tion, which in turn transmits the heat to air conditioning systems in various Hanford buildings. The reactor coolant is held until its radioactivity level has decreased to a point where it can safely be discharged into the river.

■ Two source-of-fact reports on science, *Scientific Personnel Resources* and *Federal Funds for Science,* have been issued by the National Science Foundation under its continuing program of surveying scientific activities in the United States. *Scientific Personnel Resources* is a summary of data on the supply, utilization, and training of scientists and engineers. One section of the report shows, among other things, that there were approximately 200,000 scientists and 650,000 engineers in the United States in 1954; these figures are broken down to indicate distribution by field, age, and level of education. Another section on the education of scientists shows that at a time when the high-school population is rapidly increasing, the number of college graduates completing standard requirements to teach high-school science and mathematics has decreased from a high of 9000 to an estimated 4000 in science, and from a high of 4000 to an estimated 2300 in mathematics between the years 1950 and 1954.

Federal Funds for Science is the fourth report of its kind issued by the foundation designed to provide uniform and accurate data on funds made available by agencies of the Federal Government in support of scientific research and development. Its substance covers fiscal years 1954, 1955, and 1956—the last two estimated. Actual Federal Government expenditures for research and development in fiscal year 1954 were more than $2 billion. This represents approximately a 20-fold increase in Federal expeditures for research and development since 1940. Less than 7 percent of the 1954 total was obligated for basic research—$116,000,000.

Copies of these two publications may be obtained for 50 cents and 30 cents, respectively, from the Superintendent of Documents, Washington 25, D.C.

■ A simple fallout meter to measure the gamma rays resulting from nuclear explosions has been constructed by the Naval Research Laboratory, which has just released a report of this research project. The meter uses a battery, a cadmium sulfide crystal, and a parallel combination of a condenser and neon flash lamp. It uses only commercially available parts, is sensitive over the range of 0.1 to 1000 roentgens per hour, is reasonably energy-independent, and has a flash rate proportional to gamma dose rate.

The report points out that it was felt desirable to construct a simple, small-sized meter that would be inexpensive and that could be distributed widely. *A Simple Meter for Radioactive Fall Out,* Naval Research Laboratory, June 1955, may be obtained from the Office of Technical Services, U.S. Department of Commerce, Washington 25, D.C.; price, 50 cents. Complete with schematic drawings and photographs, the report contains 12 pages.

Scientists in the News

DETLEV W. BRONK, president of the Rockefeller Institute for Medical Research, is the newly elected chairman of the National Science Board, governing body of the National Science Foundation. He succeeds CHESTER I. BARNARD, whose term as chairman has expired.

PAUL M. GROSS, vice president and dean of Duke University, is the new vice chairman of the board and chairman of the executive committee.

MEREDITH R. GARDINER has been named chief of the new division of pathology, Eaton Laboratories, Norwich, N. Y. All toxicological work in the research department, including the histologic examination of animal tissues, will be handled by his division. Gardiner has worked as a veterinary scientist or practitioner since his graduation from the School of Veterinary Medicine, University of Pennsylvania, in 1940. As an animal pathologist, he has been associated with the University of Pennsylvania, the Georgia Coastal Plain Station, the Wyoming State Veterinary Laboratory, and the University of Delaware.

JAMES L. WHITTENBERGER, professor of physiology at the Harvard University School of Public Health, has been named assistant dean of the university's faculty of public health. He will share the administrative responsibilities of the assistant deanship with Hugh R. Leavell, who has served as an assistant dean since July 1954.

New appointments to associate professorships at the University of Mississippi are VIRGIL BENSON, chemistry; GERALD C. TANGER and HUGH B. KERR, mechanical engineering; JOHN DOUGLAS, geology; W. L. BYATT, physics; THOMAS L. SWIHART, physics and astronomy; and JOHN B. MORRIS, psychology.

A. L. COPLEY of New York has been appointed Chargé de Récherches at the Institut National d'Hygiène in Paris, France. He has completed his work on experimental tuberculosis at the Laboratory of Physiology of the International Children's Centre in Paris. His studies, which he has conducted since 1952 at this United Nations affiliate, dealt with the effects of mycobacteria on capillary blood vessels and on platelets.

BRET RATNER of New York recently received the following tribute: "By unanimous vote of the Section on Allergy of the American Academy of Pediatrics, assembled in Chicago at the Twenty-third Annual Meeting of the Academy, this Scroll is awarded . . . as an expression of gratitude and appreciation for his untiring services in advancing Pediatric Allergy, as a pioneer investigator and teacher, as organizer of the Section on Allergy and its first Chairman, for his successful efforts in obtaining recognition by certification for Pediatric Allergists in the Subspecialty of Pediatric Allergy."

