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WASHINGTON ASSEMBLY OF THE INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS AND THE AMERICAN GEOPHYSICAL UNION

By Dr. J. A. FLEMING

GENERAL SECRETARY, AMERICAN GEOPHYSICAL UNION

INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS

THE Seventh General Assembly of the International Union of Geodesy and Geophysics was held at Washington, D. C., September 4 to 15, 1939. The various organizing committees of the American Geophysical Union, in collaboration with the National Research Council, made adequate preparations for the reception and entertainment of some 800 delegates and guests. Unfortunately the war in Europe broke out just before the assembly convened and prevented the attendance of many foreign delegates and guests who had registered for the meetings. Despite these adverse conditions, there was a total actual registration and attendance of 719 delegates and guests, including 120 from foreign countries representing 26 nations of the 38 that had designated delegates. The total number of delegates and guests who had promised attendance included 246 from outside the United States and 701 from the United States, a grand total of 947. The wide-spread interest aroused by the assembly in the United States is demonstrated by the fact that 79 universities and scientific and commercial research organizations sent representatives in addition to those delegated by 18 bureaus and services of the United States Government. A considerable number of French

and British delegates who had already arrived in the United States were recalled by their governments before the opening of the assembly. Germany was represented by three delegates, although the main delegation did not arrive in America, their vessel having turned back while en route. There was a good representation from the Latin-American countries.

On August 30, when the European political crisis was at its height, it was decided by the executive committee, after consultation with the United States Department of State, that, because of the large number of delegates already in Washington and of the great amount of scientific material to be presented, the Assembly should be held as scheduled but that its activities should be confined to scientific matters only.

The officers were accordingly continued until the next general assembly or until such time as the executive committee of the Union may decide. The presidents and secretaries of the Union and its associations are as follows (the name of the President preceding that of the Secretary):

Union—D. la Cour (Denmark), H. St. J. L. Winterbotham[1] (Great Britain); *Geodesy*—F. A. Vening Meinesz (Holland), G. Perrier[1] (France); *Seismology*—N. H. Heck (U. S. A.), E. Rothé[1] (France); *Meteorology*—S. Chapman (Great Britain), J. Bjerknes (Norway); *Terrestrial Magnetism and Electricity*—J. A. Fleming (U. S. A.), A. H. R. Goldie[2] (Great Britain); *Oceanography*—B. Helland-Hansen (Norway), J. Proudman (Great Britain); *Volcanology*—A. Michel-Lévy[2] (France), F. Signore[2] (Italy); *Hydrology*—O. Lütschg[2] (Switzerland), F. Diénert[1] (France).

In the absence of Brigadier H. St. J. L. Winterbotham, Dr. William Bowie, ex-president of the Union, took over the duties of general secretary, Vice-President Slettenmark (Sweden) presided at the meetings of the Association of Hydrology, and Dr. L. H. Adams was chosen acting president of the Association of Volcanology, all its officers being absent. The functions of the five absent secretaries of associations were assumed by representatives of the corresponding sections of the American Geophysical Union.

The meetings were held mainly in the buildings of George Washington University, and the adequacy of the quarters assigned contributed greatly to the comfort and convenience of the meetings. At a special convocation of the University on September 11, honorary degrees of doctor of science were conferred upon President D. la Cour, and *in absentia,* upon General Secretary Winterbotham. The assembly was also accorded the use of the Departmental Auditorium, the auditorium of the Department of Commerce, the auditorium of the Department of the Interior, and Elihu Root Hall of the Carnegie Institution of Washington. Rooms for committee meetings and suites for the president and general secretary of the International Union were generously contributed by the Hotel Washington, which served as the headquarters hotel of the assembly.

The assembly was formally opened on the evening of September 7 at the Departmental Auditorium. An address of welcome by the Secretary of State, Cordell Hull, was read by the Honorable Hugh Wilson and was followed by a response from Professor S. Chapman, chairman of the British National Committee. President C. H. Marvin of George Washington University spoke on behalf of local institutions, President F. B. Jewett of the National Academy of Sciences spoke on behalf of science in America, and the meeting closed with the presidential address of Dr. D. la Cour. This function included music by the United States Marine Band.

In addition to a number of special trips of the several associations during the meetings, two excursions were made under the auspices of the Union, one to Mount Vernon and Arlington, and an all-day excursion to Skyline Drive, the Caverns of Luray and the Shenandoah Valley, with a luncheon at the Hotel Mimslyn, Luray, Virginia. One conducted pre-assembly trip was made from Watertown, New York, through the Alleghany Region to Washington. A five-day excursion for hydrologists in Pennsylvania and Ohio, and a trip to Pittsburgh, Pennsylvania, were cancelled because of the desire of delegates and guests from abroad to return home at the earliest opportunity following the close of the assembly.

