range financing of teacher education, including payment of teacher-trainees by school systems before certification.

The institutions that are receiving grants are Barnard College, $70,000; Brown University, $1,047,000; University of Chicago, $2,400,000; Claremont Graduate School, $425,000; Duke University, $294,210; George Peabody College for Teachers, $600,000; Harvard University, $2,800,000; Stanford University, $900,000; and the University of Wisconsin, $625,000.

Most of the new programs have been aided in their early stages by small grants from the foundation or from the Fund for the Advancement of Education —an independent organization established by the foundation and now being gradually consolidated with the foundation.

Society for Metals

The new semicircular headquarters office building of the American Society for Metals is scheduled for completion in late summer. The structure is located 23 miles east of Cleveland, Ohio, in Russell Township, on a 100-acre site given to the society by the late William H. Eisenman, a founding member of the society and its national secretary for 40 years. The center is to be designated "Metals Park," with Novelty, Ohio, as its post office.

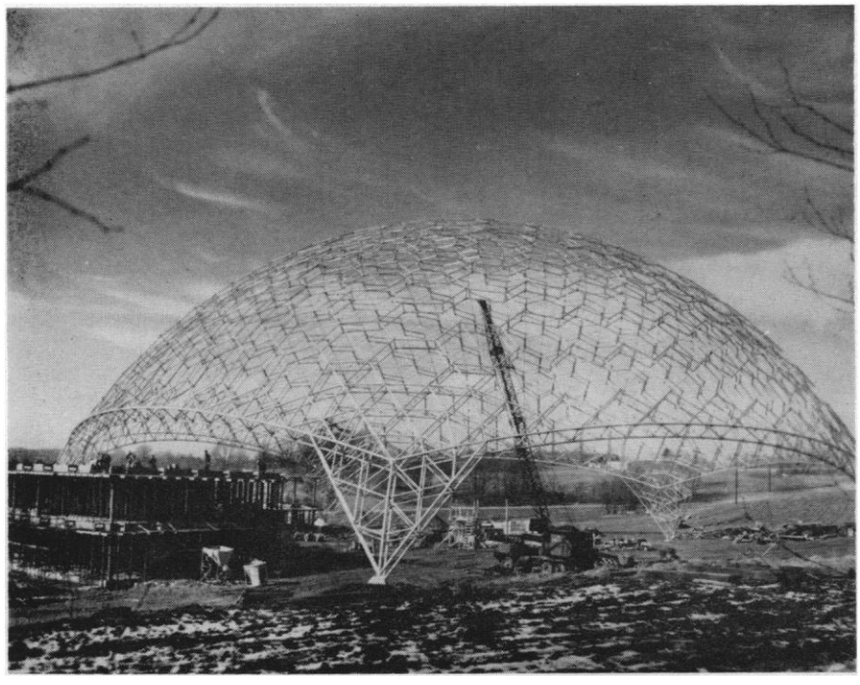
The building is to have three levels. It conforms to a 168° semicircle, with a 240-foot outer face and a 140-foot inner face. The structure will be 53 feet deep and contain approximately 50,000 square feet.

Reinforced concrete will comprise the principal building material, although the copper, brass, bronze, chrome, nickel, titanium, and zirconium, along with other metals, will also be used. For example, the door of the elevator, as well as the car itself, will be faced with copper having a specially ornamented surface.

A 240-foot sun shield along the perimeter of the western side of the structure (third level) will be made of stainless steel, an unusual application of the metal. The shield will be 15 feet high and so perforated as to allow a view of the countryside while insuring protection from the sun.

The geodesic dome, an open honeycomb of hexagons, rises 10 stories high. Its diameter is 250 feet. Made of aluminum tubing and tension rods, the "space lattice" contains more than 65,000 parts.

