A Photographic Sampling of Foundation-Supported Activities

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PHOTO CREDITS

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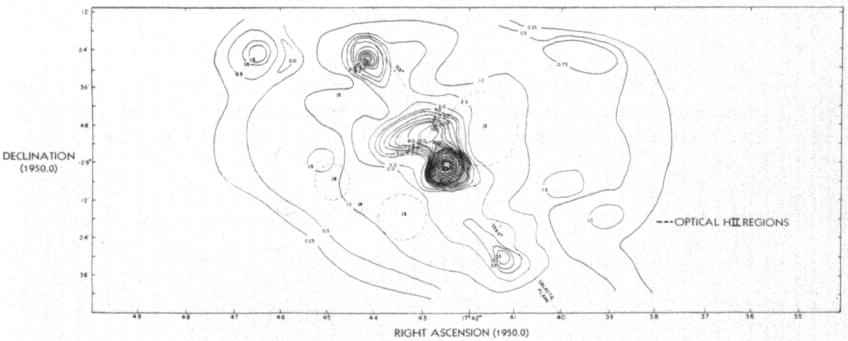
THE CENTER OF THE MILKY WAY AS SEEN IN INFRA-RED AND BY RADIO ASTRONOMY

A vast galaxy in which our sun is only one of more than 100 million stars, the Milky Way is under study by many NSF-sponsored projects. In the above edge-on photograph it appears as a typical spiral nebula. The large bright spot is at the center of the galaxy. Below, a radio contour map of the same area, from significant work being done at the National Radio Astronomy Observatory (see p. 47). Note that the dark band of dust along the center of the galaxy partially obscures the infra-red photo, but causes almost no interference in the radio spectrum.

