Miscellany

Programs and Facilities

An astronomical workshop for the joint use of the Harvard College Observatory and the Smithsonian Astrophysical Observatory is to be constructed on Harvard's Observatory Hill during the coming year. The new four-story building will house offices, shops, and laboratories, including one with a high-speed computer which will be used in the optical tracking of artificial earth satellites by the Smithsonian Observatory. The latter moved its headquarters to the Harvard College Observatory in 1955, and a number of scientists hold staff appointments at both Observatories. The director of the Smithsonian Observatory, Fred L. Whipple, is professor of astronomy at Harvard. The new structure will enable the Smithsonian Observatory to consolidate its various computation, analysis, meteoritic, and other research programs now located elsewhere in Cambridge. It will also provide additional space for cooperative projects of the two Observatories involving the design and analysis of rockets, satellites, and other space probes. Harvard astronomy students, according to Donald H. Menzel, director of the Harvard Observatory, will have access to the new facilities in their graduate training.

The University of Pittsburgh will have a new $100 000 advanced atomic and nuclear physics laboratory to train undergraduate students of physics and engineering by the fall semester of 1960. Funds for the project have been provided by a $30 000 grant from the Sarah Mellon Scaife Foundation and other gifts to the University which have been earmarked for this purpose. The new laboratory will permit a heavy emphasis on modern physics (particularly on the principles of atomic and nuclear physics) in the engineering curriculum. It will also enable the physics department of the Division of Natural Sciences to increase substantially the number of undergraduate students majoring in atomic and nuclear physics and preparing for careers in this field. In addition, it will make possible two new cooperative teaching programs with other areas of the University: a joint program with the computing center in which the techniques of electronic computation will be taught and a program in reactor physics using facilities of the Graduate School of Public Health.

High Voltage Engineering Corporation, Burlington, Mass., has announced the establishment of a new physics research laboratory for basic and applied neutron studies. The facility will conduct investigations in activation analysis and will provide neutron output data as well as information on target life and design. A 2-Mev Van de Graaff positive ion particle accelerator, specially fitted for neutron work, will be used in surface analysis studies, wear and corrosion investigations, and related metallurgical projects.

Research Corporation has awarded grants for 48 basic scientific research projects in physics, chemistry, astronomy, and the biological sciences at US colleges and universities in 24 states, the Lowell (Arizona) Observatory, the University of Western Ontario, Canada, and The Hebrew University in Israel. The grants will be used principally to purchase experimental equipment and supplies and for fellowship stipends on research projects undertaken by individual scientists.

Establishment of commercial testing laboratories for the testing and calibration of industrial instruments has been announced by Schaevitz Engineering, Pennsauken, N. J. Environmental testing facilities will incorporate devices for electronic testing and for measuring such parameters as acceleration, vibration, shock, tension, compression, temperature, altitude, and humidity. Acoustic testing facilities incorporating high-intensity sound sources and recording equipment will be employed in studies concerned with fatigue and stress problems caused by noise. The laboratories will also be equipped with a large centrifuge, approximately 35 feet in diameter, which is currently under construction.

Rocketdyne, a division of North American Aviation, Inc., has established a new engineering subdivision ("Nucleonics") to deal with programs involving nuclear and ionic propulsion devices and power conversion systems. R. B. Dillaway will manage the new group, and R. H. Boden, 1959 Manly Memorial Award winner, will be staff scientist.

A theoretical research study in plasma physics has been initiated by the National Bureau of Standards under the sponsorship of the Air Research and Development Command. C. M. Tchen of the NBS Mathematical Physics Group will be in charge of the work, which forms a part of a Bureau-wide program of basic studies in plasma physics and astrophysics.

Science Education

Plans have been announced for the construction of an Ernest Orlando Lawrence Hall of Science to be located on the Berkeley campus of the University of California. Harvey E. White, professor of physics and instructor of the first nationally televised course on introductory college physics, has been named director of the Hall and will supervise its planning and development. The Hall of Science will be dedicated "to opening the pathways of science to young people and to informing the public about science and its modern discoveries". Facilities to be included are a large auditorium, equipped with visual aids, television, and a revolving stage, which will be the scene of a proposed

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Electronics Arm of General Dynamics

PRINCIPAL SCIENTIST - CIRCUIT ANALYSIS

To investigate specialized problems in system and circuit analysis and synthesis. Requires 7–10 years experience in fields involving information theory, microwave theory and probability studies. Advanced degree in Physics or EE desired; PhD preferred.

RESEARCH ENGINEER - ACOUSTICS

To conduct analytical investigations in the field of acoustics involving electromechanical transducer design, dynamics of structures and properties of materials. Requires 5–7 years experience in fields covering the design of conventional resonant transducers and coupling structures. PhD in Physics desired; other degrees considered.

