

temperatures will be conducted in the High-Temperature Gas Dynamics Project under the leadership of Howard W. Emmons, Gordon McKay professor of mechanical engineering, and will be centered in the University's Division of Engineering and Applied Physics. The program will include a study of simulated atmospheres of various planets in the solar system in an effort to anticipate the problems that may be encountered when space vehicles enter such atmospheres. There will also be studies of rocket propulsion by electromagnetic means, combustion studies dealing with flames and detonations in various mixtures of gases and liquids, research on thermonuclear processes, and astrophysical investigations which will attempt to answer questions about sunspots, solar flares, and prominences. Also included in the latter part of the project will be studies of the naturally occurring high-temperature gases in the solar system and in some nebulae.

Facilities

Construction was started in September on a new \$430,000 high-energy research building at Columbia University's Nevis Cyclotron Laboratory located in Irvington-on-Hudson, N. Y. The building will be the fourth major structure at the Irvington site; others already in use include the cyclotron building, a laboratory structure, and an old carriage house that is used as a machine shop and administrative office. The new building will provide additional laboratory and office space and an experimental machine shop. It is scheduled for completion during the summer of 1960.

The second phase of construction of the Sterling Forest (N. Y.) research center of the Union Carbide Nuclear Company, a division of Union Carbide Corporation, was begun early this fall and is expected to take about a year to reach completion. The structures now being built are the research reactor building and the radioactive materials laboratory. The building will house a 5-megawatt nuclear reactor which will serve as the focal point of nuclear research activities for all Union Carbide divisions.

On September 22, the Mellon Institute officially opened the first two buildings at its Bushy Run Laboratories, which are located on a 230-acre site outside of Pittsburgh. The completed research facilities consist of the Radiation Research Building and the Chemical Hygiene Building, the first two in a projected series of special buildings, each of which is to be devoted to a particular field of scientific investigation. The project represents an expansion of the Institute's activities and supplements its main facilities in Pittsburgh. At the Radiation Research Laboratories, which are under the direction of Robert H. Schuler, formerly of the Brookhaven National Laboratory, the work involves studies of the behavior of various materials under high-energy irradiation. A 3-Mev Van de Graaff accelerator is the major experimental tool. The building also contains a special laboratory for advanced work

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in radiophysics and radiochemistry, 20 other laboratories, a library, offices, and a conference room.

Groundbreaking ceremonies for a multi-million dollar, eighteen-story United Engineering Center were held on October 1 at a site located on United Nations Plaza in New York City, just two blocks north of the American Institute of Physics building. The Center will house the headquarters of eighteen major engineering societies with a combined membership of more than 300 000. According to Andrew Fletcher, president of United Engineering Trustees, the organization that will own and operate the structure on behalf of the societies, its primary purpose will be to provide adequate working space for the headquarters staffs of the engineering groups, which carry on extensive publishing, research, and standardization programs. Completion of the building is scheduled for mid-1961.

Cornell Aeronautical Laboratory will design and build what is believed to be the world's first wind tunnel for long-duration (up to 15-second) testing of hypersonic missiles and space vehicles under actual atmospheric flight conditions. The new tunnel will be located at CAL's main research center in Buffalo, N. Y., and will be constructed during the next two years under a \$3.1 million contract with the Air Force Air Research and Development Command with funds provided by the Advanced Research Projects Agency of the Department of Defense. The new test installation (called a "wave superheater hypersonic tunnel") will be capable of generating airflows approximating 10 000 miles an hour and temperatures of 9000° F. It is expected to be used for the study of structural, materials, and aerodynamic problems connected with the nation's ballistic missile, ballistic missile defense, and space technology research programs.

Science Education

The **National Science Foundation** will continue to support in 1960 an experimental program of some 20 summer conferences designed primarily for college teachers of engineering, science, and mathematics. The summer conferences are of one-to-three-week duration and are directed toward strengthening teachers' mastery of these subjects as a means of increasing their capacity as teachers. Colleges and universities interested in sponsoring such conferences are invited to request further information from the Program Director for Summer Institutes, National Science Foundation, Washington 25, D. C. The deadline for submitting proposals is December 15, 1959.

In a move designed to encourage highly qualified secondary-school teachers to improve their competence by working at the graduate level in the substantive subject matter fields of science and mathematics, the National Science Foundation has also announced its program of Summer Fellowships for Secondary-School Teachers of Science and Mathematics. Several hundred awards will be made for study beginning in the summer

of 1960 and continuing for as many as three successive summers. Fellowships will be awarded to support individually planned programs of study in the mathematical, physical, and biological sciences acceptable by the fellowship institution toward an advanced degree in one of these fields. Although fellows will not be required to pursue courses of study leading to an advanced degree in science, they will be required to study at that level. An applicant must be a US citizen who is a science or mathematics teacher in a secondary school with three years of experience in that capacity, and he must hold a baccalaureate degree or its equivalent. Grants will include stipends at the rate of \$75 for each week of tenure (plus travel and dependency allowances), and the Foundation will pay for tuition and fees. Evaluation of applicants will be made by panels of scientists chosen for this purpose by the American Association for the Advancement of Science. Information and application materials may be obtained from Secondary School Fellowships, American Association for the Advancement of Science, 1515 Massachusetts Avenue, N. W., Washington 5, D. C. Completed applications must be received by the Association by January 15.

Two additional NSF programs, to be administered by the National Academy of Sciences—National Research Council, are the Foundation's programs of graduate and postdoctoral fellowships under which the Foundation plans to award approximately 1100 graduate and 125 postdoctoral fellowships during the 1960–61 academic year. Open only to US citizens and awarded solely on the basis of ability, the fellowships may be applied towards advanced study in the physical, mathematical, medical, biological, or engineering sciences. They are open to college seniors, graduate and postdoctoral students, and other individuals with equivalent training and experience. All applicants for graduate (predoctoral) awards will be required to take an examination designed to test scientific aptitude and achievement. This examination, administered by the Educational Testing Service, will be given on January 16 at designated centers throughout the US and certain foreign countries. The annual stipends for graduate fellows range from \$1800 for the first year to \$2200 for the terminal year. The annual stipend for postdoctoral fellows is \$4500. Limited allowances will also be provided for tuition, laboratory fees, and travel. Further information and application materials may be obtained from the Fellowship Office, National Academy of Sciences—National Research Council, 2101 Constitution Avenue, N. W., Washington 25, D. C. The deadline for the receipt of applications for regular postdoctoral fellowships is December 22, 1959, and for graduate fellowships, January 1, 1960.

Publications

Beginning in January the title of *Mathematical Tables and Other Aids to Computation*, a journal published quarterly by the National Academy of Sciences—National Research Council since 1943, will be changed