

at Newark College of Engineering, "for his important contribution to the mathematical theory of probability and for his significant contributions to the improvement of telephonic communications both by the application of mathematical probability to the study of telephone traffic and by the invention of switching equipment." Cyril S. Smith, director of the Institute for the Study of Metals at the University of Chicago, received the Institute's Francis J. Clamer Medal "in recognition of his work leading to the discovery of the basic factors in the metallurgical behavior of elemental plutonium essential to the development of nuclear energy."

Commercial Atomic Power

Industry Takes a Long Hard Look

The suggestion that breeder piles might ultimately be owned and operated, under government licensing, by industrial companies to produce both plutonium for the government and electric power for consumers is reported to have greatly stimulated the interest of industry in the applications of atomic energy. Certainly the crowded corridors of the Waldorf-Astoria during the National Industrial Conference Board meetings in New York City last October suggested the opposite of apathy concerning "Atomic Energy in Industry", which was the conference theme. At least one spokesman for industry, however, has indicated that cost considerations will continue for some time to stand in the way of any large-scale commercial investments in the field.

Harry A. Winne, General Electric vice-president in charge of engineering, cautioned against too optimistic estimates of the early feasibility of an atomic-electric power industry in speaking before the American Institute of Electrical Engineers Machine Tool Conference on October 30th. The government is at present the only customer for plutonium, he pointed out, and plants operating breeder reactors could therefore live economically only so long as the government guarantees the market and price of plutonium. "This situation does not constitute a sound basis for an atomic-electric power industry," he continued. "Certainly, barring war, at some time in the future our atomic bomb stockpile should reach an adequately high peak, and the government would not then be justified in continuing to purchase the plutonium outright. Atomic-electric power will be really economically sound only when it can compete with conventional electric power without requiring a government-sponsored weapons market. It could not do that today—unless in some very peculiar and unusual circumstances—nor, in my opinion, for a good many years to come."

Referring to the atomic power feasibility studies being made by industry teams under contract with the AEC and to the work of the many other firms that are now contractors in the atomic energy program, Mr. Winne emphasized that industry nevertheless has a healthy interest in atomic energy that should be encouraged to grow. "Only thus," he said, "can we learn to build better and less costly atomic power plants

which, I believe, in the long-term future, perhaps several decades from now, will make atomic energy a significant contributor to our industrial activity."

New Research Facilities

Walter Kidde Nuclear Laboratories

The first privately-financed research organization devoted primarily to the development of atomic power for industrial purposes, the Walter Kidde Nuclear Laboratories, has begun research operations at its recently constructed laboratory near Garden City, on Long Island. The new laboratory, housed in a brick structure of modern design, with laboratory area for work in physics, chemistry, metallurgy, radiochemistry, and materials testing, is expected to be in full operation by the latter part of 1953, by which time it is expected that a minimum staff of one hundred will be employed. The stated objectives of the organization are (1) the development of commercial atomic power, with particular emphasis on original research and development in the field of low-cost nuclear reactors, (2) cooperation on a contract basis with government agencies and their contractors in the development and design of atomic facilities, and (3) collaboration with private industrial organizations, laboratories, and others interested in the application of the nuclear sciences to specific problems.

Battelle Laboratories at Frankfurt, Geneva

Battelle Memorial Institute, Columbus, Ohio research foundation, has announced that it is establishing industrial research laboratories in Germany at Frankfurt/Main, and in Switzerland at Geneva, and that a program of fellowships has been set up for selected students in the universities of both countries. In addition, research centers and fellowship programs for other West European nations are contemplated for the future. Battelle-Frankfurt has been licensed by the Bonn government to operate as a nonprofit organization on a site presented for the purpose by the City of Frankfurt. The laboratory will cost an estimated \$1,500,000 to build and equip. The Geneva laboratory, formerly used for medical research, is being remodeled and is scheduled for completion and occupancy early next year. The centers will be staffed by European scientists and technicians and are intended to provide research facilities to serve the industry of the two countries. Funds have been allotted by Battelle for approximately twenty fellowships in Swiss and German universities to be administered by the Swiss Federal Institute of Technology and by the German science foundation, Stifterverband für die Deutsche Wissenschaft.

Nuclear Physics Labs at NRL

Additional laboratory facilities for research in nuclear physics are being completed at the Naval Research Laboratory of the Office of Naval Research in Washington, D. C. Two new laboratory buildings, representing the first major expansion at NRL since the end of

World War II, provide approximately forty thousand square feet of laboratory and office space and house the scientific equipment and personnel of NRL's nucleonics division, one of the Laboratory's twelve scientific divisions. Established in 1947, the nucleonics division is concerned with naval applications of nuclear science. Scientists have already moved into at least one of the new buildings, a two-story square structure of steel-reinforced concrete. This building will contain a five-Mev Van de Graaff generator, besides providing machine shop facilities and office space for personnel. The second and larger of the two buildings will contain a two-Mev Van de Graaff generator and also a twenty-Mev betatron. It is expected that the various accelerators will be in operation early in 1953.

