Magnetic Observatory.

Mr. Skey has carried on the usual work of this observatory, and reports as follows:—

"The tables of hourly values of the magnetic declination and the horizontal magnetic force have been drawn up from the measurement of the year's magnetograms at hourly intervals. The mean value of the magnetic declination for the year thus obtained is 16° 49′ 84″ E. of N., and the mean value of the horizontal magnetic force is ·223550 c.g.s. unit. The approximate mean dip for the year was 68° 04′.

"The usual monthly curves of diurnal change and the seasonal vector diagrams for the year have been drawn, and it has this year also been possible to draw an annual vector diagram for the mean year of the years 1902, 1903, 1904, 1905, and 1913, 1914, 1915, 1916. These two groups of years are separated approximately by a sun-spot period, and it was therefore justifiable to mean them all together. The resulting vector diagram exhibits clearly the average non-cyclic change throughout twelve months, there appearing a maximum H in summer and another maximum in winter. Other features of the diagram are drawn attention to in the report. In future years it will be interesting to determine how this diagram varies with position in the sun-spot period.

"The Eschenhagen magnetographs at Amberley substation have been kept continuously recording, and have yielded most valuable magnetograms.

"The usual meteorological observations have been taken thrice daily on six days of the week, twice a day only on Sunday. The self-recording meteorological instruments have all performed well during the year, recording continuously temperature, air-pressure, and rainfall.

"On the Milne seismograph eleven considerable earthquakes of origin outside the Dominion were recorded."

General.

I have again to report that during the year a large number of officers has enlisted. They include seven surveyors, seventeen draughtsmen, three field cadets, and seven draughting cadets. Their names will be found in the report by the Under-Secretary. To keep the work going it has been necessary to employ temporary men, and preference has been given where possible to discharged soldiers. I am pleased to say that these have mostly been doing excellent work. Notwithstanding this all the offices are understaffed, and in consequence much necessary mapping, such as the preparation of four-miles-to-inch maps and the one-mile-to-inch maps of survey districts, is falling into arrears. In most districts there has been a falling-off in survey work generally, and so it has been possible to carry on with staffs that could not possibly keep things going under normal conditions. In one office, however—New Plymouth—the work has increased by reason of the operation of the West Coast Settlement Reserves Act, which has involved the preparation during the year of some four thousand freehold orders (in quadruplicate). More use has been made of sun printing than heretofore, and still more will be made during the ensuing year.

Numbers of field hands have also enlisted, and it is with great difficulty that surveyors have been able to keep up their parties. This difficulty is consequently increasing, and will apparently soon seriously hamper survey operations.

By the retirement of Mr. W. Deverell the Department has lost one of the best draughtsmen it possessed, and by the death of Mr. Bronte the Head Office was deprived of a most useful officer. Special mention of these officers has been made by the Under-Secretary in his report, but I should like to say a word in appreciation of the particularly manly way in which Mr. Bronte stuck to his post and performed his duties while combating a long and prostrating illness.

I regret to have to record that the following officers lost their lives in defence of their country: Surveyors—W. M. Gray and S. O. Esam; draughtsmen—R. C. Calman and R. V. Parker. These were killed in action, while three cadets, G. A. Harvey, T. H. Hudson, and J. C. Thompson, died of disease. They were all good keen young officers whose loss will be much felt. The sympathy of their fellow-officers goes out to their relatives.

The departmental list for the 31st March, 1917, shows that the field staff numbered seventy-seven, but at that date twenty were away with the Expeditionary Forces, leaving an available number of fifty-seven. They comprise one Inspector, forty-four staff surveyors, five temporary surveyors, three cadets, two staff assistants, and two temporary assistants; and of these leave to join has been granted to two staff surveyors and one survey cadet. Of the twenty who have already joined, ten were staff surveyors, nine were cadets, and one a staff assistant.

In concluding this report I am pleased to be able to record that the various Chief Surveyors all bear testimony to the willing and efficient way in which the officers under them have performed their duties during the year.

Table 1.—Return of Field-work executed by Head Office Staff.

From 1st April, 1916, to 31st March, 1917.

Land District.	Standard Surveys.				Inspections.		Other Work.
	Completed.		In Progress.		Number of Surveyors.		
					Staff.	Private.	
	Miles.	£	Miles.	£			£
Auckland	29·16	1,895	75	2,398	..	..	220
Wellington	..	..	..	353	..	2	708
Hawke's Bay	..	..	..	1,743	..	..	..