News of Science

U.S. Geological Survey, 1956

The Department of the Interior Appropriation Act for fiscal year 1956 has provided the Geological Survey with $26.35 million for conducting its activities in geology, topographic mapping, water resources investigations, and the supervision of mineral leasing. During the year many new projects will be initiated in each of the four operating divisions. Funds have also been provided with which to draw up plans and specifications for a new headquarters building to consolidate Survey activities in the Washington area that are now scattered at 16 different locations. It is expected that the new building will be constructed by private industry for Government use on a "lease-purchase" basis.

The major effort of the Geologic Division in 1956 will be directed toward new geologic mapping and investigations of both potential and producing mineral and mineral-fuels areas and toward the development of new methods and equipment needed to search for additional sources of mineral raw materials. A new cooperative program is planned with the State of Connecticut. It will complete the geologic mapping of that state on 7½-minute quadrangles. Cooperative projects already underway in several states will continue. In Nevada, the existing cooperative geologic mapping program is being expanded; and in Puerto Rico operations are being enlarged in order to complete the geologic mapping of the island in approximately 5 years. Survey geologists are also cooperating with the Arizona Bureau of Mines in a plan to revise that state's geologic map. Preliminary work on this project was started by the state in 1954. Other new investigations to be undertaken by the Geologic Division include studies of coking coal in New Mexico, bituminous coal in Pennsylvania, clay in Kentucky, and iron in Wisconsin.

In Pakistan, Thailand, and Indonesia the survey is establishing geologic field parties to plan a program of mapping in mineral areas. This work will be under the auspices of the International Cooperation Administration. Similar projects will continue in the Far East, the Near East, Africa, and Latin America. In addition, representatives of the Geological Survey will act as advisers to local geological surveys and government officials and assist in mapping programs.

Operations of the Conservation Division in mineral land classification, oil and gas leasing, water and power investigations, and mining leases are steadily increasing; the rising work load trend is expected to continue for many years.

In the Water Resources Division $7.15 million was appropriated for technical investigations. Of this amount $4.35 million is earmarked to match state offerings. Under this appropriation the largest cooperative water-resources program in the history of the survey will be in progress. The current drouth over wide areas of the West and Southwest and the need for larger water supplies to meet expanding use in many areas are cited as major reasons for increased interest by the states in the federal program.

Congress appropriated $11.32 million for the Topographic Division in fiscal year 1956. This amount includes $1.02 million that is to be used for matching funds that the various states and local governments are expected to appropriate as their voluntary contribution to speed up mapping projects in which they have a special interest. In such programs the state and local governments contribute half the cost, including costs for personnel and equipment. Twenty-eight states have indicated their desire for this type of cooperation this year.

State mapping advisory committees have been organized by 17 states to study the mapping needs within their borders in order to submit coordinated expressions of map requirements to assist the survey in its program. A probable long-range saving of about 25 percent in the cost of preparing map manuscripts for printing is expected from the new technique of scribing or "engraving" map data on special, film-coated negatives, instead of working with pen and ink on paper. New techniques, special instruments, and precise optical equipment developed by survey engineers over the years have resulted in a steady increase in the amount of mapping that can be turned out each month without substantial increase in personnel. More than 1,500 new or revised quadrangles, covering about 140,000 square miles of United States territory, will be produced in the current fiscal year. Distribution figures indicate that the public will buy approximately 3.5 million maps during the 12-month period, a continuation of the rapid increase in map use that has taken place in recent years.

Complete mapping of the Brooks Range area in Alaska is involved in the new series of 1: 250,000-scale territorial maps being prepared to replace the provisional series. This new series is scheduled for completion about 1962.

News Briefs

■ Joseph Kaplan, chairman of the U.S. National Committee for the International Geophysical Year (USNC–IGY) and former chairman of the department of physics at the University of California at Los Angeles, has announced that the secretariat of the committee now includes the following: executive secretary, Hugh Odishaw, former assistant to the director of the National Bureau of Standards; administrative officer, R. C. Peavey, formerly administrative head of the NBS Central Radio Propagation Laboratory; and program officer, G. F. Schilling, since 1949 a member of the Institute of Geophysics at the University of California, Los Angeles.

