during the year. A reference to Table A shows that, of the total area, 50,078 acres were surveyed by the staff surveyors, and 89,291 acres by contract surveyors. The area surveyed in each land district is given in Table B, and particulars of the various blocks are contained in the reports by the Chief Surveyors.

## GEODETIC TRIANGULATION.

One field-party in charge of Mr. H. M. Ross, staff surveyor, has been engaged on this work during the year, and good progress has been made both with the observations and reconnaissance work, including the clearing of the stations of bush and the erection of signals. The closures obtained by the summation of the angles in each triangle are, on the whole, within the limits of error determined upon for this class of work. Forty-one triangles in the Auckland and Gisborne districts have been closed with an average error of 1.40". Further details of the surveys will be published in the "Records of the Survey."

## STANDARD SURVEYS.

Satisfactory progress has been made with the standard surveys during the year under review and the high degree of accuracy essential in such work has been maintained, as shown by the traverse closures of 0.06 link per mile.

Mr. H. M. Kensington, staff surveyor, reports having completed the field work of Whangarei Borough, and the survey of new streets in Remuera, Auckland City, and a small amount of reinstatements and repairs to standard block in various parts of the city.

At New Plymouth Mr. A. C. Haase has re-aligned the whole of the central area covered by an original standard survey requiring revision. The survey has also been extended over the suburbs of Westown and Moturoa, and a total of 30 miles of streets has been measured during the year.

Mr. Otway, District Surveyor, is making good progress with the survey of Invercargill and suburbs.

The standard survey of Blenheim was commenced by Mr. J. D. Clapperton, staff surveyor, in July last, but, owing to Mr. Clapperton's services being required to assist in connection with settlement surveys in the Hutt Valley, work at Blenheim was discontinued in January last.

The work executed during the year comprised also the capping adjustment and reinstatement of blocks in Auckland City, Levin Borough, Wellington City, and in the neighbourhood of Christchurch, the particulars of which will be published in the "Records of the Survey."

## TOPOGRAPHICAL SURVEY.

On this survey Mr. G. I. Martin, staff surveyor, and two assistants, working separately, have been engaged in the thermal-springs region near Rotorua for the past year. An area of 498 square miles in the field, principally by plane tabling methods, has been completed. The work has been retarded by the high growth of scrub and bracken covering the area under survey, and the cost of £6 per square mile is in excess of the estimate.

A similar survey was commenced in the Taranaki District by Mr. B. C. A. McCabe, staff surveyor, in Parituti and Egmont Survey Districts, and the field-work of 62 square miles has been finished. In connection with these surveys, lines of levelling on the main roads have been run and bench-marks established by means of concrete blocks. Further details of the work will be given in the "Records of the Survey." In addition to the above, an area of 15,596 acres of sketched topography has been returned for the year in North Auckland and Wellington, which was undertaken for the preparation of settlement schemes.

## FIELD INSPECTIONS.

It is necessary to make inspections of subdivisional surveys under the Land Transfer Act to ensure that the accuracy of measurement and ground marking is in accordance with the Survey Regulations. In most cases where inspections have been made the work has been found to be satisfactory; several cases, however, showed that sufficient care had not been taken in the performance of the field operations, and revisions of the work at the cost of the defaulting parties were called for.

The question of making more inspections is becoming more pressing each year, in order to ensure that an adequate check is being maintained on the field operations of surveyors in private practice or on contract surveys.

## TIDAL SURVEY.

The work for the past year comprised the completion of the analysis for the Port of New Plymouth for 1918, also the completion of the analysis for the Port of Wellington for 1924, together with a complete fresh analysis for the ports of New Plymouth (1919) and Dunedin (1924), also a portion of the analysis for the Port of Lyttelton for 1924. The constants derived therefrom, combined with previous determined values, are contained in Table C on the following page.

TABLE C.

*Mean Values of the Harmonic Constants for Use in preparing Tide-tables.*

Tide Symbol.	Auckland. A <sub>0</sub> = 5.72 ft.		Bluff. A <sub>0</sub> = 5.27 ft.		Dunedin. A <sub>0</sub> = 3.23 ft.		Lyttelton. A <sub>0</sub> = 3.20 ft.		New Plymouth. A <sub>0</sub> = 5.50 ft.		Wellington. A <sub>0</sub> = 2.93 ft.		Westport. A <sub>0</sub> = 4.77 ft.	
	H.	K.	H.	K.	H.	K.	H.	K.	H.	K.	H.	K.	H.	K.
<i>Short Period.</i>	Ft.	°	Ft.	°	Ft.	°	Ft.	°	Ft.	°	Ft.	°	Ft.	°
S1	0.011	31.74	0.010	100.05	0.014	24.76	0.031	29.19	0.012	137.44	0.002	354.03	0.011	78.0
S2	0.580	268.31	0.502	49.79	0.249	128.63	0.172	142.28	1.104	305.49	0.100	330.28	0.959	332.22
S4	0.019	331.83	0.009	223.42	0.007	314.30	0.010	203.88	0.008	353.72	0.004	215.90	0.007	32.75
S6	0.003	41.77	0.006	170.17	0.003	109.42	0.015	342.08	0.006	73.67	0.004	310.31	0.006	331.21
M1	0.009	144.71	0.011	127.33	0.010	75.92	0.009	72.64	0.007	99.51	0.006	22.11	0.012	143.08
M2	3.818	206.37	2.858	35.68	2.458	122.36	2.884	124.74	3.994	276.39	1.611	138.99	3.747	304.43
M3	0.039	199.21	0.011	272.74	0.015	276.65	0.013	143.67	0.030	118.32	0.019	175.72	0.021	208.15
M4	0.106	124.54	0.088	226.45	0.263	177.71	0.015	82.38	0.080	47.53	0.041	251.11	0.057	53.90
M6	0.026	314.33	0.086	79.53	0.069	358.01	0.020	64.91	0.025	258.47	0.012	98.61	0.026	36.82
O1	0.053	145.25	0.113	72.91	0.091	71.60	0.087	62.94	0.043	111.59	0.103	36.57	0.093	45.98
K1	0.235	169.17	0.058	115.68	0.075	92.25	0.150	82.90	0.201	185.30	0.082	84.49	0.073	184.39
K2	0.139	256.95	0.134	46.77	0.091	116.91	0.059	106.97	0.312	296.23	0.044	7.49	0.276	328.04
P1	0.077	163.91	0.023	105.44	0.023	93.59	0.052	106.11	0.058	177.60	0.032	77.13	0.022	133.91
J1	0.017	185.22	0.006	198.96	0.005	77.33	0.007	145.97	0.015	231.94	0.010	178.05	0.013	219.25
Q1	0.009	67.58	0.031	47.70	0.028	75.77	0.021	48.20	0.018	39.33	0.036	22.17	0.037	33.03
L2	0.108	219.79	0.109	32.44	0.144	105.44	0.084	162.36	0.132	279.04	0.029	156.82	0.097	285.41
N2	0.793	179.27	0.654	16.50	0.525	103.89	0.660	94.81	0.794	256.33	0.398	104.65	0.770	289.02
V2	0.203	206.34	0.153	53.35	0.100	101.98	0.161	109.32	0.162	313.23	0.107	113.02	0.194	320.40
U2	0.102	178.49	0.065	7.93	0.030	49.99	0.097	59.03	0.129	249.68	0.067	88.08	0.134	283.83
T2	0.057	294.82	0.020	89.11	0.018	230.31	0.026	228.18	0.075	305.18	0.031	280.97	0.053	9.08
(MS)4	0.173	195.31	0.081	2.78	0.107	140.54	0.102	120.36	0.097	260.14	0.035	133.28	0.105	294.78
(2SM)2	0.066	303.10	0.045	121.63	0.047	11.50	0.060	24.94	0.092	223.65	0.033	356.74	0.076	199.89
R2	0.015	211.16	0.014	111.90	0.022	182.51	0.017	143.74	0.029	316.98	0.011	138.68	0.035	178.80
<i>Long Period.</i>														
Mm	0.045	195.02	0.043	1.94	0.062	16.70	0.045	127.51	0.050	9.95	0.039	174.85	0.051	199.18
Mf	0.050	206.01	0.067	235.36	0.089	221.76	0.055	167.35	0.011	187.57	0.060	232.19	0.055	7.87
MSf	0.035	209.57	0.063	326.77	0.064	147.79	0.112	145.93	0.021	106.79	0.043	106.30	0.069	98.39
Sa	0.186	30.61	0.089	16.98	0.150	265.59	0.117	272.08	0.091	81.62	0.108	332.12	0.113	81.51
Ssa	0.071	164.94	0.115	82.05	0.083	119.22	0.107	143.78	0.088	136.55	0.073	111.04	0.116	111.03

The tide-tables for the year 1927 of the six New Zealand ports (Auckland, Wellington, Lyttelton, Dunedin, Bluff, and Westport) for which tidal predictions are published were received in Wellington on the 21st July, 1925, from the Hydrographer to the Admiralty.

The work of measuring the times and heights of high and low water was again performed at the Tidal Institute, University of Liverpool.

From and including the year 1928, tidal predictions for the Port of New Plymouth will be published in the "New Zealand Nautical Almanac." Complete details of the tidal work for the past year will be published in the "Records of the Survey."

#### MAGNETIC OBSERVATORY.

The work of the Magnetic Observatory at Christchurch and the substation at Amberley has been efficiently carried on during the year by the Director, Mr. H. F. Skey, B.Sc.

The magnetographs have continued in regular operation throughout the year, and the base values of the curves were determined by absolute determinations of declination, dip, and horizontal force, usually taken once a month.

The mean annual values of the magnetic elements, as far as they are available, are shown on Table D on the following page.

TABLE D.

Mean Annual Values of the Magnetic Elements at Christchurch Observatory.