National Science Foundation

Grants in Support of Basic Research

Fifty-two grants and two contracts, totaling more than three-quarters of a million dollars, have been approved by the National Science Foundation under its programs for the support of basic research in the physical and the biological sciences. The list of awards, made public on October 21st, includes thirteen grants in physics with an outlay of \$184,900, which amounts to about one-fourth of the total. In addition, a number of awards itemized under other categories are of interest to physicists, some of them primarily so. Approximately thirty percent of the total funds have been awarded for research in the biological sciences. Of the remaining amount, fourteen percent was for work in chemistry, five percent in engineering, and the rest in astronomy, the earth sciences, mathematics, and miscellaneous projects in science and scientific education.

Seven physics grants, each with a duration of one year, were awarded to the following institutions (the amounts, the subjects of the research, and the names of the principal scientists are given parenthetically): Carnegie Institute of Technology (\$10,000, electronic states in solids and in chemical compounds with the method of observations on positron annihilation, S. DeBenedetti and R. Siegel); Columbia University (\$10,100, theoretical analysis of hyperfine structure problems, H. M. Foley); Lehigh University (\$4300, theoretical study concerning the nature and interaction of fundamental particles, P. Havas); Louisiana State University (\$11,800, measurement of the Hall effect and magneto-resistance of graphite and bismuth, J. M. Reynolds); University of Pittsburgh (\$5900, theoretical study of positron annihilation in matter, P. M. Stehle); St. Louis University (\$2900, structure of evaporated metal films as a function of film thickness, H. U. Rhoads); and Western Reserve University (\$9500, double beta decay, R. G. Winter).

Two-year grants were awarded to the University of Illinois (\$9200, low-temperature electronic phenomena in solids, R. Maurer); Indiana University (\$30,000, theory and interpretation of the interaction of elementary particles, E. J. Konopinski); Massachusetts

Institute of Technology (\$12,400, elastic spectrum of solids by the measurement of the temperature diffuse scattering of x-rays, B. E. Warren); University of Minnesota (\$45,000, atomic mass determinations with double-focusing mass spectrometer, A. O. C. Nier); and Ohio State University (\$14,900, physics of natural and artificial precipitation, A. N. Dingle).

A single grant of three years' duration was awarded to the University of Oregon (\$18,900, shift and broadening of special lines under high pressure of foreign gases, S. Y. Ch'en).

In addition to the awards listed under the heading of "Physics", NSF support amounting to \$3600 has been provided to the American Association of Physics Teachers for the compilation and publication of a twenty-year cumulative index for the *American Journal of Physics*, under the direction of its editor, T. H. Osgood. The Foundation is also providing funds for the expenses of two conferences of interest to physicists, of which one is the third annual conference on high-energy physics being held this month at the University of Rochester, and the other is a conference on the abundance of the elements, held early last month at the University of Chicago's Yerkes Observatory. \$2000 was provided for the former, with R. E. Marshak listed as principal scientist; H. C. Urey is named in connection with the Yerkes conference, for which \$4000 is awarded by the Foundation.

As previously mentioned (*Physics Today*, September 1952, p. 30), NSF is joining with the Office of Naval Research and the Rockefeller Foundation in a three-year program to provide financial support for the White Mountain high-altitude research station in California, and the sum of \$32,800 for this purpose is listed as one of the current awards.

This is the first group of grants and contracts to be announced from NSF's 1953 fiscal year budget for the support of basic research and other matters relating to the mission of the Foundation. Additional proposals are being evaluated by the NSF staff with the help of advisory panels of outstanding American scientists.

Miscellany

Three new members appointed by President Truman to the General Advisory Committee of the Atomic Energy Commission are James B. Fisk, director of physical research at the Bell Telephone Laboratories and former head of the AEC's division of research, John C. Warner, president of the Carnegie Institute of Technology, and Eugene P. Wigner, professor of physics at Princeton University. They succeed James B. Conant, president of Harvard University, Lee J. DuBridge, president of the California Institute of Technology, and J. Robert Oppenheimer, director of the Institute for Advanced Studies.

Memorializing the nineteenth century Michelson-Morley interferometer experiment, which demonstrated that the observed velocity of light is constant regardless of the earth's motion or position relative to the