reference in Australia. The longitude of Sydney Observatory having now been determined by telegraphic signal from Greenwich, on no less authority than that of Messrs. Ellery, Russell, and Todd, warrants a correction of—3·4 sec. on the value, 11h. 39m. 9·92s., for Mount Cook Initial Station hitherto used. This conclusion has been arrived at after consultation with Sir James Hector, K.C.M.G., Mr. James McKerrow, F.R.A.S., Captain Blackburne, and Mr. King, the Observer at Wellington Observatory. The results are as under* :—

	H.	m.	s.
Longitude of Sydney Observatory by telegraphic signal (Messrs. Ellery, Russell, and Todd)	10	4	49·54
Difference Sydney and Mount Cook by telegraphic signal (Messrs. Russell and Adams)	1	34	16·98
Longitude of Mount Cook Initial Station	11	39	6·52

This change in the initial longitude necessarily suggests an amendment of the Admiralty charts of New Zealand. A careful comparison has therefore been made as to the coast-lines as recorded on the Admiralty charts and on the maps resulting from the operations of the Survey Department, which shows that the lines of longitude should be moved relatively to the features of the islands.

Maps are being prepared illustrative of the effect of the above change of longitude and the alterations due to the trigonometrical surveys, which will be submitted in due course to the Marine Department.

APPENDIX VIII.

MAGNETIC OBSERVATORY AND MAGNETIC SURVEY.

By C. Coleridge Farr, D.Sc.

The past year has seen the erection of the Magnetic Observatory in Hagley Park. The history of this institution is as follows: In 1897 Dr. Adolf Schmidt, one of the greatest authorities on the subject, pointed out the great scientific advantage which would arise from a more uniform distribution of magnetic observatories over the world, and that, while there were then between fifty and sixty such institutions in the Northern Hemisphere, of which four were in the British Isles and five in Japan, there were only three over the whole of the Southern Hemisphere—viz., at Batavia, Mauritius, and Melbourne—and Dr. Schmidt specially named New Zealand as being the most suitable country for a new one. At the meeting of the Australasian Association for the Advancement of Science, held in Sydney in January, 1898, the subject of the dearth of magnetic observatories south of the equator was touched on by Mr. Baracchi, the Government Astronomer for the Colony of Victoria, who used the expression that the establishment of one in New Zealand was a duty owed to the scientific world. In consequence of this and other remarks of a similar character by very distinguished men—Dr. Schüster, for instance, who wrote of the "absolute necessity" for more attention being paid to these matters in the Southern Hemisphere—a committee was appointed by the Australasian Association at the Sydney meeting to bring the matter of a magnetic survey of New Zealand and the establishment of a magnetic observatory before the Government of New Zealand, while at the same time the Kew Observatory Committee of the Royal Society of London, which has since been altered to the National Physical Laboratory Committee of the Royal Society, very generously offered to assist by lending a set of absolute magnetic instruments. The objects of the Australasian Association Committee met with the support of Admiral Pearson, the Shipmasters' Association of New Zealand, and the Chambers of Commerce; and when the matter came before the Government it was decided to place a sum of £500 on the estimates for preliminary work with the Kew instruments, which were brought into the colony by myself in October, 1898. The magnetic survey of the colony was commenced early in 1899 with these instruments, and during the same year a set of Sitz recording magnetographs was ordered to be made under the kind supervision of Dr. Chree and Kew Observatory, and a set of absolute magnetic instruments was also ordered. Owing to unavoidable delays, chiefly owing to a large number of orders for similar instruments for India and elsewhere, and also to the pressure of work consequent on the South African war, the instruments were not received in the colony till April of the year under review, 1901, and the absolute instruments were not received until March of the present year, 1902. At the commencement of the past financial year, and before the plans of the buildings to receive the instruments were completed, inquiries were made by the president of the Royal Geographical Society to ascertain whether the observatory would be in readiness by the time the antarctic exploring-ship "Discovery" would be in these waters; and, if so, she would make Lyttelton her port of departure instead of Melbourne, as intended before it was known that a magnetic observatory was in contemplation in these Islands. As the Christchurch Gardens were eminently suitable from a magnetic point of view, and in consequence, too, of the fact that such a position would be readily accessible to the members of the expedition, the Christchurch Domain Board were approached, and very generously gave permission for the observatory to be erected there. Mr. P. M. Stewart contracted for the buildings at a total cost of £1,217 7s. 1d., and he carried out the work conscientiously and well.

* Nautical Almanac, 1902, p. 600.