

Miscellany

Research and Education

On the basis of a year's study of fundamental research in this country, The Alfred P. Sloan Foundation, Inc., of New York City, has established a \$5 million program devoted to promoting basic research in the physical sciences. According to the announcement made late in May, basic research will be aided in two ways: researchers will be relieved, in whole or in part, of their academic duties so they may devote themselves to "such areas of basic research in the physical sciences as seem to offer the greatest promise"; and funds will be supplied to cover the cost of special services or equipment and to provide for predoctoral or postdoctoral fellows as assistants to the senior researcher. Trustees of the Foundation expect that grants to staff members will contribute toward easing the financial problems of universities and technological institutions. A program committee has been set up consisting of Arthur C. Cope, Massachusetts Institute of Technology (Chairman), James B. Fisk, Bell Telephone Laboratories, K. S. Pitzer, University of California, F. Seitz, University of Illinois, and A. W. Tucker, Princeton University. Richard T. Arnold, professor of chemistry at the University of Minnesota, has been appointed administrator of the program.

Georgia Institute of Technology has established an advisory committee on nuclear science to examine the steps which the Institute should take to render the maximum service in the expansion of research, development work, and teaching in the field of nuclear science. The committee, headed by James E. Boyd, assistant director and head of the physics division of the Engineering Experiment Station, will survey faculty and departments to determine existing facilities and experience in nuclear science, courses under consideration, desirable new facilities, and consultative and other experience gained at Oak Ridge and other Atomic Energy Commission installations.

Florida State University has announced a new curriculum in radiation physics which leads to a bachelor's degree with a major in radiation physics and is designed to offer the necessary background for specialization in a variety of fields. By appropriate choice of electives during their junior or senior year, students may qualify for work in such fields as radiation physics, chemical physics, biophysics, and geophysics, or prepare for high school science teaching, medicine, or engineering. For further information and outlines of suggested four-year curricula, write to Guenter Schwarz,

Chairman, Department of Physics, Florida State University, Tallahassee, Florida.

Establishment of a nuclear engineering option in the undergraduate engineering curriculum at Cornell University was announced in May. The new elective program, consisting of approximately 12 hours of lecture and laboratory work in atomic, solid-state, and nuclear physics, will use the facilities and staff of the Newman Laboratory of Nuclear Studies and the physics and engineering physics departments. Acquisition of a nuclear reactor is under study. Meanwhile there will be experiments in neutron physics and other fields pertinent to work with actual reactors.

Grants and Fellowships

The National Science Foundation has announced 297 grants totalling over 2.8 million for basic research. This is the third group of awards made in fiscal year 1955. Awards made in physics and related sciences are: Brown University (H. E. Farnsworth), catalytic action of crystal faces, and (L. Maximon), evaluation of the integral cross section for Bremsstrahlung; University of California (F. A. Jenkins), nuclear moments from observations on hyperfine structure in the optical region; Carnegie Institute of Technology (S. DeBenedetti), slow positrons in solids; Columbia University (G. G. Harris), emulsion study of high energy nuclear interactions; University of Denver (M. Iona), asymmetry of extensive air showers; DePauw University (M. Correll), characteristics of active region prominences of the sun; Illinois Institute of Technology (W. E. Bennett), nuclear reactions with alpha-particles of low energy, and (F. F. Cleveland), spectroscopic determination of molecular thermodynamic properties; University of Illinois (F. Seitz), imperfections in crystalline materials; Kent State University (A. A. Silvidi), continuous cloud chamber; University of Maryland (J. S. Toll), particle theory and foundations of field theory; New Mexico Institute of Mining and Technology (E. J. Workman), geochemical effects of freezing of terrestrial waters; University of Oregon (B. Crasemann), decay schemes of long lived positron emitters; University of Pittsburgh (T. M. Donahue), sodium and oxygen air-glow; Purdue Research Foundation (S. N. Gupta), quantum theory of fields, and (K. W. Meissner), an atomic beam source for wavelength standard; Smith College (N. M. Mohler), studies with nuclear plates, and (W. T. Scott), nuclear scattering of mesons; Stanford University (G. E. Pake), hyperfine structure of paramagnetic resonances; Syracuse University (P. G. Bergmann), quantum theory of gravitation; University of Utah (G. R. Fowles), isotope shifts in the spectra; and University of Virginia (N. Cabrera), dislocations in crystal growth and plastic deformation.