Date.	Declination E. of N.	Annual Change.	Horizontal Force.	Annual Change.	Vertical Force.	Annual Change.	Inclination South.	Annual Change.	Hourly Values published in Annual Reports.
	° ' "	' "	C.G.S. Unit.	γ	I.C.G.S. Unit.	γ	° ' "	' "	
1902 ..	16 15.1	+3.2	0.22694	-25	0.55277	+9	67 40.80	+1.50	1912-13
1903 ..	16 18.3	+3.5	0.22669	-25	0.55286	+21	67 42.30	+1.80	1912-13
1904 ..	16 21.8	+3.6	0.22644	-16	0.55307	+41	67 44.10	+1.70	1912-13
1905 ..	16 25.4	+2.4	0.22628	-23	0.55348	+28	67 45.80	+1.80	1919-20
1906 ..	..	..	..	..	..	..	..	..	..
1907 ..	16 31.1	..	..	..	..	..	..	..	..
1908 ..	..	..	..	..	..	..	..	..	..
1909 ..	..	..	..	..	..	..	..	..	..
1910 ..	16 37.6	+1.4	0.22515	-27	0.55485	+12	67 54.80	+1.40	1920-21
1911 ..	16 39.0	+2.5	0.22494	-23	0.55497	-9	67 56.20	+1.00	..
1912 ..	..	..	..	..	..	..	..	..	..
1913 ..	16 44.0	+0.8	0.22449	-35	0.55478	-13	67 58.20	+1.60	1913-14
1914 ..	16 44.8	+2.2	0.22414	-27	0.55465	+7	67 59.80	+1.67	1914-15
1915 ..	16 47.0	+2.8	0.22387	-32	..	..	..	..	*Sept., 1918
1916 ..	16 49.8	+3.2	0.22355	-27	..	..	..	..	*Sept., 1918
1917 ..	16 53.0	+2.7	0.22328	-24	0.55486	+30	68 04.80	+1.90	*Mar., 1921
1918 ..	16 55.7	+2.9	0.22304	-24	0.55516	-9	68 06.70	+1.10	1918-19
1919 ..	16 58.6	+3.1	0.22280	-19	0.55507	+18	68 07.80	+1.40	1919-20
1920 ..	17 01.7	+2.9	0.22261	-20	0.55525	+03	68 09.20	+1.10	†1920-21
1921 ..	17 04.6	+3.7	0.22241	-24	0.55528	-21	68 10.30	+0.90	†1921-22
1922 ..	17 08.3	+3.4	0.22217	-08	0.55507	+19	68 11.20	+0.80	†1922-23
1923 ..	17 11.7	+4.7	0.22209	-21	0.55526	-18	68 12.00	+0.73	†1923-24
1924 ..	17 16.4	+4.7	0.22188	-22	0.55508	-14	68 17.73	-3.53	†1924-25
1925 ..	17 21.1	..	0.22166	..	0.55522	..	68 14.20	..	..

\* Mean hourly values published in *New Zealand Journal of Science and Technology*.

† Special publication.

The annual report of the Director, containing a list of the earthquakes recorded at the Observatory, tables of hourly values of the declination and horizontal force for 1925, Vector diagrams for the seasons, monthly and annual curves of declinations and horizontal force, will be published in Volume 3 of the "Records of the Survey."

#### GEOGRAPHIC BOARD.

A meeting of the Board was held in the Parliamentary Library Committee-room on the 1st March, 1926.

*Lists of Names.*—Lists of undesirable names of doubtful origin and orthography and duplicated names were submitted, and referred to the Chief Surveyors of the districts affected for their investigation, recommendations, and report.

*Requests.*—Requests that a prominent peak in the Southern Alps be named "Newton Peak," and two peaks in the Liebig Range be named "Abbot" and "Abbess," were agreed to.

*Railway-stations.*—The names "Puhinui," "Ranui," and "Tironui" for new railway-stations were confirmed, as was also the alteration of the name of "Rangitaiki" Station to "Edgecumbe."

*Inquiries.*—It was resolved that an inquirer be informed that "Manganui" is the correct name for "Manganui Harbour."

*Constitution and Membership.*—A rough draft copy of Division III of the Survey Bill, defining the constitution of the Board, and amendments, were submitted and agreed to.

*Honorary Representatives.*—The question of appointing honorary representatives for various districts was deferred until the Board is legally constituted.

*Historical-monument Sites.*—A list of historical-monument sites was submitted to the Board, with a view to investigation and its compilation in book form.

Correspondence from the Internal Affairs Department, the Auckland Institute, and from Messrs. Allen, Brocket, Porter, Valder, and Rose, was submitted and dealt with.

The meeting was attended by Ven. Archdeacon Williams (presiding), Messrs. Elsdon Best, J. C. Anderson, M. Crompton-Smith, and W. T. Neill, Surveyor-General.

#### OFFICE-WORK.

The demands on the office staff during the past year have been heavy on account of the large number of maps that were prepared for the Census and Statistics Office in connection with the quinquennial population census. The Chief Surveyors' reports for the district offices are summarized in Table 5, and full particulars may be found in extracts of these reports appended hereto. The Head Office staff had an additional burden in connection with the New Zealand and South Seas Exhibition held at Dunedin, for which a number of exhibits were prepared, and a special publication, under the title of "Surveys and Maps," containing an exposition of the work, methods, and organization of the New Zealand system of survey, was issued. The state of the map-publication and particulars of the work performed at the Head Office are given in Appendix I, report by Mr. H. E. Walshe, Chief Draughtsman.

## PROPOSED OPERATIONS FOR THE YEAR 1926-27.

*Settlement Surveys.*—The proposed work in each land district is shown in Table 4 appended hereto, and is summarized as follows: 102,301 acres rural survey; 222,991 acres Native-land survey; 72 miles road survey; and 193 acres town survey.

*Geodetic Triangulation.*—Mr. H. M. Ross, staff surveyor, will continue observing the stations of the scheme on which signals have been erected in the southern portion of the Gisborne Land District, and make a reconnaissance and erect signals on stations in Hawke's Bay and Wellington Districts to connect with the base-line measured in the Wairarapa.

*Standard Surveys.*—The proposed works for the year comprise the plans of the Whangarei Survey and the continuation of field operations at New Plymouth, Blenheim, and Invercargill by Messrs. Haase, Clapperton, and Otway respectively. In addition to the town survey, rural standard traverses will be resumed in the North Auckland and Marlborough Districts by Messrs. H. M. Kensington and Clapperton respectively, and Mr. Adams will continue rural standard traverses in the vicinity of Christchurch. These rural standard traverses will only be undertaken during periods of slackness in the settlement and city surveys.

*Topographical Survey.*—The survey of Rotorua County will be continued by two surveyor assistants, who will also collect samples of soil from the settled pumice land and forward them to the Agricultural Department for analysis in connection with the soil survey of this district. A party will continue work in the Taranaki District, the immediate object being to prepare a map of the Mount Egmont National Park and the country in the neighbourhood of New Plymouth. It is anticipated that there will be a demand for such surveys of all land likely to be built upon in connection with the preparation of town-planning schemes, and steps have been taken to secure the necessary equipment in order to equip four additional field-parties in the event of their services being required in this connection.

*Miscellaneous.*—In addition to the above-mentioned works, there is the customary examination and recording of plans, the inspection of surveys, the compilation and drawing of maps for publication, the work of computing the harmonic constants for the tidal predictions, the computation of the primary triangulation, and the preparation of various tables in connection therewith.

## GENERAL.

*Map-publication.*—The output of maps received from the Printing Department was about the same as in the previous year. The demands of the public and the State Departments are, however, not yet fully met, and the increase in the number of maps prepared for publication in connection with the topographical survey will exceed the present capacity of the Printing Department to deal with the printing of them, and it may be necessary to arrange with private firms to undertake part of the work.

*Town Subdivisional Schemes.*—The number of town schemes received during the year shows an increase of twenty-five; 349 plans of subdivisions and resubdivisions have been dealt with and approved, as compared with 315 last year. As formerly, the greater part of the area subdivided—viz., 64 per cent.—is in the vicinity of Auckland City.

*Orakei Garden Suburb Competitive Designs.*—The invitation to residents of the Dominion to submit designs for the laying-out of Orakei Block as a garden suburb resulted in forty-two designs being received from architects, engineers, surveyors, and others throughout the Dominion. The designs were generally of such a high standard of excellence as to warrant a special recommendation by the adjudicating Board to increase the premiums offered for the designs placed first, second, and third respectively in accordance with the conditions of competition. The names of the authors of the winning designs at the final adjudication by the judges are: (1) Mr. Reginald B. Hammond, Auckland; (2) Messrs. E. V. Blake and A. J. Brown, Auckland; (3) Messrs. W. L. Horne and C. E. N. Putt.

*Lower Hutt Suburbs Competitive Designs.*—Several areas of land were purchased by the Government in connection with the decision to build a railway on the east side of the Hutt River, from Petone to Silverstream. The Hutt Borough Council, within whose boundaries most of the land is situated, made arrangements with the Government to have the Crown and adjacent lands, about 1,400 acres in all, town-planned in accordance with modern methods. Competitive designs were invited from residents of the Dominion, on behalf of the Borough Council and the Government, with suitable remuneration offered to those placed respectively first and second. Altogether twenty designs were received from members of the architectural, engineering, and surveying professions, and were generally of such a high standard as to call for special comment by the adjudicating Board. The result of the competition placed the first three in order of merit as follows: (1) Mr. R. B. Hammond, architect, Auckland; (2) Mr. F. R. K. Kitto, surveyor, Wellington; (3) Mr. P. H. Graham, architect.

Most of the Orakei and Lower Hutt designs were on exhibition at the New Zealand and South Seas Exhibition. Further particulars and copies of the premiated designs will be given in the "Records of the Survey."

*Proclamation of Roads.*—During the year under review seventeen applications for the proclamation of road-lines laid off by the Native Land Court under sections 48, 49, 50, and 52 of the Native Land Amendment Act, 1913, were received and dealt with. Statutory notices of the intention to proclaim the road-lines as public roads, together with plans showing the location of same, were forwarded to the local bodies of the districts affected, in terms of section 15 of the Native Land Amendment Act, 1914, to enable them to forward any objections or representations they might wish to make prior to the issue of the Proclamation.

Under the Land for Settlements Act, 1908 (section 80), and the Land for Settlements Act, 1925 (section 106), a number of unused and unformed road-lines intersecting estates acquired under the Acts were closed, to enable the land comprised therein to be incorporated in the area available for disposal.

Under the Land Transfer Act 214 warrants for the issue of certificates of title were examined and certified to in terms of section 13 of the Act. In addition, several applications to bring land under the provisions of the Land Transfer Act were examined and approved in terms of section 19 of the Act.

"Records of the Survey of New Zealand."—The second volume of this publication is in the press, and Volume 3, containing supplementary information to this report, is in course of preparation.

*Professional Paper No. 1.*—A second edition of the original paper by T. Humphries, F.R.A.S., formerly Surveyor-General, on "Directions for testing Traverse Bearings by Observations on Circumpolar Stars," has been issued. The new edition contains also, as Part II, "Determination of Time, Latitude, and Azimuth," a reprint of the original paper under that title by C. W. Adams, Geodesical Surveyor, and formerly Chief Surveyor of Marlborough.

