Francis W. Reichelderfer, chief, United States Weather Bureau.

William W. Rubey, chief, Division of Areal Geology and Basic Science, U. S. Geological Survey; chairman, Division of Geology and Geography, National Research Council.

Homer W. Smith, professor of physiology and director, Physiological Laboratory, New York University.

William C. Stadie, professor of research medicine, University of Pennsylvania.

Otto Stern, professor of physics and director of Research Laboratory of Molecular Physics, Carnegie Institute of Technology, Pittsburgh.

Harald Ulrick Sverdrup, director and professor of oceanography, Scripps Institution of Oceanography, La Jolla, Calif.

Cornelius B. van Niel, professor of microbiology, Hopkins Marine Station, Stanford University, Pacific Grove, Calif.

John C(harles) Walker, professor of plant pathology, University of Wisconsin.

Alexander Wetmore, secretary, Smithsonian Institution.

Hassler Whitney, associate professor of applied mathematics, Harvard University.

Eugene P. Wigner, Thomas D. Jones professor of physics, Princeton University.

Robert R. Williams, chemical director, Bell Telephone Laboratories, New York City.

Benjamin H. Willier, Henry Walters professor of zoology, School of Higher Studies, the Johns Hopkins University.

Foreign Associates

Sir (William) Lawrence Bragg, Cavendish professor of experimental physics, University of Cambridge.

Harold Jeffreys, F.R.S., fellow of St. John's College, Cambridge; university lecturer in mathematics.

Paul Karrer, professor of organic chemistry and director of the Chemical Institute, University of Zurich.

The Svedberg, professor of physical chemistry, University of Uppsala.

Sir Geoffrey I. Taylor, F.R.S., lecturer in mathematics and physics, Trinity College, Cambridge; Yarrow professor of the Royal Society in 1923.

SCIENTIFIC NOTES AND NEWS

THE Carty Gold Medal of the National Academy of Sciences, with an honorarium of $2,500, was presented at Washington on April 23 to Dr. W. F. Durand, professor of mechanical engineering emeritus of Stanford University, a member of the National Advisory Committee for Aeronautics. The medal is awarded every other year for "noteworthy and distinguished contributions in any field of science."

IN tribute to Dr. Frank R. Lillie, Andrew MacLeish distinguished service professor emeritus of embryology of the University of Chicago, the Frank R. Lillie room in the Hull Zoological Laboratory was dedicated on April 12, with Carl R. Moore, chairman of the department of zoology, officiating. Professor Lillie spoke briefly.

THE Bessemer Gold Medal of the British Iron and Steel Institute has been awarded to Harold Wright, chief metallurgist to Dorman, Long and Company, Ltd., Middlesbrough, in recognition of his "valuable contributions made over many years to improve the technique of iron and steel manufacture." The medal will be presented to him on May 9.

THE Association for the Study of Internal Secretions has announced the recipients of the Squibb and the Ciba awards made annually for outstanding researches in endocrinology. The award of E. R. Squibb and Sons was made to Dr. E. C. Kendall, of the Mayo Clinic and the Graduate School of the University of Minnesota, for his discovery of the active principle of the thyroid gland and the more recent fractionation of the hormones of the adrenal cortex. The award for younger investigators, made possible through the grant of Ciba Pharmaceutical Products, Inc., was given to Dr. Jane Anne Russell, of Yale University, for her work on carbohydrate metabolism as affected by the pituitary, the adrenal and the thyroid glands. Because of the cancellation of the 1945 annual meeting, the formal presentation of the awards will be made at a later date.

DR. CHARLES F. BROOKS, professor of meteorology and director of the Blue Hill Observatory of Harvard University, was recently honored at a dinner on the occasion of the conclusion of twenty-five years of service as secretary of the American Meteorological Society.

Nature reports that the Council of the Royal Society of Edinburgh has awarded the Gunning Victoria Jubilee Prize, for the period 1940–44, to Professor H. W. Turnbull, of the University of St. Andrews, for his distinguished contributions to mathematical science and the history of mathematics; and the Makdougall-Brisbane Prize, for the period 1942–44, jointly to Professor Max Born and Dr. H. W. Peng, of the University of Edinburgh, for their papers on "Quantum Mechanics of Fields" published in the *Proceedings* of the society within the period of the award.

SIR LAWRENCE BRAGG, Cavendish professor of experimental physics at the University of Cambridge, gave a lecture at the Fondation Universitaire in Brussels on science and technical work in relation to

civilization. On this occasion the medal of the foundation was presented to him.

