lished experiments be preserved. It is not the purpose of the ATCC to collect mutant strains of well-known phages, but it is interested in obtaining independently isolated strains that are taxonomically related to well-known strains. It is the hope of the ATCC that, whenever a phage strain is described for the first time, it and its host bacterium will be forwarded as type specimens to the collection.

If anyone happens to have in his possession examples of classical phage strains that are not already included in the collection (please consult the 1956 ATCC catalog of phages), they should be deposited with the ATCC. The curator is particularly anxious to obtain specimen's of Burnet's serological types of enteric phages. These strains are usually designated by numbers preceded by S, C, or D, as C16, S13, D44. Also phages for bacterial genera not at present represented in the collection are desired.

It is to be expected that as the number and variety of available phage strains increase, the value of the collection to research workers throughout the world will increase in proportion. The collection already contains a wealth of biological material that has not been examined by modern techniques.—M. H. A.

Small Animals in the Classroom

Dietrich C. Smith reports [*Bull. for Med. Research* **10**, 2 (May–June 1956)] that the use of small animals in the classroom has proved to be an unexpectedly helpful tool in teaching. The Maryland Society for Medical Research launched its "Small Animal Classroom Project" in the fall of 1954. This has since turned out to be the most popular feature in its educational program.

Projects are of two types. In the first, which is designed primarily for elementary grades, a rabbit, guinea pig, or white rat is supplied as a classroom pet; no controlled experimentation is attempted, the teaching being limited to demonstration of the proper principles of animal care combined with frequent weighings and the plotting of a growth curve. In the second and more ambitious project, designed for junior and senior high schools, a matched pair of animals, usually small male white rats, is used for a simple nutritional experiment that illustrates retardation of growth.

The program caught on rapidly, and at the time that Smith wrote his article more than 150 projects had been placed in all parts of the state. In addition to supplying animals and detailed instructions for their maintenance, including directions for building a cage, the society provides an adequate and a vitamin-deficient diet schedule and directions for carrying out the nutritional experiment.

The program has been very successful, and in many cases the educational use of the animals has been extended by the ingenuity of individual teachers. The projects have been especially helpful in bringing into sharp focus the role of animals in the advancement of knowledge. —W.L.S., Jr.

U.S.-Brazilian Uranium Agreements

Brazil has suspended the export to the United States of minerals used for nuclear energy. She has also denounced the Brazilian-United States agreement for joint uranium prospecting in her territory.

United States purchases of Brazilian thorium have been relatively small and for this year were to total 300 tons of thorium oxides. There is no official record of uranium sales by Brazil, which has no commercial production, and the country's reserves still are unknown.

Although the shift in Brazilian policy is unlikely to have any important effect on the United States research program, the action is a blow to U.S. prestige in Brazil. In denouncing the prospecting and export agreements, the Brazilian Government did not, however, abrogate another pact, that under which she joined the atoms-for-peace program. As a result of this agreement, the United States is providing $350,000 toward the cost of an experimental atomic reactor for São Paulo University, lending Brazil 13.2 pounds of uranium fuel for the reactor, and making technical information available. Assistance in erecting an industrial reactor also is being negotiated.

NSF Aids Dissemination of Federal Research Results

Federally supported basic scientific research of an unclassified nature will henceforth be made more widely available to scientists everywhere under terms of a new program that has been announced by the National Science Foundation. With support from the foundation's Office of Scientific Information, the Library of Congress and the Office of Technical Services of the Department of Commerce will jointly undertake wider dissemination of significant information in the some 20,000 unclassified technical reports on basic research issued annually by organizations engaged in Government-sponsored scientific research.

Specifically, the program, designated Government Research Information, is designed to assist any research scientist (i) to learn what unclassified scientific reports on Government research are being issued in his field of interest and how he can obtain them; (ii) to obtain, on a subscription basis, a report-announcement service that automatically will keep him informed regarding the bulk of such reports in fundamental research and through which he can purchase copies of listed reports; and (iii) to obtain access to a well-cataloged reference collection of unclassified scientific reports on federally supported basic research that he can consult much as he now consults books in a reference library.