*New Zealand and South Seas Exhibition, Dunedin, 1925-26.*—A special publication, under the title of "Surveys and Maps," was issued for distribution at the above Exhibition, being an exposition of the work, methods, and organization of the New Zealand survey system. The Department was represented by a small court, in which were exhibited various field instruments relating to past and present methods whereby the various operations are conducted. Computing and drawing instruments were shown, and specimens of maps, illustrating the processes by which some of the more important results are achieved. A model of the City of Dunedin and the surrounding country was a feature of the court which attracted much interest. A number of the town-planning schemes received in connection with the Orakei and Lower Hutt competitions were on view, and photographs showing the progress of land-settlement in the Dominion. Full details and photographs of the more important exhibits will be published in the "Records of the Survey."

*Desiderata.*—A repeat magnetic survey at the more important seaports is a matter that should receive early attention. The erection of a suitable building in which to house the comparator, and the securing of a site in connection therewith to compare tapes, is becoming a pressing matter.

#### STAFF.

*Retirements.*—The following officers retired on superannuation during the year: G. H. Bullard, Chief Surveyor, Canterbury (31/12/25); W. F. Marsh, Chief Surveyor, Auckland (31/12/25); J. Cook, Chief Surveyor, Taranaki (31/12/25); V. I. Blake, Chief Surveyor, Gisborne (31/12/25); O. G. Goldsmith, Chief Draughtsman, Invercargill (30/9/25).

*Appointments, Transfers, &c.*—T. Brook, Chief Surveyor, Wellington, was promoted to the position of Valuer-General (1/2/26); K. M. Graham, Chief Surveyor, Invercargill, to Chief Surveyor, Auckland (10/10/25); N. C. Kensington, Chief Surveyor, Nelson, to Chief Surveyor, Invercargill 10/10/25; A. F. Waters, Chief Draughtsman, Nelson, to Chief Surveyor, Nelson, (1/1/26); E. H. Farnie, Chief Draughtsman, Gisborne, to Chief Surveyor, Gisborne; W. D. Armit, Chief Draughtsman, New Plymouth, to Chief Surveyor, New Plymouth (1/1/26); W. Stewart, Chief Draughtsman, Christchurch, to Chief Surveyor, Christchurch (1/1/26); F. H. Waters, Chief Draughtsman, Wellington, to Chief Surveyor, Wellington (1/2/26); B. C. A. McCabe, surveyor, Taranaki, to Chief Draughtsman, New Plymouth (22/3/26); S. L. Fairhall, surveyor, Wellington, to Chief Draughtsman, Invercargill (29/6/25); H. L. Primrose, surveyor, Gisborne, to Chief Draughtsman, Gisborne (21/1/26); A. J. Wicks, Land Transfer draughtsman, Christchurch, to Chief Draughtsman, Christchurch (1/1/26); L. Hunt, Land Transfer draughtsman, New Plymouth, to Land Transfer draughtsman, Christchurch (18/3/26); R. W. Collins, draughtsman and computer, Wellington, to Senior Draughtsman, Wellington (13/3/26); C. G. S. Ellis, computer, Head Office, to Land Transfer draughtsman, New Plymouth (12/3/26); A. V. Adams, Survey cadet, appointed surveyor (1/5/25). Twenty-one draughting cadets have been appointed during the year, and eight have resigned from the staff.

*Obituary.*—Mr. Percy Mitchell, draughtsman and computer of the North Auckland Office, died on the 19th November last. Before joining the Department Mr. Mitchell had eleven years' experience in surveying and engineering in Otago and Southland. He joined the staff in May, 1897, at New Plymouth, where he remained for ten years. He was transferred to Auckland in November, 1907, and was engaged in the Land Transfer Office and later in the North Auckland Survey Office. Mr. Mitchell was regarded as an experienced and capable officer, and was in his fifty-seventh year.

Wilfrid May Atkinson, Land Transfer draughtsman at New Plymouth, died on the 4th April, 1925, after a short illness. His death was very much felt by the Department, as he had proved himself a thoroughly capable officer his careful and methodical manner making him especially fitted for the duties of Land Transfer draughtsman. He joined the Department in 1907 as assistant surveyor at Whangarei. Transferred to Napier in 1912, he carried out various field operations, including settlement, standard, and inspection surveys, for eight years, after which, for health reasons, he took up office duties at Auckland, Invercargill, and Gisborne, being appointed Land Transfer draughtsman at the last two places.

*Appreciation.*—In conclusion, I am pleased to bring under your notice and to place on record the appreciation by the various Chief Surveyors of the manner in which their officers have carried out their duties during the year, and I desire to convey my thanks to the whole of the Survey staff for their good work.

W. T. NEILL, Surveyor-General.

**Table 1.—RETURN OF FIELD-WORK EXECUTED BY HEAD OFFICE STAFF FROM 1ST APRIL, 1924, TO 31ST MARCH, 1925.**

Land District.	Standard Surveys.				Geodetic Triangulation.				Other Work.
	Completed.		In Progress.		Completed.		In Progress.		
	Miles.	Cost.	Miles.	Cost.	Square Miles.	Cost.	Square Miles.	Cost.	Cost.
North Auckland ..	2.6	£ s. d. 140 13 3	20	£ s. d. 1,060 16 1	..	£ s. d. .. ..	..	£ s. d. .. ..	£ s. d. 39 17 3
Taranaki ..	..	..	30	3,044 0 2	..	..	..	..	..
Auckland ..	}	..	..	..	..	..	7,200	5,105 13 2	..
Gisborne ..									
Southland ..	..	..	..	3,203 4 7	..	..	..	..	..

**Table 2.**—RETURN OF FIELD-WORK EXECUTED BY THE STAFF AND CONTRACT SURVEYORS ON LANDS ADMINISTERED BY THE LANDS AND SURVEY DEPARTMENT, FROM 1ST APRIL, 1925, TO 31ST MARCH, 1926.

District.	Topographical Survey Contours.			Topographical Survey for Selection as Unsurveyed Land.			Rural.			Village and Suburban.			Town Section Survey.			Roads, Railways, and Water-races.			Other Work.		Total Cost of completed Work.		
	Sq. Miles.	Cost per Mile.	Total Cost.	Acres.	Cost per Acre.	Total Cost.	Acres.	Cost per Acre.	No. of Sections.	Total Cost.	Acres.	Cost of Sections.	Total Cost.	Miles.	Cost per Mile.	Total Cost.	Cost.	s. d.	s. d.				
																				£		s. d.	£
N. Auckland	487.7	6.2	3,029 5 6	13,258	..	..	6,501	4.04	1,314 14 9	102.0	20	19.4	99 0 10	27.7	87	3.16	274 18 9	12.3	19.9	244 19 2	1,090 0 6	3,243 13 5	
Auckland	..	..	..	600	..	..	3,428	5.24	898 1 8	9.0	1	51.1	23 0 0	2.9	14	7.97	111 12 5	66.4	35.0	2,321 6 0	2,188 11 8	8,758 6 11	
Gisborne	..	..	..	..	..	..	5,844	1.69	498 10 0	..	..	..	..	0.1	2	2.50	5 0 0	11.0	23.3	256 2 0	..	759 12 0	
Hawke's Bay	..	..	..	..	..	..	8,289	0.49	203 1 9	1.0	1	173.5	8 13 6	17.6	35	2.28	79 14 11	3.7	32.3	119 4 10	81 11 10	492 6 10	
Taranaki	62.5	4.7	293 14 7	..	..	..	18,079	1.56	1,408 8 11	45.4	6	12.2	27 15 0	0.2	1	4.55	4 11 0	..	..	..	246 16 9	1,981 6 3	
Wellington	..	..	..	438	0.6	..	1,137	4.73	268 19 5	40.4	7	18.6	37 12 3	53.9	268	0.97	261 14 1	3.0	49.6	148 19 10	290 12 8	1,020 11 2	
Marlborough	..	..	..	..	..	..	167	18.56	154 19 7	..	..	..	..	..	..	..	..	..	..	..	105 4 3	105 4 3	
Nelson	..	..	..	..	..	..	5,141	5.98	1,536 5 1	10.0	7	4.87	48 14 9	45.0	128	2.90	371 17 3	2.5	32.7	81 16 1	118 16 9	2,189 19 11	
Westland	..	..	..	1,300	0.5	..	3,108	1.96	304 16 6	21.1	3	20.0	21 0 0	2.6	7	2.86	20 0 0	11.3	6.0	68 0 0	804 19 1	1,218 16 7	
Canterbury	..	..	..	..	..	..	77,242	0.38	1,489 9 9	14.4	7	64.0	46 3 8	18.4	4	11.19	44 14 11	1.4	55.0	77 0 0	43 8 8	1,700 17 0	
Otago	..	..	..	..	..	..	14,204	6.91	4,908 9 0	148.2	8	10.6	78 13 10	0.8	2	3.82	7 12 10	1.0	34.9	34 18 4	177 2 11	5,206 16 11	
Southland	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	550.2	6.04	3,323 0 1	15,596	0.58	451 12 0	143,140	1.81	12,985 16 5	391.5	60	19.96	390 13 10	172.0	559	2.23	1,247 10 7	122.2	31.04	3,792 15 0	5,266 13 2	27,458 1 1	

**Table 3.**—RETURN OF FIELD-WORK EXECUTED BY THE STAFF AND CONTRACT SURVEYORS ON LANDS ADMINISTERED BY OTHER DEPARTMENTS, FROM 1ST APRIL, 1925, TO 31ST MARCH, 1926.

