THE FIFTEENTH ANNUAL MEETING OF THE AMERICAN GEOPHYSICAL UNION

THE fifteenth annual assembly of the American Geophysical Union and the meetings of all its sections were held on April 26, 27 and 28, at Washington, D. C., in the building of the National Academy of Sciences and National Research Council. The western meeting of the Section of Hydrology was held on June 20 and 21, in Berkeley, California, where the University of California generously provided a meeting place.

The reports and papers presented at the fifteenth general assembly were concerned largely with progress in development of the U. S. Weather Service in line with the recent recommendations of the Science Advisory Board in relation to studies of movements of major air-masses and the use of aerological observations in weather forecasting. Included also were a number of reports on the upper-air data obtained during the International Polar Year of 1932–33. As a matter of record, a short report on the fifth general assembly of the International Union of Geodesy and Geophysics is being added in the two volumes of *Transactions* of the meeting now in press upon request of the executive committee.

Several papers presented to the Section of Geodesy related to geodetic and gravimetric work in Canada, Mexico and the United States. Other papers were devoted to the determination of longitude as a part of the international program of 1933, to instrumental developments and to the effect of the moon's position on observed clock corrections.

The Section of Seismology heard progress-reports from the U. S. Coast and Geodetic Survey and the Jesuit Seismological Association, on installations of tilt-meters and on first-order leveling as an aid in seismological research. Several papers reported on the earthquake of September 6, 1933, and its bearing on the problem of the deep earthquake, on weathering correction, on values for dilatational wave-velocities and on quarry-blasting. A paper by our Mexican colleague, Dr. Sánchez, told of the relation of the Bay of Acapulco to earthquakes in southern Mexico.

Several papers submitted to the Section of Meteorology reported on the reorganization of ocean weather-records for new applications and of climatological, aerological and river-gage data made possible by the Civil Works Administration and Public Works funds. Mountain meteorology and its history were covered in several important contributions. Sounding-balloon work and aerological studies of the International Polar Year program were reported. Other papers dealt with the surface of subsidence, atmospheric ionization near the ground during thunderstorms and lightning-discharges.

In the Section of Terrestrial Magnetism and Electricity, Dr. Schonland of South Africa spoke on the study of atmospheric electricity there. Several papers were given on atmospheric-electric and auroral and earth-current observations of the International Polar Year in Alaska and Canada. Señor Sandoval reported on magnetic secular-variation and Captain Heck reviewed problems of magnetic surveys. One paper dealt with the effect of magnetic activity upon secular-variation. Three papers were concerned with cosmic radiation and with ozone-measures. In the radio field four papers were presented on atmospherics, on radio-transmission studies in geophysical investigations, on the aid of radio in geological mapping and on relation of radio with earth-potential observations. Dr. Kaplan presented an account of the production of the auroral spectrum in the laboratory. Progress-reports of nine organizations were received, and a brief report of the Lisbon meeting of the International Association was made.

Progress-reports were made to the Section of Oceanography for the Hydrographic Office, the International Ice Patrol, the Coast and Geodetic Survey, and regarding work in the Russian Arctic, while the Committee on Oceanographic Activities in North America covered the work of other institutions on the Pacific and Atlantic sides of Canada and the United States. Two papers dealt with surface temperatures and with temperature-salinity correlation.

In the Section of Volcanology a fine series of papers was concerned with the rare chemical constituents, the thermal decomposition of some carbonate minerals, geyser-basins, volcanic dust in relation to climate, the rôle of volatiles in titanium deposits, the year's volcanic activity, the viscosity of magmas and basaltic flows.

The Section of Hydrology held three sessions in Washington and several sessions in Berkeley. The annual reports of the nine permanent committees on research as presented at Washington are being published in the *Transactions*. Twenty-eight papers at Washington and fourteen papers with discussions at Berkeley evidence the wide interest in hydrological research and its economic importance. In conjunction with the meetings in Berkeley there was held also the annual meeting of the Western Interstate Snow-Survey Conference.

In view of the many contributions from the Section of Hydrology and from the Snow-Survey Conference, and to facilitate wider distribution, the

Transactions of the meetings of 1934 are being published and bound in two parts. Part I includes proceedings of the fifteenth general assembly and those of the Sections of Geodesy, Seismology, Meteorology, Terrestrial Magnetism and Electricity, Oceanography and Volcanology at Washington, while Part II is devoted to proceedings of the Section of Hydrology at Washington and at Berkeley, including those of the Snow-Survey Conference.

