the museum during the year. This is the largest attendance of any year, and represents an increase of nearly 300,000 or about 20 per cent. over the 1931 total of 1,515,540 visitors. The year 1932 was the sixth in which attendance has exceeded 1,000,000; and the total for the past five years has been more than 6,840,000, or approximately 1,000,000 more than the 5,839,579 visitors received in the entire twenty-five years during which the museum has occupied its first building in Jackson Park.

The outstanding new exhibit completed during the year is a reproduction of an African water-hole, a group with twenty-three mounted mammals, including giraffes, rhinoceroses, elands, gazelles, zebras and an oryx. This is the largest exhibit in the museum, and is one of the largest animal groups in any museum, possibly exceeding all others in size. Other groups of animals with reproductions of their natural habitats which were completed during 1932 include Alaskan caribou, Asiatic water buffalo, and the mountain lion of states west of the Rockies. In addition to such groups, many other new zoological exhibits were installed, while each of the other departments—anthropology, botany and geology—made notable additions and improvements among their exhibits, especially in the divisions of Chinese archeology, paleontology or historical geology, and in the Hall of Plant Life.

More than 265,000 persons attended the lecture courses and lecture tours provided by the museum for adults, and the series of motion picture programs, extension lectures, and other activities for school children given by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures (the foundation is a unit of the museum organization with special endowment). Likewise, the more than 1,300 traveling exhibits of the N. W. Harris Public School Extension Department, another specially endowed unit, were circulated continually throughout the school year among public and private schools of Chicago with a total enrolment of about 500,000 children. A large public was served also by the library of the museum and the study collections of specimens maintained in each department.

ADVANCED STUDIES IN ENGINEERING AND BUSINESS FOR DISENGAGED ENGINEERS

LEADERS in industry, engineering and education are sponsoring "Advanced Studies in Engineering and Business for Disengaged Engineers" to be given during the winter and spring under the auspices of the Engineering Foundation, according to an announcement made by H. Hobart Porter, chairman of the foundation. The courses will be conducted by unemployed or volunteer teachers under the supervision of members of the faculties of Columbia University, New York University, Stevens Institute of Technology and the Polytechnic Institute of Brooklyn. The business courses will be directed by members of the faculty of the School of Commerce of New York University.

The curriculum embraces six courses. Sessions are to be held in the forenoon beginning on January 9 and will continue for twenty weeks to the end of May. The opportunity is open to unemployed engineers who have the requisite education for pursuing the work.

These are free and deal with business finance, sales engineering, power plant engineering, structures and mechanical equipment of buildings, industrial applications of electricity and industrial management. Rooms for class use will be made available in the Engineering Societies Building and the Engineering Societies Library will place text and reference books at the disposal of class members. Requests for application blanks should be addressed to P. H. Littlefield, manager, in care of the Engineering Foundation, 29 West 39th Street, New York City. The movement is sponsored by the following:

Robert P. Lamont, president, American Iron and Steel Institute; A. G. Pratt, president, Babcock and Wilcox Company; Robert Ridgway, consulting engineer, Board of Transportation of New York City; Alfred P. Sloan, president, General Motors Corporation; Morse A. Cartwright, director, Association for Adult Education; Dean J. W. Barker, Engineering School, Columbia University; Dean Collins P. Bliss, Engineering School, New York University; Dean John T. Madden, School of Commerce, New York University; Dr. Harvey N. Davis, president of Stevens Institute of Technology, Hoboken, New Jersey; Dean E. J. Streubel, Polytechnic Institute of Brooklyn; H. A. Kidder, president, United Engineering Trustees, Inc.; H. Hobart Porter, chairman, Engineering Foundation; Admiral F. R. Harris, general chairman, Professional Engineers' Committee on Unemployment; George T. Seabury, secretary, American Society of Civil Engineers; A. B. Parsons, secretary, American Institute of Mining and Metallurgical Engineers; Calvin W. Rice, secretary, American Society of Mechanical Engineers, and H. H. Henline, acting national secretary, American Institute of Electrical Engineers.

AWARD OF THE PERKIN MEDAL TO MR. OENSLAGER

GEORGE OENSLAGER, of Akron, Ohio, whose researches are said to have revolutionized the rubber industry, will be presented with the 1933 Perkin Medal of the Society of Chemical Industry at a national gathering of the chemical societies on the evening of January 6 at the Electrical Institute Auditorium, Grand Central Palace, New York City.

