Croes Medal to E. C. Hartman, of the Aluminum Research Laboratories of New Kensington, Pa.; the James Laurie Prize to Leon S. Moisseiff, who designed the Queensboro and Manhattan bridges and was consultant on such bridges as the George Washington, Golden Gate, Whitestone and many others.

The Arthur M. Wellington Prize was presented to Charles M. Noble, engineer, for the Pennsylvania Turnpike Commission, Harrisburg; the Collingswood Prize for Junior Engineers was presented to Douglas M. Stewart, of the Ingersoll-Rand Company, New York.

Five honorary memberships, given to outstanding engineers, were conferred on the following: C. Frank Allen, professor emeritus, Massachusetts Institute of Technology; Anson Marston, past-president of the society and dean emeritus of engineering, Iowa State College, Ames, Iowa; Arthur S. Tuttle, past president of the society, who has spent most of his life in the service of New York City in an engineering capacity; Frank E. Weymouth, general manager and chief engineer of the Metropolitan Water District of Southern California, who has just completed the Los Angeles Aqueduct, and Edward E. Wall, director of public utilities for St. Louis, who was represented by F. G. Jonah, chief engineer for the St. Louis-San Francisco Railway.

SCIENTIFIC RESEARCH UNDER THE FEDERAL GOVERNMENT

ACCORDING to an Associated Press dispatch, President Roosevelt commended "to the consideration of the Congress" on January 23 a compilation of the activities of federal agencies in the field of research.

The report, prepared by the National Resources Committee, discussed federal research in medicine, agriculture, economics, public administration, etc. It suggested the coordination of such efforts.

Mr. Roosevelt's message follows:

I transmit herewith for the information of the Congress a report entitled "Research—A National Resource" compiled by the National Resources Committee.

This report deals with the relation of the Federal Government to research. Subsequent reports in this field will cover research by colleges, universities and foundations, by business organizations, by the industrial laboratories and by the state and municipal governments.

The dependence of civilization on science is universally recognized, but the extent of the activities of private and public agencies carrying on scientific inquiry is not generally known. It is unlikely that large numbers of our people have any adequate realization of the services which are being rendered by the executive agencies of the Federal Government through scientific researches in medicine, agriculture, economics, public administration and the other natural and social sciences.

This report indicates the new emphasis in recent years on activities in the social science fields and stresses the need for effective coordination of all agencies engaged in research in order to achieve the solution of many of our more difficult problems.

I commend the report to the consideration of the Congress.

In the report, the committee recommended these steps:

Further studies on work of the advisory committees which cooperate with federal research agencies and on research being done by states and municipalities.

Improvement in methods of recruiting research workers for government service.

Authorization for government research agencies to contract for cooperation with recognized private research organizations.

Financial support for international scientific meetings and encouragement of American participation in them.

Organization of government research so as to avoid the possibilities of bias.

Encouragement of decentralized research outside of the government.

Further interrelation of governmental research agencies by organization of central councils similar to those formed by private research.

SCIENTIFIC NOTES AND NEWS

DR. EDWARD R. WEIDLEIN, director of the Mellon Institute, Pittsburgh, Pa., has been presented with a Meritorious Service Medal of the State of Pennsylvania for "his outstanding contributions to industrial science."

DR. ARNO B. CAMMERER, director of the National Park Service, received the gold Cornelius Amory Pugsley Medal for park service in 1938 at the forty-fourth annual meeting in New York City on January 16 of the American Scenic and Historic Preservation Society.

THE Oersted Medal of the American Association of Physics Teachers, established through the generosity of an anonymous donor, was awarded for 1938 to Professor Alexander Wilmer Duff, professor emeritus of physics at the Worcester Polytechnic Institute. The award was made at the annual meeting of the American Association of Physics Teachers in Washington, D. C., on December 30.

THE Robert W. Hunt Award of the American Institute of Mining and Metallurgical Engineers for 1939 will be made to K. C. McCutcheon and John Chipman for their paper on "Evaluation of Gases from Rimming-Steel Ingots." The award of the Institute of Metals Division will be made to Frederick N. Rhines and Robert F. Mehl in recognition of their

paper on "Rates of Diffusion in Alpha Solid Solutions of Copper."

THE Duddell Medal of the Physical Society, London, has been awarded to Robert W. Paul in recognition of his work in the manufacture of electrical measuring instruments and in the development of the cinematograph.

