

in the bovine animal by material of bovine origin, and so far, both in broad, general features, and finer histological details, the two conditions have been found to be identical. The commission has, so far, failed to discover any character by which the one could be distinguished from the other, and the records contain accounts of the *post mortem* examination of bovine animals infected with tuberculous material of human origin, which might be used as typical descriptions of ordinary bovine tuberculosis.

There is no doubt that this interim report will be useful in strengthening the hands of local authorities, medical officers of health, and others, who have been struggling in difficult circumstances to obtain for the people a purer milk supply and food free from tuberculous contamination. As stated by the commissioners, the results obtained seem "to show quite clearly that it would be most unwise to frame or modify legislative measures in accordance with the view that human and bovine tubercle bacilli are specifically different from each other, and that the disease caused by the one is a wholly different thing from the disease caused by the other."

G. D.

THE INTERNATIONAL ASSOCIATION OF ACADEMIES.

A COPY of the official record of the proceedings of the International Association of Academies at its plenary meeting on May 25, and of the proceedings of the section of science on the following day, has now been received from the Royal Society. The complete protocol of the meeting cannot yet be made up, because no report has yet been received of the proceedings of the section of letters; but we are informed that the proceedings on the last day of the general assembly in their plenary meeting consisted mainly of receiving the resolutions of the sections of science and of letters, and of certain complimentary resolutions with regard to the president of the meeting and to the Royal Society.

In the subjoined summary the foreign translations of the resolutions and details of the discussions have been omitted.

Wednesday, May 25.—After a few words of welcome from the president of the council (Sir M. Foster), Prof. Darboux (Secrétaire perpétuel de l'Académie des Sciences) proposed Sir Michael Foster as president of the general assembly. The proposal was carried by acclamation.

The president opened the proceedings with an address, in the course of which he said:—

I accept with pleasure, though not without anxiety, the duties of the honourable though arduous post in which you have placed me, and trust that such short-comings as I may disclose may prove as little hindrance as possible to the success of our meeting. When we met in Paris our association was an infant of some fifteen months; it had just begun its dentition. It is now a lusty child of four years and more; it has cut all of its first set of teeth. I feel sure that you will join with me in the hope that its teeth will be used, never for secondary purposes, as aggressive weapons, but always for primary purposes, for carrying out the first stages of the digestion and assimilation of scientific knowledge and scientific thought into living active scientific flesh and blood. When I say "scientific" I use the word in the broad sense used by my illustrious predecessor in this chair, in his opening address at Paris, as meaning all knowledge which is exact and which can be verified. Though we call the two sections into which we divide ourselves, the one "scientific," the other "literary," we are none of us, I venture to say, satisfied with our nomenclature. We wish, all of us, that we could use names which should free us from the mere suspicion that there is even the taint of antagonism between the kinds of knowledge with which we have to deal.

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The association began as a brotherhood of existing academies, but it has already advanced from brotherhood to parentage. At a meeting at Paris, the Royal Society of London excited much sympathy by its lone condition; while the delegates of most other countries represented the whole round of knowledge with which the association deals, those of England could speak of one part only. That sympathy provoked action, and led to the establishment of the British Academy for the Promotion of Historical, Philosophical and Philological Studies; and it has been one of the pleasant duties of my three years' term of office to bring about the admission of that academy into our fold.

One of the matters brought before the council of the association last year, concerning the relations of the association to proposals for international investigations requiring State aid, is placed on the agenda for the present meeting. The subject is one which demands our most anxious attention; may we be able to come to a decision which, while assuring the future usefulness of the association, may not tend to hamper scientific activity outside ourselves. On another matter, namely, the question whether the association should hold property, the council came to the conclusion that it was undesirable to attempt at present a definitive decision; and there the matter at present stands. The question does not come up for consideration at the present meeting, but it is one on which a decision must, sooner or later, be taken.

On the motion of Prof. Diels, Lord Reay was nominated vice-president.

Secretaries for the meeting were nominated as follows:—German, Dr. K. Krumbacher, Munich; French, M. A. de Lapparent, Paris; English, Dr. A. D. Waller, London.

