Appropriations to the amount of $2,426,125 were made in the field of the natural sciences, chiefly in connection with projects in experimental biology.

With regard to research involving the application of the techniques of the exact sciences to biological problems, the following grants were made in 1935: Columbia University, research in the biological effects of heavy hydrogen; Emma Pendleton Bradley Home, East Providence, Rhode Island, special research in electroencephalography; George Washington University, Washington, D. C., research in biochemistry; McGill University, research in the application of spectroscopic methods to biological and medical problems; Massachusetts General Hospital, research on the parathyroid hormone and calcium and phosphorus metabolism; National Research Council, Washington, D. C., work of the Committee on Effects of Radiation on Living Organisms; Technical Institute, Graz, Austria, biophysical chemistry; University of Chicago, research in the application of spectroscopic methods to biological problems; University of Copenhagen, special research in the application of methods and techniques of physics, chemistry and mathematics to biological problems; University of Leeds, research in the x-ray analysis of biological tissues; University of Michigan, research in the application of spectroscopic methods to biological and medical problems; University of Oxford, application of mathematical analyses to biological problems; University of Rochester, New York, research on the biological effects of heat; University of Stockholm, cooperative research in biophysics, chemical biology and cell physiology; University of Uppsala, research on the physical-chemical properties of proteins and other heavy molecules; and the University of Utrecht, Netherlands, research in spectroscopic biology.

In the field of physiology and genetics undertakings receiving aid from the foundation were the California Institute of Technology, research in general physiology; Clark University, Worcester, Massachusetts, research in neuro-physiology; Columbia University, research on the electrical characteristics of cells; Connecticut College for Women, building a research greenhouse and dark constant temperature and humidity rooms for research in plant hormones; National Research Council, Committee for Research in Problems of Sex; New York University, research in cell physiology; Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, research in mammalian genetics; State University of Iowa, special research on the physiology of the normal cell; University of California, Berkeley, research in plant genetics; University of Cambridge, Molteno Institute of Biology and Parasitology, research in cellular physiology; University of Michigan, research on the physiology of respiration; University of Rochester, research on the physiology of reproduction; and Washington University, St. Louis, Missouri, special research in nerve physiology.

Endocrinology research was aided at Ohio State University, Columbus, where work is being done on the chemical, physiological and clinical aspects of the hormone of the adrenal cortex; at the University of California, San Francisco, in a study of the chemical aspects of vitamins and hormones; at the University of Paris Laboratory of Histology, researches in endocrinology and vitamins; and at the University of Virginia, research in endocrinology.

The support of groups working on several phases of the natural science program includes aid to Leland Stanford, Jr., University, for researches in chemophysical biology; the Long Island Biological Association, Cold Spring Harbor, New York, for support of symposia; and to the University of Chicago, for biological research.

Fifty-one fellowships in the natural sciences were administered in 1935 by the foundation.

SCIENTIFIC NOTES AND NEWS

AMONG the honorary degrees conferred at the ninety-second commencement of the University of Michigan was the doctorate of laws on Dr. Lyman James Briggs, director of the National Bureau of Standards, and on Dr. Frederick George Novy, dean emeritus of the Medical School of the University of Michigan. The degree of doctor of science was conferred on Dr. George Wilcox Peavy, president of the Oregon State Agricultural College; Dr. Earle Raymond Hedrick, professor of mathematics at the University of California at Los Angeles, and Dr. Jacob Ellsworth Reighard, professor emeritus of zoology at the University of Michigan. Walter Percy Chrysler, chairman of the board of the Chrysler Corporation, received the degree of doctor of engineering, and Gabriel Kron, research engineer of the General Electric Company, the degree of master of engineering.

GRINNELL COLLEGE at commencement conferred the doctorate of science on Dr. Oliver E. Buckley, director of research for the Bell Telephone Laboratories, New York City.

DR. HAROLD HIBBERT, E. B. Eddy professor of industrial and cellulose chemistry at McGill University, was recently awarded the honorary degree of LL.D. by the University of British Columbia.

ON the occasion of his sixtieth birthday on June 11, Dr. Alfred L. Kroeber, professor of anthropology and

director of the Museum of Anthropology at the University of California, was presented with a volume of essays on anthropology by his associates and former students. Professor Robert H. Lowie, chairman of the department of anthropology, is editor of the volume. The introductory article gives personal reminiscences by Dr. Carl L. Alsberg, of the Food Research Institute of Stanford University. A bibliography of 175 items, arranged chronologically, brings the volume to a close.

