

APPENDIX II.

THE MAGNETIC OBSERVATORY AND THE MAGNETIC SURVEY.

DURING the year the routine work of the Observatory has been carried on in all its branches with success, and, in addition, a considerable amount of field-work was done in further extension of the magnetic survey.

THE MAGNETOGRAPHS.

These have operated satisfactorily throughout the year, and uninterrupted records of the magnetic declination, magnetic horizontal force, and vertical magnetic force have been obtained. The records obtained have been developed and annotated to date. The necessary absolute observations required to standardise the magnetograms were made at intervals, and considerable progress was achieved in the measurement and tabulation of hourly values of magnetic elements for previous years. These tables have been completed for the years, 1902, 1903, and 1904, and are being used in the application of corrections to the field observations. It may be mentioned that Dr. Chree has remarked the small range of diurnal variation of the vertical magnetic force here, as compared with the range at Kew Observatory, England, which is not far from our geographical antipodes, though evidently considerably removed from our magnetical antipodes.

The magnetograms for some of the most magnetically disturbed days are reproduced herewith for the information of other observatories.

MILNE SEISMOGRAPH No. 16.

This instrument has been in continuous operation during the year, and the records obtained have been developed, annotated, and measured up. Records of forty-six earthquakes were obtained for the year, a considerably smaller number than has been previously recorded here for similar periods—viz., from the 1st April to the 31st March. This is seen from the following table showing the number of records at Christchurch:—

Year.		Number of Earthquakes recorded.	Year.		Number of Earthquakes recorded.
1902-3	72	1906-7	82
1903-4	68	1907-8	86
1904-5	96	1908-9	46
1905-6	86			

The lessened frequency of quakes may possibly be connected with the increased volcanic activity in various parts of the world, including New Zealand in a minor degree. Nothing can be definitely affirmed on this head until the matter is subjected to a research based upon the reports from all the seismological stations throughout the world. Professor G. P. Agammenone, of the Italian Observatory of the Rocca di Papa, Rome, has nearly completed a discussion of the records obtained of the Calabrian earthquake of 1905, and has found the Christchurch record of very great value in his researches, since it is so nearly the antipodes of Calabria. Undoubtedly he will make a similar investigation of the recent disastrous Calabrian earthquake of the 28th December, 1908, which was also recorded here, which record is reproduced herewith.

It would be desirable to add to our seismograph the recently designed arrangement for securing a more open time-scale. This would greatly enhance the value of the records obtained. Some of the more important seismograms are reproduced for convenience of comparison with those of other observatories. A list of earthquakes is appended.

METEOROLOGICAL OBSERVATIONS.

Regular meteorological observations of the pressure and temperature of the air, humidity, cloud, wind, intensity of solar radiation, maximum and minimum air-temperature, &c., have been made twice daily throughout the year at 9.30 a.m. and 5 p.m. each day.

MAGNETIC SURVEY.

It was, fortunately, found possible to make magnetic observations in the south-west portion of the South Island, a district which the absence of roads had hitherto prevented us from reaching with our instruments. In December last a party of a semi-scientific nature left Christchurch and visited all the West Coast Sounds of Otago, in the s.s. "Rakura," specially chartered for the journey. I accompanied the party, and, though the time was limited and the weather for all but a few days execrable, still, through the hearty co-operation of Dr. C. C. Farr and Mr. H. D. Cook, it was found possible to observe eleven fresh stations in the Sounds. The party returned to Christchurch on the 6th January, the various scientists well pleased with the collections and observations they had made. The magnetic results are shown on the map published herewith. It is worthy of notice that the declination