

to the science of oceanography. In the absence of Dr. Hjort, the medal was received by the Norwegian Minister, Mr. Bryn.

The Comstock prize of 1500 dollars to Prof. Robert A. Millikan, of Chicago, for his demonstrations of the existence of electric atoms in elements and of the equality of the electrical charge of positive and negative ions in ionised gases, and his additions to the knowledge of the molecular constitution and kinetic phenomena of gases.

A business meeting was held on the morning of April 24, when the following officers and new members and foreign associates were elected: *President*, William H. Welch; *Vice-President*, Charles D. Walcott; *Foreign Secretary*, George E. Hale; *Home Secretary*, Arthur L. Day; *Treasurer*, Whitman Cross. *New Members*: Henry A. Bumstead, Gilbert N. Lewis, Louis V. Pirsson, Erwin F. Smith, Leonard E. Dickson, Lafayette B. Mendel, Edward B. Rosa, Ross G. Harrison, George H. Parker, Armin O. Leuschner. *New Foreign Associates*: Arthur Schuster, Theodor Boveri, William Crookes, Gaston Darboux, Henri Deslandres, Albert Heim, Albrecht Kossel, Karl Friedrich Küstner, Johannes D. van der Waals, August Weismann, Max F. J. C. Wolf.

On the afternoon of April 24 an excursion was made to Mount Vernon on the U.S.S. *Mayflower*, which had been placed at the disposal of the academy and its guests by the Secretary of the Navy. In the evening a banquet was held in the New Willard Hotel, at which speeches were made by Vice-President Marshall, the Right Hon. James Bryce, President Remsen, Dr. S. Weir Mitchell, Senator T. E. Burton, of Ohio, and Dr. W. W. Keen, President of the American Philosophical Society.

To mark the anniversary, the academy published a history of its first half-century in a handsome volume of some 400 pages. It includes an account of the founding of the academy, its annals, biographical sketches of the incorporators, and a chapter on the work of the academy as the scientific adviser of the Government, together with appendices, among which is a list of publications.

SCALES OF FISH AS TESTS OF AGE.

THE general principle that the age of a fish may be determined by a study of the markings on the scale has now been generally accepted for many fishes, especially for the Gadoids, Clupeoids, and Salmonidæ. It has been maintained, especially by Norwegian naturalists, that the principle may be carried still further, and that from a measurement of the portions of the scale representing the growth of successive years the length of the fish at the end of each year of its life may be calculated. If this proved to be true, the average annual growth rate of fishes could be determined by the examination of comparatively small samples of fish, since each of the older fishes would give values for a number of years.

That the use of the method in this way must

be undertaken only with great caution is clearly shown in a paper by Miss Rosa M. Lee, published by the International Council for the Study of the Sea (*Publications de Circonstance*, No. 63), entitled "An Investigation into the Methods of Growth Determination in Fishes." By an acute and penetrating analysis of the measurements of scales from herring, haddock, and trout, Miss Lee shows that if the lengths of the fish at the end of each year are calculated from the lengths of the annual rings on the scale, measured from the centre of the scale along its major axis, the figures obtained appear to indicate a change in the growth rate of such a nature that the younger fishes attained a greater size at any given age than was attained by older fishes at the same given age. Thus whereas in a sample of herrings the four-year-old class gave an average calculated length of 25.8 cm. at the end of the third year, the ten-year-old class gave an average calculated length of only 21.3 cm. at the end of their third year.

Various hypotheses are put forward to account for this phenomenon, of which the most probable seems to be either that it is due to an actual shrinkage during the later life of the fish of the portion of the scale already laid down, or that in the samples of fish examined there has been a segregation according to size of such a character that only the larger sizes of the earlier age groups are present. The subject is clearly one which must be further investigated before certain conclusions as to age can be arrived at from the study of fish scales.

THE ROYAL SOCIETY CONVERSAZIONE.

THE annual May conversazione of the Royal Society was held in the rooms of the society at Burlington House on Wednesday, May 7. During the evening lantern demonstrations were given by Mr. Leonard Baird illustrating cases of eddying fluid motion of interest in aeronautical research, and by Dr. A. Smith Woodward on the discovery of a palæolithic human skull and mandible at Piltdown, Fletching, Sussex. Many objects and instruments illustrating recent scientific methods and results were exhibited, and most of them are described in the subjoined summaries from the official catalogue. Exhibits referring to related branches of science have, so far as possible, been grouped together.

Prof. J. T. Morris: The electrical measurement of wind velocity, as applied to the distribution round a circular rod in an air current. In the air current is fixed a Wheatstone bridge made with alternate arms of platinum and manganin. At normal temperature this bridge is out of balance. It is supplied with either (a) a constant voltage, when a millivoltmeter in place of the usual galvanometer gives indications depending on the wind velocity; or (b) a current which can be varied so as to bring the bridge into balance for any velocity; the square of the watts used in the bridge wires is then proportional to the wind velocity subject to a small correction. It is unnecessary to know the direction of the wind before a measurement can be made. *Mr. M.*