RESEARCH ENGINEER - UNDERWATER ACOUSTICS

To conduct fundamental studies in hydro-acoustics, in detection and classification. Requires 5 years experience in areas involving attenuation, transducers, magnetic fields etc. PhD in Physics or EE desired; lesser degrees considered.

RESEARCH ENGINEER - SPEECH ANALYSIS

To conduct theoretical and applied studies in fields involving speech analysis and band width reduction. Requires 2–5 years experience in speech content, redundancy and in systems and circuit design. Advanced degree in Physics or EE preferred.

PRINCIPAL SCIENTIST - RESEARCH

Will initiate programs in the field of molecular electronics with special emphasis on magnetic thin films and semiconductor high frequency devices. Research in solid state physics including microwave resonance effects. Require PhD in Physics with 1–5 years additional creative work.

SENIOR RESEARCH ENGINEER

To conduct fundamental studies in radio communications. Knowledge of high frequency propagation, communications theory. PhD in EE, Physics (communication theory) or Mathematics. 1–5 years experience in radio communication, modulation, detection and/or coding.

PRINCIPAL SCIENTIST - RESEARCH

Will conduct studies and development in the field of low noise microwave components—microwave circuit design. 2–5 years microwave experience or in solid state at high frequencies. PhD or strong MS in Psysics.

PRINCIPAL SCIENTIST - RESEARCH

To be consultant to all Research Laboratories. Will assist in mathematical analysis of specialized problems. 8–10 years experience desired in general mathematics with emphasis on information theory areas. PhD in mathematics.

SENIOR SCIENTIST - MATHEMATICIAN

To analyze and conceive requirements bearing on advanced communications systems and to assist in studies relating to message switching. Heavy math background essential. Advanced math degree with electronics knowledge or advanced EE degree with heavy math.

PRINCIPAL ENGINEER - DIGITAL TECHNIQUES

To work in Digital Section of Research Laboratory, recommending and developing study programs and consulting thereon. Requires minimum 8 years experience in solid state digital techniques. PhD in EE or Physics required.

SENIOR ENGINEER - RADIO COMMUNICATIONS

To conduct advanced studies or to assist in same in radio communications areas. Must have extensive design and development experience in solid state circuitry and in modulation and coding techniques. MS in EE essential.

PRINCIPAL SCIENTIST - RESEARCH

Physics specialist to consult with all Research Laboratories as well as initiate studies in physics areas, such as solid state, microwave, resonances, EM Theory etc. 5–10 years experience desired in broad physics background. PhD in Physics required.

PRINCIPAL ENGINEER - COMMUNICATIONS RESEARCH

Communication Theory specialist for basic studies in communications using all mediums, but principally in water as operating medium. 1–5 years desired in communications. PhD in EE or Mathematics. EE must have strong math background.

Please write complete details, including salary requirements, to Fred E. Lee.

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daily "spectacular" science show, a science library, laboratories, workshops, and classrooms, and an Ernest O. Lawrence Exhibit Hall. Current plans call for varied displays, demonstrations, and programs in physics, chemistry, mathematics, geology, astronomy, space sciences, biology, electronics, and nuclear energy to be developed by Dr. White and his staff with the assistance of experts to be elected from University scientists in each field of study and from high-school teachers in corresponding fields. It is planned that the displays, daily shows, and other programs and lectures at the Hall will be open to the public. For class groups from elementary through the high-school grades, there will be special programs and shop sessions for student participation. There will also be special programs for science teachers. The University hopes to complete the Hall of Science by 1964.

A list of scholars from abroad who are visiting in the United States during the current academic year under the terms of the Fulbright and Smith-Mundt Acts is available from the Committee on International Exchange of Persons, Conference Board of Associated Research Councils (2101 Constitution Avenue, N.W., Washington 25, D. C.). It gives the names of the visitors, their positions in their home countries, the host institutions, dates of their stay in the US, as well as their fields of specialization and other interests. The Committee has indicated that most of the visitors will welcome opportunities to give occasional lectures in places other than their host institutions. Approximately 65 physicists are now listed as visitors, as are a number of biophysicists, astrophysicists, chemists, and metallurgists whose interests lie close to physics.

Recent grants made by the Ford Foundation include a number concerned directly with advanced science education in the United States and abroad. A $500 000 award to the European Nuclear Research Center will enable scientists, particularly from the US and Asian countries, to participate in CERN's high-energy experimental work at Geneva; similarly, a $300 000 award to the Bohr Institute for Theoretical Physics in Copenhagen will expand the number of foreign scientists participating in that program. Under the Foundation's Overseas Development Program, the National Council of Scientific and Technical Investigation in Argentina has received $300 000 to increase its number of fellowships for advanced study and research outside the country, and the Brazilian Center of Research in Physics has been granted $100 000 to assist in replacing and expanding its library, which was destroyed by fire last May. In the US, the Foundation recently granted nearly $2 million to nine universities to be used primarily for graduate fellowships during the next five years in the fields of plasma physics, meteorology, and oceanography. The recipient institutions are the California Institute of Technology, the Universities of California (La Jolla), Chicago, Colorado, Minnesota, and Wisconsin, the Massachusetts Institute of Technology, and Harvard and Princeton Universities.