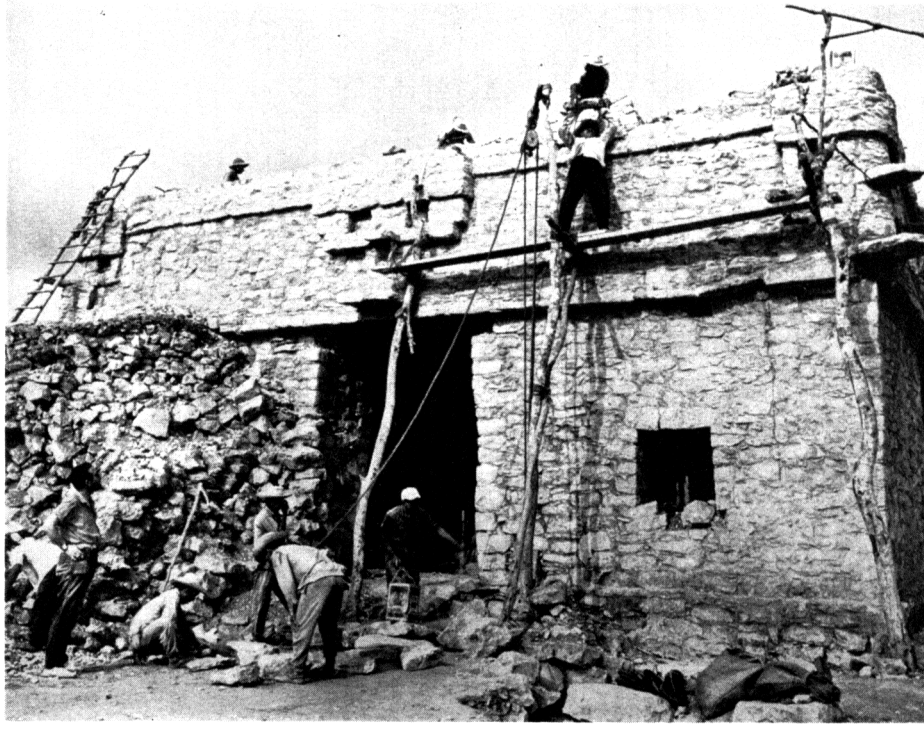


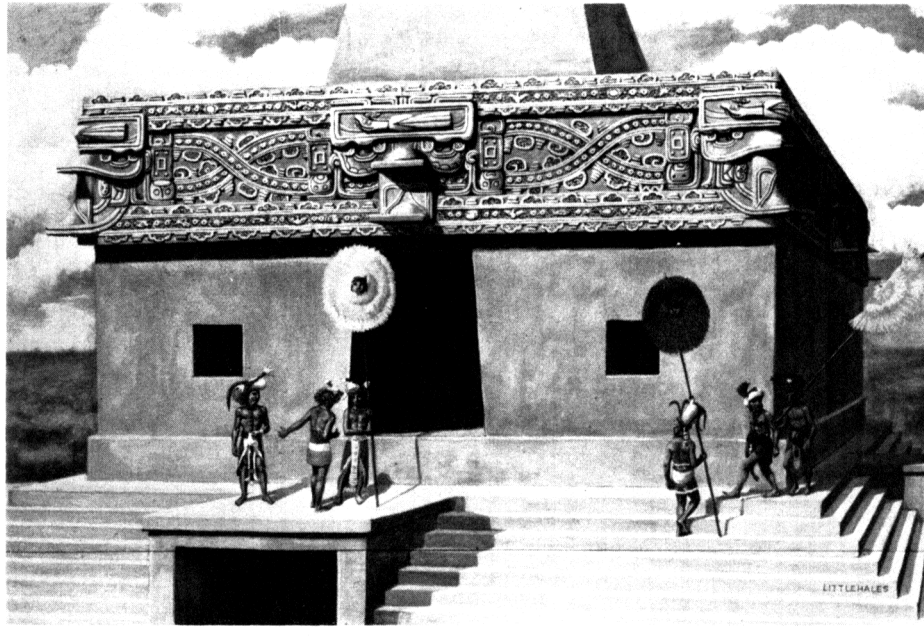
REGION OF GALACTIC CENTER—ISOPHOTES OF BRIGHTNESS TEMPERATURE IN °K AT 8000 MC.