District.	Rural.			Town Section Survey.			Native Land Survey.			Roads, Railways, and Water-races.			Other Work.		Total Cost of completed Work.
	Acres.	Cost per Acre.	Total Cost.	Acres.	No. of Sections.	Total Cost.	Acres.	No. of Secs. or Divs.	Cost per Acre.	Miles.	Cost per Mile.	Total Cost.	Cost.	s. d.	
North Auckland	350	4.63	81 0 0	4	9.11	36 9 0	7,332	119	2.41	1.0	37.7	38 17 0	..	1,041 1 0	
Auckland	..	..	..	..	..	..	73,685	399	1.96	..	..	..	..	7,216 13 10	
Gisborne	..	..	..	..	..	..	15,509	169	3.80	..	..	..	..	2,946 7 6	
Hawke's Bay	..	..	..	..	..	..	8,856	198	3.35	..	..	..	..	1,483 0 0	
Taranaki	..	..	..	..	..	..	1,160	29	6.90	1.4	64.1	88 2 8	..	488 1 5	
Wellington	..	..	..	..	..	..	30,708	246	2.59	3.0	118.9	356 14 8	..	4,329 11 0	
Marlborough	..	..	..	..	..	..	499	11	9.02	..	..	..	129 1 1	355 0 9	
Nelson	398	4.02	80 0 0	..	..	..	..	..	..	..	..	..	..	80 0 0	
Westland	..	..	..	..	..	..	787	56	7.54	..	..	..	..	296 17 0	
Canterbury	..	..	..	..	..	..	585	19	5.90	..	..	..	..	172 15 4	
Otago	..	..	..	..	..	..	248	4	5.45	..	..	..	..	67 13 7	
Southland	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Totals	748	4.30	161 0 0	4	9.11	36 9 0	139,369	1,250	1.52	5.4	89.24	483 14 4	129 1 1	18,477 2 3	



**Table 4.**—RETURN SHOWING SURVEYORS EMPLOYED AND WORK ON HAND ON 1ST APRIL, 1926.

Chief Surveyors.	Surveyors employed.		District.	Work on Hand.						
	Staff.	Contract.		Trig.	Topo.	Settlement.	Native Blocks, &c.	Roads, &c.	Towns	Standard Traverse.
					Sq. Miles.	Acres.		Miles.	Acres.	Miles.
H. J. Lowe ..	5	..	N. Auckland	..	..	21,190	..	11	13	..
K. M. Graham ..	5	15	Auckland ..	..	1,060	27,400	111,415	26	70	..
E. H. Farnie ..	2	..	Gisborne ..	..	..	10,704	98,304	4	..	..
J. D. Thomson ..	1	2	Hawke's Bay	..	..	4,000	445	..	..	..
W. D. Armit ..	2	2	Taranaki ..	..	1,200	8,000	512	..	..	..
F. H. Waters ..	2	11	Wellington ..	..	..	1,230	11,672	..	80	..
J. Stevenson ..	1	..	Marlborough	..	..	..	..	..	..	16
A. F. Waters ..	1	..	Nelson ..	..	..	14,600	..	2	..	..
W. T. Morpeth ..	2	..	Westland ..	..	..	691	364	27	30	..
W. Stewart ..	2	1	Canterbury ..	..	..	..	79	..	..	..
R. S. Galbraith	3	..	Otago ..	..	..	6,434	200	1	..	..
N. C. Kensington	2	1	Southland ..	..	..	8,052	..	1	..	10
Totals ..	28	32	..	..	2,260	102,301	222,991	72	193	26

**Table 5.**—PRINCIPAL CLASSES OF OFFICE-WORK DONE FROM 1ST APRIL, 1925, TO 31ST MARCH, 1926.

District.	Plans placed on Instruments of Title.				Deeds and other Instruments passed.	Plans examined and passed.				Maps drawn for Lithography.		Lithographs, &c., sold.
	Crown.		Native.	Land Transfer.		Crown.	Native.	Land Transfer.	Other Departments.	Standard Publications.	Sale Plans.	
	Leases, &c.	Freehold.										
North Auckland	410	441	300	10,759	5,894	64	57	648	114	5	104	£ s. d.
Auckland ..	971	368	1,196			206	107	889	..	..	35	241 0 0
Gisborne ..	53	..	472	1,077	..	27	56	71	17	1	..	29 8 6
Hawke's Bay ..	38	62	396	2,656	1,350	19	58	115	26	4	9	52 10 3
Taranaki ..	236	166	450	1,295	1,694	83	51	147	66	5	17	53 18 6
Wellington ..	385	530	405	11,111	5,402	20	93	500	114	1	12	51 5 0
Marlborough ..	103	18	18	1,027	488	24	10	32	30	..	3	32 14 9
Nelson ..	259	128	2	202	591	59	..	143	12	10	28	61 16 6
Westland ..	199	23	..	674	210	43	..	33	6	..	6	25 13 4
Canterbury ..	173	110	120	7,870	2,684	42	15	476	25	..	1	149 12 9
Otago ..	452	152	34	2,982	498	62	8	111	44	10	17	89 12 2
Southland ..	341	80	..	1,910	1,556	21	2	115	18	6	3	103 6 6
Head Office ..	..	..	..	..	..	..	..	..	..	..	..	328 13 4
Totals ..	3,620	2,078	3,393	41,563	20,367	670	457	3,280	472	42	235	1,330 9 7

## APPENDIX I.

## HEAD OFFICE, DRAUGHTING BRANCH.

REPORT BY H. E. WALSH, CHIEF DRAUGHTSMAN.

*Map-publication.*—The total maps published during the year were 129, at a cost of £1,609. They comprised survey-district maps ( $\frac{1}{2}$  mile to 1 inch), 37; survey district (1 mile to 1 inch), 61; counties (1 mile to 1 inch), 12; towns (8 chains and 10 chains to 1 inch), 10; territorial (4 miles to 1 inch), 3; and miscellaneous and small-scale general maps, 6. The number printed is still below the number required to keep the map stock up to date, so that lithos dated forty years ago are still in some cases being used.

The cash sales of maps amounted to £1,110, an increase of 12 per cent. or £120 on the previous year. This increase is very satisfactory, as it is on the usual standard lithos and is not due to any map for which a large special demand is made.

Other Government Departments were supplied with maps to the value of £620, excluding the census maps. These latter were prepared at a cost of £1,254, of which about £400 represents the value of the lithos used, and the balance the work put on by the draughtsmen.

No new sheets of the 4-miles series territorial maps were published during the year, though three sheets are in the hands of the printer.

*Census.*—The preparation of the Enumerator and Subenumerator maps for the quinquennial census were completed, and entailed a considerable amount of work by the draughtsmen during the period of preparation. This year the procedure was simplified in several particulars, allowing the work to be carried out much more economically than formerly.

*New Zealand and South Seas Exhibition.*—The Exhibition at Dunedin threw extra work on the staff both of the Head Office and District Office, principally in connection with the plaster model of Dunedin and the surrounding district, though the packing and setting-up of the various instruments shown also took considerable time and labour.

*Town Plans.*—The number of these approved during the year showed an increase of twenty-five, this year's number being 340. As before, the greater part represent subdivisions in the vicinity of the City of Auckland, 64 per cent. being from the North Auckland District, while Canterbury, Auckland, and Wellington contributed 14 per cent., 8 per cent., and 7 per cent. respectively.

An analysis of the schemes approved during the last ten months of the year show that a gross area of 3,410 acres was subdivided for town purposes during that time. Of this area, 2,767 acres were available for disposal as lots, 412½ acres were for new roads, 13 acres for future roads and rights-of-way, and 217½ acres were provided for recreation and other public reserves.

*Draughtsmen's Examination.*—At the examinations held in December last ten draughtsmen and six computers presented themselves. Of these, the following were successful: Draughting—First grade, Mr. T. J. Lowndes; second grade, Messrs. R. P. Fletcher, A. O. Woodall, K. M. Melvin, C. B. Hodge, and H. R. Cochran. Computing—Second grade, Miss Simmons, Messrs. E. W. Pickford, A. W. Hampton, and R. Anderson. The setting and marking of these papers takes considerable time, but, owing to the nature of the work, is practically all done out of office hours and away from the office.

*Standard of Length.*—Nineteen working-bands, of a total length of 141 chains, were compared with the official standard band No. 1 during the year, and certificates issued. Seven private surveyors' standard bands, each 1 chain in length, were compared with the Imperial standard band No. 1, certificates being issued. Four Invar bands, of a total length of 10 chains, were tested with Imperial standard band No. 1, making a total for the year of 158 chains. The ten-link comparator and standard scale were thoroughly cleaned and oiled, but these cannot be used until housed. The introduction of Invar bands into more general use, this material now being obtainable locally, makes the provision of a place where comparisons may be made with a reasonably constant temperature more urgent, as at present weather conditions account for very lengthy delays at times.

## APPENDIX II.

### EXTRACTS FROM THE ANNUAL REPORTS OF THE CHIEF SURVEYORS.

#### NORTH AUCKLAND LAND DISTRICT (H. J. LOWE, Chief Surveyor).

*Rural.*—During the year 5,331 acres of rural land were surveyed by staff surveyors, and 1,170 acres by private surveyors.

*Topographical.*—Work in this section comprised an area of 13,258 acres by staff surveyors, and none by private surveyors.

*Town Section Surveys.*—Staff surveyors subdivided an area of 28 acres into town sections, and a small survey of ½ acre was executed by a private surveyor.

*Village and Suburban.*—An area of 102 acres was surveyed by staff surveyors in this section.

*Roads.*—Staff surveyors completed 12 miles of road surveys, and 1 mile was carried out by private surveyors.

*Native Land.*—All work in this section, comprising an area of 7,332 acres, was executed by private surveyors.

*Other Work.*—This work included topographical surveys, inspections of roads, &c., reports and schemes of subdivision, alignment surveys, reinstatement of trigs, intersections on standard blocks, engineering surveys, grades and levels for new roads, &c. As in the previous year, inspections of Land Transfer surveys formed one of the chief items in this section, and a further important factor was the preliminary surveys in connection with the Orakei subdivision.

*Office-works.*—During the year the Crown Lands Branch received 205 plans, and 178 were examined and approved; 219 town scheme plans were dealt with; 49 plans were compiled in the office, and 3 were received, examined, and approved; 5 maps were drawn for photolithographic reproduction; 48 block-sheets were prepared; 104 sale plans were drawn; 1,058 tracings, including field data, were prepared; 441 certificates of title and 410 leases were endorsed in duplicate; 100 Proclamations were issued; 916 plans were recorded. The year's work has also included general work, sun-prints, colouring of lithos, mounting, correspondence, searching, reports, and general office-work.

*Standard Surveys.*—During the year the office-work in connection with this branch, carried out by the Crown Lands Branch staff, has included 16 sheets drawn, additions to 36, 26 examined, 41 tracings made and 30 checked; 19 traverse sheets have been checked, and general work, preparation of field data, reduction of chainages, &c.

*Native Land Branch.*—In this branch the year's returns show a total of 45 survey and 14 compiled plans received, 52 plans examined and approved; 100 schedules of cost were checked; 2 caveats lodged; 8 Native Land Courts attended; 150 Court orders endorsed in duplicate; 22 tracings were made, and 4 compilations.

*Land Transfer Branch.*—712 plans were received during the year, and 648 examined and approved.