DR. WILLIS G. GREGORY, who retired from the deanship of the School of Pharmacy of the University of Buffalo this year, was recently given a dinner to mark the fiftieth anniversary of the founding of the school and the fifty years of Dean Gregory's service to it. He will retain his connection with the school as a teacher.

DR. ALLAN P. COLBURN, of the department of engineering of E. I. du Pont de Nemours and Company, has been chosen to receive the William H. Walker award of the American Institute of Chemical Engineers. The purpose of the award is to stimulate interest in improving the quality, clarity of expression and practical utility of contributions to the literature of chemical engineering. It is given annually for the best paper presented before the institute and published in its transactions. The title of Dr. Colburn's paper is "A Method of Correlating Forced Convection Heat Transfer Data and a Comparison with Fluid Friction."

OFFICERS of the Linnean Society, London, for 1936–1937 were elected at the recent annual meeting as follows: Dr. W. T. Calman, *president;* Francis Druce, Dr. John Hutchinson, Dr. Margery Knight and Lieutenant-Colonel R. B. Seymour Sewell, *vice-presidents;* Francis Druce, *treasurer;* John Ramsbottom, botany, and Dr. Stanley Kemp, zoology, *secretaries.* The new members of the council were Captain Cyril Diver, M. A. C. Hinton, Professor R. C. McLean, Charles Oldham and Dr. Fred Stoker. Dr. Calman took as the subject of his presidential address "The Origin of Insects."

PROFESSOR JAMES G. NEEDHAM, head of the department of entomology at Cornell University, retired at the close of the academic year.

R. H. WALCOTT, curator of the Industrial and Technological Museum of Victoria, Melbourne, Australia, has retired.

DR. ROSS AIKEN GORTNER, head of the department of agricultural biochemistry of the University of Minnesota, writes that students of the department who recently became doctors of philosophy at the university have received the following appointments: Alva Rae Patton, assistant professor in the department of animal industry at the Arkansas Agricultural Experiment Station; Vernon Frampton, assistant professor in the department of plant pathology at Cornell University, where he will develop work on the chemical nature and control of virus diseases; Robert Jeffrey, assistant chemist at the Kentucky Agricultural Experiment Station, where he will study chemical processes involved in the problem of tobacco curing. Since 1934 he has been associated with the Research Laboratories of General Foods, Incorporated.

DR. O. K. RICE, for five years instructor at Harvard University, has been appointed associate professor of chemistry in the University of North Carolina. Dr. H. Ward Ferrill, of the University of Chicago, has been appointed associate professor of physiology in the Medical School.

DR. MARVIN A. STEVENS, who left the Yale football coaching staff to become head coach at New York University, has been appointed an assistant clinical professor of orthopedic surgery at the Yale School of Medicine. He will assume his new work in September, at the same time retaining his New York University post. Dr. Stevens also was named as orthopedist at the health department of Yale University and was appointed to the staff of New Haven Hospital.

DR. W. R. TWEEDY has been promoted to the rank of professor and head of the department of physiological chemistry of the School of Medicine of Loyola University, Chicago. He succeeds the late Dr. W. C. Austin. Dr. Fred L. Humoller has been appointed instructor in the same department.

AT the University of Arkansas, Dr. Rolland H. Waters, associate professor of philosophy and psychology, and Dr. David Causey, associate professor of zoology, have been promoted to professorships.

DR. GILBERT COOK, professor of mechanical engineering and head of the department of civil and mechanical engineering at King's College, University of London, has been appointed Regius professor of civil engineering and mechanics in the University of Glasgow, in place of the late Professor John Dewar Cormack.

DR. H. A. JONES, head of the division of truck crops in the College of Agriculture of the University of California at Davis, has resigned to accept a position with the Bureau of Plant Industry of the U. S. Department of Agriculture.

T. H. HOPPER, chairman of the department of agricultural chemistry at the North Dakota Agricultural College, has been appointed a collaborator of the Regional Soybean Laboratory established by the U. S.

Department of Agriculture at the University of Illinois. The laboratory will collaborate with the experiment stations of twelve states, with the Bureau of Plant Industry and with the Bureau of Chemistry and Soils.

