

this respect is apparent, which leaves little ground for expecting a heterogeneity in America. The broad-headed Alpine race of Central Europe, seems to have been so far excluded from the British Isles as to leave a population quite uniform in its cephalic proportions. A 'type' of head-form certainly transmissible not only from one population to its successor, but over seas as well, seems to be indicated.

WILLIAM Z. RIPLEY.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

*THE INTERNATIONAL CONFERENCE ON
TERRESTRIAL MAGNETISM.**

THIS was the second occasion the British Association provided the means for a meeting of the scientists engaged in the study and development of our knowledge of terrestrial magnetism, the first magnetic congress having been held at Cambridge as far back as 1845. On the present occasion the Conference was of an international character, thanks to the cordial cooperation between the British Association and the International Meteorological Association, with which latter the Magnetic Conference for the present remains affiliated. It was at the International Meteorological Conference, held at Paris in 1896, that a 'Permanent Committee for Magnetism and Atmospheric Electricity' was appointed; it consisted of eight members with power to add to their number. The British Association allowed the Conference to organize under its President, Professor A. W. Rücker, M.A., D.Sc., as a branch of Section A (Mathematics and Physics), and undertook the expense of sending out the necessary notices to print the papers of the Conference in the report, and with great

1897, p. 148. Beddoe is best on this subject. Dr. West is the only other American observer studying the school children in Worcester, Mass.

* Held at the Bristol Meeting of the British Association for the Advancement of Science, September 7-14, 1898.

liberality extended to the foreign delegates of the Conference all the privileges of foreign members of the Association. The Bristol Conference, under its President, Professor A. W. Rücker, was attended by Dr. A. Schuster, of England, and the following foreign members:

Dr. M. Eschenhagen, of Potsdam.
Professor S. Lemström, of Helsingfors.
Professor T. Liznar, of Vienna.
Professor E. Mascart, of Paris.
Ch. Moureaux, of Paris.
Professor L. Palazzo, of Rome.
Gen. M. Rykatchew, of St. Petersburg.
Dr. A. Schmidt, of Gotha.
C. A. Schott, of Washington.

Besides these members various physicists and magnetists were present and took part in the deliberations.

In view of the fact that the United States Coast and Geodetic Survey has been largely engaged in the investigation and study of terrestrial magnetism in this country as forming part of its regular duty, inasmuch as the issue of its maritime charts demands the fullest information procurable, the Superintendent of the Survey proposed sending a delegate to the Bristol International Meeting to take part in the Conference. After approval by the Honorable Secretary of the Treasury instructions were issued by the Superintendent, Dr. H. S. Pritchett, in which he remarks: "The Conference having for its object the advancement of our knowledge in terrestrial magnetism, through communications and intercourse of those interested, you are expected to assist in these deliberations and make such suggestions as seem most appropriate, with a view of increasing our knowledge of the distribution of magnetism over the whole globe and in particular for the region covered by the United States."

The meetings, of which there were ordinarily two a day, one public, the other for consultation and discussion, were held at the University College and in connection

with Section A at the Museum. The Conference was opened with an address by its President giving a short historical review of the present organization, and setting forth as the object of the meeting the need of a closer association for guidance to future well directed and concerted effort in the field of terrestrial magnetism.

Among the questions submitted for deliberation and expressions of opinion were the following: In presenting monthly means of hourly tabulation of differential observations shall simple means only be given or shall they be accompanied by means derived from *undisturbed* values? In this question is involved the difficulty of recognizing a 'disturbed' observation, that is, of fixing a limit separating normal from apparently abnormal values. The discussion respecting the desirability of publishing, besides the usual values for declination, dip and horizontal intensity, at least for the months of January and July, the components of the magnetic force towards the north, the west and the vertical, involved also the question of uniformity in notation as advocated by Professor F. Bigelow, *i. e.*, whether right or left-handed rotation respecting the axes would be preferable and whether the potential of the magnetic force should be regarded as affected with a positive or a negative sign.

A discussion was had respecting the relative value of long and short magnets. The principal work of the Conference, however, centered in the wider question involving magnetic observatories, their present unsatisfactory distribution over the globe and their inadequacy as regards numbers. It is here that the United States is in a condition to take a most important step in the advancement of knowledge by establishing and maintaining a well equipped magnetic observatory either on Oahu or one of the other Hawaiian Islands. This position is unique, being central to a vast unexplored

or magnetically unknown region and well adapted for the special study of the modifications which it is supposed the diurnal and secular variations may undergo in consequence of a surrounding ocean as contrasted with a continental surface. The destructive effect of electric tramways or trolley lines, when passing within a fraction of a mile or even within several miles of a magnetic observatory installed with sensitive self-registering instruments, was commented on and pointed out as an evil specially to be provided against in any new magnetic establishment. In considering the selection of positions for new observatories, attention was given to their greater need in the southern than in the northern hemisphere, aiming necessarily at as regular a distribution of all establishments as practicable.