WILLIAM A. LADD, specialist in electron microscopy, has become associated with Foster D. Snell, Inc., New York. Ladd was with Columbian Carbon Company for 15 years, where he led work on the use of the electron beam to measure the extremely fine particles of carbon black.

Ladd was a member of the original group at the University of Toronto, headed by E. F. Burton, that pioneered the use of the electron microscope in North America. His most recent achievement has been the development of an x-ray microscope that gives high-resolution micrographs at magnifications of 10,000 to 25,000 diameters.

HOWARD HASTINGS CUMMINGS has retired from the University of Michigan with the title of professor emeritus of postgraduate medical education. He first joined the university in 1906 as a student in the medical school, where he was made an assistant in the department of gynecology and obstetrics in 1910. Cummings has been chairman of the department of postgraduate medicine since 1942.

HERBERT FRIEDMANN, curator of birds for the U.S. National Museum, Washington, D.C., has been awarded the 1955 Leidy medal of the Academy of Natural Sciences, Philadelphia, Pa. The medal is awarded every 3 years for the best publication, exploration, discovery, or research in the natural sciences in such particular branches thereof as may be designated.

Friedmann is being honored for his research in ornithology, his study of the biology of parasitic birds, the monographic works he has published dealing with them, and the discovery of wax digestion by honey guides. His study of these small birds, which lead men and animals to nests of bees, may provide a new means of attacking the tubercle bacillus.

TERRELL L. HILL of the Naval Medical Research Institute, Bethesda, Md., has been awarded a Distinguished Civilian Service award by the Navy. His citation read:

"For exceptional and exemplary accomplishments which have added significantly to the scientific prestige of naval medical research in the field of modern physical biochemistry. You are responsible for advances in statistical mechanics and its application to problems of general chemistry, and for studies of the various properties of molecules found to be responsible for the chemical behavior of cellular machinery. You have investigated the behavior of biological polyelectrolytes and thus greatly aided research on the molecular mechanism of muscle contraction. Your elucidation of the force interactions between dissolved proteins and between them and small charged particles is a matter of wide interest because they underlie a major method of studying the surface structure of proteins upon which so many of our body functions depend."

BARRY G. KING, resarch executive of the Medical Division, Civil Aeronautics Administration, and associate professor of physiology at Ohio State University, has received the Flight Safety Foundation award of 1955 for distinguished service in achieving safer utilization of aircraft. He was honored for "original contributions to aviation medical and physiological research; for organizing, conducting and evaluating research in the problems of survival and escape from aircraft involved in accidents; for initiative in providing specialist training in the field of aviation medicine."

CHARLES L. MARSHALL, deputy director of the division of classification of the Atomic Energy Commission since 1949, has been named director. CHARLES D. LUKE, director of classification since 1954, has become technical assistant to the director of civilian application for hazard evaluations. Luke will assist in the development of standards, codes, and guides for public health and safety in the design, operation, and location of facilities licensed and operated by the AEC.

JOHN C. REED, staff coordinator of the U.S. Geological Survey, has accepted the chairmanship of the Research Committee of the Arctic Institute of North America. He fills the vacancy created last January by the death of R. C. Wallace. The committee is composed of 13 specialists in various branches of science who are responsible for formulating the institute's research program. Since its founding in 1945, the institute has sponsored 185 field research projects.

GEORGE E. UHLENBECK, Henry Smith Carhart professor of physics at the University of Michigan, has been named Henry Russel lecturer, the university's highest professional recognition of academic and scientific competence. Uhlenbeck, who is internationally known as the codiscoverer in 1925 of electron spin, will deliver the Russel lecture next spring.

HARVEY I. FISHER, formerly of the University of Illinois at Urbana, is now chairman of the department of zoology at Southern Illinois University.

ROBERT W. CAIRNS, assistant director of Hercules Powder Company's research department since 1945, has been appointed director of research. He succeeds EMIL OTT who has resigned to join the Food Machinery and Chemical Corporation.

AKE AKERSTRÖM, Swedish archeologist and head of the Swedish Institute in Athens, Greece, since its inception in 1948, has been invited to conduct research at the Institute for Advanced Study in Princeton, N.J., during the academic year 1957–58.

CHARLES PHILLIPS, who served from 1931 to 1955 as head of the department of surgical pathology and pathological anatomy at the Scott and White Clinic in Temple, Tex., has been named pathologist for the University of Texas M. D. Anderson Hospital and Tumor Institute in the Texas Medical Center, Houston. DALE G. JOHNSTON, former chief of laboratory services of the U.S. Air Force Hospital at Parks Air Force Base in California, has accepted the position of assistant pathologist.