*Proposed Operations for 1926-27.*—Staff surveyors have been authorized to survey 21,190 acres of rural land, 12.75 acres of town surveys, and 10.55 miles of road. Contract surveys on hand include 3,160 acres of Native land. Office-work will include drawing of survey district and borough maps, with their attendant record maps and block-sheets; standard survey plans, and all mapping and calculations incidental to current work.

*General.*—At the beginning of the year four staff surveyors were employed. In November Mr. King was transferred from the Auckland Lands Department to assist in the subdivision of the Orakei Block. The technical staff numbered thirty-six at the beginning of the year. Few changes have taken place during the past twelve months. Three cadets and one temporary officer joined the staff, one officer was transferred from the Internal Affairs Department, and one from the staff of the Auckland Lands Office. Two cadets resigned during the year, and a further loss to the Department's staff was suffered through the death of Mr. Mitchell in November last. The staff now numbers thirty-nine.

Among the draughtsmen the standard of draughting has improved very much, so much so that at the last Draughtsmen's Examination one candidate, Mr. T. J. Lowndes, obtained a complete first-class, and Mr. R. P. Fletcher a partial first-class certificate, while Messrs. K. H. Melvin and A. O. Woodall each obtained a second-class certificate. Miss E. M. Simmonds also obtained a second-class computer's certificate. Several draughtsmen have again entered for the examination, and in consequence are showing great interest in their work, the quality of which is rapidly improving. At the present time five draughtsmen are occupied in compiling and drawing for photolithographic reproduction, while the majority of the remainder as opportunity offers are engaged in assisting with the block-sheets and record maps. It is therefore hoped that this year will see an increase in the production of standard publications.

It will be noted that scheme plans again show a slight increase, this year's number being a record.

#### AUCKLAND LAND DISTRICT (K. M. GRAHAM, Chief Surveyor).

*Topographical Surveys.*—For the past year one surveyor and two assistants have had in hand the topographical survey of Rotorua County, an area of about 1,100 square miles. Returns at the 31st March, 1926, show an area of 497.71 square miles completed at a cost of £3,029 5s. 6d.

Together with the topographical survey is included the work of determining the heights of the various lakes within the county. This work necessitated running about 160 miles of levels, at a cost of £870 13s. 5d., or £5.44 per mile. Permanent concrete bench-marks were set up at half-mile intervals along the lines of these levels.

A topographical survey has also been completed over the reserves in Rotorua Borough, contour work being carried out at intervals of 20 ft. The cost of this work, which included an area of 600 acres, was 6.02s. per acre.

*Rural.*—Staff surveyors accounted for 3,428 acres at a cost of £898 1s. 8d., or 5.24s. per acre. As most of the work was carried out in difficult country and consisted of more or less isolated sections, the cost would not appear to be excessive. Of the area surveyed most was located in the King-country and Tauranga districts, the remainder consisting (in the main) of areas to be set aside as scenic reserves, being in the Urewera district.

*Village and Suburban.*—Very little work of this nature was undertaken during the year, the returns showing an area of 9 acres subdivided into sections at a cost of £2.56 per acre.

*Town Sections Survey.*—Fourteen town sections were surveyed during the year at a cost of £111 12s. 5d., or £7.97 per section. In almost every instance these were isolated sections, and the cost of survey was considerably increased by reason of travelling and other expenses incidental to such jobs.

*Native Land Surveys.*—Three staff surveyors accounted for 44,957 acres in fifty-four subdivisions, at a cost of £3,785 17s. 2d., or 1.68s. per acre. Considering the difficult nature of the country this work compares very favourably with that carried out by contract surveyors, who accounted for 28,728 acres in 345 subdivisions at a cost of approximately £3,431, or 2.5s. per acre. Of the work carried out by staff surveyors, 26,031 acres was situated in the Urewera district, while the remainder, 18,926 acres, was in the Taumarunui County.

*Roads.*—66½ miles of roads, mostly Ahikereru, Ruatahuna, and Wharepapa Survey Districts, were surveyed by staff surveyors during the past year. Other work consisted mainly of small deviations, and in view of this the total average cost, which works out at £34.97 per mile, does not appear to be excessive. Work in Ahikereru Survey District was in connection with the main Ahikereru—Ruatahuna Road, and in Wharepapa Survey District to give access to Crown lands.

*Traverse Closures.*—The mean traverse closures for the past year as supplied by staff surveyors on the annual return show an error of 0.82 links per mile on the perpendicular and 0.9 links per mile on the meridian. This would appear to be quite a satisfactory result for surveys of the nature of those carried out in the district during the year.

*Other Work.*—A considerable expenditure is shown under this heading, chiefly by reason of the fact that part of the work carried out on the Arapuni Lake contour survey and on Rotorua County topographical survey has been grouped under this heading.

In connection with the Arapuni Lake survey, 20 miles of traverse and 20 miles of levels were run over exceedingly difficult country. The survey cost to date of this work is £731 17s. 10d., or £36.62 per mile. The survey was undertaken at the request of the Public Works Department, to determine the area of land to be submerged, and the total area of land to be taken in connection with the Arapuni hydro-electric scheme.

In Rotorua County 160 miles of levels were run in order to fix the heights of the lakes within the country. Of this work the sum of £870 13s. 5d. was expended, and the cost, £5.44 per mile,

would appear to be fairly reasonable, especially in view of the fact that permanent concrete bench marks were set up at half-mile intervals along the line of these levels.

Miscellaneous work which cannot be grouped under any particular heading is also comprised in this division.

*Office and General Work.*—Land Transfer Branch: 931 plans were received for examination, 889 were examined and approved, 5,894 deeds and other instruments were passed, and 10,759 plans placed on certificates of title. On account of the operation of the compulsory Act, the amount of diagram work has considerably increased during the year, with the result that the number of plans awaiting approval is considerably greater than at the end of last year. Steps are being taken, however, to reduce the number of unapproved plans. This return is for the Auckland and North Auckland Districts combined.

Native Branch: 114 plans were received for examination, and 107 were examined and approved; 407 survey costs were examined and approved; 6 Native Land Courts attended; 30 plans were compiled, 115 tracings made, 95 authorities issued, and 912 Native Land Court orders were endorsed.

Crown Lands Branch: 189 plans were received, and 206 were examined and approved; 42 plans were compiled, 681 tracings made, 281 plans recorded, 35 sale plans drawn for photolithography, 318 chain-lengths tested, 156 Proclamations entered, and 20 town schemes dealt with.

*Proposed Operations, 1926-27.*—Two assistant surveyors have in hand the topographical survey of Rotorua County. This work will probably require a large portion, if not all, of next season, to complete. The country under survey, is, on the whole, generally difficult of access. Five staff surveyors have in hand the survey of 27,401 acres of land for settlement; 22 miles of road, mostly giving access to Crown land under survey; and 295 town sections, of which the greater number are in Te Aroha Borough. Contract surveyors have in hand the survey of 147,150 acres of Native land and 4 miles of road for Native Land Court purposes.

#### GISBORNE LAND DISTRICT (E. H. FARNIE, Chief Surveyor).

*Triangulation (Subsidiary).*—48 square miles executed to govern surveys of scattered Native reserves on the shore of Lake Waikaremoana in connection with the Urewera consolidation.

*Town Standard Surveys.*—The whole of the original plans and photostats of the Borough of Gisborne have now been received, together with traverse reductions and field-books. The traverse sheets have been checked and compared with the plans and the photostats delivered to the Borough Council, who will now pay the balance of £200 owing.

*Rural and Suburban.*—During the year 6,351 acres of rural land were surveyed, comprising twenty-nine sections, being mostly resubdivisions of existing sections in the Ohuka and Glencoe Settlements and isolated sections in the Waioeka; also 39 acres of suburban land, subdivided into fifteen sections.

*Native Land Court Surveys.*—Under this heading 15,513 acres, comprising 138 subdivisions, were subdivided by staff and contract surveyors, at a cost of 3.782s. per acre, total cost being £2,933 11s. 10d.

*Roads and Public Works Surveys.*—Roads surveyed during the year totalled 5½ miles, and an area of 6½ acres was surveyed for Public Works purposes.

*Work in Progress.*—The periphery and topographical survey of the Poroporo and Tangihanga Blocks, of about 16,000 acres, in which the Crown has acquired about two-thirds of the Native interests, has been completed, and a provisional plan prepared. It is considered that the Crown's portion will be defined and the land subdivided and thrown open for settlement during the year. With regard to the Tuparoa consolidation, embracing (roughly) 93,000 acres, in which the Crown has interests amounting to about 7,000 acres, most of the exchanges and field-work in connection therewith have been completed, and it is expected that the remainder will be completed this year and the Crown land opened for selection.

Survey of the surrendered area of 3,850 acres in Small Grazing-run 71 has been completed, and the plan is in preparation. Subdivision of Small Grazing-run 38 and part 37, comprising 11,800 acres, mostly bush with road access thereto, is at present under survey, and the field-work is expected to be completed about the end of June.

*Office-work.*—Land Transfer Branch: During the year 73 new plans were received for examination and 71 were approved, containing 243 lots, of an area of 8,689 acres; 101 traverse sheets were examined, and 1,228 diagrams endorsed on certificates of title, and 47 leases and Proclamations were examined.

Native Land Court plans: During the year 49 plans were received and 53 examined and approved, comprising 138 subdivisions, of a total area of 23,158 acres; 7 plans were compiled in the office; 125 traverse sheets were examined, 472 diagrams endorsed on Court orders and examined; 45 authorities were issued to surveyors, 2 to staff and 43 to contract surveyors; 43 certificates of cost were issued.

Statutory plans: During the year 19 plans were received and 21 were approved, representing 11½ miles of roads and 14 lots with a total area of 143 acres; 14 traverse sheets were examined. Five of the above plans were compiled in the Survey Office.

Crown plans: Under this heading 24 plans were received and 27 approved, comprising 73 lots with an area of 15,769 acres 3 roods 37 perches; 96 traverse sheets were examined. Six plans were compiled in the Survey Office.

Record maps: The majority of the maps prepared under the above heading are of the part of this district formerly included in the Auckland Land District. During the year 30 maps on the 20-chain scale were prepared, 7 on the 10-chain scale, and 3 of the Town of Opotiki on the 2-chain scale.

Maps mounted: During the year 166 maps were mounted.

Miscellaneous tracings for Valuation Department, &c.: During the year 222 ordinary tracings were prepared, the majority being valuation tracings; 7 poster tracings for photolithography were prepared.