The United States program for the IGY, 1957–58, includes the following fields: aurora and airglow, cosmic rays, geomagnetism, glaciology, gravity measurements, ionospheric physics, latitude and longitude, meteorology, oceanography, seismology, solar activity, rocket exploration of the upper atmosphere, and the earth satellite program [*Science* **122**, 322 (19 Aug. 1955)].

The planning for this country's program by the U.S. National Committee has been achieved through the assistance of 14 technical subcommittees and panels. These groups have worked closely with the USNC Secretariat and with many public and private institutions that are cooperating in the US–IGY effort. The U.S. National Committee for the IGY, established by the National Academy of Sciences, is responsible for the formulation, direction, and execution of the U.S. program. Federal sponsorship and funds have been obtained through the National Science Foundation. To date, the Congress has appropriated $12 million for this country's participation in the IGY.

■ Great Britain will stage the third of a series of atomic weapons tests in Australia next April. Under the direction of C. A. Adams, chief of research at the atomic weapons research establishment at Aldermaston, the tests will be held in

the Monte Bello Islands, where the first British tests were conducted in 1952.

Later next year a fourth series will take place at the atomic weapons proving ground that is being built at Maralinga, in the central Australian desert north of Watson, on the transcontinental railway. This fourth series will be directed by William Penney.

■ K. B. Fraser of the University of Aberdeen has apparently obtained genetic recombination between two strains of influenza A virus when both are inoculated into the same mouse brain. In the 30 July issue of *Nature* Fraser reports that after such double inoculations the neurotropic virus *M* and the non-neurotropic virus *NWS* yielded both of the reciprocal types of recombinant, namely *NM* and *WS*. The latter was recoverable slightly earlier than the former, which was recovered 12 hours after the inoculation.—B.G.

■ Plans for relocating the recently formed Air Force Office of Scientific Research from Headquarters, Air Research and Development Command in Baltimore, Md., to the Washington, D.C., area have been postponed [*Science* **122,** 235 (5 Aug. 1955)]. Lack of suitable space in Washington was given as the reason for the postponement.

■ Improved resolution with the x-ray shadow projection microscope has been obtained by W. C. Nixon, Cavendish Laboratory, Cambridge, England [*Nature* **175,** 1078 (18 June 1955)]. Former shadow-type x-ray microscopes have been limited to a resolution of 0.5 microns, mainly because of electron scattering in the metal target. To reduce this, x-ray targets of beaten gold leaf 0.1 micron thick were stretched over an opening of 100 microns, making it possible to reach a resolution of 0.1 micron (1000 A). The target supports atmospheric pressure and is not broken by high electron current densities if the focal spot is less than 1 micron in diameter.

With this improved resolution, Fresnel edge diffraction fringes of 0.1 micron can be seen when the specimen and photographic plate are correctly placed. The article is illustrated with reproductions of 1500 mesh-per-inch test grids at magnifications of 3600 and 2000. These indicate the resolution of the instrument with 10-kilovolt electrons (exposure time about 5 minutes).

The author suggests that reducing the thickness of the gold leaf and using voltages in the 2- to 5-kilovolt region will reduce electron penetration, increase contrast, and might make the unexplored region beyond the ultraviolet microscope accessible with a specimen at atmospheric pressure.

■ The Republic of Korea's first hydroponic farm—a farm where plants are grown in chemicals, water, and gravel rather than in soil—was officially opened on 30 Aug. in a ceremony held at Suwon. The hydroponic unit was established by the United Nations Korean Reconstruction Agency (UNKRA) with the assistance of the American-Korean Foundation. It will be owned and operated by the Central Agricultural Experiment Station, under the ROK Ministry of Agriculture, and will be used for research and training by both the experimental station and by the College of Agriculture of Seoul National University.