The award goes to Mr. Oenslager as "the American scientist who has most distinguished himself by his

services in applied chemistry." Other organizations participating are the American Chemical Society, the American Electrochemical Society, the American Institute of Chemical Engineers and the American Section of the Société de Chimie industrielle.

Alfred P. Jones, of the Houston Properties Corporation, will detail the accomplishments of Mr. Oenslager which led to the award. Professor Marston T. Bogert, of Columbia University, past president of the American Chemical Society and of the Society of Chemical Industry, will make the presentation. Mr. Oenslager will deliver an address describing the development of organic accelerators for rubber vulcanization. Dr. A. E. Marshall, of New York, chairman of the award committee, will preside.

"Five major achievements mark the change in rubber technology during the past thirty years," according to the announcement of the award committee. "These are reclaimed rubber, the cord tire, the carbon black tread, the nitrogenous organic accelerator and antioxidants. Mr. Oenslager may be credited with two of these—the carbon black tread and the nitrogenous organic accelerator. As a direct result of his efforts the rubber industry has been revolutionized and from it have come economies of manufacture, increase in service and savings to consumers which run into the hundreds of millions of dollars annually."

Mr. Oenslager began his researches in 1906, setting out with the definite object of finding substances to be used in rubber mixtures which would decrease the rate of cure and increase the physical qualities of low grades of crude rubber. He found that the best organic accelerators contained nitrogen and his discovery has been put to wide use.

His experiments also laid the foundation for the most widely accepted theory of vulcanization—that zinc oxide is necessary to vulcanization with most of the nitrogen accelerators. He also viewed rubber as a colloid which needed uniformity of dispersion and toward this end he introduced what is known as the master batch.

In 1911, Mr. Oenslager developed the carbon black tread for automobile tires which was adopted for large scale production the following year.

"Were we to remove these two main features from tires to-day," the award committee points out, "the mileage figures would drop to one half the present values. If the modern tire can show savings to consumers over those of twenty-five years ago of $800,000,000 a year, then appraise the accelerator and the carbon black at a $400,000,000 annual saving and it will not be far out of line."

Mr. Oenslager was born in Harrisburg, Pennsylvania, in 1873. After attending schools in that city he prepared for college at Phillips Exeter Academy, entering Harvard University in 1890. While in college he became greatly interested in chemistry and after his graduation in 1894 he devoted two years of study to that science in the Harvard Graduate School.

In 1896 he became associated with S. D. Warren and Company as a chemist and remained in that post for nine years. In 1905 he was appointed research chemist to the Diamond Rubber Company. This company later was purchased by the B. F. Goodrich Company, with which Mr. Oenslager is now associated.

OFFICERS OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

A FULL account of the Atlantic City meeting of the American Association for the Advancement of Science, and the scientific societies associated with it, edited by the general secretary, Dr. Burton E. Livingston, will be published in the issue of SCIENCE for February 3. Officers of the association were elected on December 30 as follows:

PRESIDENT

Henry Norris Russell, Princeton University.

PERMANENT SECRETARY

Henry B. Ward, University of Illinois.

GENERAL SECRETARY

Burton E. Livingston, the Johns Hopkins University.

TREASURER

John L. Wirt, Carnegie Institution of Washington.

MEMBERS OF THE COUNCIL

George T. Hargitt, Duke University.
Dugald C. Jackson, Massachusetts Institute of Technology.

MEMBERS OF THE EXECUTIVE COMMITTEE OF THE COUNCIL

Edwin B. Wilson, Harvard School of Public Health.
A. F. Woods, U. S. Department of Agriculture.
Philip Fox, Adler Planetarium and Astronomical Museum (to succeed Henry B. Ward)

REPRESENTATIVE ON THE BOARD OF TRUSTEES OF SCIENCE SERVICE

Burton E. Livingston, the Johns Hopkins University.

VICE-PRESIDENTS AND CHAIRMEN OF SECTIONS

A—*Mathematics.* C. N. Moore, University of Cincinnati.
B—*Physics.* C. J. Davisson, Bell Telephone Laboratories.
C—*Chemistry.* Arthur B. Lamb, Harvard University.
D—*Astronomy.* V. M. Slipher, Lowell Observatory.
E—*Geology.* Rollin T. Chamberlin, University of Chicago.
F—*Zoological Sciences.* A. S. Pearse, Duke University.
G—*Botanical Sciences.* K. M. Wiegand, Cornell University.