WORK OF THE ROCKEFELLER INSTITUTE IN THE MEDICAL AND NATURAL SCIENCES

OPERATING on a budget of $2,200,000 for public health activities, The Rockefeller Foundation in 1934 engaged in field research on yellow fever, malaria, hookworm disease, tuberculosis, undulant fever, yaws and diphtheria; conducted yellow fever surveys and control campaigns; carried out projects in malaria control, supported numerous demonstrations of complete public health programs; gave aid to the organization or maintenance of essential services of state and national health departments, and continued its contribution for the training of public health personnel through aid to schools and institutes of hygiene and public health as well as by support of a fellowship program.

The total amount appropriated during the year for work in the medical sciences was $1,026,200. Aid of four types was given for the advancement of psychiatry: grants to universities and other institutions for the development of research and teaching in psychiatry and associated subjects; endowment and building funds for establishing psychiatric departments; research aid grants to individual workers engaged in important investigations in mental diseases, and fellowships to enable men and women especially qualified for work in this field to obtain desirable advanced training.

Grants for work in psychiatry were made to McGill University for research and teaching; to the Massachusetts Department of Mental Diseases for studies in psychiatry at the Boston State Hospital; to the Worcester State Hospital, Massachusetts, for research on dementia praecox; to the Johns Hopkins University, for the development of child psychiatry in the Pediatric Clinic; to the University of Leiden, for child psychiatry; to the Chicago Area Project, for the study, treatment and prevention of juvenile delinquency within a few selected areas in Chicago; to the University of Rochester, for the Child Guidance Clinic; to the National Committee for Mental Hygiene, towards support of its general expenses during 1935; to the University of Colorado, for the teaching of psychiatry in the Medical School; to the University of Michigan and the Institute of the Pennsylvania Hospital, for the development of teaching and research in psychiatry.

For work in neurology and related subjects, gifts were made to New York University, to Northwestern University Medical School, the University of Pennsylvania, the Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne, Australia; Dartmouth College and the Lister Institute of Preventive Medicine, London.

In the field of the natural sciences, appropriations made during 1934 amounted to $1,051,210. The program called for specific concentration in the fields of experimental and physicochemical biology, and included appropriations to: Amherst College, for research in biology; New York State College of Agriculture, Cornell University, for the support of a maize stocks clearing house; American Society of Naturalists, Carnegie Institution Laboratory at Cold Spring Harbor, Long Island, for a *Drosophila* stock center; Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, for research in mammalian genetics; Harvard Medical School and Massachusetts Institute of Technology, for carrying out investigations in spectroscopic analysis of blood serum in anemia; Leland Stanford, Jr., University, for work in chemophysical biology; McGill University, Departments of Neurology and Physics, for research in spectroscopic biology; University of Chicago, to widen the scope of spectroscopic methods as applied to biological problems; University of Michigan, for research in biophysics; University of Uppsala, Sweden, for conducting research in the physicochemical properties of proteins; California Institute of Technology, for research in chemistry; Columbia University, to aid in conducting researches on the biological effects of heavy hydrogen; Columbia University, for research in the physiology of sex; National Research Council, for projects under the Committee for Research in Problems of Sex; Ohio State University, for research in endocrinology; State University of Iowa, for research in cellular physiology; University of Rochester, for studies on the physiology of reproduction; University of Wisconsin, for research work in endocrinology; University of Michigan, to conduct studies on the physiology of respiration.

SCIENTIFIC NOTES AND NEWS

THE National Academy of Sciences will hold its autumn meeting at the University of Virginia, on November 18, 19 and 20, under the presidency of Dr. Frank R. Lillie, who was elected at the spring meeting to succeed Dr. W. W. Campbell as president of the academy. This is the first meeting of the academy to be held in the South since its establishment in 1863.

DR. SAMUEL C. LIND, professor of physical chemistry and director of the School of Chemistry of the University of Minnesota since 1926, has been elected dean of the newly established Institute of Technology and took office on November 1. The institute consists of the College of Engineering and Architecture, the School of Chemistry and the School of Mines and

Metallurgy. The various schools will retain their own faculties, each with a director or assistant dean as administrative head.