## HAWKE'S BAY LAND DISTRICT (J. D. THOMSON, Chief Surveyor).

*Standard Surveys.*—It is hoped that it will be possible in the near future to carry out additional standard work in the boroughs of Hastings and Dannevirke. In some of the boroughs in this land district many of the streets are being reconstructed, and dressed with bitumen. Owing to excavation work and subsequent rolling there is a danger of standard blocks being injured or misplaced. The position is being carefully watched here, and local bodies have been asked to acquaint this office of any proposed work, so that the matter may be looked into and protective measures taken.

*Rural.*—Under this heading an area of 8,289 acres has been surveyed, at a cost of 0.49s. per acre. The principal area is one of 3,545 acres of Crown lands, known as part of the northern or unoccupied portion of Purahotangihia Block. Three sections have been provided from this area, and it is proposed to offer the lands for selection at a favourable opportunity. The other large area is one of 4,028 acres, granted for afforestation purposes. There is, however, very little survey work on this, boundaries for the most part being compiled from surrounding surveys. Other items included in the aggregate area comprise the resubdivision of a section on Glengarry Settlement, and cutting out two areas of 60 and 548 acres respectively from the Heru-a-Tureia Block (Crown lands).

*Town.*—Under this heading two areas were dealt with, one being an Education reserve in the Borough of Napier, which was subdivided into thirteen residential sites; the other being an area in the unoccupied portion of Purahotangihia Block, adjoining the Waikoaau Railway line, on the East Coast Main Trunk Railway, and comprised thirteen lots of  $\frac{1}{4}$  acre each.

*Village and Suburban.*—There was only one small survey of 1 acre of accretion land at Clive under this heading.

*Native Land Court Surveys.*—Under this heading an area of 8,856 acres was subdivided into 198 lots by contract surveyors, at a cost of 3.35s. per acre. This cost is higher than last year, but the majority of the blocks that came under subdivision this year were small, as regards area, and the land comprising same, of great value. Partitioning this year was more intense than is usually the case, and in a number of cases the areas were very small.

*Roads.*—Under this heading the total length surveyed is 3.69 miles, in the Maungaharuru district, done at a cost of £32.33 per mile.

*Field Inspections.*—Only one inspection was made during the year, of a Land Transfer survey in the Borough of Wairoa. It was found in the past to be impossible to adopt any general or organized system of effectiveness in dealing with this important matter, under the conditions. However, now that a staff surveyor is stationed in this district it is hoped more of this class of work will be undertaken.

*Other Work.*—An amount of £81 11s. 10d. appears under this heading for the year. This sum covers a miscellaneous number of items, such as compass traverses of fences, redefinition of boundaries, measuring up scrub-cutting areas, exploration work on Crown lands, inspection and reports on application for Crown lands, &c.

*Work in Progress* consists of an area of 445 acres, Native Land Court authorities, in the hands of contract surveyors. The staff surveyor has instructions to make a topographical survey of Awaototara Block, of 950 acres, two-thirds of which area has been purchased by the Crown. It is proposed to partition. He has instructions also to later make a complete topographical survey of Crown lands at Waimarama, embracing an area of about 4,000 acres of really good country, probably suitable for mixed farming. This land was purchased by the Crown subject to a lease, which expires next year. I propose then to devise a suitable scheme of subdivision from the complete details which will then be at my disposal.

*Office-work.*—Land Transfer Branch: During the year 123 plans were received for examination; 115 plans, comprising 430 lots and containing an area of 6,922 acres, were approved; 166 traverse sheets examined; 1,350 instruments of transfer, lease, and mortgages, &c., examined and reported upon to the District Land Registrar; 2,656 placed on certificates of title and examined; 124 plans were recorded, and 20 new plans made for record purposes under the new Act.

Townships for approval under the Land Act: 10 plans were received and approved.

Native Land Court Surveys: During the year 58 plans, consisting of 198 lots and containing an area of 8,856 acres, were received and approved; 53 traverse sheets were examined (the above includes 7 compiled plans); 58 tracings were made for the Valuer-General; 396 diagrams were endorsed on Court orders; 55 authorities for survey were issued, comprising 6,416 acres. Amount of outstanding survey costs collected, £1,226 9s. Fifty-eight certificates of costs were prepared, for an amount of £1,483. Sixty-six traverse sheets were examined.

Statutory plans: 26 statutory plans, having 52 lots and containing an area of 355 acres, were approved; 24 traverse sheets were examined.

Crown plans: 19 plans, containing 43 lots and comprising 5,240 acres, were received and approved; 22 traverse sheets were examined. Fees from sale of lithographs, £52 10s. 3d. Miscellaneous tracings for Valuer-General, 1,077 (gazetting purposes, settlers, Field Inspectors', and general purposes); sunprints, 48; tracings were prepared for sale posters, 9; reductions for district lithos and other purposes, 1,123.

*Standard Lithography.*—Good progress has been made during the year with this work, and it is hoped to do still better during the current year. Routine work, however, is steadily increasing, and it is very often found necessary to divert the officers usually undertaking this work. The cadets, four in number, are making excellent progress, and are becoming very useful, the result being that I will be able to employ another officer for practically the whole of his time on litho work in the near future. I am anxious that the new Borough of Napier drawing be completed at an early date. There is still, however, a lot to be done by way of completing the one-mile district maps. This work is of great urgency, owing to the old county drawings being incapable of further revision. To date eleven new district drawings have been completed, and, on account of their being entirely up to date, have been a great boon.

*Land Transfer Index Maps.*—It has not been found possible to make much progress with this class of map. Twenty-three maps have been drawn, and the Heretaunga maps are now in the course of construction. The maps of this district are most urgently required, owing to the present large roll maps falling into disrepair.

*General.*—In a general review of the work it will be seen that a considerable increase has been shown over the preceding year. This is principally noticeable in regard to the office-work. Present indications are that the technical staff will be called upon to meet a further increase during the year. The census maps may be specially mentioned, in so far as they were carefully and expeditiously carried out without any additional assistance.

A large amount of intense subdivisional work was done by contract surveyors on requisition from the Native Land Court. During the year a staff surveyor joined up, and carried out a large amount of miscellaneous field-work.

#### TARANAKI LAND DISTRICT (W. D. ARMIT, Chief Surveyor).

*Topographical Survey for Contour Maps.*—A commencement was made on this work by Mr. McCabe, and to date 77 square miles of country in Paritutu and Egmont Survey Districts have been mapped in the field. Of this amount 62 square miles have been finally mapped, the remainder being carried on to 1926–27. In connection with this survey a total of 80 miles of levels, with a closing-error of 0·013 per mile, have been run, and forty-five concrete bench-marks established. This work will be continued during 1926–27 by Mr. Adams.

*Rural.*—An area of 18,079 acres, all by staff surveyors, and comprising thirty-four sections, is returned under this heading. An area of 10,000 acres, being portions of Taumatamahoe and Whakaihuwaka Blocks, is included in the above acreage.

*Village and Suburban.*—A total of 45 acres, in six subdivisions, is returned for the year.

*Town Section Survey.*—Only one quarter-acre section is shown under this heading.

*Native Land Court Surveys.*—The area of Native Land Court surveys completed during the year amounted to 1,160 acres, all surveyed on contract except 41 acres by staff surveyor. Compiled plans, nine in number, were completed in this office, and amounted to a total of 8,252 acres.

*Roads, Railways, and Water-races.*—1·38 miles of railway survey were completed during the year.

*Other Work.*—This expenditure amounts to £246 16s. 9d., and is accounted for by small miscellaneous surveys, road-deviations, bench-marks, and levelling, inspection surveys, &c.

*Inspections.*—Inspections of surveys at Stratford and in Egmont Survey District were carried out by Mr. McCabe.

*Closures.*—The summation of average closures gives an error of about 1·2 links per mile, covering surveys in all classes of country.

*Office-work.*—The total number of plans checked under all headings in the Computing Branch amount to 140, with 118 traverse sheets. Of these Crown settlement surveys represent 18 plans, covering an area of 28,365 acres, and divided into 52 sections. The greater portion of this area comprises portions of the Taumatamahoe and Whakaihuwaka Blocks, the balance being made up of alterations to existing leases. Native Land Court surveys were represented by 54 plans, of which 9 were compiled. The area of the surveyed blocks totalled 1,160 acres, while the compilations amounted to 8,252 acres. Road and railway surveys accounted for 2 plans and 4 tracings, covering 1·4 miles. The balance of plans examined comprised other takings under the Public Works and Land Acts (21) and miscellaneous (39). This work has been kept well up to date by a small staff, the greater part of the time by one officer only.

*Land Transfer:* In this branch 147 plans, with 211 traverse sheets, were checked and approved, covering 579 lots, of a total area of 3,895 acres—very slightly larger than last year.

*Titles:* Plans placed on instruments of title of all kinds numbered 2,098, and 353 copies of leases and licenses were prepared by the office staff.

*Compilations:* For photo-lithography 5 tracings of standard publications and 17 sale plans were prepared; 9 compilations were also completed for Native Land Court purposes. A total of 9 30 in. by 30 in. index record maps have been prepared for the Lands and Deeds Department. In addition, 2 20-chain 30 in. by 30 in. maps of Part Wairau and Cape Survey Districts, and 4 town maps on scale of 4 chains, were completed.

*Miscellaneous:* The usual tracing-work has required constant attention during the year, and the preparation of census maps may also be included under this heading. The supply of information to the general public, selectors tracings, surveyor's data, diagrams and tracings to illustrate letters to Head Office, and general Proclamation tracings required a total of 281 tracings. For the Valuation Department 180 tracings were prepared.

*Native Land Court Surveys.*—The total area of Native Land Court surveys completed during the year amounted to 1,160 acres, of which 1,119 acres was done by private surveyors under authority, and 41 acres by a staff surveyor. An area of 512 acres is now under survey by contract surveyors.

*Native Land Court Work.*—The authorities to survey issued during the year for West Coast settlement and ordinary Native lands total 22, covering 53 subdivisions of an area of 1,813 acres, at an estimated cost of £405. The total area on hand under authority by surveyors at 31st March, 1926, is 512 acres. Of authorities issued prior to 31st March, 1925, an area of 321 acres, covering 5 subdivisions held by 3 authorities, has been completed, and plans received during the year. The total area of Native Land Court surveys completed during the year amounts to 1,160 acres.

The number of plans endorsed to comply with Judges' instructions was 326; of these 236 have been forwarded to the Registrar, Native Land Court, for attachment to partition orders.

