ture. (Gift of the Morris K. Jessup Fund to the American Museum of Natural History.)

The picture on the right of the triptych is of the total eclipse of the sun, which occurred on January 24, 1925, as seen at Middletown, Connecticut. The eclipse reached totality at 9:10 A. M., and consequently the long axis of the corona is inclined to the left. The time was near the period of maximum sunspots, and not only was the outline of the corona surprising to astronomers, but some of the streamers were much longer than was expected. The prominences, while many (19 were recorded by the camera), were so small that they could not be seen by the naked eye. (Gift of the Morris K. Jessup Fund to the American Museum of Natural History.)

Besides the paintings of the eclipses, two other pictures by Mr. Howard Russell Butler were exhibited. Mr. Butler has painted a lunar landscape with the cooperation of Professor Henry Norris Russell, director of the Halsted Observatory at Princeton. It shows the earth in the sky as seen from the moon, the observer being located in one of the rugged lunar craters near a spine thrust up from the crater floor, similar to that which was formed during the great eruption of Mt. Pelée on Martinique in 1902. The earth is represented as in the month of June with the Atlantic toward the observer. It is passing through the constellation Scorpio, Antares appearing near the point of the spine. Mars is seen near the top of the canvas. (Gift of the Morris K. Jessup Fund to the American Museum of Natural History.) Mr. Butler's second picture represents the great aurora of August 12, 1919, as seen from Ogunquit, Maine.

In an outer alcove of the hall are a large number of photographic transparencies representing solar eclipses and other astronomical phenomena. These preliminary exhibits represent the first example of American Museum methods of education applied to astronomy and just outside of the hall are exhibited for the first time plans for the proposed hall of astronomy.

CLYDE FISHER
AMERICAN MUSEUM OF NATURAL HISTORY,
NEW YORK CITY

FILIBERT ROTH

FILIBERT ROTH, professor emeritus and founder of the forestry department at the University of Michigan, has passed away. Professor Roth's life was that of a pioneer worker. In his life he combined Europe's best scientific ideals in forestry with an American frontiersman's conviction in the momentousness of his subject. He was representative of the early educator in his field.

Professor Roth was born in Wurtemburg, Germany, April 20, 1858, and came to the United States in 1871. His first years in this country in Wisconsin and later on western plains formed a rich background for his later efforts. It was his early impressions of the Lake States' white pine areas in Wisconsin which served as a foundation for his masterly knowledge of American forest conditions.

Graduating from the University of Michigan in 1890, almost immediately Professor Roth worked as special timber expert with the Bureau of Forestry. There he first became identified prominently with all forest developments in this country, and his work with his colleague, Dr. B. E. Fernow, forms an essential chapter in the history of the development of American forest policies. Associated as they were, the two minds formed an alliance in presenting forestry to a new country. It was generally assumed that at the source of every creek there was enough pine to last for all time; they were heralded as the "denudiatics." But so many of their early predictions have now become demonstrated realities that their teachings are known and accepted to-day as general truths by all.

Professor Roth rapidly achieved distinction in the bureau. His publication, "Timber," in 1895 was early recognized as a first step toward the dissemination of scientific knowledge concerning wood in America: bulletin 10 has, perhaps, been used more than any other one publication which deals with timber.

His acquaintance with the forests of the Lake States led to a study and report on "Forest Conditions of Wisconsin," 1898. This was the first publication written on the forests of that region.

Still associated with Dr. Fernow, he taught forestry at Cornell University from 1898 to 1901. Later he served as an administrator of the national forest reserves, Department of the Interior. He remained here until the urgent call for the establishment of forestry at the University of Michigan was heeded. In 1903 he organized the first courses in forestry to be given in the middle west.

With little financial assistance, he labored successfully with the newly founded and meagerly equipped department. With characteristic enthusiasm, he told his early classes of the one hundred per cent. increase in the university's equipment—"We now have two pairs of calipers." During Professor Roth's administration, the professional facilities and material equipment of the department assumed worthy proportions. No other man was better qualified than "Daddy" to establish forestry in the Lake States.

As an exceptional teacher, Professor Roth was also a worker among his boys. The last time he taught dendrology, he made a tree book for himself and con-

tinued to be a student with his students. As a lecturer, he always had a wealth of material to present and he was original in the saying. He took a leading interest in all matters pertaining to a scientific forestry and through his many publications revealed his unqualified devotion to the subject.