DR. DONNEL F. HEWETT has been appointed geologist in charge of the Section of Metalliferous Deposits of the U. S. Geological Survey, to succeed Dr. G. F. Loughlin, who is now chief geologist. Dr. Hewett, an authority on economic geology, mineral economics and mineral reserves, is also a specialist on manganese and has given much attention to its discovery and development. He has been a member of the staff of the survey since 1911.

AT Christ's College, University of Cambridge, the following members of the college have been elected honorary fellows: Professor Arthur Hutchinson, master of Pembroke College and emeritus professor of mineralogy; Professor John Graham Kerr, emeritus professor of zoology, University of Glasgow, formerly fellow of the college; Professor George Henry Falkiner Nuttall, emeritus professor of biology and director of the Molteno Institute of Parasitology, formerly fellow of the college, and Dr. Arthur William Rogers, lately director of the Geological Survey, Union of South Africa, president of the Royal Society of South Africa.

DR. JOHN MELLANBY, professor of physiology at the St. Thomas Hospital Medical School, University of London, has been appointed to the Waynflete professorship of physiology at the University of Oxford, to hold office from January 1, 1936. He succeeds Sir Charles Sherrington, who had been Waynflete professor since 1913.

THE title of emeritus professor of bacteriology has been conferred by the University of London on Dr. J. W. H. Eyre, formerly university professor of bacteriology at Guy's Hospital Medical School; and that of emeritus professor of civil engineering on A. H. Jameson, who recently retired from the university chair of civil engineering at King's College.

THE Faculty of Engineering of the University of London has elected Professor Leonard Bairstow, dean for the remainder of the period 1934–36, in the place of Professor A. H. Jameson, who has resigned.

ON the occasion of the installation on December 2 of Sir Austen Chamberlain as chancellor of the University of Leeds, the degree of doctor of science will be conferred on Sir Frederick Gowland Hopkins, Lord Rutherford and Sir Joseph J. Thomson.

Nature reports that the annual Harveian Oration was delivered on October 18 at the Royal College of Physicians by Sir Henry Dale, director of the National Institute for Medical Research, whose subject was "Some Epochs in Medical Research." The president of the Royal College of Physicians, Lord Dawson of Penn, afterwards presented the Baly Gold Medal to Dr. F. H. A. Marshall and the Bisset-Hawkins Gold Medal to Sir George Newman, lately chief medical officer of the Ministry of Health. The Baly Medal is awarded annually for distinction achieved in the science of physiology. The Bisset-Hawkins Medal is awarded triennially for "such work in advancing sanitary science or in promoting public health as in the opinion of the college deserves special recognition."

THE Sudhoff medal has been awarded by the German Society of the History of Medicine to Professor Wilhelm Haberling, of the Düsseldorf Academy of Medicine and joint editor of *Mitteilungen zur Geschichte der Medizin, der Naturwissenschaften und der Technik.*

PROFESSOR BERNARDO A. HOUSSAY, of the Institute of Physiology in the Faculty of Medicine of the University of Buenos Aires, has been appointed a member of the Permanent International Committee of the Physiological Congresses. Recently a jubilee volume of the *Revista de la Sociedad argentina de Biologia* was published in Buenos Aires in his honor. It contains a full account of his writings and a number of articles on his work by various distinguished contributors.

DR. CYRUS H. FISKE has been promoted from associate professor to professor of biological chemistry at the Harvard Medical School.

DR. RICHARD E. SCAMMON, formerly dean of the medical sciences at the University of Minnesota, has been appointed to a distinguished research professorship, a chair especially created for him. Dr. Scammon has been on the staff of the University of Minnesota for twenty-five years.

DR. ROBERT H. WOODWORTH, who resigned at the end of the last academic year as assistant professor of botany and tutor in the Division of Biology and as curator of the Botanic Garden at Harvard University, has become a member of the faculty of Bennington College, Vermont.

DR. KONRAD E. BIRKHAUG, from 1925 to 1932 associate professor of bacteriology at the School of Medicine and Dentistry of the University of Rochester and for the past three years a member of the Institut Pasteur at Paris, has recently been called to a chair of experimental medicine which has been created for him at the Chr. Michelsens Institutt for Scientific Investigations at Bergen, Norway. He plans to carry on investigation in experimental tuberculosis and leprosy.

DR. BURTON K. KILBOURNE, health officer of Fargo, N. D., since 1923, has been appointed epidemiologist to the Montana State Board of Health at Helena, effective October 1.