THE latest issue of the *Record of the Academy of Sciences, U.S.S.R.*, is devoted to the achievements of the president of the Soviet Academy of Sciences, V. L. Komarov, on the occasion of his seventy-fifth birthday and the fiftieth anniversary of his scientific work. A number of articles describe his work as the leader and organizer of Soviet scientific activities and as the outstanding botanist of the U.S.S.R.

THE University of Cincinnati Chapter of Sigma Xi announces the following officers elected for the years 1945–47: *President,* Dr. George B. Barbour, dean of the McMicken College of Liberal Arts; *Vice-president,* W. C. Osterbrock, professor of electrical engineering; *Secretary-Treasurer,* Dr. Saul B. Arenson, professor of inorganic chemistry. Members of the nominating committee elected to serve for six years are Dr. H. J. Kesten, professor of biophysics, and Dr. H. L. Miller, professor of mathematics.

A CHAPTER of the Society of Sigma Xi was installed at the University of Connecticut at Storrs, on March 15. The installing officers were Dr. Harlow Shapley, national president of the society, and Dr. George A. Baitsell, executive secretary. Dr. Shapley gave the installation address and Dr. Baitsell addressed the group on the relation between the national and local societies. The following officers were elected: Joseph C. Shaw, *President;* H. M. Scott, *Vice-president;* Martha Potgieter, *Secretary-Treasurer.* Following the reception and dinner, a Sigma Xi lecture was given by Dr. Shapley, who spoke on "News from the Star Front."

DR. GEORGE HEPTING, pathologist at the Appalachian Forest Experiment Station, has been elected president of the Southern Shade Tree Conference.

DR. JOHN M. FOGG, JR., professor of botany and vice-provost of the University of Pennsylvania, has been elected to honorary membership in the Pi Gamma Mu National Social Science Honor Society. He gave an address entitled "Around the World in Thirty Minutes" at the annual meeting of the society on April 13.

DR. GEORGE S. CALLAWAY has been installed as president of the New York Academy of Medicine.

DR. GEORGE B. ROTH, since 1924 professor of pharmacology at the George Washington University School of Medicine, has retired with the title emeritus.

DR. HARRY WILLIAM MOUNTCASTLE will retire next June as head of the department of physics and astronomy of Western Reserve University, where he was appointed assistant professor of physics in 1907.

DR. ARTHUR HOLLY COMPTON, dean of the Division of Physical Sciences at the University of Chicago, has accepted the chancellorship of Washington University, St. Louis, and will assume the work as soon as he is freed from commitments to the Government involving scientific research connected with the war effort. Dr. Compton was head of the department of physics of Washington University from 1920 until 1923.

A DIVISION OF CANCER RESEARCH has been established at the College of Medicine of the Ohio State University. Dr. Charles A. Doan, dean of the medical college and director of medical research, has been appointed director, with Dr. Herman A. Hoster as associate director immediately in charge.

DR. O. N. ALLEN, formerly head of the department of bacteriology of the University of Hawaii, has become head of the department of bacteriology of the University of Maryland. He succeeds Dr. Lawrence H. James, who has opened a consulting laboratory in Chicago.

AT the School of Medicine of the University of Utah, Dr. Francis D. Gunn, formerly assistant professor of pathology at Northwestern University, has been appointed professor and head of the department of pathology. Dr. Louis S. Goodman, professor of pharmacology at the University of Vermont, has been appointed professor of pharmacology and chairman of the department of pharmacology and physiology. Dr. James E. P. Toman, instructor in physiology, also of the University of Vermont, has been appointed assistant professor of physiology.

NEW appointments in the department of animal husbandry of the Utah State Agricultural College include Dr. Louis L. Madsen, senior nutritionist, U. S. Bureau of Animal Industry, Beltsville, Md., as head of the department, and Dr. Carroll I. Draper, associate professor of poultry husbandry at the University of Hawaii, as associate professor of poultry husbandry.

DR. GUSTAVE J. NOBACK, professor of anatomy and chairman of the biological sciences in the Graduate School of New York University, has become dean of the Essex College of Medicine and Surgery of Newark.

DR. NELSON DALE, professor of geology at Hamilton College, Clinton, N. Y., has been appointed director of the college museum.