In addition to the basic research grants, NSF funds have been made available for other, more general, studies and projects. The Foundation is, for example, supporting summer institutes for high school science

OUTSTANDING McGraw-Hill Books

NUCLEAR REACTOR AND POWER PLANT CONTROL

By M. A. SCHULTZ, Westinghouse Atomic Power Division. McGraw-Hill Series in Nuclear Engineering. In press

This is the first systematic and comprehensive presentation of all the pertinent information available at the present time on reactor and power plant control. It is an engineering approach to the physics problem of safely controlling nuclear reactors, alone or with attached power plants. The book first provides an introductory background to the problems and develops basic kinetics and responses of nuclear reactors. Special attention is given to operating control problems during startup, power level operation, and shutdown.

MODERN PHYSICS

By JOHN C. SLATER, Massachusetts Institute of Technology. 330 pages, \$5.50

This new text offers an elementary survey of modern physics, keynoting the logical historical development of 20th Century physics from 1900 to the present. It follows the development of the ideas of modern physics, in particular the quantum theory, and its application to the structure of atoms, molecules, solids, and the atomic nucleus. It shows how each of the great new theories followed each other almost inevitably, with the latest nuclear discoveries, for example, being completely dependent on prior understanding of wave mechanics, quantum mechanics, electrodynamics of particles, etc.

ESSENTIALS OF BIOLOGICAL AND MEDICAL PHYSICS

By RALPH F. STACY, Ohio State University; DAVID T. WILLIAMS, Battelle Memorial Institute; RALPH E. WORDEN, Ohio State University; and REX McMORRIS, Ohio State University. 602 pages, \$8.50

A new work providing a unification of the far-reaching and widely scattered ideas comprising the broad field of biophysics. The relation between physics and physiological sciences is clearly defined, and thus introduces the student to the characteristics peculiar to both fields. Principles, approaches, and limitations of the application of physics to biology are emphasized throughout. Basic facts of instrumentation are given at the beginning of each chapter, and the clinical medical applications of the material, including such recent advances as high frequency radiation, application of ultrasonics, use of mechanical principles, are presented at the ends of the chapters.

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teachers at the Oak Ridge Institute of Nuclear Studies and at Pennsylvania State University; a summer institute for physics teachers at the University of New Mexico; and summer mathematics programs at Oklahoma A & M, Stanford University, and the University of Wisconsin. NSF is also supporting a two-day conference at the University of Chicago on summer institutes for science teachers; a survey of research potential and training in the mathematical sciences, also at Chicago; studies of a radio astronomy facility by Associated Universities, Inc.; and a study of physics in engineering education by the American Institute of Physics.

Five new contracts are among thirty-three unclassified physical research contracts awarded by the Atomic Energy Commission in May. New grants totalling \$93 470 have been made to the following institutions: Brigham Young University (E. J. Eastmond and R. W. Hales), research in shock waves; Brown University (R. Truett), radiation damage studies; Kansas State College (E. R. Lippincott), raman spectra of colored and absorbing substances; Louisiana State University (R. C. Mobley), neutron scattering; and New York University (J. F. Nielsen), origin of secondary recrystallization nuclei. In the life sciences, research contracts have been awarded to Columbia University (C. B. Braestrup), attenuation of scattered cobalt⁶⁰ radiation in lead and building materials, and to St. Procopius College in Illinois (F. R. Shonka), for a study of special problems in nuclear instrumentation.

Bell Telephone Laboratories announced on June 8th the establishment of a fellowship program through which it will grant funds to students doing graduate study in electrical communications. Each fellowship, carrying a grant of \$2000 to the fellow and an additional \$2000 to the institution at which he chooses to study, will be awarded for predoctoral study in a field of study and research that has "bearing on electrical communications".

Applications are now being accepted for Fulbright awards in university lecturing and postdoctoral-level research in Austria, Belgium and Luxembourg, Denmark, Finland, France, Germany, Greece, Iraq, Italy, Japan, Netherlands, Norway, Pakistan, and the United Kingdom and its colonial dependencies. Lecturing and research opportunities include pure mathematics, medical uses of atomic energy, and theoretical and nuclear physics. Awards are made for the academic year (1956-57) although "in exceptional circumstances" applications will be considered for a six-month period of research or for a semester of lecturing; transportation for the grantee and a maintenance allowance plus an allowance for books or equipment are included and are made in the currency of the host country. Applicants must be U. S. citizens. For application forms (which must be submitted before October 1st) and additional information write to: Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Avenue, Washington 25, D. C.