The following six resolutions were unanimously adopted at the general assembly:

Resolution on auroral observations at College, Alaska, proposed by the Section of Terrestrial Magnetism and Electricity:

WHEREAS, On November 8, 1929, the Rockefeller Foundation appropriated the sum of $10,000 to establish, equip, and maintain a first-order auroral station at College near Fairbanks, Alaska, to carry out a five-year program of research on the aurora, and

WHEREAS, This work has been carried out successfully since 1930 under the efficient direction of Professor Veryl R. Fuller, of the Alaska Agricultural College and School of Mines, is giving results of great value in the systematic study of auroras, and constituted an important link in the chain of Polar Year stations, and

WHEREAS, This station is in a particularly desirable location, not only from the favorable surroundings, but because it is practically 180° distant in longitude from the first-order station in Norway, therefore be it

Resolved, That the American Geophysical Union expresses the hope that means will be found to continue the operation of this station beyond the five-year period for which provision was made, and be it further

Resolved, That a copy of this resolution be sent to the President of the Alaska Agricultural College and School of Mines and to the Rockefeller Foundation.

Resolution regarding Carte Bathymétrique Générale des Océans, proposed by the Section of Oceanography:

Resolved, That the American Geophysical Union expresses its appreciation of the efforts which are being made by the International Hydrographic Bureau towards the publication of a revised edition of the Carte Bathymétrique Générale des Océans, declares its sense of the value which such publication would render to the science of Oceanography, and hopes that the publication will not be unduly delayed by lack of financial resources, and be it further

Resolved, That a copy of this resolution be sent to the International Hydrographic Bureau.

Resolution on the death of Henry Stephens Washington:

WHEREAS, In the death of Henry Stephens Washington on January 7, 1934, the American Geophysical Union lost one of its original members, who served successively as Chairman of the Section of Volcanology, Chairman of the Section of Geophysical Chemistry, and Vice-Chairman and Chairman of the Union, and

WHEREAS, Dr. Washington made notable contributions in the fields of geology, mineralogy, and volcanology, particularly in the chemical analysis of rocks, the classification of igneous rocks and studies as to their relation to volcanic activity, and the constitution of the interior of the Earth, therefore be it

Resolved, That the American Geophysical Union records this expression of its sense of great loss in his death, and be it further

Resolved, That a copy of this resolution be sent to Dr. Washington's family, to the President of the Carnegie Institution of Washington, and to the Director of the Geophysical Laboratory.

Resolution on the death of William Morris Davis, proposed by the Section of Oceanography:

WHEREAS, In the course of a long and distinguished career, William Morris Davis made notable contributions to oceanography as well as to meteorology and the explanation and classification of land forms, and

WHEREAS, In particular, he brilliantly analyzed the evidence presented by coral reefs as to Pleistocene and recent changes in sea-level, therefore be it

Resolved, That the American Geophysical Union expresses its deep regret at the death of Professor Davis on February 5, 1934, and honors the memory of one who so greatly advanced human understanding of the oceans, the atmosphere, and the forms of the Earth's surface, and be it further

Resolved, That a copy of this resolution be sent to Mrs. Davis, to the President of Harvard University, and to the Chairman of the Administrative Board of the California Institute of Technology.

Resolution on the death of Fred Forbes Henshaw, proposed by the Section of Hydrology:

WHEREAS, In the death of Fred Forbes Henshaw on December 26, 1933, the American Geophysical Union has lost a member who has long been active in hydrologic studies, and

WHEREAS, He has contributed largely to the observations and interpretations of hydrologic phenomena and to the literature of hydrology and hydraulics, therefore be it

Resolved, That the American Geophysical Union expresses its sense of great loss through his death, and be it further

Resolved, That a copy of this resolution be sent to Mr. Henshaw's family.

Resolution on the death of Floyd August Nagler, proposed by the Section of Hydrology:

WHEREAS, By the death of Floyd August Nagler on November 10, 1933, the American Geophysical Union has lost one of its most active and productive workers in the field of experimental hydraulics, and

WHEREAS, He rendered outstanding service in the upbuilding of the hydraulic laboratory of the University of Iowa and in promoting research in the fields of hydrology and hydraulics, therefore be it

Resolved, That the American Geophysical Union expresses its sense of great loss through his death, and be it further

Resolved, That copies of this resolution be sent to

Professor Nagler's family and to the President of the University of Iowa.

