will be made available to Latin-American republics through a program of cooperation being worked out with the Puerto Rican Government's fisheries division and educational institutions. Under the plan, student assistants will be employed in the laboratory investigations, and, after two years of research work, should be in a position to aid their own governments in solving fisheries problems. As a result, the studies, covering the development of methods for preserving and marketing fishery products, as well as biological and fish cultural investigations, are expected to contribute to the economic welfare of all the Latin-American countries.

Construction of the new laboratory building in Puerto Rico was made possible by a recent grant of Public Works Administration funds.

THE EXPEDITION TO WESTERN COLORADO OF THE FIELD COLUMBIAN MUSEUM

A NUMBER of important fossil finds of the Field Museum Paleontological Expedition to Western Colorado have been reported by Bryan Patterson, assistant curator of paleontology.

These include a skeleton of a prehistoric animal called Taeniodont, a representative of a small early group of hoofed mammals—a forerunner of a similar but larger creature excavated by Mr. Patterson in 1933 and known as Barylambda. The present specimen, according to Mr. Patterson, may constitute a new genus. He writes: "We have been on the track of this beast since 1932, but until now have never found more than a few fragments of it."

Other specimens collected by the present expedition include multituberculates (a group of small rodent-like animals characterized by many cone-like prominences on their teeth) and prehistoric turtles. Work has been begun on the excavation of a fossil crocodile, and a large collection of small fossil animals has been made.

Mr. Patterson is accompanied by James H. Quinn, a member of the staff, and by several volunteer collectors. The official announcement states that

> The field of operations lies in Mesa, Garfield and Gunnison counties, where an extensive series of formations belonging to various periods and eras in the earth's history is exposed. The work is mainly in late Paleocene and early Eocene deposits (the opening epochs of the Age of Mammals), with some attention also being paid to the late Cretaceous formations (the closing period of the Age of Reptiles). The main objective of the expedition is to collect fossil mammals from the Paleocene and Eocene. Specimens from these early horizons are of great interest to students of mammalian evolution. The dinosaurs and other reptiles that had previously dominated the earth were but a short time extinct (geologically speaking), and the mammals were just getting well under way. Many groups that no longer survive were flourishing, and several of the dominant mammalian types of the present time were represented by exceedingly primitive ancestors. Thus, for example, the horses of the early Eocene were small creatures no larger than foxes, and they possessed four toes in contrast to the modern horse's one.
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> In addition to the work on vertebrates, attention is being given to geological observations and to the collecting of fossil plants. It is hoped that by means of the latter it will be possible to make somewhat more precise age determinations and correlations of the late Cretaceous formations than has hitherto been done.

HURRICANE WARNINGS OF THE U. S. WEATHER BUREAU

THE U. S. Weather Bureau has issued a statement describing the methods used to chart storms during the hurricane season, which in the United States runs usually from July to October.

The hurricane warning service, according to F. W. Reichelderfer, chief of the bureau, is more efficient this year than ever before. Observations are taken twice daily from over eighty stations in the West Indies and the Caribbean, and two to four times daily from vessels in the Gulf of Mexico, Caribbean and West Indian waters. These observations are in addition to the reports from the regular system of stations in the United States and vessels in the North Atlantic.

Whenever there are indications that a tropical cyclone or hurricane is forming, special observations made at two to three hour intervals by ships and stations in the region of the hurricane are sent in so that the four forecast centers of the hurricane warning system—Washington, Jacksonville, New Orleans and San Juan—have information as to the location of the hurricane and its intensity long before it enters American waters or approaches the coast.

The effectiveness of this system was demonstrated recently in the case of the small hurricane which crossed the Florida Peninsula on August 11 and 12. This hurricane was first detected and warnings issued from the Jacksonville center on August 8 when it was located 175 miles northeast of San Juan. Subsequent advisory information was issued every six hours until the storm neared the Florida coast, after which the advices were increased to hourly broadcasts by radiophone until the storm passed across the Peninsula into the Gulf of Merico.

Mr. Reichelderfer points out that:

> These advices serve as examples of the remarkable accuracy with which the movement and intensity of violent storms can be foretold by means of the hurricane warning system. Many studies have been made of the formation and behavior of hurricanes which have moved toward our Atlantic and Gulf coasts during the past fifty years or more. Severe hurricanes do not often reach our coasts. But the Weather Bureau, through its system of hurricane

reporting stations and vessels which serve as outposts to detect and report the approach of a hurricane, is prepared to plot the position of these storms on the weather map long before they approach the coast and to give ample warning of the time of their arrival and their intensity.