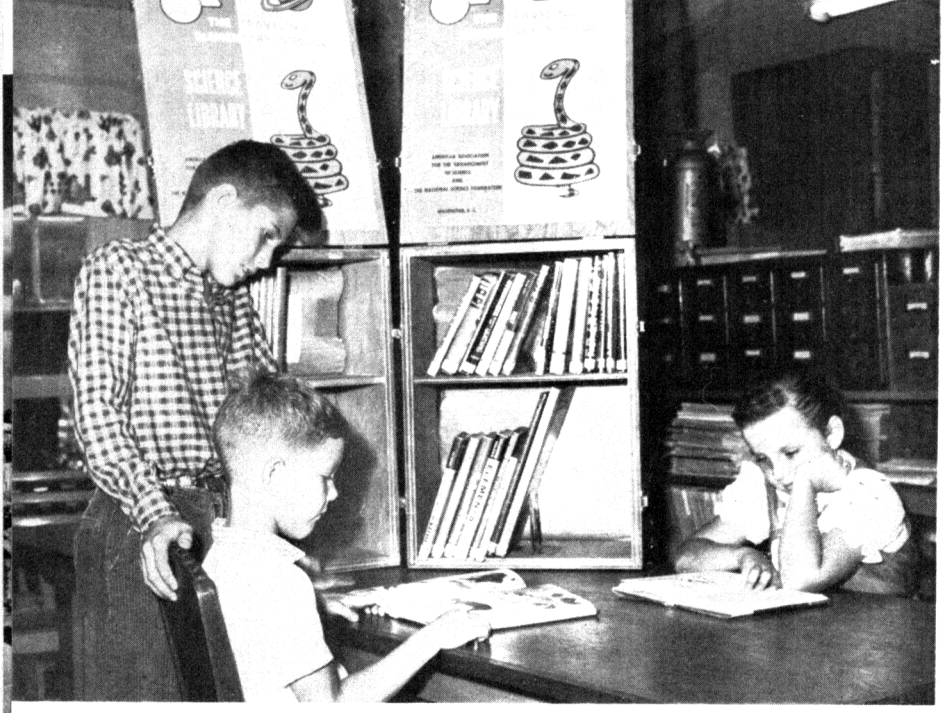
TEMPLE OF THE SEVEN DOLLS EXCAVATED FROM BURIED RUINS AT DZIBILCHALTUN—LOST CITY OF THE MAYAS