The first of the three services is offered by the Government Research Information Clearinghouse in the NSF Office of Scientific Information. The staff of the clearinghouse is experienced in technical report reference work and will assist scientists with any problems related to the existence, whereabouts, and availability of unclassified reports on Government-sponsored basic scientific research. The clearinghouse will be able to tell scientists where and how to obtain scientific reports about Government research. Mail, telephone, or personal requests should be submitted to the Government Research Information Clearinghouse, National Science Foundation, Washington 25, D.C., attention of Dwight E. Gray.

The automatic announcement service covering reports on Government-supported scientific research is an expansion of an activity that the Office of Technical Services has been offering for several years. OTS publishes the subscription journal, *U.S. Government Research Reports,* an annotated, monthly listing of reports on federally supported research. Each entry in the journal includes information on how that document can be obtained. The NSF supplemental support will permit OTS to increase its acquisitions program appreciably, insuring comprehensive coverage of reports in basic scientific research. Complete information on this announcement service and allied OTS activities can be obtained from the Office of Technical Services, Department of Commerce, Washington 25, D.C., attention of John C. Green, Director, or from the NSF Clearinghouse.

The third service—access to an unclassified report reference collection and catalog—is being offered by the Library of Congress in its Science Division. With NSF supplemental support, the library has consolidated and augmented its scientific report holdings and has established open-card and book catalogs covering these substantial report collections. Readers are free to consult the report catalog, and reference assistants will bring them copies of any reports they wish to see. As in the case of the library's book collections, reports cannot be taken out. In general, however, any report in this open collection can be purchased, either from OTS or, in photoreproduced

form, from the library itself. Complete information on the scope and functioning of this report reference service can be obtained from the Science Division, Library of Congress, Washington 25, D.C., attention of John Sherrod, Acting Chief, or from the NSF Clearinghouse.

Salaries for Chemists

Salaries for chemists just out of college have risen more than 23 percent in the past 4 years, according to a nation-wide survey conducted by the American Chemical Society. For the same period, the U.S. Department of Labor figures indicate a rise in the cost of living of about 3 percent. The median starting pay for chemists who were graduated last June with the bachelor's degree is $400 a month, as compared with $325 in 1952.

For beginning chemical engineers with the bachelor's degree, the median figure has climbed from $343 in 1952 to $425 this year, a gain of 23.9 percent. Graduates with the master's and doctor's degrees have enjoyed similar percentage gains. The survey report, which appeared in the 3 Sept. issue of *Chemical and Engineering News,* was prepared by B. R. Stanerson, of Washington, D.C., assistant secretary of the ACS. ACS surveys conducted since 1952 have shown a steady increase of 3 to 8 percent a year in starting salaries for chemists and chemical engineers.

Mauna Loa Observatory

A high-altitude observatory on the slope of the Hawaiian volcano, Mauna Loa, was dedicated this summer. It is being operated jointly by the National Bureau of Standards and the U.S. Weather Bureau. Located at a height of 11,134 feet in the tropics, where the upper atmosphere is very clear and usually of low moisture content, the new observatory offers special advantages for many types of astronomical and upper-air studies. It will make possible continuous observation of atmospheric phenomena with manned instruments rather than with the unmanned meteorological balloons that have been used to such a great extent in high-altitude work.

Among the advantages of the Mauna Loa observatory are its ready accessibility and relatively warm climate. Most of the other comparable observatory sites are buried in snow during winter and part of the summer. Also, the Mauna Loa observatory has the required altitude without the ruggedness that imparts turbulence to the surrounding air, and it is situated at a key point for studying the huge air masses of the tropics.

