

ROYAL SOCIETY,

July, 1830.

SIR,

In pursuance of the directions of the President and Council of the Royal Society of London I have the honour to forward you the annexed papers, being copies of a Report made by the Joint Committee of Physics and Meteorology of the Society to the Council on the subject of an extended system of Magnetic Observation, and of the Resolution of the Council taken thereon; and to acquaint you that, in consequence of the representations made, Her Majesty's Government has ordered the equipment (now in progress) of a naval expedition of discovery, consisting of two ships under the command of Captain James C. Ross, to proceed to the Antarctic Seas for purposes of magnetic research, and also the establishment of fixed magnetic observatories at St. Helena, Montreal, the Cape of Good Hope, and Van Diemen's Land, having for their object the execution of a series of corresponding magnetic observations during a period of three years, in consonance with the views expressed in that Report. The Court of Directors of the Honourable East India Company have also, in compliance with the suggestions of the Royal Society, resolved to establish similar observatories at Madras, Bombay, and at a station in the Himalaya Mountains.

As it is manifestly of high importance to the advancement of the science of Terrestrial Magnetism that every advantage should be taken of so distinguished an opportunity for executing a concerted system of magnetic observations on the most extended scale, the Royal Society,—on whom the arrangement of the proceedings of the fixed observatories has devolved, and to whom the scientific objects of the naval expedition have been referred by the Lords Commissioners of the Admiralty, and under whose direction the construction of the instruments to be used in these operations is actually proceeding,—is earnestly solicitous that observations corresponding to those intended to be prosecuted in the observatories should be made at every practicable station; and in forwarding to you the papers alluded to, I am directed at the same time to express their hope that cooperation

will be afforded in executing, or procuring to be executed, such observations, and communicating their results and details to the Royal Society, through the medium of their Foreign Secretary.

The general tenor of these observations is sufficiently indicated in the Report annexed, but a more particular programme of them will be forwarded to you as soon as the details are sufficiently matured to admit of its printing and circulation: but it may here be noticed that one essential feature of them will consist in observations to be made at each station, in conformity with the system (in so far as applicable) and at the times already

agreed on by the German Magnetic Association, either as they now stand or as (on communication) they shall, by mutual consent, be modified.

A series of meteorological observations subordinate to, and in connexion and co-extensive with, the magnetic observations, will be made at each station.

The following is a list of the instruments intended to form the essential equipment of each observatory :

LIST (with estimated Prices).

Instrumental equipment for one fixed magnetic observatory :

1 Declination Magnetometer . . . . .	} Grubb, Dublin . . . £73 10
1 Horizontal Force Magnetometer . . . . .	
1 Vertical Force Magnetometer . . . . .	Robinson . . . . . 21 0
1 Dipping Needle . . . . .	Robinson . . . . . 24 0
1 Azimuthal Transit . . . . .	Simms . . . . . 50 0
2 Reading Telescopes . . . . .	Simms . . . . . 6 6
2 Chronometers . . . . .	. . . . . 100 0

The above are all the instruments required for magnetical purposes.

The declination and horizontal force magnetometers are similar, with slight modifications, to those devised by M. Gauss, and already in extensive use; so that the observations made with the latter instruments and with those specified above will be strictly comparable.

The observatories will be also each furnished with the following meteorological instruments :

1 Barometer . . . . .	} Newman.
1 Mountain ditto . . . . .	
1 Standard Thermometer . . . . .	
1 Osler's Anemometer . . . . .	} Adie, Liverpool.
Wet and Dry Bulb Thermometers . . . . .	
Maximum and Minimum Thermometers . . . . .	
Daniell's Hygrometer . . . . .	

An apparatus for atmospherical electricity.

I have the honour to be,



approved by the British Magnetic Association, either as they are published or as they are  
revised, they shall be entered as such, by authority.

Reports of astronomical observations, including those of meteorological in-  
struments, with the magnetic observations, will be entered as such.

The following is a list of the instruments which are the standard instruments  
of such observations:

1. Theodolite  
2. Transit Instrument  
3. Vertical Circle  
4. Level  
5. Barometer  
6. Thermometer  
7. Anemometer  
8. Spectrometer  
9. Magnetometer  
10. Compass

The names of the instruments required for the observations are  
as follows:

Observations of the sun, moon, planets, and stars, and of the aurora borealis,  
shall be made.

The observations will be also made, provided with the following astronomical  
instruments:

1. Sextant  
2. Chronometer  
3. Transit Instrument  
4. Barometer  
5. Thermometer  
6. Anemometer  
7. Spectrometer  
8. Magnetometer  
9. Compass

An account of the observations shall be  
sent to the Secretary of the Association.

The observations shall be made at the following places:

1. Greenwich  
2. Cambridge  
3. Oxford  
4. Edinburgh  
5. Dublin  
6. Cape of Good Hope  
7. Mauritius  
8. Java  
9. Ceylon  
10. India  
11. China  
12. Japan  
13. Australia  
14. New Zealand  
15. South America  
16. Africa  
17. Asia  
18. Europe  
19. North America  
20. West Indies