THE Canadian Government has agreed to lend the services of Professor S. A. Cudmore, of the Bureau of Statistics, to the Government of Palestine for three years in order to organize a bureau of statistics.

THE Committee on Scientific Research of the American Medical Association has made a grant-in-aid to Dr. George D. Snell, of the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me., for studies on the effect of x-rays in modifying the germ plasm of mammals.

DR. A. S. PEARSE, professor of zoology at Duke University, has leave of absence. He is working on oyster parasites at Apalachicola, Fla.

DR. CHI-TING KWEI, dean of Yale-in-China School of Science, Central China College, Wuchang, who is at present on sabbatical leave in the United States, is spending several months at the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, engaged in research work in terrestrial magnetism and electricity.

W. H. W. KOMP, entomologist of the U. S. Public Health Service, recently returned from Colombia, where he spent three months on a mosquito survey for the Rockefeller Foundation, in connection with the new problem of jungle yellow fever.

PROFESSOR EMERITUS GILBERT D. HARRIS, of the department of geology at Cornell University, and a former student, A. A. Olsen, have left by car for the South Atlantic and Gulf States where they expect to collect representative fossils from the Cenozoic deposits. They plan to visit Tennessee, Alabama, South Carolina and Mississippi, where they will visit the Cenozoic outcrops at Wauttubbe.

AFTER fourteen months spent at the Field Museum, Chicago, Dr. Charles Baehni, of the Botanical Garden of Geneva, Switzerland, returned to Europe recently. While in Chicago, he studied the American flora, especially the Sapotaceae or sapodilla family. In addition, he assembled duplicate material to be sent to the Geneva Herbarium, as the result of a cooperative project arranged by the museum with Dr. B. P. G. Hochreutiner, director of the garden.

DR. MAX VON LAUE, professor of theoretical physics at the University of Berlin, who has been lecturing at the Institute of Advanced Study at Princeton and at the Johns Hopkins University, gave a lecture on November 4 on "Thermo-Dynamic Fluctuations" before the Department of Terrestrial Magnetism of the Carnegie Institution of Washington.

DR. JOHN DE J. PEMBERTON, associate professor of surgery in the University of Minnesota Graduate School of Medicine, Rochester, gave the annual Mayo lecture of Northwestern University on November 15. His subject was "The Development of Thyroid Surgery."

DR. J. O. PERRINE, associate editor of the *Bell System Technical Journal,* addressed an open meeting sponsored by the Pennsylvania State College Chapters of Sigma Xi and Sigma Pi Sigma on the evening of October 31. The subject of his address was "Speech, Music and Electricity."

AT a meeting to be held in the auditorium of Metal Products Exhibits, International Building, Rockefeller Center, New York, on Friday, December 13, at 8 o'clock, "Steel Alloys" will be discussed by Dr. John Johnston, director of research, United States Steel Corporation, and H. W. McQuaid, of the Republic Steel Corporation. The meeting is under the sponsorship of The American Institute. Frederick B. Hufnagel, president of the Crucible Steel Company of America, will preside.

THE third International Congress of Comparative Pathology will be held in Athens from April 15 to 18, 1936, under the presidency of Professor W. Bensis, of Paris. In connection with the congress a twelve-day cruise will be organized, beginning on April 11 at Venice, allowing attendance at the congress sessions, and thereafter continuing until April 23, when Venice will be reached again. The places to be visited include Mount Athos, Nauplia, Olympia, Delphi, Mycenae, Corinth, Tiryns and Sparta.

THE three hundred and twenty-sixth regular meeting of the American Mathematical Society will be held at the University of Kentucky on November 29 and 30. The local committee in charge of arrangements for the meeting will consist of Dr. Paul P. Boyd, dean of the College of Arts and Sciences at the University of Kentucky and head of the department of mathematics, chairman, and Professor C. G. Latimer, Dr. H. H. Downing, Dr. L. W. Cohen and Dr. Flora E. Le Stourgeon, members of the committee. Sessions are planned for Friday morning and afternoon and Saturday morning, and Professor C. G. Latimer, of the University of Kentucky, has been invited to address the society on "The Arithmetic of Generalized Quaternions." A dinner for members and their guests will be held on Friday evening at the Lafayette Hotel, which hotel will be headquarters for the meeting.

