was 0.7 degrees absolute. While thermodynamic theory, to which Professor Giauque has contributed extensively, indicates that it is impossible to reach absolute zero, Professor Giauque's method has enabled scientists to come closer to it. These low temperature data are of great significance in supplying data for the calculation of chemical equilibria.

Professor Giauque also demonstrated the predicted existence of the ortho and para forms of hydrogen by finding a change in the melting points of hydrogen, after standing for a long time in the form of liquid hydrogen. This research deals with the rotational energy levels of hydrogen and indicates that hydrogen in different rotational states can be partially separated and has different properties.

In 1929 Professor Giauque shared with Professor H. L. Johnson the prize of the Pacific Division of the American Association for the Advancement of Science for the most important scientific contribution reported by a resident of the Pacific Division for their discovery of the two new isotopes of oxygen announced at the meeting.

GRANTS OF THE GEOLOGICAL SOCIETY OF AMERICA

RECENT grants made by the Geological Society of America in furtherance of research are as follows:

$450, to George W. Bain, Amherst, Mass., field expenses connected with the measurement of the strains of recently exposed quarry floors.

$165, to G. O. Raasch, Madison, Wis., office and field expenses connected with completion of manuscript on Cambrian Merostomata of the Upper Mississippi Valley.

$400, to William F. Jones, Nantucket, Mass., field and office expenses in completing an investigation into the post-Glacial coastal evolution of the southeastern New England province from Boston to Narragansett Bay.

$3,500, to a committee headed by T. S. Lovering, Ann Arbor, Mich., investigation of the physical chemistry of the two-component volatile system, carbon dioxide and water, under varying pressures in equilibrium with a silicate melt at a constant temperature of 1000°.

$975, to Eleanora B. Knopf, New Haven, Conn., field and laboratory expenses connected with an intensive study of structure, stratigraphy and metamorphic geology of the Clove-Millbrook quadrangles, New York and Connecticut, by the methods of structural petrology (petrofabrics).

$900, to Horace G. Richards, Trenton, N. J., field and laboratory expenses connected with a study of marine Pleistocene deposits of the Gulf Coastal Plain from Alabama to Texas and correlation with the loess deposits of the lower Mississippi Valley.

$300, to Lloyd W. Fisher, Lewiston, Me., laboratory expenses of study of certain problems of the Lewiston quadrangle.

$2,500, to Alfred C. Lane, Cambridge, Mass., chemical analyses covering studies of the age of rocks by the helium method.

$450, to B. L. Miller and Maurice D. Ewing, Bethlehem, Pa., additional grant to cover field expenses, equipment, assistance and supplies connected with seismic work on the eastern Continental Shelf.

$1,475, to G. H. Anderson and J. H. Maxon, Pasadena, Calif., field and laboratory expenses connected with study of the structure and petrology of the Northern Inyo Range, California and Nevada.

$500, to Harrison Schmitt, Hanover, N. Mex., laboratory expenses connected with study of the geology of the central mining district, Hanover, N. Mex.

$975, to A. C. Waters, Stanford University, Calif., field and office expenses connected with study of plutonic and metamorphic rocks in the Chelan and Okanogan regions of central Washington.

$1,000, to Herman Schlundt, Columbia, Mo., field expenses of investigations of radioactivity of spring deposits and spring waters in some of the national parks.

$600, to Francis P. Shepard, Urbana, Ill., field and office expenses connected with the compilation of a map of submarine topography of the Continental Shelf and slope off the California coast.

$200, to Bohumil Shimek, Iowa City, Ia., office expenses connected with the preparation of a manuscript on the fauna of the Mississippi Valley loess and its significance as an indicator of conditions during deposition of the loess.

$800, to G. A. Cooper, Washington, D. C., photographic expenses connected with monograph of the Chazyan brachiopods of North America, by E. O. Ulrich and G. A. Cooper.

$300, to Guy Campbell, New Albany, Ind., field and office expenses connected with study of the New Albany and related black shales of Indiana and Kentucky.

$1,500, to Frank F. Grout, Minneapolis, Minn., to guarantee part of the expenses for a petrographic-chemical laboratory at the University of Minnesota.

$810, to H. B. Washburn, Jr., Cambridge, Mass., traveling and field expenses connected with study of movement of glacier ice (South Crillon Glacier, Alaska).

$209, to Alonzo Quinn, Providence, R. I., covering analyses of igneous rocks from Red Hill, New Hampshire.

$250, to Charles H. Behre, Jr., Evanston, Ill., additional grant to cover traveling, field and laboratory expenses, examination of the geologic setting of the great depression of the South Park, Colorado.