Educational Services Inc., a nonprofit organization which administers the Secondary School Physics Project of the Physical Science Study Committee, has selected the Macalaster Bicknell Company of 243 Broadway, Cambridge, Mass., as the manufacturer and commercial distributor of PSSC laboratory apparatus. A catalog of the apparatus available for the 1960–61 school year will be circulated this spring to interested teachers and schools. Other PSSC course materials developed over the past three years are now being placed in the hands of commercial suppliers. D. C. Heath and Company, Boston, will publish the textbook *Physics* as well as the *PSSC Laboratory Guide* and *Teacher's Guide*. The PSSC was organized in 1956 at the Massachusetts Institute of Technology to devise a modern course in physics for secondary schools and to prepare materials for such a course. Its membership includes university professors, high school teachers, industrial scientists, and technical specialists drawn from many parts of the country. The work of the Committee has been sponsored by the National Science Foundation, The Ford Foundation, The Alfred P. Sloan Foundation, The Fund for the Advancement of Education, and other organizations.

Formation of a Department of Biochemistry and Biophysics has been announced by Iowa State University. The new department will serve the entire university and will be supported by both the College of Agriculture and the College of Sciences and Humanities. It will be staffed initially by six biochemists formerly in the Department of Chemistry and two biophysicists formerly in the Department of Physics and it will be headed by R. Scott Allen, professor of biochemistry. The new department is intended partly to give more recognition to the importance of the two fields and partly to achieve their better integration by bringing biophysicists and biochemists together.

Beginning in September, Columbia University's School of Engineering will offer a new "degree of Nuclear Engineer" intended for professional engineers who "wish to practice nuclear engineering but who do not need a doctorate". The course of study for the NE degree will be more advanced than for a Master of Science degree but less rigorous than for a doctorate.

Harvard University's program of teaching and research in the atmospheric sciences has been aided by a new $172 200 grant from the National Science Foundation to provide support for postdoctoral research fellows. This supplements a Ford Foundation grant for predoctoral fellowships in the same fields of study. Research projects which are now underway or contemplated include studies of dust at 80 km from twilight photometry, laboratory measurements on rotational relaxation relevant to studies of the thermal state of the lower *E*-layer, infrared spectrographic studies of solar intensity and densities of minor constituents in the atmosphere, and theoretical and laboratory problems in thermal convection. Further information can be ob-

tained from Professor R. M. Goody, Pierce Hall, Harvard University, Cambridge, Mass.

Summer Sessions

Brandeis University has announced plans for a Summer Institute in Theoretical Physics in 1960. Two consecutive three-week sessions will run from June 27 through August 5. Courses and seminars in the theories of fields and particles will be offered for graduate and postdoctoral students. Some fellowships and grants-in-aid will be available. Among the visiting faculty will be P. T. Matthews of Imperial College, London; C. Møller of The Institute of Theoretical Physics, Copenhagen; J. Schwinger of Harvard University; and S. Treiman of Princeton University. Inquiries about the Summer Institute should be directed to the Summer School Office, TPI, Brandeis University, Waltham 54, Mass.

A series of summer seminars will be presented jointly by the Air Force Missile Development Center and the University of New Mexico during the two-week period from June 20 to July 1. All sessions will be held in the Little Theater in Cloudcroft, N. M. The following program will be offered: "Dynamics of Thin Films" and "Air Currents Produced by Local Heating" (Sir G. I. Taylor), "Recent Advances in the Theories of Superconductivity" (John Bardeen), "The Theory of Relativity" (H. P. Robertson), and "Nuclear Syntheses" (William A. Fowler). Advance arrangements for attendance, which will be limited by the small size of the available auditorium, may be made through Dr. J. R. Foote, P. O. Box 1053, Holloman Air Force Base, N. M.

Among the subjects to be included in this year's engineering summer conferences at the University of Michigan will be random processes, introduction to standard methods of numerical analysis, theory of computing machine design, advanced numerical analysis, fundamentals of infrared technology, topics in multiphase flow, elementary and advanced courses in semiconductors, and fundamental and advanced topics of solid-state microwave amplifiers and oscillators. A more complete listing (including the dates of the courses, their content, fees for admission, etc.) and application materials may be obtained from R. E. Carroll, Coordinator, Engineering Summer Conferences, 2038 East Engineering Building, University of Michigan, Ann Arbor, Mich.

A Summer School in Modern Methods of Crystal Structure Determination will be held in the Manchester (England) College of Science and Technology from August 29 to September 9, shortly after the Cambridge meeting of the International Union of Crystallography. The main topics will be direct methods, Fourier-transform and optical-transform methods, anomalous scattering, and refinement procedures. In addition there will be some lectures and discussions on recent results in the various fields with assessment of their implications.