

tion, giving particular attention to areas that have experienced floods, drought, hail, lightning, fog, tornadoes, or other weather phenomena, and to report annually to the President and the Congress thereon". The new law, which originated as S. 86, a bill introduced in January 1957 by Senator Francis Case of South Dakota, fulfills one of the principal recommendations of the Administration's Advisory Committee on Weather Control which in December reported the results of its four-year weather modification survey and associated evaluation studies of private and public cloud-seeding projects. According to the Committee's report, average increases in precipitation of ten to fifteen percent were found from seeding winter-type storm clouds in mountainous areas of the western states. In flat-land areas, the evaluation findings were inconclusive. The report stressed the importance of basic research and recommended that the government give full encouragement and support to the widest possible competent research as the surest and most direct way to success in any attempt at modifying the weather.

NSF Director Alan T. Waterman has indicated that the Foundation will continue the evaluation studies begun by the Advisory Committee and that it plans to broaden the scope of its support of research in cloud physics, especially the physics of precipitation where much basic research will be required. The Foundation will also be in a position to initiate and support such applied research or development work as may appear "reasonably promising". It is expected that the latter activities will be undertaken in cooperation with other government agencies such as the Weather Bureau and the Departments of Defense, Interior, and Agriculture.

A new NSF program for atmospheric sciences (in the Foundation's Division of Mathematical, Physical, and Engineering Sciences) has been established under the direction of Earl G. Droessler, a meteorologist who was formerly with the Department of Defense's Office of Science. The present basic research program in cloud physics supported by the Foundation is described as being modest but covering a wide range of work on important problems. Laboratory studies of cloud-seeding agents are being carried out at the University of Chicago, and these are being correlated with actual field observations of summer storms produced by cumulus clouds in Arizona. The University of Chicago has also developed an airborne instrument for measuring the water content of clouds, and Northam Electronics, Inc. is constructing an automatic counter for freezing nuclei. Partial support has been given to statistically controlled cloud-seeding field experiments in Arizona (the Universities of Chicago and Arizona) and in Santa Barbara County in California (University of California). Under other NSF grants, the University of Arizona is compiling a census of cloud types observed over the southwestern United States, and the University of Utah is conducting a statistical evaluation of rainfall patterns in the Rocky Mountain region.

Facilities

The University of California at Berkeley announced in July that the first major piece of equipment completed in the new low-temperature laboratory of Nobel Laureate William F. Giaque is a homogeneous-field continuously operating electromagnet with a field strength in the 100 000-gauss region. The laboratory, for which two additional magnets of the same type are planned, has taken eight years to plan and construct and will eventually be used in a wide range of experiments for which high magnetic fields are required. It is anticipated that in this area his laboratory will perform a function similar to that of high-energy physics laboratories or astronomical observatories in their fields. University funds of more than \$1 million were expended for construction of the building, and the Office of Naval Research, the National Science Foundation, and the Atomic Energy Commission provided approximately \$1 million in equipment and its installation. The new magnet, a solenoid "about the size of a beer barrel", is expected to be employed initially in entropy measurements of materials at low temperatures. It will also be useful in solid-state and nuclear alignment studies, temperature-scale measurements, and experiments involving such factors as heat capacity, electrical and thermal conductivity, thermodynamic relationships of magnetic data, and low-temperature spectroscopy.

A scientific equipment pool for the loan of research and testing apparatus to nearby high schools and colleges has been founded by Hofstra College, Hempstead, Long Island, N. Y. Special optical instruments, analytical apparatus, and testing devices for use in physics, chemistry, and engineering instruction will be among the first items available under the new loan arrangement. Most of the pool equipment will be portable so that borrowing schools may use it in their own laboratories. Stationary equipment will be made available for use on the Hofstra campus. A \$25 000 grant from the Esso Education Foundation is financing the beginning of the project. The Foundation, formed three years ago by Standard Oil of New Jersey and a number of its affiliates, has inaugurated a three-year program of grants to advance the teaching of science and engineering.

A classified documents depository that includes an initial collection of 7000 nuclear research reports has been established at Stanford Research Institute, Menlo Park, Calif. The US Atomic Energy Commission has contracted with SRI to maintain the new facility, which is intended to serve scientists and engineers from western firms holding AEC access permits. Similar AEC document depositories are located in Idaho Falls, Chicago, Oak Ridge, Washington, New York, and Boston.

Occidental College in Los Angeles has received a grant of more than \$31 000 from the Atomic Energy Commission to furnish its Nuclear Physics Laboratory with advanced equipment, including a sub-critical re-

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actor. The laboratory, according to A. G. Coons, Occidental's president, "will provide advanced undergraduate instruction this fall for all physics majors and students in Occidental's Combined Plan in Engineering with the California Institute of Technology and Columbia University. Almost every student at Occidental takes some work in the Physics Department, and all will gain an insight into nuclear energy and technology through the laboratory. Occidental, with 1350 students, has 122 physics majors, the second largest number majoring in any subject on campus. The number of students in the Combined Plan in Engineering has now been limited to fifty incoming freshmen each year." Occidental has also announced plans to construct a new \$1.35 million science building to house the Chemistry and Biology Departments, thus permitting expansion of facilities for physics, mathematics, and geology in Fowler Hall, the present science building.

The Navy announced in June that it is planning to construct a radio telescope with a 60-foot antenna on a 1500-acre tract about 25 miles west of Harrisonburg, Va. Bids were to be offered late in the summer for the prime contractor, although it was indicated in the earlier announcement that the antenna itself would be built by the Kennedy Co. of Cohasset, Mass. The cost of the project is estimated at \$60 million.

A feasibility study of a proposed ultra high-level radiation laboratory "capable of handling radiation sources more intense than any previously fabricated" is being conducted by Vitro Engineering Co. under a contract awarded by Associated Universities, Inc., which operates Brookhaven National Laboratory for the AEC. The proposed laboratory would be intended for the development, fabrication, testing, and evaluation of sources of megacurie strength, and would include two hot cells operated under remote control. One cell would be designed for testing and fabricating sources, the other for evaluation of source configurations and efficiencies and of dose distribution in sample materials.

Awards and Grants

The American Nuclear Society announced in June the establishment of an annual graduate student award in memory of Mark M. Mills, former deputy director of the University of California's Livermore Laboratory. Dr. Mills was killed in a helicopter accident last April at the Eniwetok Proving Grounds while serving as technical director of a nuclear weapon test designed to demonstrate to United Nations observers the reduction of radioactive fallout from a nuclear detonation. Dr. Mills has been awarded posthumously the Presidential Medal of Freedom for "exceptionally meritorious service in contributing to the security of the United States of America and the welfare of the human race".

Raytheon Manufacturing Company has established ten predoctoral fellowships, of which eight are in physics and two in electrical engineering, at nine dif-