DR. ARNAUD DENJOY, professor of mathematics at the University of Paris and exchange professor at Harvard University for the current academic year, has received the Prince de Monaco Prize from the Academy of Science of the Institut de France. The prize, which was established in 1924 by Prince Albert I of Monaco, carries an award of 100,000 francs and is given in recognition of distinguished work in the field of mathematics.

DR. MAX BODENSTEIN, professor of physical chemistry at the University of Berlin, has been elected an honorary member of the Swiss Chemical Society.

DR. GEORGE W. LEWIS, since 1924 head of the aeronautical laboratories at Langley Field, Va., and research director of the National Advisory Committee for Aeronautics, has been elected president of the Institute of Aeronautical Sciences. He succeeds T. P. Wright, vice-president and director of engineering of the Curtiss-Wright Corporation.

THE following have been elected officers of the College of Physicians of Philadelphia for the year 1939: *President,* George P. Muller; *Vice-president,* Edward B. Krumbhaar; *Secretary,* J. Harold Austin; *Treasurer,* T. Grier Miller; *Honorary Librarian,* Albert P. Brubaker; *Censors,* George E. de Schweinitz, John H. Gibbon, Thomas R. Neilson and Francis R. Packard; *New Councilors,* Eugene P. Pendergrass and Truman G. Schnabel.

AT the annual meeting in Toronto on January 17 of the Royal Astronomical Society of Canada officers were elected for 1939 as follows: Dr. William Findlay, professor of mathematics, McMaster University, Hamilton, Ontario, was reelected president. Dr. J. A. Pearce, Dominion Astrophysical Observatory, Victoria, B. C., and Dr. Frank S. Hogg, David Dunlap Observatory, University of Toronto, were elected vice-presidents. E. J. A. Kennedy, Toronto, was elected general secretary, and J. H. Horning, Toronto, treasurer.

W. REDMOND CROSS, president of the New York Zoological Society, has been elected chairman of the council of the American Geographical Society of New York. He succeeds Philip W. Henry, who resigned recently after serving for seventeen years.

AT the seventieth annual meeting of the board of trustees of the American Museum of Natural History, F. Trubee Davison was reelected president of the board. A. Perry Osborn was elected first vice-president. Mr. Osborn, a son of the late Professor Henry Fairfield Osborn, has served as trustee for eighteen years and has been executive chairman of the ten-year development program since its inception in February, 1937. Other officers reelected include: Cleveland E. Dodge, *second vice-president;* E. Roland Harriman, *treasurer,* and Clarence L. Hay, *secretary.* J. P. Morgan resigned as a trustee after a service of thirty years. During his trusteeship he has been vice-president, a member of the finance committee, of the buildings and plans committee, of the nominating committee, of the executive committee and of several special committees.

DR. WALTER DILL SCOTT, since 1920 president of Northwestern University, has presented his resignation to the trustees. He expressed the hope that his successor might be elected so as to permit his retirement in the autumn. Before becoming president, Dr. Scott had been connected with the university since 1900, successively as instructor, assistant professor and professor of psychology and director of the psychological laboratory.

DR. EDWIN COOPER VAN DYKE, since 1913 professor of entomology at the College of Agriculture of the University of California, will retire at the close of the academic year.

DR. WILLARD C. FLEMING, assistant dean of the College of Dentistry of the University of California, will become dean of the college at the conclusion of the present college year.

AT Western Maryland College S. B. Schofield, professor of chemistry and formerly dean of the college, has been appointed to the newly created position of dean of administration, and Dr. L. M. Bertholf, professor of biology and formerly dean of freshmen, has been appointed dean of the college.

DR. NORMAN CAMERON, associate in psychiatry in the Johns Hopkins Medical School and resident psychiatrist in the Johns Hopkins Hospital, has resigned to take charge of the laboratory for experimental psychology and psychopathology at the Payne Whitney Clinic of the New York Hospital. He has been appointed associate professor of psychology in the Cornell University Medical College and assistant attending psychiatrist in the New York Hospital.

PROFESSOR RAYMOND L. TAYLOR, associate professor of biology at the College of William and Mary, has been appointed Kenan visiting professor in the department of zoology of the University of North Carolina for the remainder of the present college year.