$2,500, to the Board of Trustees of *Biological Abstracts*, Philadelphia, Pa., editorial expenses work on paleontology.

$1,740, to T. Wayland Vaughan, La Jolla, Calif., assistance, traveling and office expenses, connected with completion of a revision of the madreporarian Hexacoralla.

$1,200, to Robert T. Hill, Dallas, Tex., additional grant, covering expenses connected with history of geologic investigation in the Southwest.

$450, to Frank D. Adams and F. F. Osborne, chemical

analyses connected with completion of a study of the Morin anorthosite area, Quebec.

THE NEW YORK MUSEUM OF SCIENCE AND INDUSTRY

CEREMONIES opening the new permanent home of the New York Museum of Science and Industry in Rockefeller Center were held on the evening of February 11. Sir William Bragg, director of the Royal Institution of Great Britain, formally opened the museum from the desk at which Michael Faraday worked out his experiments in electro-magnetism. Seated in Faraday's chair, Sir William lighted a match and candle which sent an impulse over the Atlantic. Picked up in New York through a photo-electric cell, the impulse lighted a small incandescent lamp within the museum, the first lamp manufactured by the Westinghouse Company. In turn, the original lamp lighted a battery of forty new mercury vapor lamps.

Sir William Bragg preceded his formal opening of the museum with an address. Other speakers were Dr. Frank B. Jewett, president of the Bell Telephone Laboratories and president of the Board of Trustees of the Museum; Dr. Albert Einstein; Dr. Harold C. Urey, professor of chemistry at Columbia University; and Mayor La Guardia. Dr. Robert A. Millikan, of the California Institute of Technology, spoke from Pasadena, and Miss Amelia Earhart from Santa Ana, Calif.

The museum, which was established in 1927 through a bequest of Henry R. Towne, seeks in exhibits, many of which can be operated by visitors, to make the underlying principles of science more understandable to the layman and to depict recent developments in science and industry, tracing them to their scientific origins. Five special exhibits, demonstrating notable achievements in science, have been arranged by the laboratories of the General Electric Company, the B. F. Goodrich Company, the Bell Telephone Laboratories, the Eastman Kodak Company and the New York Central Railroad.

The museum has more than 50,000 square feet of exhibition space in Rockefeller Center. The Rockefeller Foundation and the Carnegie Corporation have each given $20,000 a year for its support. The following have been added to the Board of Trustees: Gerard Swope, president of the General Electric Company; Thomas J. Watson, president, International Business Machines Company; Newcomb Carlton, chairman, Western Union; Edward R. Stettinius, Jr., chairman of the finance committee of the United States Steel Corporation, and Nelson A. Rockefeller.

SCIENTIFIC NOTES AND NEWS

SIR FREDERICK GOWLAND HOPKINS, Sir William Dunn professor of biochemistry at the University of Cambridge and retiring president of the Royal Society, will be visiting professor at Harvard University during the coming academic year. While at Harvard he will deliver the Edward K. Dunham lectures at the medical school.

THE fourteenth award of the Faraday Medal of the Institution of Electrical Engineers, London, has been made to Sir William Bragg, Fullerian professor of chemistry at the Royal Institution and director of the Davy-Faraday Research Laboratory. The medal is given "not more frequently than once a year, either for notable scientific or industrial achievement in electrical engineering or for conspicuous service rendered to the advancement of electrical science, without restriction as regards nationality."

THE gold medal of the Royal Astronomical Society for 1936 has been awarded to Professor H. Kimura, since 1899 director of the International Latitude Observatory at Mizusawa, Japan. Professor Kimura has devoted the major part of his activities to a study of the variations of latitude and, since 1919, he has been president of that commission in the International Astronomical Union. His principal discovery relates to the existence of a small variation that is constant with respect to the longitude of the station, but which varies with its latitude.

A BRONZE bust of Colonel William L. Keller, until recently head of the surgical service at Walter Reed General Hospital, Washington, D. C., has been installed in the entrance lobby of the main building of the institution, as a gift of Brigadier General Hugh S. Johnson. Colonel Keller was retired from active duty on October 31 and was made surgical consultant under a special law enacted on May 15.

DR. G. H. PARKER, professor of zoology emeritus at Harvard University, has been elected to honorary membership in the New York Academy of Sciences.

DR. L. C. STRONG, of the Yale University Medical School, has been made a foreign corresponding member of the French Association for the Study of Cancer.

THE honorary fellowship of the Jewish Academy of Arts and Sciences, New York, was conferred on January 26 on Dr. Morris Fishbein, editor of the *Journal* of the American Medical Association. Dr. Fishbein gave the principal address.

PROFESSOR J. W. ALEXANDER, of the Institute for Advanced Study, Princeton, has been appointed Rouse