THE fall meeting of the Central New York State Branch of the Society of American Bacteriologists will be held on November 23, at the New York Agricultural Experiment Station, at Geneva.

THE section of chemistry of the American Association for the Advancement of Science will hold sessions in St. Louis on Wednesday and Thursday, Janu-

ary 1 and 2. On Wednesday January 1, at 2:00 P. M. there will be a joint session with Section Q (Education) and with the cooperation of the Division of Chemical Education of the American Chemical Society for the second of a series of three symposia on the relationships of the science of chemistry to education. The subject will be "The Teaching of Chemistry." On January 2 there will be sessions for contributed papers both morning and afternoon. Titles and short abstracts of contributions for these sessions will be accepted by the secretary, J. H. Simons, Pond Chemical Laboratory, Pennsylvania State College, State College, Pa. It is urged that these be received on or before December 1. In the evening there will be a dinner arranged by the St. Louis Section of the American Chemical Society. Following the dinner the address of the retiring vice-president of the section, Professor Joel H. Hildebrand, will be given.

THE School of Mathematics of the Institute for Advanced Study each year allocates a small number of stipends to gifted young mathematicians and mathematical physicists for the purpose of enabling them to broaden their scientific outlook and to work on research programs at Princeton in contact with the members of the institute and university faculties. Only such candidates will be considered as have already given evidence of ability in independent research comparable at least with that expected for the degree of doctor of philosophy. Applications for the academic year 1936–37 should be filed before February 1, 1936. Blanks for this purpose may be obtained from School of Mathematics, The Institute for Advanced Study, Fine Hall, Princeton, N. J.

The Experiment Station Record states that the Florida state appropriation for the Citrus Substation at Lake Alfred has been increased from $11,451 to $46,451. A 40-acre tract of land and $650 have also been given by the Florida Agricultural Research Institute for the development of the citrus work.

The American Agriculturist, the oldest farm paper in America and for years conducted at Cornell University, henceforth will devote its profits to the betterment of agriculture and farm life. Frank E. Gannett and H. Edward Babcock, university trustees; Edward R. Eastman, former trustee, and E. Curry Weatherby, are giving outright their entire common stock control to American Agriculturist Research Foundation, Inc. This new foundation will control the paper, and its charter provides that the profits shall be used "for improving the economic condition and promoting the social well-being and happiness of those who dwell upon the land." Subscribers to the paper will elect three of the seven directors. Three are *ex officio*—the editor, Eastman; the circulation manager, Weatherby, and the advertising manager, Irving W. Ingalls. These six will elect the seventh, who will be chairman of the board. *The American Agriculturist* was formerly owned by Henry Morgenthau, Jr., now Secretary of the Treasury.

AT a congregation of the University of Oxford on October 22 the principal of Hertford introduced a series of decrees to make effective the allocation of £5,000 for five years by the Rockefeller Institute for Research in Social Science. An institute of statistics is being established, of which the reader in statistics, J. Marschak, has been appointed director. Research lectureships have been created as follows: In human geography, for E. W. Gilbert, Hertford; in colonial administration, for Miss Perham, research fellow of St. Hugh's; in public administration, for G. Montagu Harris, New College; in public finance, for R. F. Bretherton, fellow of Wadham. A lectureship in African sociology was also created, the appointment to which will be announced later. The principal pointed out that these lectureships should provide for a cooperative system of research in the social sciences, while the Institute of Statistics would be available as a central laboratory.

COMPLETE film copies of the NRA and AAA hearings, which, if put in book form, would amount to 556 bound volumes of 500 pages each, have been used for the first time by university research workers. Until a projector was developed, there had been considerable doubt about the method of using this historical research material. The cost of reproducing the hearings in printed book form was so large that the Federal Government could not undertake to print them, but when reproduced on 16-millimeter safety-film—at a cost of a little more than one mill a page—these records are inexpensive, permanent and space saving, occupying less than three feet of space. Not produced at government expense, the films were planned, executed and paid for by the Joint Committee on Materials for Research of the American Council of Learned Societies and the Social Science Research Council.