IT is announced in *Nature* that Dr. Erwin Schrödinger, professor of theoretical physics at the University

of Graz, Austria, has been appointed by the Fondation Francqui as a visiting professor for the next six months to a "Chaire Franqui" in the University of Ghent.

DR. CHARLES F. NASSAU, chief surgeon of Frankford Hospital and clinical professor of surgery at the Jefferson Medical College, has been appointed director of public health in Philadelphia.

DR. TREVOR KINCAID, chairman of the department of zoology of the University of Washington, has become a member of the staff of the Oceanographic Laboratories at Friday Harbor. He will offer a course on marine plankton during the regular summer session, from June 19 to August 19.

SIR FRANK E. SMITH will relinquish on January 31 his position as secretary to the Committee of the British Privy Council for Scientific and Industrial Research. The King has approved the appointment of Dr. E. V. Appleton, Jacksonian professor of natural philosophy in the University of Cambridge and fellow of St. John's College, to succeed Sir Frank.

THE *Lancet* states that Professor Julius de Darányi, director of the Hygiene Institute of the Royal Hungarian Péter Pázmány University of Budapest, has been appointed president of the Hungarian Postgraduate Medical Education.

DR. WILLIAM FINDLAY, McMaster professor of mathematics at the University of Toronto, gave on January 24 his address as president of the Royal Society of Canada. The address was entitled "Mathematics and Astronomy."

DR. WILLIAM R. AMBERSON, professor of physiology at the School of Medicine of the University of Maryland, spoke at a meeting on January 27 of the Philadelphia Branch of the American Association of Scientific Workers on "Cooperative Farming in American Agriculture."

THE Regius professorship of surgery in the University of Glasgow will become vacant on October 1, owing to the expiration of the tenure of office of Professor Archibald Young. Applications for the chair should be addressed to the Private Secretary, Scottish Office, Whitehall, London, S.W.1, and should reach him not later than March 15.

CORNELL UNIVERSITY has announced the establishment of the Henry Strong Denison graduate fellowships in agriculture, in memory of Henry Strong Denison, a graduate of Cornell University in the class of 1905. These fellowships were created by a gift from the Henry Strong Denison Medical Foundation, Inc., founded by Mrs. Ella S. Denison. Three fellowships with an annual stipend of $1,000 each will be awarded in the fields of the plant sciences, animal sciences and social sciences and agricultural engineering, for the purpose of encouraging young graduate students "who are especially gifted and qualified to carry on research work in the science of agriculture." Applications must be filed in the office of the Graduate School before March 1.

E. I. DU PONT DE NEMOURS AND COMPANY will award six post-doctorate fellowships for fundamental research in organic chemistry and eighteen post-graduate fellowships for research in the field of chemistry for the academic year 1939–40. The post-doctorate fellowships are for $2,000 each, while the eighteen post-graduate fellowships are for $750 each. Fellowships to cover advanced work in the field of chemistry have been made for a number of years by the du Pont Company. The purpose of the plan is to promote the advancement of science and to cooperate with the educational institutions in their efforts to carry on advanced research work. These fellowships do not restrict research to subjects connected with the products of the company. The colleges select not only the beneficiary of the fellowships, but also the subject of the research.

AWARDS from the Elizabeth Thompson Science Fund were reported in SCIENCE on May 20 and earlier. The next meeting of the trustees will be held in April. Applications for grants should be made to the Secretary, Dr. Jeffries Wyman, Jr., Biological Laboratories, Harvard University, Cambridge, Mass.

THE University of California has received gifts amounting to $122,000. This sum includes: from the estate of John E. Cox, $63,085 for medical research; from the estate of William Wilson Karson, for the university hospital, $50,000; from the Rockefeller Foundation, for the radiation laboratory, $3,750; for the Institute of Child Welfare, $3,490; for the research of Herbert M. Evans, $3,750; for the Institute of Social Sciences, $2,500; from the Fruit Growers Supply Company of Los Angeles, $2,500 for research in orchard heating by the division of agricultural engineering at Davis.

DR. H. A. B. DUNNING, director of the research laboratory and president of Hynson, Westcott and Dunning, Baltimore, has given $50,000 toward the construction of a research laboratory for the department of science of Washington College, Chestertown, Md. An initial gift of $50,000 towards the library was made some time ago by Dr. George A. Bunting, of Baltimore.