The Temple of the Seven Dolls (named for seven small clay figurines found beneath the floor), believed to be the tomb of an important Maya, is shown at left during excavation. Earth and rubble still cover the underlying pyramid. Excavations were made by a Tulane University expedition jointly sponsored by the National Science Foundation and the National Geographic Society.

At top right is photo of modern Maya restoring the facade of the temple. Below is an artist's reproduction based on material already uncovered and on a knowledge of Mayan culture. The Maya offered sacrifices to their gods in many similar temples. (See p. 54.)




LITTLEHALES

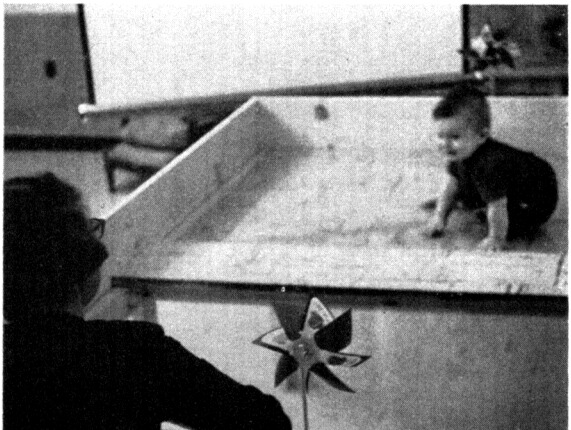


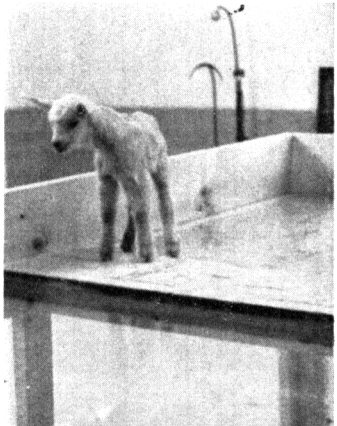
YOUNG STUDENTS BENEFIT FROM TRAVELING ELEMENTARY SCHOOL SCIENCE LIBRARIES

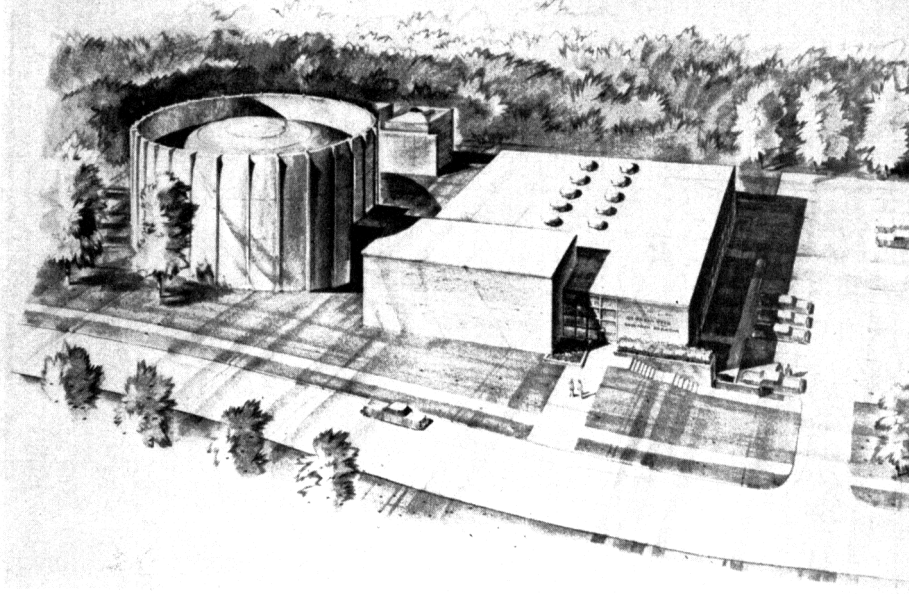
Students in 800 elementary schools are this year studying science books through an extension of the Traveling High School Science Library Program now in its sixth successful year. Books for the new program were selected and distributed by the American Association for the Advancement of Science under an NSF grant.