The outstanding social function was the reception and dance tendered by the United States Government at the building of the Pan-American Union. The delegates were received by Assistant Secretary of State Berle and Mrs. Berle for the Department of State and by President Field and Mrs. Field for the American Geophysical Union. The United States Marine Orchestra provided music.

Many other social functions provided ample entertainment and opportunity for personal contacts. These included: A tea and exhibit at the National Geographic Society; personally conducted visits to points of interest in and around Washington; two public popular lectures; teas given by the Ladies' Entertainment Committee; and farewell reception, motion pictures, dance and buffet supper.

At the final plenary session of the Union on September 15, reports of progress during the assembly were made by the presidents of the respective associations and commissions. Eighteen resolutions were adopted pertaining to international collaboration in geophysics in addition to resolutions expressing appreciation and thanks to the government of the United States, the president and trustees of George Washing-

[1] Called home before the Assembly.
[2] Not present at the Washington Assembly.

ton University, the president and board of trustees of the National Geographic Society, the many individual public and private organizations, and the National Research Council and the American Geophysical Union for the preparations, generosity, wholehearted cooperation and hospitality which made possible the success of the assembly at Washington aiming at the progress of geodesy and geophysics for the benefit of science and of all countries. Besides these resolutions adopted by the Union as a whole, there were many detailed resolutions adopted by the respective associations pertaining to matters within the province of each association.

On September 15, following the final plenary session, the officers of the International Union were received for a brief conference by President Roosevelt.

An extensive exhibit of geophysical instruments, charts interpreting geophysical data, and models was a major feature of the assembly. The exhibitors included interested departments and bureaus of the United States Government, American universities and research organizations and American instrument-making companies. The American Geophysical Union exhibited a large series of charts showing the results of geophysical exploration as applied to continental and oceanic structure. One whole day was devoted to a special hydrological exhibit and scientific papers on hydrology at the National Bureau of Standards.

The exclusion of administrative matters and discussions pertaining to statutes and finances, which at some of the assemblies have consumed much time, left greater opportunity for the presentation and discussion of scientific papers and reports, many of which had been circulated in full or in abstract beforehand. The associations arranged for the continuance or modification of important international enterprises, although no arrangements could be made for entertaining new projects. Thus, despite the unpropitious world political conditions, the assembly proved to be one of the most important yet held by the Union.

There were two unique features at the Washington Assembly. (a) The program was so arranged that the seven addresses of presidents of associations were presented on different days, permitting attendance of all delegates and guests—a feature serving an admirable purpose to effect *union* of interests. (b) This purpose was further served by a large number of joint meetings of two or more associations to discuss symposia involving common interests; the joint meetings of associations were also held with the International Union's Commission on Continental and Oceanic Structure.

The topics discussed at the assembly ranged from the small-scale local changes in geophysical conditions caused by mineral deposits and the water-regimen of a typical alpine glacier watershed to the world-wide seismic vibrations initiated by great earthquakes and large-scale oceanic currents. More than other branches of science, geophysical research depends on international collaboration. In the words of one of our foreign delegates:

> This idea dominated the proceedings and appeared so obvious to all that it was hardly mentioned. Yet, the fact that under great political stress no discord marred the harmony of the meetings must be regarded as a success well earned as well by the presidents and the officers of the International Union and of its associations as by the leaders of the National Research Council and the American Geophysical Union who, as congenial hosts, rose to the occasion in providing perfect facilities and memorable atmosphere of good-will and cooperation.

The following quotation from the remarks of President la Cour at the final plenary session of the assembly is particularly appropriate:

> Now it is a reality that the Washington General Assembly of the International Union of Geodesy and Geophysics has been held and that it has been an extremely important meeting, furthering our science and showing to the world a battlefield where only victory can be recorded because even the overthrow of a theory is a victory for truth. Words are not sufficient to express our gratitude towards our hosts. I beg them to believe that we will carry away from here and forever the memory of a very happy period in our life, despite the war clouds that have gathered around us.