FRANK HERMAN CONNELL, formerly associate director of the Atomic Bomb Casualty Commission in Japan, will serve as chief of laboratory services and as parasitologist at the hospital.

RALPH M. HIXON, dean of the Iowa State College graduate school, has received the Charles F. Spencer award, which is administered by the American Chemical Society's Kansas City Section. Hixon, an authority on the chemistry of starch, is the first recipient of the $500 gold medal award.

The new prize was founded by Kenneth A. Spencer, president of the Spencer Chemical Company of Kansas City, Mo., in memory of his father, CHARLES F. SPENCER, who contributed greatly to the growth of the chemical industry in the Midwest. The award will be given annually to a United States citizen who has made "meritorious contributions to the field of agricultural and food chemistry" in the United States.

DONALD C. RILEY, Office of Statistical Standards, Bureau of the Budget, Washington, D.C., has been named executive director of the American Statistical Association. He replaces Samuel Weiss, who died in July.

CHARLES F. BORN, retired Air Force major general, has joined Texas Instruments Incorporated, Dallas, Tex., as director of service engineering in the apparatus division. The firm manufactures airborne military electronics systems, including radar, sonar, and magnetic airborne detection devices. Born will be responsible for engineering liaison with the many sectors of the Department of Defense and with other defense equipment manufacturers.

JAMES MCCORMACK, JR., retired Air Force major general and former director of research and development in Air Force Headquarters in Washington, D.C., has been named a special adviser to the president of Massachusetts Institute of Technology.

JOSEPH R. MERKEL, formerly at the Institute of Microbiology, Rutgers University, has been appointed director of the Fort Johnson Marine Biological Laboratory of the College of Charleston, S.C. The former quarantine station for the port of Charleston has been acquired by the College of Charleston and is being converted into laboratory and living accommodations. A limited research and teaching program began this fall. When conversion has been completed, considerable space will be available for research and teaching. The major emphasis of the Fort Johnson Marine Biological Laboratory will be on microbiology, but not to the exclusion of other fields of marine biology.

The following men recently received honorary doctoral degrees from Rutgers University: EZRA TAFT BENSON, Secretary of Agriculture; WILLIAM KOMP, medical entomologist at the National Institutes of Health.

D. B. STEINMAN, bridge engineer of New York, N.Y., has received the Marechal Caetano de Faria medal from the Brazilian Government in recognition of his professional achievements and, particularly, in recognition of his engineering contribution to the Republic of Brazil. Between 1924 and 1927 Steinman, with his colleague Robinson, designed and built the Florianopolis Bridge that connects Florianopolis and the mainland of Brazil. This bridge, of a new form invented and developed by Steinman, is still the largest bridge in South America and the longest eyebar suspension span in the world.

ARTHUR KAATZ, U.S. Department of Agriculture entomologist, has left for Tripoli, Libya, where he will join the U.S. Operations Mission of the International Cooperation Administration. Through the mission, he will assist Libyan plant protection officials in programs to control crop and livestock insects, particularly the desert locust. With funds provided by ICA, the U.S. Regional Insect Control Project is helping local government agencies to combat insect pests in Pakistan, Iran, Iraq, Afghanistan, Jordan, India, Egypt, and Ethiopia.

H. GUYFORD STEVER, chief scientist of the U.S. Air Force, has been appointed professor of aeronautical engineering and associate dean of the School of Engineering at Massachusetts Institute of Technology. He has been on leave from M.I.T. since last February to serve with the Air Force in Washington. He will assume his new post in June.

THEODORE I. HEDRICK, formerly a member of the Government's agricultural marketing service, has been appointed associate professor, dairy, at Michigan State University, effective 1 Jan.

SERGE A. KORFF, professor of physics at New York University, has received the Boris Pregel prize of the New York Academy of Sciences. The $500 award is given annually for the best scientific paper on natural radioactive substances. Korff's paper was entitled "Effect of cosmic rays on the terrestrial isotope distribution."

FREDERICK R. FURTH, rear admiral and Chief of Naval Research who has been directing preliminary technical work on the United States earth satellite program, will be retired at his own request at the end of December. He will be succeeded by RAWSON BENNETT, II, a captain and now assistant chief for electronics in the Bureau of Ships.

GLADYS A. REICHARD, professor of anthropology and specialist on Navajo culture who died last July, was honored on 5 Dec. at a memorial meeting at Barnard College. In tribute to Dr. Reichard, two anthropologists delivered papers: Margaret Mead, associate curator at the American Museum of Natural History, spoke on "Commitment to field work," and Frederica de Laguna, professor of anthropology at Bryn Mawr College, had as her title, "Gladys Reichard—appreciation and appraisal." Millicent C. McIntosh, president of Barnard, presided at the meeting, which was attended by more than 100 former students and colleagues of Dr. Reichard.