In addition to the many shorter publications he wrote and edited, Professor Roth was also the author of "Cypress," "The Annual Ring," "Timber Physics," "Uses of Wood," "Grazing in Forest Reserves," "First Book of Forestry," and the texts "Forest Regulation," "Forest Valuation." A revision of these texts was made soon after his retirement from the university.

His notable contributions brought him in touch with prominent men in all branches of science. In 1910 he attended the International Forestry Congress and represented the United States at Brussels. His service rendered while serving with the Michigan State Forestry Commission, the old Public Domain Commission, and later with the Conservation Commission are well known to the friends of state conservation and forestry. He was singly recognized in being selected as the honorary member, on the continent, of the Canadian Forest Engineers. In 1923 the honorary degree of LL.D. was presented to him by Marquette University.

Professor Roth was admired for his recognized ability; his friends and particularly his students will always remember him for his individual geniality. To Professor Roth we owe our appreciation for his stimulating influence in a scientific study of the American forests and forest conditions; for his initial accomplishments in forestry for the Lake States; and for his attainments in national affairs and splendid service to the entire country for his part in shaping past and future American forest policies.

DOW V. BAXTER

DEPARTMENT OF BOTANY,
UNIVERSITY OF WISCONSIN

SCIENTIFIC EVENTS

AWARDS FROM THE MILTON FUND AT HARVARD UNIVERSITY

ANNOUNCEMENT is made at Harvard University of twenty-eight awards to professors in the university in accordance with the provisions of the Milton Fund for research. As noted in SCIENCE for October 3, 1924, this legacy, yielding an annual income of about $50,000, becomes available to the university in 1924. The awards include the following for scientific work:

PERCY W. BRIDGMAN, professor of physics, for two years, to enable him to continue the services of an assistant to do the routine work of setting up apparatus and making observations in connection with his various researches on the effects of high pressure.

CHARLES THOMAS BRUES, assistant professor of economic entomology, to enable investigations to be continued on the distribution and relationships of the parasitic Hymenoptera. These insects play an important rôle in regulating the abundance of injurious insect pests, and the biological control of insect pests by this method has made rapid strides during the past two decades and bids fair to be of very great importance in the future.

EMORY LEON CHAFFEE, associate professor of physics, for two years, to pay for the services of a trained assistant and to purchase the necessary supplies to continue a research on the electrical response of the eye resulting from the stimulation of light. Work on this problem is already under way, having been assisted by a former grant from the Milton Fund.

JAMES BRYANT CONANT, associate professor of chemistry, for two years, to pay the salary of an assistant chemist and for the purpose of chemicals and apparatus to enable Professor Conant to continue his study of the irreversible oxidation of organic compounds. The purpose of the investigation is to obtain quantitative information in regard to the oxidation of organic compounds in solution at room temperature.

WILLIAM JOHN CROZIER, associate professor of general physiology, to pay the salary of a qualified assistant and for the purchase of supplies to enable an investigation to be made of the temperature characteristics of vital processes as an aid to their chemical interpretation.

SAMUEL RANDALL DETWILER, assistant professor of zoology, for a substitute teacher and for technical assistance to permit of the continuation of the research concerning nervous development in vertebrate animals, in an effort to obtain a clearer understanding of their behavior.

EDWARD WALDO FORBES, lecturer on fine arts and director of the William Hayes Fogg Art Museums, to be used to further a study of paintings by X-rays. The work is being undertaken with the cooperation of the Museum of Minneapolis, and has been assisted by a former grant from the Milton Fund.

GEORGE SHANNON FORBES, associate professor of chemistry, to purchase essential parts for the construction of apparatus to be used in special photochemical investigations. Particularly, this apparatus will be used to determine with precision the relation between photochemical reaction velocity, concentrations of reactants, wave length, intensity of light, etc. The photolysis of uranyl oxalate is finding a rapidly increasing use for the measurement of light intensity among photochemists, biologists and industrialists.

LOUIS CARY GRATON, professor of mining geology, to construct a machine for the preparation of highly perfect polished surfaces on opaque minerals and ores intended for microscopical investigation.

GRINNELL JONES, associate professor of chemistry, to permit him to continue with his researches connected with the electrical conductivity of solutions.

ARTHUR B. LAMB, Sheldon Emery professor of organic