MISS ANNIE-MAY HEGEMAN, of New York and Lenox, Mass., has given to the Library of Congress and the Smithsonian Institution the sixteen-room residence of her stepfather, the late Representative Henry Kirke Porter, of Pennsylvania. Asking that the funds from the sale of the property at Sixteenth and I Streets, Northwest, be recorded as a memorial to

Mr. Porter, Miss Hegeman directed that the money be divided equally between the two institutions and used for the "increase and diffusion of knowledge."

THE late Charles E. Munroe, who was the last surviving charter member of the American Chemical Society, has left to the George Washington University, Washington, D. C., his library on chemistry and explosives, consisting of 505 bound volumes, 2,627 unbound volumes and pamphlets, and some thousands of clippings.

CAPTAIN ALLAN HANCOCK has presented the exploration cruiser *Velero III* to the University of Southern California. The vessel and its endowment go to the university as companion gifts to the Allan Hancock Foundation for Scientific Research established a year ago, a building for which is now being constructed. All steel from stem to stern the *Velero III* is 198 feet in length with 30-foot beam, powered by twin Diesel engines and fuel capacity for a 10,000-mile non-stop cruise. Fresh food and water storage is ample to supply thirty men on a three-months voyage. For the past eight years annual voyages have been made in the eastern Pacific. The vessel will continue her exploration work and will also serve for instructional purposes in nautical subjects.

IT is stated in *Nature* that the annual report of the Institute for Science and Labor, which was transferred from Kurasiki to Tokyo at the end of 1936, indicates that much of the work of the institute follows the lines of work of the National Institute of Industrial Psychology in Great Britain. Among a number of completed researches mentioned in the report are those on the clothing of farmers, syphilis morbidity in villages, psychological qualifications for textile workers, an examination of vocational testing methods, studies on manual dexterity and on the physical fitness of employees, studies on motions and positions in working, on repetition work, psychological differences between skilled and unskilled workers in a weaving factory. Some of the physiological work is on lines similar to those pursued by the Industrial Health Research Board in Great Britain as, for example, the investigations on environmental conditions, such as climate, the effect of occupational activities on basal metabolism, the metabolism of heavy muscular labor or the physiological studies on walking, but in addition the institute has completed a preliminary research on the daily protein requirements of the nation. Occupational diseases and the prevention of accidents have also received attention, and it is noted in abstracts of publications of the institute included in the report that scientific workers in Japan are now advocating on scientific grounds raising the minimum age of juvenile labor to at least fourteen years, with special protection up to eighteen years of age.

DISCUSSION

UNDERTOW[1]

IN a recent article[2] Professor O. F. Evans contributed some interesting data in regard to undertow. He showed by means of colored water that in small bodies of water with an on-shore wind there was a return of a subsurface current to counteract the on-shore current at the surface. These movements were all slow and were all observed in relatively smooth water. However, Evans suggested that these currents might become strong under storm conditions producing an "undertow" which might be dangerous to bathers.

Previously Shepard (SCIENCE, 84: 181–82, 1936) had suggested that this dangerous "undertow" was probably a myth based on the existence of river-like currents which move perpendicularly out from the beach in many localities. These flows, which are called "rip currents" or "rip tides" are in no sense undertow since like streams their principal movement is in the upper water. The existence of dangerous "undertow" was questioned chiefly because of failure to obtain reports from life guards or swimmers that it existed, and also because, as Professor W. M. Davis (SCIENCE, 61: 206–08, 1925) had shown, wave motion produces both a forward and backward movement along the bottom. However, in view of the experiments cited by Evans it seemed highly desirable to make further investigation of the nature of subsurface currents, particularly under storm conditions.

The opportunity to make these tests was provided by the 1,000-foot Scripps Institution pier. For the past year the writers, with the help of WPA assistants, have been taking daily soundings along this pier, using a machine which rolls along the rail and has a sounding arm which extends out for 10 feet from the pier. To the sounding line on this machine a wooden frame like that in Fig. 1 was attached. This frame has a large vane at the bottom which is moved in the direction of the prevailing current. At the top is a smaller vane which serves to tell the direction in which the large vane is pointing under the water. A heavy weight was suspended at the bottom of the line to dampen the surge of the waves. This device could be raised or lowered to any depth desired and thus could show the nature of the water movement at the various depths. Also it could be moved all along the pier by means of

[1] Contributions from the Scripps Institution of Oceanography, New Series, No. 39.

[2] SCIENCE, 88: 279–81, 1938.