SIMULATED CLIFF USED TO TEST DEPTH PERCEPTION OF INFANTS

Infant's reaction to height is determined by placing a child on a wooden table which had a strong piece of plate glass on top and extending over the edge. Children and animals were placed on the table and coaxed to crawl over the glass. Both child and lamb balked and stayed on the "safe side," the baby in spite of his mother's coaxing. (See p. 51.)

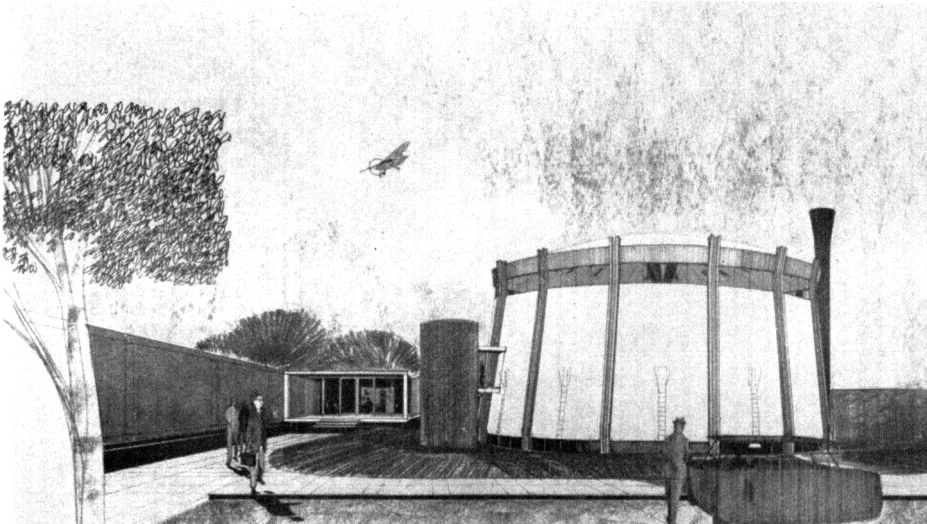


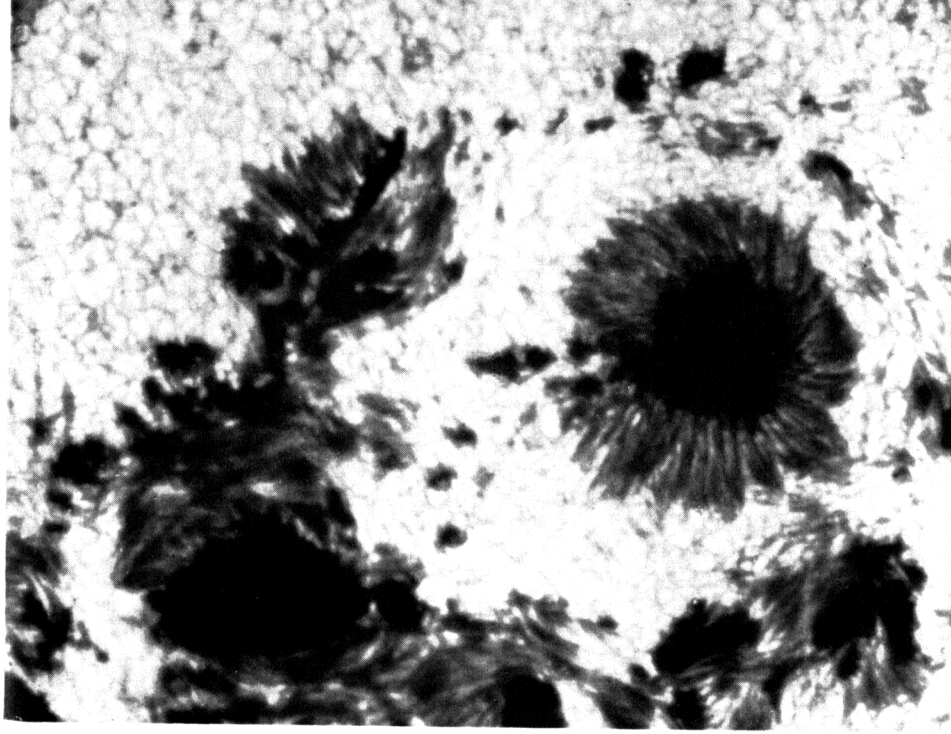




UNIVERSITY RESEARCH FACILITIES

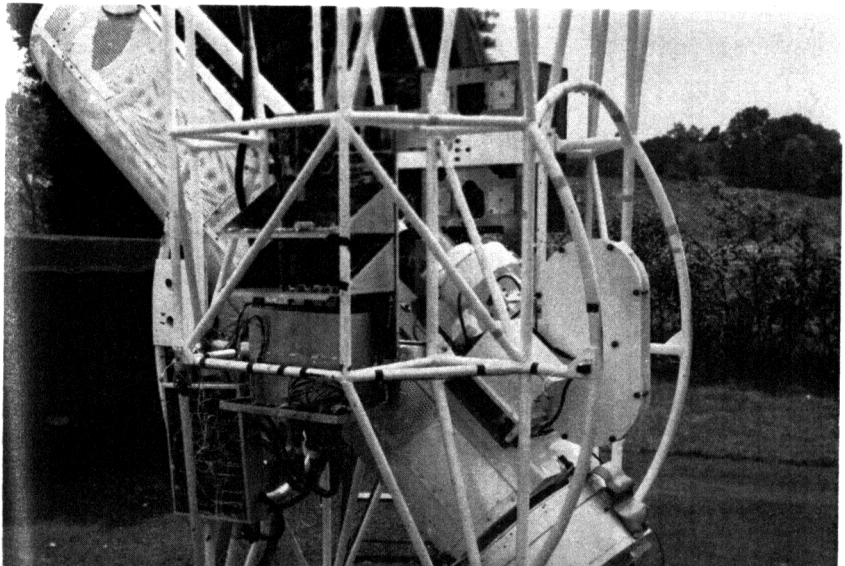
Recognizing that adequate large-scale facilities are essential to the conduct of some kinds of basic research, the Foundation provides support for them in cases where the need is urgent, where it is clearly in the national interest, and where necessary funds cannot be obtained from other sources. Ordinarily, NSF funds are supplemented by grants from other sources, both public and private. Illustrative of the excellent new research facilities now being constructed are the nuclear reactor centers at Georgia Institute of Technology (above) and Texas Agricultural and Mechanical College (below).





