as was lately done for Dunedin. I might also point out, with reference to the question of longitude, that before the end of 1874 there is every probability that telegraphic communication will be completed from England to this colony, and the difference of meridians thereby absolutely determined.

No observatory accommodation suitable for the purposes of the expedition exists at present in any part of the colony, so that provision of this nature will have to be made at whichever place is selected.

The Government Observatory at Wellington is only adapted for "transits," by which the telegraph time throughout the colony is regulated.

As it appears very desirable that the transit of Venus should, without fail, be observed in some part of New Zealand, I would suggest, on account of the frequent local variability of the climate, that, in order to prevent disappointment, several stations should be relied on, all of which could be placed in communication with the chief observatory by telegraph, at the time of the occurrence of the phenomenon.

The accompanying Meteorological Returns afford information concerning the climate of the different parts of New Zealand; the average rainfall and amount of clouds, for the last six years, during the month of December, at several of the chief stations, being as follows:—

Abstract of Weather for December for Six Years.

	Rainfall.	No. of Rainy Days.	Average Cloud.
Auckland	3·742	15	6·3
Wellington	3·909	13	4·9
Nelson	5·051	9	5·9
Christchurch	1·622	9	4·9
Dunedin	3·462	14	5·8

From this it appears that Christchurch is the most favourable site, but it is necessary to take into consideration the occasional prevalence at that place of dry northerly winds, which affect the atmosphere in such a manner that it is impossible to use even a moderately powerful telescope with any degree of accuracy. These winds prevail, however, chiefly in the spring and autumn, there being only, on the average, four days of wind of this character during the month of December. I therefore think that Christchurch may be safely recommended as the site for the chief observatory; but I think it advisable that observers should also be stationed at some of the following places:—Tauranga or Waikato, in Auckland; Wellington or Nelson; and one station in the interior of Otago, as it rarely occurs that bad weather happens at all these places simultaneously.

JAMES HECTOR, M.D., F.R.S.

No. 4.

The Right Hon. the Earl of KIMBERLEY to Governor Sir G. F. BOWEN, G.C.M.G.

(No. 12.)

SIR,— Downing Street, 23rd February, 1872.

With reference to your despatch No. 114, of 25th November, I transmit to you, for your information, a copy of a letter from the Astronomer Royal, upon the subject of the arrangements for the observation of the transit of Venus in 1874.

I have to call your attention to Professor Airy's remark with respect to the instruments which he trusts will be provided by the colony on the occasion.

I have, &c.,

Governor Sir G. F. Bowen, G.C.M.G. KIMBERLEY.

Enclosure in No. 4.

Professor AIRY to Mr. HOLLAND.

SIR,— Royal Observatory, Greenwich, S.E., 19th February, 1872.

Again referring to your letter of the 7th instant, on the subject of the observation of the transit of Venus, 1874, in New Zealand, I have the honor to state that I have carefully perused the documents accompanying that letter, and have arrived at the following conclusions, which I request you will be pleased to place before the Right Hon. the Earl of Kimberley:—

1. Combining the various considerations, astronomical and meteorological, on which the choice of a station for the Government expedition must depend, I fix on Christchurch as the most advantageous point; and request that it may be understood in future that the Government expedition will be located at Christchurch.

2. The principal instruments provided by the Government will be a transit instrument, an alto-zinuth for determination of longitude by lunar vertical transits, a 6-inch equatoreal (these, with their huts, are ready), a 4-inch telescope, a photographic heliograph (these are ordered, but not ready), and clocks and other ancillary apparatus. Possibly the assistance of the local authorities may be desired for preparing huts for the last-mentioned instruments.

3. It appears exceedingly desirable that preparations should be made for observing the phenomenon at several stations (as is suggested in one of the documents enclosed with your letter of 7th February); and unusual value will attach to these observations, in consequence of the admirable system which has been adopted in New Zealand, of connecting the longitudes of the principal settlements by the galvanic telegraph.

4. But I would remark, that it will be necessary that the instruments for these purposes be provided in the colony. The Government stores at my command will be completely denuded of moveable instruments by the supplies arranged for the several stations selected in different parts of the world.

5. It may be understood that the minimum of equipment at each station should be a good 4-inch