The 1-acre farm consists of 52 concrete beds in which vegetables are planted in gravel, and four concrete tanks containing water and chemicals. Periodically the chemical-bearing water is circulated to the plants by means of four electrically driven pumps. The system makes it possible for the amount and kinds of plant food to be controlled exactly, and the use of four tanks permits experimentation with different chemical mixtures.

The hydroponic unit is intended to serve as a research tool to study the needs of different kinds of vegetables for chemical foods and to seek ways of increasing crop yields, as a laboratory for use in the teaching of soil science to agricultural students, and as a pilot plant to show whether more extensive use of hydroponic farming might be beneficial in Korea.

Scientists in the News

HEROLD C. HUNT, professor of education at Harvard University, has been named Under Secretary of Health, Education, and Welfare by President Eisenhower. Hunt succeeds NELSON A. ROCKEFELLER.

CHARLES ALLEN THOMAS, president of the Monsanto Chemical Co., St. Louis, Mo., and a leader in the wartime atomic energy program, received the 1955 Priestley medal, highest honor in American chemistry, during the recent meeting of the American Chemical Society in Minneapolis, Minn. Thomas, a former president and former board chairman of the society, was honored for his "outstanding services to chemistry." His medal address was entitled "Science as a profession and its appeal to youth."

The winners of 13 other awards were announced at the Minneapolis meeting. Presentation will be made during the society's 129th national meeting in Dallas, Tex., next spring.

WILLARD F. LIBBY of the Atomic Energy Commission, inventor of the screen-wall Geiger counter and the atomic time-clock method of measuring geologic age, has been chosen to receive the $1000 ACS award for nuclear applications in chemistry. The annual prize is sponsored by the Nuclear Instrument and Chemical Corp. of Chicago, Ill.

HARRY G. DRICKAMER, professor of chemical engineering at the University of Illinois, is the winner of the $3000 Ipatieff prize, given every 3 years. It is awarded to a scientist under 40 "to recognize outstanding chemical experimental work in the field of catalysis or high pressure."

ALLENE R. JEANES, chemist in the Northern Utilization Research Branch of the Agricultural Research Service, Peoria, Ill., who has contributed importantly to the development of dextran and its use as a blood volume expander, will receive the society's Garvan medal. The gold medal is given annually to recognize "distinguished service to chemistry" by a woman chemist.

SAMUEL R. HOOVER, head of the hides, tanning materials, and leather section in the Philadelphia research laboratory of the Eastern Utilization Research Branch of the Agricultural Research Service, has won the $1000 Borden award in the chemistry of milk.

PAUL M. DOTY, associate professor of chemistry at Harvard University, has been selected for the $1000 ACS award in pure chemistry. The award, sponsored by Alpha Chi Sigma, professional chemical fraternity, will honor Doty for his research on biological polymers.

HAROLD W. WASHBURN, vice president and director of research of the Consolidated Engineering Corp., Pasadena, Calif., will receive the $1000 Beckman award in chemical instrumentation for his internationally recognized contributions to chemical analysis by means of the mass spectrometer. The prize, sponsored by Beckman Instruments, Inc., South Pasadena, Calif., is presented annually to a resident of the United States or Canada.

ROBERT A. ALBERTY, associate professor of physical chemistry at the University of Wisconsin, is to receive the Eli Lilly and Co. award in biological chemistry for his research in the field of enzymes. This annual award consists of $1000 and a gold medal.

MILBURN J. O'NEAL, JR., group leader in charge of the analytic research group, Shell Oil Co., Houston, Tex., will be presented with the $1000 Precision Scientific Co. award in petroleum chemistry.

VICTOR K. LA MER of Columbia University won the $1000 Kendall Co. award in colloid chemistry.

HERMAN PINES of Northwestern University is to receive the Fritzsche award, $1000 and a gold medal, for achievement in the field of essential oils. The prize