Of special papers brought before the Conference may be mentioned: 'An account of the late Professor John Couch Adams' determination of the Gaussian magnetic constants,' by Professor W. Grylls Adams. 'Sur le mouvement diurne du pôle nord d'une barre magnétique suspendu par le centre de gravité,' par. J. B. Capello. 'On the influence of altitude above the sea on the elements of terrestrial magnetism,' by Dr Van Ryckevorsel and Dr. W. Van Bemmelen. 'On the interpretation of earth current observations,' by Arthur Schuster, F.R.S. 'On magnetic observations in the Azores,' by Albert, Prince of Monaco. 'On a simple method of obtaining the expression of the magnetic potential of the earth in a series of spherical harmonics,' by Arthur Schuster, F.R.S. 'Report of Professor von Bezold and General Rykatchew on the establishment of temporary magnetic observations in certain localities, especially in tropical countries. 'On the relations between the variations in the earth currents, the electric currents from the atmosphere and the

magnetic perturbations, by Selim Lemström. 'On the construction of magnets of constant intensity under changes of temperature,' by J. E. Ashworth. 'Antrag auf Massnahmen zur systematischen Erforschung der Secularvariationen der erdmagnetischen Elemente,' von Dr. Ad. Schmidt in Gotha. 'On magnetic observatories at Funafuti,' by Captain Creak. 'Some remarks on the construction of magnetic observatories,' by Dr. Snellen.

In joint discussion with Section A there was read a report of the committee on comparing and reducing magnetic observations, and in joint discussion with Sections A and G on the magnetic and electrolytic actions of electrical railways. Communications on this subject were made by C. A. Schott, Professor A. W. Rücker, Drs. von Eschenhagen and von Bezold, W. H. Preece, Signor Palazzo and Professor Fleming.

The results of the deliberations of the Conference were embodied in the report to be made to the International Meteorological Conference at its next meeting, and publication may be looked for by that organization and in part in the Proceedings of the Bristol Meeting. It is conceded by those who took an active part in the deliberations that this, the first international magnetic conference, has been most satisfactory in its results, and it is hoped that its fruits will show that the labor spent at Bristol was well directed.

Too much praise cannot be bestowed upon the effective manner in which the sessions of the Conference were presided over, which in no small degree contributed to the success of the meeting, nor will the members ever forget the cordiality of reception and generous hospitality extended to them by their President, the British Association and the Chamber of Commerce of the city of Bristol.

C. A. SCHOTT.

WASHINGTON, D. C., October 7, 1898.

THE TENTH ANNUAL MEETING OF THE ASSOCIATION OF ECONOMIC ENTOMOLOGISTS, BOSTON, MASS., AUGUST 19 AND 20, 1898.

THE Association was convened in the lecture hall of the building of the Society of Natural History, corner of Berkeley and Boylston Streets, and was attended by some 25 active members and a number of entomologists and other zoologists not members of the Association.

The following new active members were elected: Edward M. Ehrhorn, Mountain View, Cal., Horticultural Commissioner of Santa Clara County. W. M. Scott, Atlanta, Ga., State Entomologist. W. F. Fiske, Durham, N. H., Assistant Entomologist. J. L. Phillips, Blacksburg, Va., Assistant Entomologist. H. T. Fernald, Harrisburg, Pa., State Zoologist. E. Dwight Sanderson and Franklin Sherman, Jr., College Station, Md., Assistant Entomologists. A. L. Quaintance, State Entomologist, Florida Experiment Station. E. D. Ball, Assistant Entomologist, Colorado Experiment Station. F. H. Mosher, of the Gipsy Moth Commission.

The following new foreign members were also elected: V. Vermorel, Director of the Station of Viticulture and Vegetable Pathology at Ville France, France. Chas. T. Musson, F.L.S., F.R.H.S., Lecturer on Botany and Vegetable Pathology and Zoology, etc., at Hawkesbury Agricultural College, Richmond, New South Wales.

The reading of papers was preceded by the annual address of President Osborn, on 'The Duty of Economic Entomology.'

The following papers were presented in the order given during the four regular sessions of the Association, Friday and Saturday, August 19th and 20th. The papers in full, with the discussions which they elicited, will be published as a bulletin by the Division of Entomology of the U. S. Department of Agriculture, as has been the custom in former years.