

vertibility of mass and energy, are at present used to account for the evolution of the stars which is implied in the diagram above referred to.

As the representative of the Mathematical Association, on the joint program, Professor Archibald Henderson, of the University of North Carolina, spoke on the subject, "Is the universe finite?" He mentioned the incredibility to the average person of the results of recent cosmogony, sought to add to the Einstein theory a reasonable hypothesis based on the mean density of the universe and to collate the recent estimates of the consequent radius of the universe. Exceedingly different methods of approach give agreements in the value of this radius, which are gratifying considering the profound difficulty and complexity of the problem. The results must be interpreted either as wholesale errors or as the relativistic consequence of the curvature of space.

The Pi Mu Epsilon Mathematical Fraternity

Director general, E. D. Roe, Jr.

Secretary general, Warren G. Bullard, 117 Redfield Place, Syracuse, N. Y.

(*Report by W. J. Bullard*)

The Washington Convention of Pi Mu Epsilon brought together delegates from the several chapters to discuss matters of vital import to the fraternity and to coordinate and unify the chapters. The fraternity was revealed as in a flourishing state, with nine chapters at present. The convention closed with a dinner that was much enjoyed by the delegates.

**PHYSICAL SOCIETIES AT THE
WASHINGTON MEETING**

(*A report for Section B appeared in SCIENCE for
February 6*)

The American Physical Society

President, Charles E. Mendenhall.

Secretary, Harold W. Webb, Columbia University, New York, N. Y.

(*Report by S. R. Williams*)

The 130th meeting of the American Physical Society was held from December 29 to 31, 1924, in the Bureau of Standards. Professor Charles E. Mendenhall, of the University of Wisconsin, presided at the meetings. The equipment and arrangements for projecting the slides of the various speakers were excellent. About 225 persons were present and about 80 papers were read. The following officers of the society were elected: *President*, D. C. Miller; *vice-president*, K. T. Compton; *secretary*, H. W. Webb; *treasurer*, G. B. Pegram; *members of Council*, F. C. Blake and W. F. G. Swann; *members of board of editors of Physical*

Review, K. K. Darrow, E. C. Kemble and F. L. Mohler.

The program for Tuesday morning was specially interesting on account of a group of papers bearing on the Compton Effect. The Tuesday afternoon session was held jointly by the American Physical Society with Sections B and D of the American Association for the Advancement of Science and with the American Astronomical Society.

The American Meteorological Society

President, Willis I. Milham.

Secretary, Charles F. Brooks, Clark University, Worcester, Mass.

(*Report by Charles F. Brooks*)

The fifth anniversary meeting of the American Meteorological Society was fittingly held at the center of American meteorological activity, in the U. S. Weather Bureau. In numbers of sessions and papers presented this meeting exceeded all previous ones. One entire session was devoted to an aerological symposium centering around a discussion of the late Dr. C. LeRoy Meisinger's contribution to meteorology, the unsolved problems left by him, and the use of the growing Meisinger Aerological Research Fund to stimulate investigation in that field. The president of the society was made *ex-officio* chairman of the Meisinger Fund Committee and the chairman designated R. DeC. Ward, C. F. Marvin and W. R. Gregg as the other members of the committee. Plans for an international organization to make weather maps for the whole northern hemisphere were discussed and heartily endorsed. The presidential address, on "The year 1816—the causes of abnormalities," also treated of world meteorology, bringing out the essential rôle volcanic dust seems to have played in creating the low temperatures experienced at least in New England in the summer of 1816.

Of the 28 papers presented, four were concerned with instruments or methods, an outstanding paper being that on "The theory of the anemometer," by J. Patterson. Although the cup anemometer was invented 80 years ago we now for the first time have a thoroughly satisfactory and well-understood instrument that operates accurately through a wide range of velocities. Dr. V. Bjerknes, distinguished Norwegian meteorologist and author of the now well-known "polar front" theory of cyclones and anticyclones, described the simple means by which cyclones in the northern North Atlantic are designated by radio. Four papers on the physics of the air were presented, dealing with: Potential gradient during thunderstorms (Jensen), meteorology of eclipses (Clayton), fluid rotation (Vaughan) and variation of wind with height (Humphreys). Statistical meteorological studies included rainfall periodicities (Alter)

and rainfall distribution about the centers of tropical cyclones (Cline). Climatology was represented by five papers touching Hawaii, California, the United States and Trinidad. Applications of meteorology were discussed in five other papers, dealing with: The proportion of rainfall available for plant use (Voorhees), the effect of weather on fruit production (Kincer), the fruit-spray and harvest-weather forecasts of the Weather Bureau (Calvert), weather forecasts for long flights of airplanes and dirigibles (Thiessen and Anderson). A paper by C. F. Talman on "The vocabulary of weather and climate" was of general interest.