DR. K. A. C. ELLIOTT has joined the research staff of the Montreal Neurological Institute, with an appointment as assistant professor in neurochemistry at McGill University. He was formerly in charge of the Biochemical Research Laboratories of the Institute of the Pennsylvania Hospital, Philadelphia.

DR. D. S. MACLAGAN, lecturer in zoology at King's College, University of Durham, has been appointed head of the department of zoology of the West of Scotland College of Agriculture, Glasgow, and research advisory officer in agricultural zoology for the southwest of Scotland, in succession to Professor L. A. L. King, who has retired.

THE Commonwealth Fund has appropriated $8,200 to be used by Dr. Carl J. Wiggers and associates of the department of physiology of Western Reserve University for continuance of their studies on the peripheral circulation and shock during the coming year.

DR. GEORGE E. BURCH, associate professor of experimental medicine at the School of Medicine of Tulane University, New Orleans, has been appointed civilian consultant to the Surgeon General for diseases of peripheral blood vessels, with particular emphasis on trench foot and allied conditions.

DR. HAROLD H. SHEPARD, who since July, 1943, has been on leave of absence from the University Farm of the University of Minnesota to enable him to work with the Office of Materials and Facilities of the War Food Administration, in Washington, D. C., has become insect toxicologist of the New York State College of Agriculture, Cornell University. He succeeded Dr. Roy Hansberry, who joined the staff of the Shell Development Company, Modesto, Calif., in August, 1944. Dr. L. B. Norton, insecticide chemist formerly at the Geneva Experiment Station, is now stationed at Ithaca and will be associated with Dr. Shepard.

PROMOTIONS announced at the Central Laboratories of the General Foods Corporation include Dr. Willard Roberts, who will be director of the new section of food technology which takes the place of the sections of processing and cereal technology; Dr. Harold A. Campbell, assistant director of the engineering research section, who will have new divisional responsibilities for processing technology, chemical engineering, and processing engineering. The section of physical chemistry research, directed by L. W. Elder, will be enlarged to include the division of analytical chemistry directed by Dr. Martha Johnson. Dr. A. C. Shuman has been named assistant director of the section; he will aid Dr. Elder in the establishment of a new division of physical measurements, and he will also be in charge of microscopy and photography. Dr. T. R. Wood, research chemist, has been promoted to be head of the phytochemistry division of the section of organic chemistry.

DR. CORNELIUS P. RHOADS, director of the Memorial Hospital for the Treatment of Cancer and Allied Diseases, has returned after serving for nearly two years as chief of the Medical Division of the Chemical Warfare Service of the Army.

THE James Arthur Lecture on the evolution of the human brain, sponsored by the American Museum of Natural History, was delivered on April 30 in the lecture hall of the Roosevelt Memorial by Dr. K. S. Lashley, research professor of neuropsychology at Harvard University and director of the Yerkes Laboratories of Primate Biology. He spoke on "Neural Correlates of Intellect."

DR. CLARENCE S. ROSS, chief of the section of petrology of the U. S. Geological Survey, delivered on April 16 the Edward Orton, Jr., Fellowship Lecture before the dinner meeting of the upstate New York section and the forty-seventh annual meeting of the American Ceramic Society at Buffalo, N. Y.

DR. W. T. THOM, JR., professor and chairman of the department of geological engineering of Princeton University, recently addressed the fourth Industrial Planning Conference on Power Resources on "Energy Resources and National Power."

DR. JOHN F. MCINTOSH, secretary to the faculty of medicine of McGill University, spoke on April 4 to the members of the Osler Clinical Society at the Medical School of the University of Vermont. He discussed the problem of urinary calculi in ancient times and in a modern clinic.

DR. FRANCIS O. SCHMITT, professor of biology and biological engineering at the Massachusetts Institute of Technology, will deliver the eighth Harvey Society Lecture of the current series at the New York Academy of Medicine on May 17. He will speak on "Ultrastructure and the Problem of Cellular Organization."

THE alumni of the department of chemistry of the University of Kentucky has established a fund to be known as the "Ralph Nelson Maxson Memorial Fund," the purpose of which is to create an endowment for the library of the department of chemistry, supplementing the private library of Dr. Maxson, who was formerly head of the department, which was presented to the school following his death.

THE Abbott Laboratories, Chicago, have appropriated $50,000 to provide research fellowships in ten universities. These are the California Institute of Technology, Cornell University, Harvard University, the University of Illinois (Medical School), the Massachusetts Institute of Technology, the University of Minnesota, the Ohio State University, Purdue University, Tulane University of Louisiana and the University of Wisconsin.