DR. N. E. WOLDMAN has resigned as senior materials engineer of the U. S. Naval Gun Factory, Washington Navy Yard, to become chief metallurgical engineer and assistant to the vice-president of the Eclipse Aviation Company, East Orange, N. J.

WALTER R. LINDSAY has been appointed acting director of the Canal Zone Experiment Gardens with which he has been connected for the past five years. He succeeds Dr. J. E. Higgins, who retires from the directorship to devote his attention to special plant problems at the gardens and to plant introduction and utilization.

LEAVE of absence from Princeton University for the coming academic year has been given to Professor William T. Richards, of the department of chemistry; for the first term of the year to Associate Professor Richard M. Field, of the department of geology; and for the second term to Professor Paul MacClintock, of the department of geology, and Professor Wilbur W. Swingle, of the department of biology.

F. A. SILCOX, chief of the U. S. Forest Service, sailed for a four-months trip to Europe on July 8 to study forestation and drought conditions abroad with a view to seeing what improvement can be made in the United States. The trip is being financed by the Carl Schurz Foundation and will include a study of the shelter-belt system in central Europe, the Mediterranean countries and the Scandinavian peninsula.

DR. T. J. LEBLANC, professor of preventive medicine at the College of Medicine of the University of Cincinnati, sailed from New York on June 18 with a group of selected medical students for field work in tropical medicine offered with the cooperation of the School of Tropical Medicine of San Juan, Puerto Rico. Dr. LeBlanc was on June 9 the principal speaker at the sixty-fourth annual banquet of the medical alumni of Western Reserve University School of Medicine in Cleveland. His subject was "Human Biology and International Affairs."

THE department of geology and geography of Northwestern University reports that during the past academic year two series of exchange lectures were sponsored by the department. Dr. Erwin Raisz, of the Institute for Geographic Exploration of Harvard University, gave five lectures on "Geographic Illustration" at Northwestern University; Professor W. H. Haas, of Northwestern University, lectured on "The Geography of the Tropics" at Harvard University; Professor W. H. Bucher, of the University of Cincinnati, gave five lectures at Northwestern University on "Problems of Geotectonics," and Professor W. E. Powers, of Northwestern University, lectured at the University of Cincinnati on "The Geology of the Pleistocene."

THE first of the two summer meetings of the Botanical Society of America was held at New London, Conn., from June 17 to 19, with about fifty members in attendance. Headquarters were at the Connecticut College for Women, and the members of the society were housed in its dormitories. The only formal meeting was on June 17, at which the society was welcomed by President Katharine Blunt, of Connecticut College, and two invitation papers were presented: "Research Progress and Opportunities in the New England Marine Algae," by Professor William Randolph Taylor, of the University of Michigan, and "The Migration of the Coastal Plain Flora into Southern New England," by Professor Merritt Lyndon Fernald, of Harvard University. Three field excursions occupied the remaining time. On June 18 the society visited Montauk Point, Long Island, for the study and collection of marine algae and the flowering plants along the coast. On June 19 a trip was made to Lantern Hill and to the Larrabee Oak, the largest oak in the state park, where there was an excellent display of native vegetation and interesting species. The guides were Dr. W. R. Taylor and K. P. Jansson. The second summer meeting of the society will be held at Laramie, Wyo., from July 27 to 30.

MEMBERS of the American Phytopathological Society from the upper Mississippi Valley met at Iowa State College on June 25 and 26. In addition to the program of discussions there were excursions to the Northern Iowa Experimental Farm at Kanawha, to the Southeastern Farm at Conesville and to the Western Iowa Fruit Section at Glenwood.

STEPS to incorporate the Princeton Geological Association were taken at the annual meeting, which was held at the Mining Club, New York. This action is to enable the association to acquire the site of the geological research camp at Red Lodge, Mont., and to lease it to a research group headed by Professor W. Taylor Thom, Jr., of the department of geology. At the conclusion of the business meeting, Professor Edward Sampson, chairman of the department of geology, spoke of the many different projects that will be undertaken by field parties in various parts of the world during the coming summer.