DUDLEY WILLIAMS, professor of physics at Ohio State University, has received a Guggenheim grant to further his study of the magnetic properties of atomic nuclei. He will sail on 7 Jan. for the Netherlands, where he will spend 3 months at the Zeeman Laboratory of the University of Amsterdam. He will then spend 3 months at Oxford University, England, and 2 months at the University of Zurich, Switzerland.

MARSHALL HALL, JR., professor of mathematics, is another Ohio State Guggenheim fellow. He will spend approximately 2 months at Harvard University and at other eastern universities before leaving for England early in March, where he will conduct research at Trinity College, Cambridge University.

EDWARD CHESTER CREUTZ, professor and head of the department of physics and director of the Nuclear Research Center at Carnegie Institute of Technology since 1949, has been appointed director of research for the General Atomic Division of the General Dynamics Corporation and director of the division's laboratory for pure and applied science. At present he is carrying out a special Atomic Energy Commission assignment on Project Sherwood. He will continue that work until he assumes his new duties full time.

STUART A. RICE of the department of chemistry, Harvard University, and AGNES STROUD of Argonne National Laboratory, have won the two A. Cressy Morrison prizes of the New York Academy of Sciences. Rice's paper was entitled "On the cell model for solutions," and Stroud's paper dealt with the "Effects of continuous irradiation by tritium on cells cultivated *in vitro*." Both of these annual awards are for $300 each.

Necrology

GRACE E. BIRD, Providence, R.I.; 79; professor emeritus of psychology at Rhode Island College of Education; pioneer in the study of child development; staff member of *Psychological Abstracts*; 1 Dec.

WILLIAM B. GREELEY, Suquamish, Wash.; 76; board chairman, American Forest Products Industries; early advocate of forestry research and conservation; former United States chief forester and former secretary and manager of the West Coast Lumberman's Association; 30 Nov.

CHARLES H. HELLIWELL, Dover, N.J.; 58; associate professor of mathematics at the School of Commerce, New York University; 29 Nov.

WILLIAM H. W. KOMP, College Park, Md.; 62; specialist in tropical diseases; medical entomologist in the laboratory of tropical diseases at the National Institutes of Health, Bethesda, Md.; 7 Dec.

WALTER LIBBY, Toronto, Canada; 88; specialist in the history of science; former professor or lecturer at Northwestern University, Carnegie Institute of Technology, the University of Pennsylvania, and the Mellon Institute, Pittsburgh, Pa.; 30 Nov.

KENNETH WILLIAM MAINLAND, Falls Church, Va.; 59; chief of the fats, oils, protein, and seeds branch in the Office of Food and Agriculture, International Cooperation Administration, Washington, D.C.; 5 Dec.

CHARLES MARKHAM, Durham, N.C.; 69; treasurer of and former professor of mathematics at Duke University; 3 Dec.

GLENN MARTIN, Baltimore, Md.; 69; aviation pioneer and founder of the Glenn L. Martin Company, Baltimore; 4 Dec.

JOHN A. NEWLANDS, Hartford, Conn.; president, Henry Souther Engineering Co., Hartford; 2 Dec.

HELEN NOYES, Carthage, Ill.; 73; biochemist; former assistant in orthopedics at the University of Illinois Medical College; 29 Oct.

JAMES F. RINEHART, San Mateo, Calif.; 54; head of the department of pathology at the University of California Medical School, San Francisco; 30 Nov.

HENRY C. STETSON, Belmont, Mass.; 55; submarine geologist and oceanographer at Harvard University; 3 Dec.

ARTHUR L. TATUM, Madison, Wis.; 71; emeritus professor of pharmacology at the University of Wisconsin; 11 Nov.

Education

■ The University of Maryland will formally celebrate the centennial of its College of Agriculture and the sesquicentennial of its College of Medicine beginning on 6 Mar. 1956 and concluding with commencement in June 1957. The Maryland College of Agriculture and the College of Medicine of Maryland formed the nucleus for the present University of Maryland. Ernest Cory, profesor and head of the department of entomology, is chairman of the committee that will guide the 15-month-long celebration.

■ A new college of liberal arts that will emphasize basic science and engineering will be founded at Claremont, Calif., according to William W. Clary, chairman of the Board of Fellows of Claremont college. The new college, which will bear the name of the late Harvey Seeley Mudd, Los Angeles mining engineer and civic leader, is being established as a member of the group known as Associated Colleges in response to an antici-