The other determinations of the longitude of Mount Cook have been derived as follows :—

	H.	M.	S.
From moon culminations at Rockyside, by J. T. Thomson, and telegraphic and trigonometric connections (see *N.Z. Gazette*, 20th May, 1878, p. 635)	11	39	9·92
From meridional transits and azimuths of the moon, by Major Palmer, R.E., at Burnham (see Transit of Venus, 1874, p. 493)	11	29	13·10
Telegraphic difference between Burnham and Wellington Observatory (see *N.Z. Gazette*, 30th March, 1876, p. 231) ...		9	52·37
Trigonometrical difference between Wellington Observatory and Survey Observatory, Mount Cook			1·21
Mount Cook long. based on Burnham (connection by telegraph) ...	11	39	6·68
Longitude of Burnham	11	29	13·10
Trigonometrical difference of longitude, Burnham and Mount Cook		9	53·88
Mt. Cook long. based on Burnham (connection by triangulation)...	11	39	6·98

The difference between these two determinations is ·3 of a second of time, or in space 343 feet, at Wellington.

The extreme difference between these various values of the longitude of Mount Cook is 4·47 seconds in time, or, expressed in space, a difference of nearly a mile in the distance, measured on the earth's surface, between Greenwich and Mount Cook—a matter really of no practical moment except for astronomical purposes. The chart longitudes of New Zealand are those given by the Admiralty Surveyors. Pipitea Point, Wellington Harbour, 11 hr. 39 min. 11·53 sec. east of Greenwich is their standard longitude, and, allowing for the difference of easting, is almost identical with 11hr. 39min. 9·92sec., the longitude of Mount Cook determined independently by Mr. J. T. Thomson, late Surveyor-General.

In 1876 the Ven. Archdeacon Stock, at the Wellington Observatory, exchanged signals through the cable with Mr. Russell, at Sydney, for the determination of the difference of longitude between the two Observatories, with the following result :—

	H.	M.	S.
Difference between Sydney and Wellington Observatories (Appendix to the Journals of the House of Representatives, 1876, H.–6A, p. 2)	1	34	15·9949
Difference between Mount Cook and Wellington Observatories ...			1·21
Difference between Mount Cook and Sydney by Stock and Russell	1	34	17·204
Difference between Mount Cook and Sydney by Adams and Russell	1	34	16·984
Difference between the two determinations ... ... =			·22

or expressed in space = 252 feet in the latitude of Wellington.

As the ultimate longitude to be accepted will be that derived from the exchange of time-signals, it will be interesting to note the successive steps in the connection between Greenwich and Mount Cook. These are—1st, Greenwich to Mokattam, near Cairo, in Egypt; 2nd, Mokattam to Suez; 3rd, Suez to Aden; 4th, Aden to Bombay; 5th, Bombay to Madras; 6th, Madras to Singapore; 7th, Singapore to Port Darwin; 8th, Port Darwin to Melbourne; 9th, Melbourne to Sydney; 10th, Sydney to Mount Cook, Wellington. At each of these stations the time had to be determined with the greatest attainable accuracy, and the exchange of time-signals between the several ten pairs of stations was for each pair an independent operation. The result for any station is therefore affected by the minute residual errors of the intermediate exchanges between it and Greenwich. If all cumulative they should not affect the result at Mount Cook more than one second. The probabilities are in favour of them correcting each other, or nearly so. Were it possible to have the signals sent direct from Greenwich to Mount Cook without a break the result would be free from the errors of the intermediate stations. This, however, could not be done, because of the great distance, and the combination of submarine cables and land lines necessitating the work being taken in sections. Indeed, for that reason, the first