

The International Union of Geodesy and Geophysics.

THE first meeting of the General Assembly of this Union, which was held at Rome at the beginning of May, was attended by delegates from the fourteen countries which at present form the Union, and also by a number of representatives from several other countries which, though belonging to the International Research Council, have not yet joined the Union.

The Union, which was constituted at Brussels in 1919, has for its object the promotion of the study of geodetic and geophysical problems and of international co-operation in research. It covers not only the ground with which the former International Associations of Geodesy and Seismology dealt, but its sections provide for similar activities in meteorology, terrestrial magnetism, physical oceanography, vulcanology, and scientific hydrology.

The meetings of the Union and its constituent sections were held in the rooms of the Reale Accademia dei Lincei on May 3-10, and were preceded by an official reception of the delegates and members of the Astronomical and of the Geodetic and Geophysical Unions by the Minister of Public Instruction at the Capitol, at which His Majesty the King of Italy was present.

As the meeting in Brussels in 1919 was held for the special purpose of constituting the International Research Council and the Unions which are related to it, no scientific discussions took place there; since then the organisation of the Union and its sections has entailed a considerable amount of work. At Rome, therefore, each section had to prepare its plans for international work, and in the case of geodesy and seismology, to review the progress which had been made since the last international meeting. In all sections good progress was made, and plans were adopted for the work which will be put in hand in the period which will elapse before the next meeting of the Union in 1924.

In geodesy the programme was a heavy one, for ten years have elapsed since the last meeting of the International Geodetic Association at Hamburg in 1912. Very interesting summaries of the work which it has been possible to carry out during this period were presented by the delegates of the various countries, and these will be published in the report of the section of geodesy. It had been suggested at Brussels that the study of variation of latitude should be confined to the Union of Astronomy instead of to that of Geodesy. The question was fully discussed at Rome by a committee representing the two Unions, and it was decided that the subject should remain with the Section of Geodesy, a joint committee of geodesists and astronomers, with Prof. Kimura as chairman, being appointed to direct the work.

To carry out the decisions of the Section, and to deal with any matters which might arise, an executive committee was appointed, as well as a General Committee, on which each country adhering to the Section will be represented. The General Committee will be consulted on matters which go beyond the powers of the executive committee in the interval between two meetings.

For each principal branch of technical work a reporter was appointed who will prepare a statement on the progress made in it for the periodical conferences, and will also facilitate co-ordination between workers in different countries. Mr. W. Bowie of the U.S. Coast and Geodetic Survey continues as president, with Lieut.-Colonel G. Perrier of the French Geodetic Service as secretary.

As the International Seismology Association was still in being at the time of the Conference at Brussels, no change could then be made, and the

Section of Seismology was only constituted at Rome, when Prof. H. H. Turner, of Oxford, was elected president, with Prof. Rothé of Strasbourg as secretary. The subjects for discussion included the study of microseisms, the depth focus of earthquakes, and proposals for studying explosion phenomena and wave propagation. Much work was done in organising the Section, and in planning work to be undertaken before its next meeting. The work now being done at Oxford and at Strasbourg is to be carried on, and to this the Section will give such assistance as it can.

Meteorology is represented in the Union by a Section which is a new organisation in so far as it does not replace a pre-war institution of a corresponding character. Its relations to the International Meteorological Committee, which has been in existence for many years, came up for discussion; this committee consists of a certain number of Directors of meteorological services, and at its periodical conferences, such as that which met at Paris in 1919, many questions are discussed which arise from the relations existing between the meteorological services of different countries. It was agreed that, in addition to questions of this character, there were many investigations for which international co-operation was essential, which directors of meteorological services might find it difficult to include in their work. Such investigations might with advantage be initiated by the Section, and at Rome plans were discussed for work of this character. The composition of the atmosphere at high altitudes, and the physical conditions prevailing in the stratosphere, were specially considered as being subjects in which an increase of our knowledge is highly desirable, and plans for work upon them were adopted. It is clear that the two organisations would in no way overlap, but that the work of each would usefully supplement that of the other. Sir Napier Shaw was elected president of the Section, with Prof. Eredia of the Italian Meteorological Service as secretary.

The Section of Terrestrial Magnetism and Electricity was fully occupied with a long programme dealing largely with methods of observation and with the reduction of results; no particular method of scale-value determination was agreed upon in view of the diverse types of instruments in use. The selection of one observatory in each country which should take part in the international comparison of instruments was advocated, and a committee was appointed to formulate a scheme for such intercomparisons. Other committees were formed to deal with polar-light observations, with earth currents, and observational work in atmospheric electricity. Dr. C. Chree was elected president, with Dr. L. A. Bauer as secretary.

The Section of Physical Oceanography had held one meeting in Paris in January 1920, at which committees were nominated to facilitate co-operation in oceanographical work in the Atlantic, in the Pacific, and in the Mediterranean. At Rome these were confirmed, and the recommendations of the Tidal Committee for improving the collection of tidal information and data, and for attaining uniformity in their reduction, were adopted. A proposal to provide, by means of a committee or a section, for the co-ordination of biological work in oceanography with the physical work of the Section, was adjourned until the next conference in order that opinions from various countries might be obtained. H.S.H. the Prince of Monaco continues as president, with

Prof. G. Magrini of Venice as secretary. The publication of a periodical which would deal specially with the bibliography of the subject was also approved.