The area of Native land placed on diagrams amounts to 17,780 acres. 297 plans have been forwarded for use at Native Land Courts. The survey costs (including cost of examination of plans and interest due) collected for ordinary Native Land Court and West Coast settlement surveys amounted to £794 11s. 9d.

Owing to the isolation of this office with regard to the Native Land Court officials, solicitors, and surveyors, a great deal of extra correspondence and supply of data is required to be supplied. The outward correspondence entailed the writing of 800 letters; 18 vouchers, amounting to £419 3s. 1d., covering 48 subdivisions and totalling 1,641 acres, have been prepared on this branch and sent on to the Accountant for payment to contract surveyors. When necessary, an officer has attended the sittings of the Native Land Court for the purpose of obtaining charging-orders, giving assistance to the Court, and carrying out usual detail work. Seventy-one applications for charging-orders and 71 certificates of cost, amounting to £586 1s. 9d., were forwarded to the Native Land Court, and 68 liens, amounting to £537 1s. 8d., covering 68 subdivisions, were released. Nine plans, covering an area of 8,252 acres, were compiled for Native Land Court use; 5 plans for office record and 25 tracings have also been made in this branch during the year.

*Proposed Operations for Coming Year.*—Mr. McIntyre will be engaged on the scenic reserve survey between the Heao and Wanganui Rivers, and will then complete the survey of tracks and roads on Egmont National Park. Mr. Adams will continue the topographical survey of portion of the Taranaki District, including Egmont National Park. He will also undertake any small survey as required.

WELLINGTON LAND DISTRICT (F. H. WATERS, Chief Surveyor).

*Rural.*—Mr. S. L. Fairhall completed surveys of Section 2, D.P. 4300, Westmere Survey District; Section 2s, Matamua Settlement; Section 4s, Omapu Settlement; Sections 2, 3, 4, and 5, Haunui Settlement; Sections 10s and 12s, Cloverlea Settlement; Section 29, Block VI, Hunua Survey District; and the Raetihi Exchange, Karioi Survey District; a total of twenty-six subdivisions of an approximate area of 475 acres. Mr. W. G. Nelson completed surveys of Taheke Domain, Sandy Survey District, and four sections in Piahautea Settlement; a total of six subdivisions of an area of 661 acres. He has in hand survey of Sections 1, 2, and 3, Tupurupuru Settlement (1,173 acres).

*Village and Suburban.*—Mr. W. G. Nelson completed surveys of eleven sections, of an approximate area of 40 acres, in the Hutt Valley Settlement, comprising Mr. D. Robertson's property and the factory-sites at Petone.

*Town.*—Mr. L. J. Poff completed surveys of 117 sections in the Wilford Settlement and 149 sections in the Hutt Valley Settlement, of a total area of 54 acres (approximately). Mr. D. M. Greig completed a survey of Section 3, Block IV, Thorndon Reclamation, a total of two subdivisions, of an approximate area of 16 perches.

*Roads and Railways.*—Mr. D. M. Greig completed survey of 1 mile and Mr. W. G. Nelson completed survey of 2 miles of the Hutt Valley Railway deviation. Mr. J. D. Clapperton completed survey of 3 miles of roads in the Hutt Valley Settlement.

*Topographical.*—The only survey under this heading was carried out by Mr. W. G. Nelson, in connection with the Hutt Valley Settlement subdivision.

*Other Work* comprises 9 miles of magnetic traverse in the Tongariro National Park, by Mr. S. L. Fairhall; repegging Heretaunga Settlement exchange areas, Hutt District, by Mr. L. J. Poff; definition of the Massey Memorial Site, and the survey of Mandel's Estate, Hutt District, by Mr. W. G. Nelson. Mr. D. M. Greig defined a boundary, recreation reserve, Petone.

*Land Transfer Branch.*—491 plans were received, 508 plans checked, 500 plans approved, 14 plans compiled, 30 applications examined, 5,402 transfers and other dealings examined, and 11,111 diagrams were endorsed on new certificates of title. In addition, such work as receiving and despatching, supervision, attendance on public, indexing, and recording have been attended to. Thirty-nine key maps of the City of Wellington, 12 key maps of Palmerston North, and 2 key maps of Upper Hutt are now completed and brought up to date.

*Crown and Native Lands.*—101 plans comprising 277 subdivisions of an area of 29,990 acres were received, whilst 116 plans of 341 subdivisions of an area of 35,358 acres were approved.

*Statutory Plans Branch.*—112 plans were received, 112 plans examined, 111 plans approved, and 95 plans sent forward for proclamation purposes; 158 plans were recorded, 110 Proclamations gazetted and received, whilst final action was taken on 74 plans. In addition, general and special searches, recording of alterations to local bodies' boundaries, the preparation of information for issue of title to closed roads, technical descriptions of lands to be reserved and exchanged, returns of Crown, Native, and freehold lands, the preparation of draft clauses for Washing-up Bill, and the ascertaining of progress of road-formation in loan blocks have been carried out.

*Office-work.*—22 plans were compiled, 12 photo-lithographic tracings prepared, 530 diagrams endorsed on warrants, 385 diagrams endorsed on Crown leases, and 405 diagrams endorsed on Native Land Court orders. In addition, the compilation of census maps, 40-chain district maps, new road record maps, and the plan index has been proceeded with, whilst a large amount of searching, tracing, and miscellaneous draughting has been carried out.

*Native.*—85 authorities for 282 partitions, representing an area of approximately 28,432 acres, at an estimate cost of £5,610, were issued during the year to private surveyors; 83 plans and duplicate tracings for 236 partitions, of an approximate area of 30,708 acres, at a cost of £3,972 17s. 2d. were received; 508 diagrams were endorsed for attachment to Native Land Court orders; 228 applications for changing-orders were prepared and forwarded, entailing the preparation of 364 application forms; 84 vouchers were prepared, checked, and passed for payment, amounting to £3,553 16s. Survey liens totalling £2,019 10s. 3d. were received, and receipts handed to the Receiver of Land Revenue. This entailed the preparation of 123 debit notes and 172 releases of liens. Three purchases under the West Coast Reserves Act were completed, and five additional ones are now in hand. Plans were forwarded to and attendance made at the various Courts in the district, at which all charges advertised in the Panui were confirmed and orders made accordingly.

*Proposed Operations.*—Subdivision of the Hutt Settlement; survey of road to give access to bush block, Haurangi Mountains, and subdivision of same; surveys of Hautu and Pukawa Blocks; and spotting surveys over various parts of the district.



## MARLBOROUGH LAND DISTRICT (J. STEVENSON, Chief Surveyor).

*Native Land Court Surveys.*—A total of five surveys is returned under this heading, comprising eleven subdivisions from the head of Queen Charlotte Sound to Kaikoura.

*Other Work.*—Under this heading is a return of nineteen surveys, at a total cost of £234 5s. 4d., eight of which were carried out by the office staff, and eleven by Staff Surveyor Clapperton.

*Inspections.*—Five Land Transfer inspections were carried out during the year, and, generally speaking, the work has been found quite satisfactory.

*Standard Surveys.*—Mr. Staff Surveyor Clapperton has been engaged on the standard survey of Blenheim, total cost to date of his temporary transfer to Wellington being £625 8s. 6d.

*Proposed Operations for 1926-27.*—Finish standard survey of Borough of Blenheim, and reinstatement of standards in Borough of Picton; also other Crown and Native surveys as required.

*Office-work.*—The total number of plans received by the Survey Branch for check was 64, of which 24 were Crown Land plans, 10 Native Land Court, and 30 road and other departmental plans. Diagrams were placed on 92 leases, 11 miscellaneous documents, and 18 on Native Land Court Orders. Thirty-six original survey plans were made in the office, 9 road and Land Transfer record maps completed, also new application, index, and land-tenure maps. Sale plans and census maps were prepared, and plans for photo-litho, Crown grant, and other record and index maps kept up to date.

*Land Transfer Branch.*—32 plans were received for checking, 1,027 plans were placed on certificates of title, and 488 deeds and other instruments passed.

## NELSON LAND DISTRICT (A. F. WATERS, Chief Surveyor).

*Town Surveys.*—With one exception, a small survey in the Borough of Richmond, the areas under this heading are situated in the Town of Westport. They comprise education reserves and sections in Westport Harbour Endowment.

*Rural Surveys.*—The area returned shows a considerable decline on previous years. This is due to the fact that one surveyor, Mr. Cox, is engaged on the survey of a block of 12,000 acres for which no plans have been lodged, and the surveyor's assistant, Mr. Buttress, has been engaged on isolated surveys in different parts of the district for which plans will not be lodged until the winter recess. The high cost is due to the travelling involved.

*Road Surveys.*—One survey was carried out for Public Works Department, and two for local bodies.

*Railway Surveys.*—A total of 8 miles of the Midland Railway was completed during the year. In addition, the boundaries of Kawatiri station-yard were altered at the request of the Public Works Department.

*Office-work.*—Land Transfer Branch: The year's work shows a considerable increase in number of plans examined: 143 plans were examined, as against 87 for last year. The number of diagrams placed on instruments of title for this branch shows a slight decrease, being 202 for this year, as against 231 for last year.

General Office-work: A considerable increase in plans examined is shown for this year, being a total of 71, as against 44 for last year. The number of diagrams placed on instruments of title also shows a slight increase, being 387, as against 372 for last year. Steady progress has been made with the compilation of road record maps. The most difficult district, Waitapu, has been completed, and another district, Kaiteriteri, is nearly complete. The original drawings of Collingwood, Takaka, and Murchison Counties were revised. These revisions entail a considerable amount of labour, and in some cases it would appear to be more satisfactory to have the counties redrawn. In addition, 4 survey district lithos were redrawn, and 6 revised making a total of 13 standard publications.

## WESTLAND LAND DISTRICT (W. T. MORFETH, Chief Surveyor).

*Field Staff.*—During the year 36 plans were handed in by the field staff, representing field-work completed of 5,141 acres rural, 10 acres village and suburban, 45 acres town sections, 1,300 acres topographical, 2½ miles of road and miscellaneous surveys. Of these plans two represented comparatively large areas of Cook's River and La Fontaine Swamp, subdivided for selection; the remainder, however, were of small settlement and miscellaneous survey, widely scattered over the district, entailing frequent changes of camp and travelling, thus increasing ordinary costs for the work by quite an appreciable amount.

The work in hand includes some 200 acres of Rohutu Township Reserve, which it is proposed to subdivide into four lots; the new Town of Rapahoe, to be subdivided into about eighty sections, and a few small miscellaneous surveys; also the completion of 12 plans of field-work executed which will be undertaken during the coming winter.