The chief research results to be expected from the observatory are improved long-range weather forecasting and greater knowledge of solar and atmospheric radiation. Because the air masses of the Pacific are responsible for much of the weather that occurs in other parts of the world, data on these air masses may make it possible to forecast conditions in distant places.

There is some evidence that the ozone content of the lower atmosphere in the tropics is associated with the formation of the large low-pressure areas that produce typhoons. Continuous measurement of atmospheric ozone may thus be of assistance in forecasting typhoons in advance.

The observatory also offers possibilities for study of cosmic rays, total solar radiation, snow crystals, air glows, and possibly radioactive fallout. In July, C. C. Kiess and C. H. Corliss of NBS began a study of the moisture content of the planet Mars under the auspices of the National Geographic Society. They used spectroscopic techniques to investigate the light reflected to the earth from Mars. The advantageous location of the Mauna Loa observatory made it possible to reduce the effect of the earth's atmosphere on the planet's spectrum.

During the coming year Ralph Stair of NBS expects to begin a study at Mauna Loa on the distribution of the spectral energy from the sun. Such information will be of value in determining the effect of the sun's rays in connection with high-altitude equipment, space flights, and man-made satellites. This work will also furnish data on the solar constant and information on solar intensities that may be useful in many fields.

The observatory is a concrete-block structure that cost $25,000; it is situated about 2500 feet below the summit of the mountain. The building contains five rooms in addition to a tower and a broad open platform for observational use. Present accommodations permit the use of the buildings by a maximum of six observers at any one time.

A smaller structure was built at the summit in 1951–52, but the limited observations that were taken there were discontinued in 1954 because of the extreme difficulty of traversing the trail to the summit. It is hoped that at some future time a functional unit can be established at the summit.

News Briefs

■ A large radiotelescope was mounted near Bonn, Germany, early this month. The parabolically shaped antenna, which measures 82 feet in diameter, rests on a 52-foot-high cone-shaped cement structure.

■ The Swiss Federal Solar Observatory has predicted that the highest number of sunspots hitherto recorded will be surpassed in January 1957. Observations are important because of sunspot effects on the ionosphere, the ionized layer in the sky that reflects radio waves.

■ The United States has transmitted to the United Nations a report on *Radioactive Fallout through September 1955* [M. Eisenbud and J. H. Harley, *Science* **124,** 251 (10 Aug. 1956)]. This summarizes data obtained by the Atomic Energy Commission in the period 1951–55 from its network of 88 monitoring stations here and abroad. The AEC's experience in the collection and analysis of radioactive fallout, as well as the necessary apparatus, has been offered to United Nations members to assist in current world-wide investigations of the effects of radiation on human health and safety.

Scientists in the News

RICHARD G. AXT, study director for institutional research at the National Science Foundation, has been appointed assistant director of the Western Interstate Commission for Higher Education. The commission, which is supported by 11 western states and territories, has offices at the University of Colorado, Boulder.

RAYMOND C. MOORE, professor of geology at the University of Kansas, will receive the 29th Hayden memorial geological award of the Academy of Natural Sciences of Philadelphia, on 15 Nov. The award, a medal and $300 honorarium, is given every 3 years for the "best publication, exploration, discovery or research in the science of geology and paleontology, or in such particular branches thereof as may be designated."

CHARLES D. HENDLEY, formerly pharmacologist for the Wallace Laboratories division of Carter Products Incorporated, New Brunswick, N.J., has joined the pharmacology department of the Schering Corporation, Bloomfield, N.J.

H. J. EMELEUS, professor of inorganic chemistry at the University of Cambridge (England), will be the Baker lecturer in chemistry at Cornell University this fall. He will lecture on the halogens each Tuesday and Thursday from 2 Oct. to 6 Dec. Recent research by Emeleus has been chiefly on the chemistry of fluorine compounds and on the chemistry of hydrides. His earlier work was on chemical kinetics, preparative inorganic chemistry, and problems of the chemiluminescence of phosphorus, arsenic, sulfur, and organic compounds.