IT is reported in *The Times*, London, that the Royal Society has been informed that the Treasury has pro-

vided in the estimates for the fiscal year 1945–46 for the following grants which are administered by the society: For scientific investigations, £14,000; for scientific publication, £7,000; for scientific congresses, £1,600.

A CORRESPONDENT writes that "the Belgian Government Information Center reports that so far as they know the Congo Museum at Tervueren is in good condition. The Germans have spared this museum, and the same staff is still there."

THE daily press reports that to offset the continued isolation of the universities at Amsterdam, Delft, Groningen, Leyden and Utrecht—all of which are still in Nazi-occupied territory—the Netherlands Ministry of Education has arranged for temporary academic centers in the liberated area.

The Journal of Scientific and Industrial Research, Delhi, India, states that the Government of Bengal has decided to set up a Provincial Statistical Bureau. Each department of the government will be instructed to keep the bureau informed of its activities in statistical matters and to seek the guidance of the bureau when it proposes to introduce new schemes or methods. The function of the bureau will be primarily advisory in character. It will impart technical advice regarding the collection of primary statistics, classification, tabulation and analysis of statistical material and the form of publication of statistical data.

DISCUSSION

AMPLE EXERCISE AND A MINIMUM OF FOOD AS MEASURES FOR CANCER PREVENTION?

As measures for the prevention of human cancer a recent paper by Potter[1] advocated ample exercise, a minimum of food and "proper medical care so that any chronic irritations are eliminated." At the present time there is a paucity of information on the influence of dietary restriction upon the prevention of cancer in human beings. In the absence of data on man we must rely on the results of animal experiments for information on dietary means for delaying the onset of cancer, its partial or complete prevention, and then attempt to evaluate the possible effects of applying such procedures to the human population. Our present concept must, therefore, be largely influenced by this type of information without knowing to what extent it may be applicable to the prevention of cancer in another species, man.

Data from several sources are summarized in Table 1. This table sets forth the results of several dietary regimens that have been effective in decreasing the incidence of spontaneous mammary cancer in susceptible strains of mice and includes other effects which have been noted in the animals subjected to these regimens. Mammary tumorogenesis in mice as influenced by diet has been more extensively studied than any other tumor of spontaneous origin, and for that reason it seems appropriate to make it the basis for this discussion. It will be observed from Table 1 that a variety of nutritional regimens may delay, partially or completely inhibit the development of spontaneous mammary cancer in mice.

A primary effect of the various regimens listed in Table 1 was on body weight. Weanling mice placed on calorie restricted diets failed to gain weight. Adult animals lost from 10 to 45 per cent. in body weight, usually during the first few weeks of the experiment, after which time the animals were able to maintain their weight at the lower level. On the cystine deficient diet young mice were unable to gain in weight, while on the lysine deficiency the diet contained enough lysine to permit a very slow increase in body weight of the young mice, amounting to approximately 20 per cent. of the initial weight of the animals.

The effect on estrus and mammary gland development was equally striking in those experiments in which estrous cycles and mammary glands were studied. Estrus was absent in the weanling mice that failed to increase in body weight and occurred irregularly in the lysine deficient group in which there was some body weight gain. In the calorie restricted and deficient weanling animals in which estrus was absent or occurred occasionally, there was also complete or partial inhibition of mammary gland development. In the parous animals estrus was probably absent, and the mammary glands atrophied.

The most effective regimens in decreasing mammary cancer were those instituted at an early age on weanling mice and continued until death, although mice that were restricted in calories after raising one or two litters also showed a definite decrease in tumor incidence, loss in body weight and atrophy of the mammary glands.

Inhibition of estrus has been observed in rats[2] after a weight loss of only 15 per cent. The loss in weight of the mice as given (Table 1, 5, 6) with the concomitant inhibition of estrus suggests that estrogenic hormone production was one factor that may have been affected. The administration of diethylstilbestrol (Table 1, 9, 6), to a group of cystine deficient mice induced continuous estrus and stimulated development of the mammary glands. The incidence of mammary tumors was increased from 0 to 45 per cent., or to only approximately half that found in the normal controls.

[1] V. R. Potter, SCIENCE, 101: 105, 1945.

[2] M. G. Mulinos, L. Pomerantz, J. Smelser and R. Kurzrok, *Proc. Soc. Exp. Biol. and Med.*, 40: 79, 1939.