The president proposed the following delegates as *Présidents d'honneur*:—Dr. Diels, Prof. Darboux, Count Balzani, Dr. Bakhuyzen.

Prof. Gomperz proposed that section ix. (4), (5), of the statutes be amended to read as follows:—Section ix. (4). The president (of the council) shall be appointed by the directing academy. Section ix. (5). The vice-president, who shall belong to the other section, shall be appointed in the same way. In the event, however, of the directing academy having only one section, the association shall entrust the appointment of the vice-president to another academy. The proposal was carried.

Prof. Darboux moved "That the initiation of any new international organisation, to be maintained by subventions from different States, demands careful previous examination into the value and objects of such organisation, and that it is desirable that proposals to establish such organisations should be considered by the International Association of Academies before definite action is taken." The resolution was carried.

Prof. Armstrong presented the draft report of the executive committee of the International Catalogue of Scientific Literature. Prof. Credner moved "That this meeting recognises the great value of the International Catalogue of Scientific Literature, and the importance of aiding the work by making its existence known, as well as of contributing to its efficiency and completeness by endeavouring to secure the indexing of scientific publications at the time of issue, in accordance with the plan adopted by the Royal Society." The resolution was carried unanimously.

Mr. Bryce announced that the British Academy was taking steps to publish a similar catalogue for philology, and the other branches of learning not included among the sciences of nature.

M. Boutroux gave a brief account of the work completed and contemplated in connection with the preparation of a complete edition of the works of Leibniz, and moved "That the association be requested to renew the commission to the three academies above named to prepare an edition of the works of Leibniz committed to them by the resolution of the association of April 18, 1901, and to request them to bring about, between now and the general assembly of the association in 1907, the publication of a critical catalogue, for which they have already collected the materials, of the Leibniz manuscripts." The resolution was carried.

The president proposed Vienna as the place of meeting of the next general assembly in 1907. The proposal was adopted unanimously.

Thursday, May 26.—Section of science. Secretaries were appointed as follows:—German, Dr. A. Riecke; French, M. A. de Lapparent; English, Dr. A. D. Waller.

Prof. Waldeyer presented, on behalf of the commission for investigating the anatomy of the brain, the report of the sitting of the committee of May 24.

Prof. Waldeyer moved the following resolution:—

"The several academies and societies represented in the association are recommended to bring before their respective Governments, or other appropriate authorities, in the name of the association, a proposal to establish a special institution or department of institutions for the investigation of the central nervous system, where such organisations are not already in existence, or cannot be created otherwise." The resolution was carried.

The following resolution, giving the committee power of cooption, was also carried:—

"That the Brain Commission have the power of cooption, as recommended in the report just received."

Prof. von Bezold moved "That a committee be appointed to consider the best means of bringing existing organisations into accord with the views of the International Association of Academies." This resolution was carried.

Sir A. Geikie, on behalf of the International Geological Congress, moved the following resolution:—"The International Association having received and considered a reference made to it by the International Geological Congress held at Vienna, 1903, resolves to ask the International Geodetic Association to take into consideration whether, and (or) in what way, it can undertake or promote international cooperation in the investigation of the following subjects:—

"Precise determination of levels in mountain chains subject to earthquakes, with the view of ascertaining whether such chains are stable or are undergoing movements of elevation or depression.

"Measurements of the value of gravity, with the object, so far as geological questions are concerned, of throwing light on the internal distribution of masses in the earth, and on the rigidity or isostasy of the terrestrial crust." The motion was carried unanimously.

Prof. Credner proposed that the committee on seismological investigations, appointed on the proposition of Prof. von Bezold, consist of the following members:—Prof. Schuster (chairman), Prof. Helmholtz, Prof. de Lapparent, Prof. Mojsisovics, Prof. Agamennone, Prof. A. P. Karpinski, Prof. W. C. Mendenhall. That the committee have power to coopt further members without votes. If a vacancy arise among the members of the committee, it shall have the power to fill up such vacancy subject to confirmation by the International Association.

Prof. Riecke moved the following resolution of the Academies of Göttingen, Leipzig, Munich, and Vienna:—

"That the International Association be requested to place the investigation of atmospheric electrical phenomena upon the list of its undertakings, and to arrange for carrying out observations upon atmospheric electricity for the period of two years at a large number of stations suitably distributed over the surface of the earth."

