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REPORT

OF THE



SIXTEENTH MEETING

OF THE

BRITISH ASSOCIATION

FOR THE

ADVANCEMENT OF SCIENCE;

HELD AT SOUTHAMPTON IN SEPTEMBER 1846.

LONDON:

JOHN MURRAY, ALBEMARLE STREET.

1847.

CORRESPONDING MEMBERS.

Professor Agassiz, Neufchatel. M. Arago, Paris. Dr. A. D. Bache, Philadelphia. Professor Berzelius, Stockholm. Professor H. von Boguslawski, Breslau. Monsieur Boutigny d'Evreux, Paris. Professor Braschmann, Moscow. M. De la Rive, Geneva. Professor Dove, Berlin. Professor Dumas, Paris. Professor Ehrenberg, Berlin. Dr. Eisenlohr, Carlsruhe. Professor Encke, Berlin. Dr. A. Erman, Berlin. Professor Forchhammer, Copenhagen. Professor Henry, Princeton, United States. Professor Kreil, Prague. M. Kupffer, St. Petersburg. Dr. Langberg, Christiania. Baron de Selys Longchamps, Liège. M. Frisiani, Milan. Baron Alexander von Humboldt, Berlin. M. Jacobi, St. Petersburg. Professor Jacobi, Königsberg. Dr. Lamont, Munich. Baron von Liebig, Giessen. Professor Link, Berlin. Professor Matteucci, Pisa. Professor Middendorff, St. Petersburg. Dr. Cæsted, Copenhagen. Chevalier Plana, Turin. M. Quetelet, Brussels. Professor C. Ritter, Berlin. Professor H. Rose, Berlin. Professor Schumacher, Altona. Baron Senftenberg, Bohemia. Dr. Svanberg, Stockholm. Baron Sartorius von Waltershausen, Gotha. Professor Wartmann, Lausanne.

REPORT OF THE PROCEEDINGS OF THE COUNCIL IN 1845-46, PRESENTED TO THE GENERAL COMMITTEE AT SOUTHAMPTON, WEDNESDAY, SEPT. 9, 1846.

Report of the Council to the General Committee.

1. The Council have the very satisfactory duty to perform, of reporting to the General Committee that the resolutions of the Magnetical and Meteorological Conference, adopted by the General Committee at Cambridge, on the 25th of June 1845, were submitted to the Right Hon. Sir Robert Peel, Bart., by the President Sir John Herschel, Bart., accompanied by a communication from the Marquis of Northampton, President of the Royal Society, conveying the concurrence of that body in the recommendations contained therein; that they received a very favourable consideration from Her Majesty's Government, and that the recommendations connected with the British observatories, both at home and in the Colonies, are in progress of being carried out. The resolutions relating to the East Indian observatories and surveys have met with an equally favourable reception from the Hon. Court of Directors of the East India Company, and the recommendations which they contained have been approved and sanctioned. In accordance with the resolutions passed at Cambridge, therefore, the magnetic observatory at Greenwich is permanently continued upon the most extensive and efficient scale. The magnetical and meteorological observations are constituted a permanent branch of the duties of the astronomical observatories at the Cape of Good Hope, Bombay and Madras, and arrangements are in progress for making them also a permanent branch of the observations to be made at the Observatory at Paramatta. The detachment of the Royal Artillery, by whom the duties at the Cape of Good Hope have been hitherto performed, has been relieved by a permanent increase in the civil strength of the Astronomical Observatory at that station, and in like manner the officers of the Royal Navy, who now form the establishment of the observatory at Van Diemen Island, will be relieved as soon as the civil establishment at Paramatta is completed. The Ordnance Observatories at Toronto and St. Helena are continued until the close of 1848.

With reference to the recommendations relating to magnetic surveys, a

magnetic survey of the Indian Seas by Lieut. Elliot, of the Madras Engineers, has received the sanction of the Hon. Court of Directors of the East India Company, and is now in progress. Also in the present summer, Lieut. Moore, of the Royal Navy, proceeded under the direction of the Lords of the Admiralty to Hudson's Bay, in one of the vessels belonging to the Hudson's Bay Company, for the purpose of connecting the observations of the Canadian Survey with those which the Expedition under Sir John Franklin is making in the seas to the north of the American Continent.

In accordance with the recommendation concerning the co-operation of foreign magnetical and meteorological observatories, communications were made, on the application of the President, by the Earl of Aberdeen, Her Majesty's principal Secretary of State for Foreign Affairs, to the governments of Russia, Austria, Prussia, Belgium, Sweden and Spain, from all of whom very favourable replies have been received.