It is actually two domes in one, with 30 inches between the two. The tubing which comprises the dome is of two diameters; the base supports, pylons, and connecting trusses are 6 inches in diameter, while all other components are 4 inches in diameter. More than 5¼ miles of tubing has gone into the dome. An additional 7¾ miles of ¾-inch tension rods lace the dome structure to give it rigidity. Designer of the dome is R. Buckminster Fuller, president of Synergetics, Inc., of Raleigh, N.C.



The 10-story high geodesic "space lattice" rises above the semicircular office building of the American Society for Metals.

Reactor Technology Courses

The second sessions of two specialized courses in reactor technology—one on supervision of nuclear reactor operations and the other on the evaluation of nuclear reactor hazards—for scientists from the United States and abroad will begin on 2 November at Oak Ridge National Laboratory, Oak Ridge, Tenn. Announcement of the establishment of the two courses, designed especially for students from friendly foreign nations, was made by the U. S. delegation at the second U.N. Conference on the Peaceful Uses of Atomic Energy in Geneva, Switzerland, last September. The first courses opened last February, and 26 students from 14 countries are receiving the specialized training.

Applications for either course must be received *by 10 July*. Ten students can be placed in the course on reactor supervision, which runs for 9 months ending 20 July 1960. The course on evaluation of reactor hazards is limited to 16 and runs for 12 months to 29 October 1960. Foreign applicants must apply through their embassies or legations. Citizens of the United States must apply to the Atomic Energy Commission's Division of International Affairs, Washington 25, D.C.

Goddard Space Flight Center

The National Aeronautics and Space Administration has announced that the government's space projects center at Greenbelt, Md., will be named the Goddard Space Flight Center in commemoration of Robert H. Goddard, American pioneer in rocket research. The center, which is under the over-all guidance of the director of space flight development at NASA headquarters, will perform basic space research and will be responsible for the development of satellites, space probes and vehicles, tracking, communications, and data-reduction systems. In addition, the facility will eventually be a command control center for NASA space-flight operations.

The organization of NASA's new space center includes a director, not yet appointed; three major research and development groups, each headed by an assistant director; and business administration and technical services departments.

John W. Townsend, Jr., formerly chief of NASA's space sciences division, has been appointed assistant director for space science and satellite applications. John T. Mengel, former head of the space tracking systems branch in the Vanguard division, has been named assistant director for tracking and data

systems. Robert R. Gilruth is the center's assistant director for manned satellites. At present he heads the Mercury manned space flight project. Michael J. Vaccaro, formerly assistant head of the administrative management office and personnel director at the Lewis Research Center, Cleveland, Ohio, has been appointed business manager. The head of technical services has not been announced.

News Briefs

The United States signed agreements this month with Great Britain and France providing for cooperation in the development of atomic weapons and nuclear-powered submarines. Under the provisions of the plan France will be able to buy enriched uranium for power plants. The separate U.S.-British pact will provide for exchange of designs for nuclear weapons, fissionable material for making weapons, and information on the construction of nuclear-powered submarines.

One of the principal objectives of the agreement is to help France in the development of an atomic submarine. It is expected that the enriched uranium will be used primarily for fueling a land-based prototype of a reactor for a French atomic submarine.

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According to a report in the New York *Times,* a special panel set up by the President's science advisory committee will report in the near future on improved methods for detecting earthquakes. The group, the panel on seismic improvement, was set up partly to guide United States policy in the Geneva talks on banning nuclear tests. Some preliminary reports of the group were made public at the annual meeting of the American Geophysical Union.

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The Engineers Joint Council has become the sponsor for the United States Committee of the International Association for the Exchange of Students for Technical Experience, whose secretariat is now located in EJC's headquarters at 29 W. 39th St., New York 18, N.Y. The IAESTE is an international, nongovernmental, nonprofit organization founded at London University's Imperial College in 1948 for the purpose of providing on-the-job training in foreign industry for student engineers and scientists.