Prof. Schuster considered the matter to be in an experimental stage and hardly ready to be taken up by the association otherwise than as an experimental undertaking suitable for consideration by a committee, and proposed the following resolution, which was accepted by Prof. Riecke:—

"That a committee be nominated to prepare a plan for cooperation in investigations of atmospheric electricity, and to organise, if possible, such international cooperation for a period of two years."

Prof. von Bezold introduced the propositions of the Berlin Academy of Sciences relating to terrestrial magnetism, and moved "That the association nominate a special committee to consider as to the best methods of making accurate magnetic observations at sea with a view to carrying out a magnetic survey around a parallel of latitude." The motion was carried unanimously.

Sir David Gill presented the report of the Royal Society upon the undertaking for the measurement of the African arc of the 30th meridian, and moved "That the report of the Royal Society be adopted, with the following amendments, viz. :—

"That after the concluding words there be added:—

"(1) That the association notes with much satisfaction the sympathetic communication of the Imperial Academy of Sciences, St. Petersburg, on the subject of the arc of meridian, and recommends that diplomatic action be taken with a view to the extension of Struve's arc to Egypt.

"(2) The association expresses the hope that steps will be taken by the German Government under the advice of the Berlin Academy of Sciences to extend the arc along Lake Tanganyika, either by triangles extending across the lake or along its eastern coast as may be found the more desirable." The report was adopted with the additions proposed.

Prof. Fredericq presented the report of the late Prof. Marey on the work of the Institut Marey, and moved the following resolution:—

"The International Association approves the nomination of MM. Lippmann, Amagat, Charles Richet, Blix, Einthoven, Grütznér, Langendorf, Schenck, Athanasiu as new members of the 'Association Internationale de l'Institut Marey.'"

"After having considered the report of the late Prof. Marey, dated May 5, 1904, on the work of the institute, the association congratulates the committee of the Marey Institute in having obtained in France recognition as being of public utility, and thus secured the permanence of this international scientific organisation. The association expresses its best wishes for the success of the scientific work undertaken at the institute." The resolution was adopted unanimously.

Other standing committees were appointed as follows:—For the investigation of terrestrial magnetism, Prof. von Bezold (chairman), Prof. Mascart, Prof. Palazzo, Sir Arthur Rücker, Lord Kelvin, Dr. Bauer, Prof. Liznar, General Rykacev, Prof. Wieckert, Dr. Paulsen.

For the investigation of atmospheric electricity, Prof. Exner (chairman), Prof. Arrhenius, Prof. Mascart, Prof. Schuster, Prof. Righi, Prof. Ebert, Prof. Riecke.

For both these committees resolutions were passed giving powers of cooption and for filling vacancies, similar to that passed in the case of the committee on seismology.

PROF. ADOLFO CANCANI.

AMONG the various sciences, the one which during the last few years has lost the greatest proportion of its workers is probably seismology. Von Rebeur-Paschwitz, M. S. di Rossi, Ehlert, Pacher, and Contarini have followed each other in quick succession, and to this death roll, with feelings of sorrow, we are called upon to add the name of the distinguished investigator Adolfo Cancani. Although connected with the University of Modena, Prof. Cancani's work was chiefly carried out while working with di Rossi at the observatory of Rocca di Papa, and later whilst engaged as an assistant at the Central Meteorological Observatory in Rome. At the former institution he introduced into seismometry the use of large and heavy horizontal pendulums the movements of which were recorded mechanically.

The first of these, which are probably the largest in the world, were 17 feet in height. The booms, made of T iron, were 10 feet in length, which at their outer ends carried in one case a block of marble and in the other a piece of pig iron. Beyond these heavy masses glass fibres recorded movements on a surface rotating at the rate of 60 cm. per hour. With this apparatus, all of which was home made, and cost but a few pounds sterling, Cancani obtained some striking seismograms.

In addition to taking this new step in seismometry, Cancani devised a photo-chronograph, various seismoscopes, and other instruments.

Although his investigations extended to several departments of earth physics, his chief works are those relating to seismology.

In July, 1903, at the Seismological Conference in