JOHN D. ROCKEFELLER, JR., formally presented to New York City on October 12 the Fort Tryon Park and Museum. The park, which covers a tract of 69 acres, overlooks the Hudson at 190th Street and Fort Washington Avenue and is valued at five million dollars. The gift includes The Cloisters, the collection of medieval art assembled by George Grey Barnard, the sculptor.

The British Medical Journal writes editorially: "Dating from January 2, 1787, the College of Physicians of Philadelphia followed the example of the

Royal College of Physicians of London in some respects, such as having four censors of whom one is the senior, and in having moved its place of residence on several occasions. To celebrate the twenty-fifth anniversary of the last move Dr. G. E. de Schweinitz, the senior censor and former president, has, with the assistance of the librarian, revised and brought up to date the account of the college he wrote more than twenty years ago, when he was president for the usual span of three years. The college, which has about six hundred fellows all told, is fortunate in the generosity of its alumni, especially S. Weir Mitchell and W. W. Keen, and in its fine house has many 'private study rooms,' where the fellows and their guests, surrounded by the volumes they require, work without interruption. There are a number of rooms named after eminent benefactors, such as the Norris room, which contains more than twelve hundred current periodicals. The library, with 173,000 volumes, has for ten years purchased annually fifteen hundred books, and possesses more than four hundred incunabula. It is the proud owner of forty-four out of the fifty-four recorded editions of William Harvey's works, the copy of the Bologna edition (1697) of the 'De Motu Cordis' being the only one now known to exist. Another unique volume is Thomas Cadwalader's 'Essay on West India Dry Gripes,' with the original two prefaces, one of which was suppressed."

DISCUSSION

DISTRIBUTION AND UTILIZATION OF FLOOD WATERS

THE main objective of the Nakai Bito (Mexican Springs) Experiment Station is to increase the human carrying capacity of the Navajo lands, not only to where they will take care of the present increasing population, but to a point where they will provide a livable place for future generations. Since there are at this time some 45,000 Indians living on this land—and they must continue to stay on it, as there is no more land for them—it means that we who are in charge of the rehabilitation of the area must concentrate on a land management plan which will develop every natural resource to its fullest possibility.

Accelerated erosion is not only washing away the fertile lands, but it is causing the lowering of the water tables and changing the soil moisture tables so that vegetation has little chance of assimilating even a small part of the precipitation. The essential elements that go to make up the plant food in many places are far below the reach of the feeding roots of vegetation, and the moisture does not lie on the surface long enough to make available the foods necessary to sustain a ground cover. This applies to the cultivated lands which were normally—perhaps I should say formerly—used by the natives of this country.

The location of prehistoric ruins and the abandoned hogans of the present occupants of the Navajo country would indicate that the center of population was, at one time, in the big alluvial valleys. A recent survey of cultivated lands on and adjacent to the Mexican Springs Experiment Station showed that by far the greatest amount of land now farmed by the Navajos is in the mountain valleys up to, and even above, 8,000 feet in altitude. This change in the center of population has been brought about by erosion, and this erosion has been caused by the destruction of the vegetative covering on the steep slopes, thus creating an abnormal concentration of water in the water courses.

A number of old Navajos have told me that as recently as twenty-five years ago they cultivated farms on the deltas of the Nakai Bito Wash. Now its precipitous sides are from twenty to thirty feet deep. Now there is a perfect drainage system created by two parallel washes and several laterals leading out through the deep alluvial soil of the valley. Since the destruction of this land was brought about by the concentration of water which should have been normally distributed and absorbed, we are attacking the problem by preventing as nearly as possible the concentrating of water, using diversion dams and spreading systems which will, we believe, not only distribute it over a very large area but will actually hold it until the soils can absorb it. This network of flood water utilization devices is being put into effect wherever it is possible to find a level piece of land or a gentle slope where waters can be diverted from the channel. It may be not more than a quarter of an acre at the head of a watershed, or it may be a thousand acres in a wide-spreading valley; but the idea is at all times to keep the water from ever reaching the main water course except via the underground passage.

The water may be spread by means of earthen dikes which may be, in some cases, a mile in length with weep-holes at intervals to carry a given amount of water; or it may be spread by a diversion dam with a submerged rock spillway from 200 to 600 feet long and built on a dead level so that the water will not be able to "pile up" as it proceeds down the valley. At certain danger points where the water might concentrate, smaller earthen dikes are built, or woven wire