THE one hundred and fourth annual meeting of the British Medical Association opened in Oxford on July 17. The statutory annual general meeting will be held

on Tuesday, July 21. The popular lecture will be given by Dr. R. R. Marett on July 24, the subject being "Anthropology and Medicine." The sections will meet for three days from July 22 to 24.

IN accordance with the settlement of the estate of the late James Loeb, banker of New York City, who died three years ago, Harvard College receives the sum of $829,793.

THE work of the Rothamsted Experimental Station in the study of soil science, plant nutrition and plant disease is reviewed in a report for 1934 recently issued and summarized in the London *Times*. The activities of the station include experiments on the parent farms at Rothamsted and Woburn, amplified by similar trials at outside centers, and in the laboratory the application of chemistry, physics and biology to problems arising in crop production and utilization. The results of recent fertilizer investigations are summarized and detailed accounts given of the field experiments in 1934. In a series of review articles on the contribution of some of the departments to soil science, Dr. Keen writes on soil physics; Dr. Crowther on chemistry of soils and fertilizers; Dr. Thornton on soil bacteriology, and Mr. Cutler on general biology. Sugar beet growers will find interesting the results of extensive fertilizer tests carried out in conjunction with the factories; nitrogenous manures were the most important in improving sugar per acre in 1934. Accurate information on the effects of organic manures, and in particular of dried poultry manure, is beginning to accumulate. Work has been continued on the maintenance of organic matter by ploughing in straw, or manures made from straw, or green manures, and, in conjunction with the continuous cereal plots testing the effects of bare fallowing, is of special bearing on soil fertility under mechanized cereal farming. In addition to fertilizer tests, problems in general husbandry are being studied. For example, the preliminary results of comparisons of electric motors with oil engines for threshing are on record. The report also contains a summary of the Rothamsted work on virus diseases. It has been found that the inoculation of a plant with one strain of virus may protect it against a later inoculation with another more virulent strain of the same virus. The part played by insects in the transmission of these diseases is discussed in the light of recent experiments.

DISCUSSION

ROYAL PALMS IN UPPER FLORIDA

THE royal palm of Florida, *Roystonea floridana*, the most striking member of the endemic flora, was nearly exterminated in the pioneer period, with the egret, the flamingo and the parrakeet. Ponce de Leon may have seen an undevastated Florida canopied by thousands of royal palms, with their huge pendent clusters of grape-like purple fruits feeding great numbers of wild turkeys, deer and other game. The royal palms grow twice as tall as the palmettos, a hundred feet or more, and far overtop the tropical forest. The early accounts of Florida as a terrestrial paradise, "the fairest, fruitfullest and pleasantest of all the world," may have had more warrant than critical historians have believed.

The pioneer period of cabbage-cutting and grass-burning lasted more than three centuries, and the royal palms were reduced to a few scattered groups protected from fire by open water or belts of deep swamps, remote from human habitation and well-nigh forgotten. The first to be recognized as a royal palm, by Cooper in 1859, was an isolated individual on the site of the future Miami, and Cooper heard of others "in large groves between Capes Sable and Romano," but little information could have been current or the palm-groves would have been visited by exploring naturalists like Townshend, Ober and Henshall.[1] By the end of the century the west coast palms had been depleted to furnish tropical settings for winter hotels at Miami, Palm Beach and Fort Myers. Only one group of the wild royal palms has been preserved and made accessible to the public, at the Royal Palm State Park southwest of Homestead, and a part of this small reservation burned over a few years ago.

Several larger groups remained undisturbed till recent years in the Big Cypress Swamp east of Naples. When the Tamiami Trail was opened, many of the palms could be seen along the sky-line, that later were set in the triumphal avenue of a racing establishment near Miami. Dirigibles were used to locate other groups farther north, and some were found that recent fires had ravaged. Drainage and road building are increasing the fire hazards, so that complete extermination of the wild royal palms is the prospect to be faced.

Two outlying groups are known to have existed, one in upper Florida, near De Land, the other at Little River, now a suburb of Miami. The northern group was noticed only once, in 1774, but the record is authentic. The following passage in William Bartram's "Travels" was brought to my attention several years

[1] F. T. Townshend, "Wild Life in Florida," 1875; F. A. Ober, "Fred Beverly," in C. Hallock, "Camp Life in Florida," 1876; J. A. Henshall, "Camping and Cruising in Florida," 1888. Henshall made two expeditions, in 1878 and 1881.