The meetings and the papers presented illustrate the increasing interest in, and value of, the scientific and practical applications and contacts of geophysics —both nationally and internationally.

JNO. A. FLEMING,
General Secretary

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SIMPLE AGITATOR FOR SUBMERGED RESPIROMETERS

SOME time ago there arose in our laboratory the need for a suspending, controlling and agitating device for a set of Barcroft respirometers of the type described by R. W. Gerard.[1] The device designed for this laboratory and now being used in it is illustrated in representative sections in the accompanying

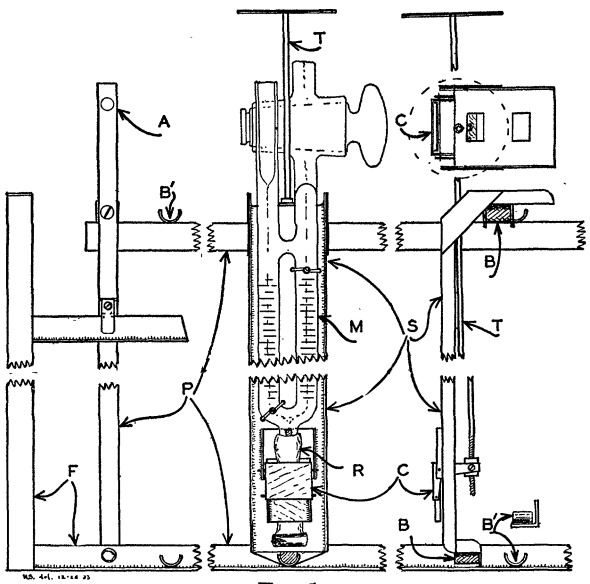

FIG. 1.

figure. Essentially, the hanger for each manometer consists of a strap of metal (S) bent into the shape of an inverted L and properly braced so as to support the glass structure of the manometer (M). A two-piece clamp (C), actuated from above by a threaded rod (T), compresses the manometer reservoir (R) at the lower end of this hanger. The latter has two bearings (B) by means of which it is suspended on the agitating device. These bearings fit into corresponding cup bearings (B′) on the agitating device and permit the removal and replacement of each individual hanger without disturbing the others. The agitating device is essentially a U-shaped frame (F) the sides of which guide, and the lower member of which supports the other three parts of a jointed parallelogram (P) upon which the manometers are rocked in unison. This parallelogram is moved by means of a crank and pulley system connected to one of its upper corners (A). This device can be made in duplicate for use on both sides of a large bath and activated by means of the same pulley system. The cost of the apparatus, excluding the motor and the manometers, is less than $5 and the simplicity of the design renders skilled labor and special tools unnecessary in its construction.

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[1] *Am. Jour. Physiol.*, 1931.

A STAIN FOR DIFFICULT PLANT MATERIAL

RECENTLY some plant material has been encountered which could not be satisfactorily stained by the ordinary procedure. The following version of the Flemming triple stain was worked out for this material and is now being used for most of the cytological work at this laboratory.

Proportions:

1 part —1 per cent. aqueous gentian violet
2 parts—1 " " " safranin
1–4 " —distilled water

Schedule: If a fixative with no chromic acid has been used, slides are soaked in 1 per cent. aqueous chromic acid from one hour to over night, and rinsed through several changes of tap water. They are stained 1 to 24 hours—depending on strength of stain. A dilute stain over a period of 24 hours gives the best results. They are then washed in tap water. Thereafter they are placed for 30 seconds in 1 per cent. iodine-potassium-iodide in 70 per cent. alcohol and washed a few seconds in each of the following:

50 per cent. alcohol (two jars in series)
70 " " "
95 " " " plus picric acid (about 1 gm per 100 cc)
95 " " " " ammonia (8–10 drops per 100 cc)
95 " " "
100 " " "
clove oil plus orange G (0.2 gm per 100 cc)
" " clear
xylol (three jars in series)

The slides may be examined in xylol. Excess safranin may be removed by returning the slide to 100 per cent. alcohol, then back to xylol. Excess gentian violet may be removed by returning the slide to clove oil, then back to xylol.

This stain is extremely selective. Chromosomes in different stages of development take up varying shades of color, usually from light to dark purple.