2. The resolution passed by the General Committee, to the effect "that it is highly desirable to encourage, by specific pecuniary reward, the improvement of self-recording magnetical and meteorological apparatus, and that the Presidents of the Royal Society and of the British Association be requested to solicit the favourable consideration of Her Majesty's Government to this subject," has been brought under the notice of Government, and arrangements have been made to carry the recommendation into effect. Whilst on this subject the Council has also much pleasure in noticing that the President and Council of the Royal Society have granted £50 from the Wollaston Donation Fund to assist in the construction of apparatus devised by Mr. Ronalds for the self-registry of magnetical and meteorological instruments; which apparatus is in progress of completion at the Observatory of the British Association at Kew. The Council are persuaded that the General Committee will view with satisfaction this co-operation of the Royal Society and British Association for objects common to both, and for which the Observatory at Kew furnishes a very convenient locality.

3. The General Committee at Cambridge having passed a resolution, "That it be referred to the Council to take into consideration, before the next Meeting of the Association, the expediency of discontinuing the Kew Observatory,"—the Council appointed a Committee, consisting of the President (Sir John Herschel), the Dean of Ely, the Astronomer Royal, Professors Graham and Wheatstone, and Lieut.-Colonel Sabine, to collect information on the scientific purposes which the Kew Observatory has served, and on its general usefulness to science and to the Association; from whom they received the following report:—

"Kew Observatory, May 7, 1846. *Present*,—Sir J. F. W. Herschel, Bart., the Astronomer Royal, Professors Graham and Wheatstone, and Lieut.-Colonel Sabine.

"After an attentive examination of the present state of the establishment, and of other matters connected therewith, the following resolutions were unanimously adopted, viz.—

"That it be recommended to the General Committee that the establishment at Kew, the occupancy of which has been granted by Her Majesty to the British Association, be maintained in its present state of efficiency:—

"1. Because it affords, at a very inconsiderable expense, a local habitation to the Association, and a convenient depository for its books, manuscripts and apparatus.

"2. Because it has afforded to Members of the Association the means

of prosecuting many physical inquiries which otherwise would not have been entered upon.

- “ 3. Because the establishment has already become a point of interest to scientific foreigners, several of whom have visited it.
- “ 4. Because the grant of the occupancy of the building by Her Majesty, at the earnest request of the British Association, is an instance of Her Majesty’s interest in, and approval of, the objects of the Association.
- “ 5. Because, if the Association at the present time relinquish the establishment, it will probably never again be available for the purposes of science.
- “ 6. Because it appears, both from the publications of the British Association and from the records in progress at the establishment, that a great amount of electrical and meteorological observation has been and continues to be made, and that a systematic inquiry into the intricate subject of atmospheric electricity has been carried out by Mr. Ronalds, which has been productive of very material improvements in that subject, and has in effect furnished the model of the processes conducted at the Royal Observatory; and because these inquiries are still in progress under local circumstances extremely favourable.
- “ 7. Because other inquiries into the working of self-registering apparatus, both meteorological and magnetical, are in actual progress at the establishment, and that there is a distinct prospect of the facilities it affords being speedily much more largely profited by.
- “ 8. Because the access to the Observatory from London to Members of the Association will shortly be greatly improved by railroads, and because the local facilities and conveniences of the establishment have been very greatly enhanced by alterations in its relations to the Commissioners of Woods and Forests.

“ J. F. W. HERSCHEL, *Chairman.*”

In presenting this Report to the General Committee, the Council requests that it may be understood to convey also the opinion of the Council.

4. The Council has received a letter from the honorary Secretary of the Literary and Philosophical Institution at Cheltenham, expressing, on the part of the Members of that Institution, deep regret that “circumstances have arisen which render uncertain their being able to give the British Association that welcome and generous reception which it would be their desire to do, and which they last year felt that they would have done had the Association been so circumstanced as to have accepted the invitation for the summer of 1846.”

5. The Council has been informed by a letter from W. H. Grove, Esq., F.R.S., that a deputation has been appointed by the Mayor and Corporation of Swansea, the principal inhabitants, magistracy and country gentlemen of the neighbourhood, and by the Members of the Royal Institution of South Wales, to attend the Meeting at Southampton, for the purpose of inviting the British Association to hold their annual Meeting at Swansea at as early a period as may suit their convenience.

Southampton, September 9, 1846.