As a further aid in insuring that the public will receive ample warning in the rare chance that a severe hurricane occurs this year, the bureau now has available a larger number of stations to make upper air soundings than ever before and is extending its dissemination of hurricane information and warnings by the installation of direct wire teletype connections at the larger population centers and is putting into effect special broadcast arrangements for weather warnings. Upper air observations are an important aid in calculating the direction and speed of movement of hurricanes from day to day.

THE MASTER OF SCIENCE DEGREE IN ENGINEERING OF COLUMBIA UNIVERSITY

COLUMBIA UNIVERSITY has established a new master of science degree in engineering to enable candidates to obtain a broad background without specializing in one department. The degree was established chiefly for practicing engineers in the metropolitan district whose background and technical interests cross departmental lines. Before the introduction of the new general curriculum, it was necessary for graduate students to specialize in either chemical, civil, electrical, industrial or mechanical engineering.

Professor Joseph W. Barker, dean of the School of Engineering, announces that thirty-seven practicing engineers will supplement the instruction given by members of the faculty in fifty-seven courses, which will be given in the Extension Division of the university during the 1939–1940 academic year.

A course in physics, on "The Theory of Heat Conduction," has been added to the engineering curriculum, under the direction of Dr. Melvin Avrami, as part of a plan calling for an increase in scientific subjects dealt with from an engineering viewpoint. Other courses in heat transfer will be given under the direction of Professors C. E. Lucke and C. F. Kayan, of the department of mechanical engineering.

Four courses of an advanced nature have been designed particularly for engineers engaged in industrial activities who do not wish to work towards a degree. A sequence of three courses in electrical engineering has been arranged for students who have had a limited amount of training and who wish to obtain a background in the field. The application of chemical principles in the major chemical industries and the design of chemical equipment will be studied in two courses. Nine other courses will be given in the department of chemical engineering, two of which deal with the chemistry of textile processing. The department of civil engineering has planned fourteen courses, and the department of electrical engineering twelve courses covering every major sphere of electrical engineering.

The department of mechanical engineering will sponsor two courses in air conditioning, and will offer work in fluid dynamics, lubrication and power analysis. "Nomographic Charts and Empirical Equations" will be taught in a special course arranged for engineering students. Studies in engineering and architectural drafting will also be conducted.

Classes in the Extension Division will be held in the late afternoon, evening and on Saturday mornings in order that practicing engineers may enroll.

EDITORS OF THE PUBLICATIONS OF THE AMERICAN CHEMICAL SOCIETY

AT the Boston meeting of the American Chemical Society Professor A. B. Lamb, of Harvard University, was reelected editor of the *Journal* of the American Chemical Society with associate editors as follows: Dr. C. S. Hudson, of the National Institute of Health, Washington, D. C.; Professor Lee Irvin Smith, of the University of Minnesota; Dr. Edward Mack, Jr., of Battelle Memorial Institute, Columbus, Ohio; Dr. R. H. F. Manake, of the National Research Council, Ottawa, Ontario, Canada; Professor Frederick G. Keyes, of the Massachusetts Institute of Technology.

Professor E. J. Crane, of the Ohio State University, was reelected editor of *Chemical Abstracts*. Dr. Harrison E. Howe, of Washington, D. C., was reelected editor of *Industrial and Engineering Chemistry*. Professor N. H. Furman, of Princeton University, and Professor I. M. Kolthoff, of the University of Minnesota, were reelected to the advisory board of the analytical edition of *Industrial and Engineering Chemistry*.

Professor W. Albert Noyes, Jr., of the University of Rochester, N. Y., was reelected editor of *Chemical Reviews*. Professors Robert C. Elderfield, of Columbia University, and E. R. Gilliland, of the Massachusetts Institute of Technology, were elected associate editors.

Professor Farrington Daniels, of the University of Wisconsin, and Professor Herbert Freundlich, of the University of Minnesota, were elected associate editors of the *Journal of Physical Chemistry*. Professor William T. Read, of Rutgers University; Dr. Charles A. Thomas, of Monsanto Chemical Company, Dayton, Ohio, and Dr. Bruce K. Brown, of the Standard Oil Company of Indiana, Chicago, were elected associate editors of the Technologie Monographs.

RECENT DEATHS

PROFESSOR EMERITUS HENRY C. COWLES, for many years a member of the department of botany of the