Communications presented at the assembly.—The total number of addresses, including two public addresses, scientific communications and reports, presented at the assembly was 492 (general Union and its communications, including two public addresses, 27; geodesy, 73; seismology, 40; meteorology, 35; terrestrial magnetism and electricity, 107; oceanography, 48; volcanology, 34; hydrology, 128). As will be seen from the above, the affairs of the International Union proceeded normally despite the disturbed world conditions. There is every evidence in the correspondence with the officers of the Union since the assembly that preparation of printed volumes of transactions of the union and of each of the seven associations is being made. Thus General Secretary Winterbotham has already sent for correction manuscript of the greater part of the transactions for the Union; the secretary of the Association of Terrestrial Magnetism and Electricity advises that the transactions of that association are already in proof, and we have similar word from secretaries of other associations, particularly the Association of Hydrology, the transactions of which are planned to appear in four volumes. This general feeling that the International Union of Geodesy and Geophysics will continue to function is indicated also by the arrangements entered into through the executive committee of that body and the general secretary for

the establishment of four accounting centers (France, Norway, United States of America and England) through which collections of dues of adhering countries are to be made.

In view of the paramount importance in all human endeavor in life of the physics of the earth from both scientific and economic viewpoints and of the spirit of the present officers, it seems that we may look forward to the continuation of the International Union of Geodesy and Geophysics as a functioning body although the Eighth Triennial Assembly set for Bergen, Norway, in 1942 may have to be postponed.

AMERICAN GEOPHYSICAL UNION

The executive committee of the American Geophysical Union has continued to act as the advisory body on geodesy and geophysics to the National Research Council in the relations with the International Union of Geodesy and Geophysics. The total membership of the Union April 26, 1940, was 1,264—a net gain of 140 during the past year. The transactions of the Union for 1939 contained in four volumes totaling 741 pages, including 153 papers and reports, have been published and distributed except for some 300 volumes held for future distribution in Europe pending the resumption of the International Exchange Service with European countries now at war. The edition was 2,000 copies.

In 1940 a regional meeting of the Section of Hydrology and the Western Interstate Snow-Survey Conference was held at Stanford University, California, January 12 and 13. Arrangements have been made for another regional meeting of the section and of the Western Interstate Snow-Survey Conference at Seattle, Washington, June 20 to 23, 1940. The twenty-first annual meetings of the Union and of its sections were held April 24 to 27, 1940. The Union also took part in two symposia bearing on "Application of mathematics and Earth's physics" and "Hydrologic problems in the Ohio and Michigan basins" during the Columbus meeting of the American Association for the Advancement of Science in December, 1939. These and the papers and reports presented at the twenty-first annual meeting will be published in the Union's volumes of transactions for 1940.

Following a mail ballot sent to all members of the Union, an eighth section has been formed, namely, the Section of Tectonophysics, the object of which is to promote and encourage research of fundamental importance to our knowledge of earth structure not covered in any one of the seven sections of the Union. The affiliations with this section already total 275.

The William Bowie Medal endowed by friends and coworkers of Dr. William Bowie and established by vote of the executive committee of the Union on March 1, 1939, to be awarded for distinguished attainment and outstanding contribution to the advancement of cooperative research in fundamental geophysics, was designed, and dies were prepared during 1939. The first and particularly fitting award of the medal was to William Bowie. The second award was made at the General Assembly of the Union on April 26 to Dr. Arthur Louis Day.

The Union was represented by five delegates at the Sixth Pacific Science Congress, July 24 to August 12, 1939, and has also designated 16 delegates to the coming Eighth American Scientific Congress, May 10 to 18, 1940.

In conclusion, it is felt that the American Geophysical Union has continued to take effective part in the advance of scientific and economic aspects of geophysical research and in the coordination of international and national activities.

SCIENTIFIC EVENTS

REPORT OF THE BROOKLYN BOTANIC GARDEN

ACCORDING to the twenty-ninth annual report of the Brooklyn Botanic Garden, for 1939, more than 1,789,000 visitors were registered, an increase of nearly 72,000 over 1938. The attendance at classes and lectures for adults and children exceeded 104,000. Teaching material was supplied to more than 4,700 teachers in all five boroughs of Greater New York for the instruction of over 281,700 pupils.

Research has been continued on the problem of disease resistance in plants; the culture, diseases and nomenclature of Japanese Iris; the fungus disease (*Endothia parasitica*) of the American chestnut, and on the native and foreign flora.

The library, with more than 37,600 bound volumes and pamphlets, is open free to the public daily, and had nearly 5,000 readers during 1939. The opening paragraphs of the report congratulate American educational and scientific institutions on being located in a country where scientific investigators and teachers are free to pursue the truth as it is, and to proclaim it without necessity of having to try to bring it into conformity with any political or sociological or racial ideology.

More than half the operating budget for the year (51.82 per cent.) was provided from private funds, the remainder (48.18 per cent.) being appropriated in the tax budget of New York City. Private citizens contributed to the support of the garden more than $54,000, which equals nearly 57 per cent. of the tax budget appropriation ($96,450). "Private benefac-