The International Union of Geodesy and Geophysics.

THE International Union of Geodesy and Geophysics held its second meeting at Madrid on October 1-8, at the invitation of the Spanish Government. Out of the twenty-seven countries which now belong to the Union, twenty-five were represented at Madrid, and the total number of delegates who attended amounted to one hundred and fifty.

The scientific work of the conference was carried on in the seven Sections into which the Union is divided, namely, Geodesy, Seismology, Meteorology, Terrestrial Magnetism, Oceanography, Volcanology, and Hydrology, and in each of these the time available was barely sufficient for the adequate discussion of all the reports and communications which were presented.

The Section of Geodesy commenced its meetings four days before the formal opening of the conference, and even then found the time at its disposal too short. Its meetings were very well attended, there being usually about fifty members present, and a large amount of very useful work was accomplished.

In each Section, reports were received of the work done in various countries during recent years, and especially since the last meeting of the Union in Rome in 1922; proposals sent in by the different national committees were discussed; and joint meetings were held with other Sections to investigate matters of common interest.

At the meeting in Rome the Swiss representatives had proposed that the Union should recommend the adoption by countries newly taking up geodetic work, or where new work admitted of it, of an international ellipsoid of reference. This gave rise to a very full and interesting discussion, and finally the executive committee's recommendation to employ in such cases Hayford's ellipsoid of 1909 was agreed to, although an alternative proposal to use an "arbitrary ellipsoid" differing but slightly from Hayford's obtained a considerable measure of support. The importance of carrying out geodetic work in the southern hemisphere, of such a standard that it could be used in the determination of the earth's figure, was strongly urged, and Australia was suggested as an area where such work could very advantageously be undertaken. A committee was appointed to take such steps as might be necessary to advance the completion of an arc of meridian from the Arctic Ocean to the Mediterranean.

In the Section of Seismology, a very instructive report on the recent Japanese earthquake was presented by the Japanese delegates, and was fully discussed. The Section decided to continue the publication of the International Seismological Summary at Oxford, and also of the seismological memoirs which are published from time to time at Strasbourg.

The Section of Meteorology re-elected Sir Napier Shaw as its president for another period. A number of interesting reports were received, and joint meetings were held with the Section of Oceanography on marine meteorology, and with the Section of Hydrology on their relative spheres of activity and on the measurement of rainfall data. The Section decided to continue investigations in the next few years into the physical conditions in the upper air, and to extend them to altitudes above those usually reached by "ballons-sonde"; also, to proceed with research in the subject of solar radiation.

The Section of Terrestrial Magnetism had a long programme which provided many useful discussions on the procedure of observatory work, the measurement and interpretation of records, and the design of instruments. The extension of magnetic surveys to areas not yet surveyed, and especially in high northern latitudes, was strongly advocated. In the next few years the Section decided to direct its attention to the international comparison of instruments, the magnetic and electrical characterisation of days, and to certain special investigations for which instruments will have to be designed.

Prof. Odon de Buén, of Madrid, was elected president of the Section of Oceanography in succession to the late Prince of Monaco. Much attention was given to echo-sounding, and also to tidal phenomena. In the latter subject, a joint meeting was held with the Section of Geodesy to discuss the subject of earth-tides. A committee was appointed to arrange for co-operation with the International Association for the Exploration of the Sea and the avoidance of duplication of effort.

The subject of the changes of level and of gradient in the vicinity of volcanoes was discussed at a joint meeting of the Sections of Volcanology and Seismology; and in the former the geothermal gradient and the thermal constants of rocks occupied the attention of the members at its meetings. The bureau of the Section is at present at the Vesuvius Observatory, but it is hoped that the University of Naples may offer it accommodation, which would be a more satisfactory arrangement.

The Section of Hydrology was formed only at the Rome meeting, so that much of its time was occupied with questions of organisation. A proposal that it should amalgamate with the Section of Meteorology was considered, but was not adopted. In the special work of the Section, a valuable report on the gauging of the Nile discharge was presented from Egypt; the statistical methods in use in Italy in such work were explained; and a very interesting report came from France, which dealt with the prevision of floods and with the estimation of hydro-electric potentialities. The extension of the Section's work to the phenomena of glaciers and the avoidance of encroaching on the work of existing organisations was considered and a satisfactory solution was reached.

At the final meeting, the invitation of the Republic of Czechoslovakia to hold the next meeting of the Union in Prague in 1927 was accepted. Col. H. G. Lyons was elected general secretary of the Union for a further period.

The Spanish Government extended the most ample hospitality to the delegates. The Chamber of Deputies, not being in use at the time, was available for the meetings. H.M. the King of Spain presided at the opening meeting, and later a reception was held at the palace by their Majesties the King and Queen, to which all the delegates were invited. The arrangements for the meeting and for the various visits to museums, scientific institutions, etc., which were made by the National Committee and were in the hands of Señor D. Cubillo and Señor D. Galbis, were extremely well planned and worked without the least hitch throughout. After the close of the meeting, many of the delegates availed themselves of the excursions which the committee had arranged to Andalusia and to the eastern provinces, where they were shown the scientific institutions and the objects of special interest at the various places.

The technical communications received by the Sections will be published by them in due course in their reports of the meeting.