Traverse closures were returned for varying distances totalling 21½ miles, 116 stations being required, the total error being 4.1 links on the meridian and 8.5 links on the perpendicular, representing a reduced error of 0.19 and 0.40 link per mile respectively.

The staff has been kept fully engaged on field operations, and with the work in hand and the usual applications to be expected for surveyed areas the current year promises a continuance of the present activities.

*Draughting Staff.*—Plans approved during the year numbered 81, classified as follows: 33 Land Transfer, 29 settlement, 11 statutory, and 8 miscellaneous, of which total 11 were compiled by the office staff. Also, 751 tracings of various descriptions were prepared, 868 diagrams and 23 Proclamations placed on instruments of title, 6 photo-lithographic tracings prepared for sale poster, 70 tracings and lithos mounted, 115 lithos coloured, and 168 applications for timber licenses were received and dealt with.

All the tracings required in connection with the demarcation of settlement land from provisional State forest, together with 80 technical descriptions, were completed and handed to the State Forest Service.



The photo-lithographic tracing of the Town of Greymouth, which has been under preparation for the last two years, is still unfinished, and its early completion is an urgent requirement. Other work on hand requiring early attention is the revision of the country litho sheets and tracings, and the preparation of the 20-chain record sheets, which system of recording in this office has not yet been commenced, and which will require the sole attention of at least one of the staff for the next twelve months. It is doubtful, however, if this work can be put in hand during the coming year without increasing the staff, for which application was made during the year, and which is again recommended for favourable consideration. Without this extra assistance it is also doubtful if the litho of the Town of Greymouth can be completed under six months; and, as orders have already been booked in advance for this important litho, its urgent completion is a pressing requirement. Our present stock is exhausted.

Special efforts have been made to meet the demands for diagrams on titles under the Land Transfer (Compulsory Registration of Titles) Act, and up to the present about three-quarters of the estimated number of titles required have been dealt with; the remainder will probably be completed during the current year.

CANTERBURY LAND DISTRICT (W. STEWART, Chief Surveyor).

*Surveying and Draughting Branches.*—Two surveyors have been employed on the staff during the year—viz., H. A. Adams, who took up his duties early in April, 1925, and W. Paora, who has been engaged mostly on outside duties and partly in the office. Mr. Adams's surveys consist of subdivision of township lots (part of railway reserve) at Arthur's Pass; road deviations, Summit Road; compass surveys of alteration to run boundaries; several resubdivisions of soldiers' holdings; and a revision and extension of old standard surveys in the suburbs of Christchurch. Mr. Paora has carried out several surveys for the Native Land Court, also of town, village, and rural sections and inspection surveys for protecting permanent marks in connection with the new drainage-works in Christchurch.

The reconstruction of roads with bitumen surfaces has brought up the question of preservation and safeguarding of survey marks. In connection with this the local bodies have been written to and asked to confer with this Department, and notify me of any proposed reconstruction work, so that steps may be taken for the protection of marks. I will keep this well in view, and, in the event of any comprehensive scheme of road-reconstruction being undertaken, will inform you, so that steps may be taken to lay down a permanent standard connecting with the present survey marks.

In the Land Transfer Branch there has been an increase of thirty-four in the number of plans examined and deposited, also a large increase in new certificates of title prepared, caused principally through the coming into force of the Compulsory Registration of Titles Act. This Act has also devolved upon the staff considerable extra work in connection with the searching of titles, &c. The current work in this branch is well up to date.

The usual office routine work has been carried out. Being census year, the maps necessary for this purpose took up a considerable time of the staff; owing to this and other work, progress on the 20-chain record maps has only been fair, but during the coming year, with the better experience of the junior officers, I hope to see more headway made on these. I have much pleasure in recording my appreciation of the cordial co-operation of the local staff.

OTAGO LAND DISTRICT (R. S. GALBRAITH, Chief Surveyor).

*Native Surveys.*—A total of 584 acres, being subdivisions under Native Land Court partition orders, were dealt with. These were situated Punaomaru, Waikouaiti, and Moeraki Native Reserves.

*Settlement Surveys.*—77,242 acres, consisting of the subdivision of the Wilden Run, and the survey of Runs 245F and 238E, were completed, in addition to a number of small spotting surveys, located principally in the vicinity of Roxburgh and Cromwell. The alterations required by the Public Works Department in the subdivision of the Manuherikia irrigation area were also put through. The Wilden Run (52,000 acres) was completed by Mr. Hay at the beginning of the year. Mr. Philipps has been engaged upon Runs 238E (of 21,600 acres) and 245F (1,950 acres) in Cromwell Survey District, and other smaller work in the vicinity. Mr. Greig, since coming to this district in October, has cleaned up the accumulated Native work and the various scattered surveys about Roxburgh.

*Mining.*—During the year 21 mining plans were received from private surveyors, being surveys of various gold-mining claims and paid for by applicants' fees lodged with the Mining Registrars.

*Office-work.*—The quantity of office-work put through during the last year has been well up to the average, and the members of the staff have been steadily occupied with their various duties. The preparation of maps for publication is being proceeded with, the Towns of Waihola, Moeraki, Outram, and Tapanui being drawn for photo-lithography, in addition to a map of the Otago Heads N.R. and Mount Buster Survey District. The Survey Districts of Dunedin and East Taieri, North Harbour and Blueskin, Hawksbury, and Waikouaiti were also revised. The work of bringing the Land Transfer record maps up to date is being proceeded with as opportunity offers, and 14 were dealt with during the year. The plans of the Dunedin standard survey are being traced and mounted for counter use, 9 being traced since my last report. The work of repairing and rebinding the traverse sheets is now completed, the new volumes being more compact than the old guard-books, and a considerable saving in space has been effected in the safe. Surveyors' working-plans and compiled plans to the number of 26 were made, and 16 statutory plans of different kinds with schedules and tracings were also made. Tracings numbered 1,084; 108 Land Transfer plans were traced for the Valuation Department, and 317 diagrams of land transactions were also made for the same Department. The total number of survey plans examined and approved was 225; of

these 111 were Land Transfer. Diagrams were put on instruments of title as follows: Land transfer certificates of title, 2,982; warrant certificates of title, 152; leases, 436; miscellaneous, 50. The printer reports 807 maps mounted, 6,000 forms printed, and 163 books bound.

*Proposed Operations for 1926-27.*—Mr. Phillipps will proceed with the alterations to the Bannockburn Settlement area, and complete the various applications and road-deviations which are awaiting survey in Central Otago. Mr. Greig has now practically completed all the outstanding Native work, and after doing some small education reserves will proceed with the alterations on Clifton and Wairuna Settlements. When these are completed the subdivision of the Tuapeka Commonage will be put in hand.

#### SOUTHLAND LAND DISTRICT (N. C. KENSINGTON, Chief Surveyor).

*Rural.*—Mr. T. W. Preston has completed the field-work and put in the plans of 12,480 acres of the Lillburn Block, a detailed report on which is forwarded on separate sheets. Apart from Lillburn Block, 1,724.16 acres were surveyed in ten sections at a total cost of £146 12s. 1d., or a total cost of 1.7s. per acre.

*Native Land Court Surveys.*—Two Native Land Court surveys, having four allotments in all and containing 248 acres, were carried out, one by private surveyor, and one by staff surveyor at a cost of 5.45s. per acre.

*Village and Suburban.*—148.17 acres were subdivided and surveyed in eight sections, at total cost of 10.62s. per acre.

*Town Section Surveys.*—Two sections, one of  $\frac{1}{4}$  acre in Clinton, and one of  $\frac{1}{2}$  acres, Tuturau Hall site, were laid off.

*Roads and Railways.*—One mile road deviation, at a cost of £3,491.

*Inspection Surveys.*—One, details of which have been forwarded to Surveyor-General.

*Traverse Closures.*—A summary of some of the staff surveys carried out by Mr. Preston shows that 29.4 miles, controlled by 313 stations, closed on an average to 0.25 and 0.2 links per mile. The plans sent in by private surveyors also show closures well within the limit of error.

*Proposed Operations in Field.*—Mr. Preston to complete work scheduled as in hand.

*Office-work.*—During the year 115 Land Transfer plans, of a total area of 10,233 acres, and 41 Survey Office plans, of various descriptions, totalling 2,927 acres, were examined and approved; 341 diagrams were placed on Crown leases and other various documents; 1,908 diagrams were placed on certificates of title for Land Transfer purposes, and 1,556 Land Transfer instruments of title were examined, 291 working, 129 ordinary, 3 poster, and 134 valuation tracings, were made, being a total of 557 tracings; 17 Survey Office plans were compiled, 67 plans mounted, 201 lithographs coloured, and 191 lithographs mounted; 27 Land Transfer record maps were drawn, and 7 standard publications revised; 6 maps were drawn for publication, 9 application maps were drawn and checked, and 730 plans were recorded on various maps. The lithos, &c., mounted and coloured for the Census Enumerator are included in above totals. A large wall map, 9 ft. by 9 ft., of the Southland Land District, on 80-chain scale, was mounted. Five town-planning schemes were received for the Governor's approval. Stock was taken of lithographs, stationery, &c., and entered in the ledgers.

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## APPENDIX III.

### SURVEYOR'S BOARD.

THE personnel of this Board remained unchanged at the expiry of the Board's year on the 31st December, 1925, the members being nominated again.

Two examinations were held, as required by law; at that for September, 1925, for which the papers were set by the Adelaide Board, thirty-four candidates sat, thirteen of whom were new candidates, and of whom five, not passing Part I, were not allowed to proceed with their examination. At this examination the following candidates passed: G. A. Farrelly, F. A. Gainsford, R. E. Gilmour, A. K. B. Hounsell, P. A. Judd, R. H. Lewins, C. E. Nurse, H. G. Rand.

At the examination in March, 1926, set by Western Australia, fifteen candidates sat, none of whom was under the rules a new candidate, and of these only Mr. F. M. Hanson passed. At this examination the papers were dealt with by the Recess Committees only, in order to save expense, the candidates for March examination being those completing only.

The new regulations for the conduct of surveys having been subjected to reconsideration and amendment, certain amendments were finally confirmed and gazetted for practice.

Articles indenturing twenty-three apprentices were registered during the year ending 31st December, 1925.

W. T. NEILL, Chairman.

M. CROMPTON-SMITH, Secretary.

*Approximate Cost of Paper.*—Preparation, not given; printing (900 copies), £27.

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