The officers elected for 1925 are: *President*, W. I. Milham, of Williams College; *vice-president*, A. E. Douglass, of the University of Arizona; *secretary*, C. F. Brooks, of Clark University; *treasurer*, W. R. Gregg, of the U. S. Weather Bureau; *councilors*, H. H. Clayton, W. M. Davis, W. J. Humphreys, Alexander McAdie and J. C. Millås.

A more complete report of the meeting will appear in the January, 1925, *Bulletin* of the American Meteorological Society, and the papers and discussions will be published in full or in abstract in that journal or in the *Monthly Weather Review*.

THE AMERICAN ASTRONOMICAL SOCIETY AT WASHINGTON

(A report for Section D appeared in *SCIENCE* for
February 6)

The American Astronomical Society

President, W. W. Campbell.

Secretary, Joel Stebbins, Washburn Observatory,
Madison, Wis.

(Report by Joel Stebbins)

The thirty-third meeting of the American Astronomical Society was perhaps the largest gathering in the history of the society, the average attendance at the sessions being about one hundred and twenty-five. On Tuesday the meeting opened with a joint session with Section B and the American Physical Society. We shall let the Physics report give a proper appreciation of the retiring address of Vice-president Swann, of Section B; to the astronomers it was both informative and inspiring. The main astronomical contributions to the program were the retiring address of Dr. Heber D. Curtis, vice-president of Section D, and an address by Professor B. V. Bjerknes, of Bergen, Norway. Dr. Curtis chose for his subject "The equinox of 1950.0," which was largely in the nature of a prophecy of the state of astronomy some twenty-five years hence. His paper has been reported under Section D. In his address on "Solar hydrodynamics," Professor Bjerknes was able to give on the basis of

currents in the sun a reasonable explanation of the peculiar distribution of sun-spots in the eleven-year period. The shorter papers on the program were all of interest to both astronomers and physicists.

Members of the society and friends were the guests of the U. S. Naval Observatory on Wednesday, through the courtesy of the superintendent, Captain E. T. Pollock, and special buses were provided for transportation. At the first session there were reports of the latest work at the observatory, such as improvements in the determination of time and its distribution. After the luncheon hour, the visitors were shown the different instruments of the observatory by members of the staff. As an illustration of the cordial cooperation of the Navy Department, in response to a suggestion by the astronomers made in the morning that special time signals would be very welcome on the day of the eclipse, January 24, 1925, it was promptly announced by Captain Pollock that arrangements had been made for broadcasting such time signals a half hour before and a half hour after the time of totality.

New Year's Eve marked a special epoch in the history of astronomy, which was observed in fitting manner by those present. Up to January 1 astronomers have begun their day at noon, but beginning with 1925, for the convenience of mariners, the data in the *Nautical Almanac* are given on the basis of civil reckoning, the day beginning at midnight. Astronomers generally will change to the new system, which of course does not affect the public, but will be the cause of considerable difficulty about observatories for some time to come. On Thursday morning there was a joint session with mathematicians and physicists, at which Professor H. N. Russell discussed the subject "Stellar evolution," and Professor Archibald Henderson "The size of the universe." These two themes gave rise to some spirited discussion, and in spite of an early start it was well past the noon hour when the meeting adjourned. On Thursday afternoon there was a symposium on preparations for observing the eclipse of January 24, perhaps the most striking announcement being that the naval airship *Los Angeles* will carry a party of astronomers from the Naval Observatory.

On Thursday evening occurred the annual astronomical dinner at the Hotel Powhatan, with impromptu speeches. On Friday morning Washington was pretty well snowed under, but the weather did not interfere with the meeting of the American Section, International Astronomical Union, at the National Research Council Building. Numerous committee reports were acted upon in preparation for the meeting of the Union which will be held at Cambridge, England, beginning July 14, 1925.