In the Section of Vulcanology, which was formally constituted at the Conference, M. Lacroix was elected president, with Prof. Malladra and Prof. G. Platania as secretaries. Proposals for the classification of volcanic phenomena, and for the recording of volcanic outbursts, were adopted, as also were those for the investigation of the thermal gradient in certain areas.

In more than one quarter the proposal had been made that an additional section should be formed to deal with the scientific problems which arise in various hydrological investigations, such as river-gauging, lake phenomena including seiches, run-off and evaporation, transport of material in suspension and in solution, glacier movement, etc. A committee examined the matter carefully and reported in favour of forming a Section of Scientific Hydrology. The recommendation was adopted by the General Assembly, which nominated Mr. B. H. Wade of the Physical Department, Cairo, as president, and Prof. G. Magrini as secretary.

The General Assembly of the Union re-elected

M. Ch. Lallemand to be president, Colonel H. Lyons remaining secretary-general. It was resolved that countries belonging to the International Research Council which had formerly been members of the International Geodetic Association might join the Union and the Section of Geodesy, without subscribing to the other sections, if they so desired. It was further resolved that the next meeting of the Union should be held in 1924, and an invitation from the Spanish Government to hold the next Conference of the Union at Madrid was accepted. It is understood that the probable date will be the latter part of September.

Arrangements were made for members to visit, after the Conference, the Central Institute for Marine Biology at Messina, and the Marine Research ship *Marsigli*. For those interested in vulcanology visits to Stromboli, Catania, Etna, and Naples were arranged, while at Florence the Observatory and the various scientific institutes and museums were open to the members, to whom the municipality gave a reception at the Palazzo Vecchio.

The proceedings in each Section will be published in due course by the Executive Committee of the Section.
H. G. L.

Annual Conference of Universities.

ALL the Universities of Great Britain and Ireland were represented at the Conference which met at University College, London, on May 13. Each University had been asked to send three representatives in addition to its executive Head, and each University College to send its Principal and one other representative. Of the Vice-Chancellors or Principals three only were unable to attend. Sir Donald MacAlister (Glasgow), chairman of the Standing Committee of Vice-Chancellors, presided. Mr. Fisher, President of the Board of Education, was present and took part in the discussions.

The subject of the urgent need for the provision of enlarged opportunities for advanced study and research was introduced by Principal Irvine (St. Andrews), who pleaded that the Universities should not leave original research to the solitary worker, but should place facilities for research in the way of every one naturally equipped with the spirit of inquiry. It is impossible to summarise Principal Irvine's address, but the main contention was that training in research should be in the hands of mature investigators who should be relieved of all routine and administrative work. Principal Sibly (Swansea) said that the importance of the applications of science had become so clear to the public during the war that technological studies were now greatly favoured and the opportunities of prosecuting pure science were actually narrower than they were ten years ago. Sir Richard Lodge (Edinburgh) sounded a warning that training may be overdone. Many a research worker, left to himself, has learned more from his blunders than from his supervisor's advice. He emphasised the value of the Institute of Historical Research, which should, he thought, have a semi-federal character and be regarded, not as the possession of a single University, but in some degree, as common to all, since all historians must come to London to consult the documents which they need for the purposes of research. In this he was supported by Principal Grant Robertson (Birmingham).

The need for an increase in residential accommodation for students was urged by Sir Michael Sadler (Leeds), who stated that the desire for college life

had recently been greatly strengthened in the newer Universities. In part it has been met. The increase in accommodation during the past year amounted to no less than 17 per cent. But very much more is needed. Women students equally with men recognise that, unless they share in the corporate social life of a Hall of Residence, they do not reap the full benefit of a University career. A very valuable discussion of the details of organisation and management followed, in which various speakers, drawing upon their own administrative experience, stated, amongst other things, that they had found that from 65 to 75 students is the economical unit (Principal Childs would place the number somewhat higher), that the Halls (the term "Hostel" was generally disapproved) should be independent of the Universities, that younger members of the staff should be encouraged to live in the Halls, that discipline and even management must be largely in the hands of the students, and that students must have some degree of privacy. It was agreed that no teaching should be given in the Halls. The most desirable situation for Halls in industrial towns was also discussed. For health and recreation they should be grouped around the playing-fields. This means that the residential quarters will be at a distance from the University buildings. Danger will arise, in consequence, of a division of the University into two groups of students with different centres of patriotism. This can be met by the provision in the immediate neighbourhood of the University of commodious "Union" buildings, and by encouraging the students who live at home or in lodgings to found a "Hall" with a warden and elected officers.

Dr. L. R. Farnell (Oxford), in introducing the subject of specialisation in certain subjects of study by certain Universities, argued that the time has passed when every University can attempt to foster all the shoots which are constantly being thrust forth by the tree of knowledge. Some flourish only where local conditions are favourable, others are so esoteric that a few centres will satisfy the needs of all their votaries. Mr. Fisher endorsed the views of the Vice-Chancellor of Oxford. When the Govern-