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The Public Health Service has embarked on a pilot study to record the heart sounds of 40,000 children from public elementary schools in Chicago. Purpose of the 18-month program is to test the practicability of mass screening as a method of finding individuals who should seek medical attention for possible heart defects. The heartbeat records will be made with specially constructed equipment, and each record will be listened to by at least two cardiologists.

* * *

The National Science Foundation's Office of Science Information Service has made a grant of $7000 to help establish a high-energy physics newsletter. An equal amount was contributed to the project by the U.S.S.R. The newsletter is expected to begin publication shortly in Geneva, Switzerland, with the assistance of the International Union of Pure and Applied Physics and the European Organization for Nuclear Research (CERN). It will provide a rapid and economical means of exchange of information on nuclear structure, elementary particles, and accelerators among scientists of all nations.

* * *

A $50,000 grant to Yale University to seek a method of controlling space problems in large research libraries has been announced by Verner Clapp, president of the Council on Library Resources, Inc., of Washington, D.C., and James T. Babb, Yale librarian. The grant is one of a series given by the council since its establishment in 1956 through a grant from the Ford Foundation. The report of the Yale study, due in approximately 3 years, is expected to be of general use to libraries that are combatting the increasing problem of expanding collections and limited space.

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The betatron that Enrico Fermi put into operation in 1950 at the University of Chicago is up for general sale. The asking price is $100,000. "For sale" advertisements appeared in a number of the country's newspapers on 26 April, after negotiations conducted by the university with the Italian government came to a halt. University officials hope to find a home for the 200-ton machine in Western Europe or an underdeveloped country where it might be used as a training device. The betatron originally cost $450,000.

Grants, Fellowships, and Awards

Essay competition. This year *Research,* published by Butterworths Scientific Publications, London, England, is sponsoring the Waverley Gold Medal Essay Competition for the seventh year in succession. The competition is designed to encourage and promote improved and more effective reports of scientific and technical work.

The Waverley medal, together with £100, will be awarded for the best essay of about 3000 words that describes a new scientific project or practical development, giving an outline of the scientific background, the experimental results, and the potential application of the project or process in industry. The essays will be judged for technical content by specialists in the subject, for clarity of presentation, and for style.

A second prize of £50 will be awarded and also a special prize of £50 for the best entry from a competitor under the age of 30 on 31 July 1959. If the first prize is awarded to a competitor under the age of 30, the special prize will go to the next best entry.

The competition is open only to persons engaged in scientific work from 1 January to 31 July 1959. All entries should be typewritten, double spaced, on one side of the paper only; diagrams and photographs may be included. All entries by overseas competitors must be submitted in English. Entries should be marked "under 30" if eligible for both sections of the competition. Names should not be written on the essays as they are not revealed to the judges. The name, present occupation, technical qualifications and age of the author—the last only in the case of entries qualifying for the special prize—together with the title of the paper, should be written on a separate sheet and attached to the entry.

Entries should be posted to reach the Editor of *Research,* 4/5 Bell Yard, London, W.C.2, *not later than 31 July.* Entries will only be acknowledged if a stamped and addressed envelope for the purpose is enclosed.

History of science. The History of Science Society has announced this year's Ida and Henry Schuman Prize in the history of science. The award has been established by Henry and Ida Schuman of New York for an original prize essay in the history of science and its cultural influences. This competition is open to undergraduate and graduate students in any American or Canadian college, university, or institute of technology. Papers submitted for the prize competition should be approximately 5000 words in length, exclusive of footnotes, and thoroughly documented. It is hoped, that the prize-winning essay will be suitable for publication in *Isis,* the journal of the History of Science Society.

It is the wish of the donors that "History of Science and Its Cultural Influences" should be broadly interpreted. The papers—which should in each case be original contributions to learning—may deal with the ideas and accomplishments of scientists in the past; they may trace the evolution of particular scientific concepts; or study the historical influences of one branch of science upon another. The phrase "cultural influences" is taken to include studies of the