STRATOSCOPE FLIGHTS OBTAIN DETAILED SUN SPOT PHOTOGRAPHS

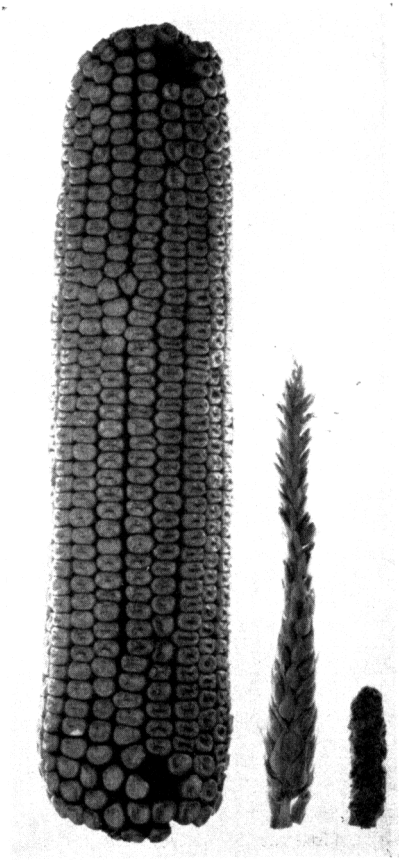
Photograph at left shows Stratoscope launch. (See p. 46.) Shown above is an active sun spot group that caused major disturbances in long-range radio communications. Spots consist of dark core of relatively cool gases within strong magnetic field, surrounded by wispy filaments of outward-moving warmer gases. Entire spot group is embedded in cellular heat convection pattern of hot gases on sun's surface. Below is a close-up of Stratoscope showing TV camera housing (small box on left rear of telescope) and electronics equipment.

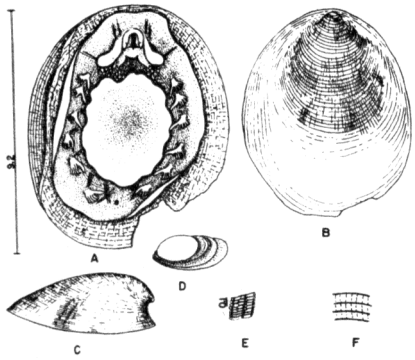


EVOLUTION IN REVERSE

Modern corn (A) bears slight resemblance to the ancient variety, cobs of which (C) have been recovered from prehistoric cave dwellings. In connection with a study of the ancestry of corn, corn ears (B) have been successfully produced quite similar to the unproductive, primitive, prehistoric type. This reversal of evolution was accomplished by crossing genetically different strains of pop corn and pod corn, which retain certain primitive characteristics, so that some of the progeny possessed a combination of many primitive traits.

Results such as these demonstrates that evolution is not an agonizingly slow process requiring millions of years for detectable change to occur, but rather can, and often does, result in drastic modifications in a remarkably short period of time.

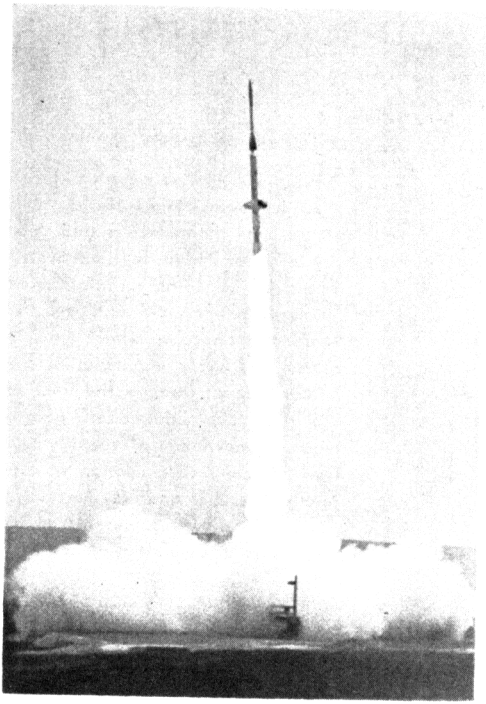




Neopilina (*Vema*) *ewingi*, new species. *A*, Ventral view of paratype; *B*, dorsal view of another paratype; *C*, lateral view of paratype (specimen *A*); *D*, apical portion of shell of paratype; *E*, *F*, striations on shell of paratype. Scale in millimeters. [R. J. Menzies]

NEW MOLLUSK SPECIES DISCOVERED

Several specimens of neopilinids, shell fish thought to have been extinct for 300 million years, were dredged up from the bottom of the Peru-Chile trench (See p. 55.) One, a new species, has been named after the principal investigator and the ship.

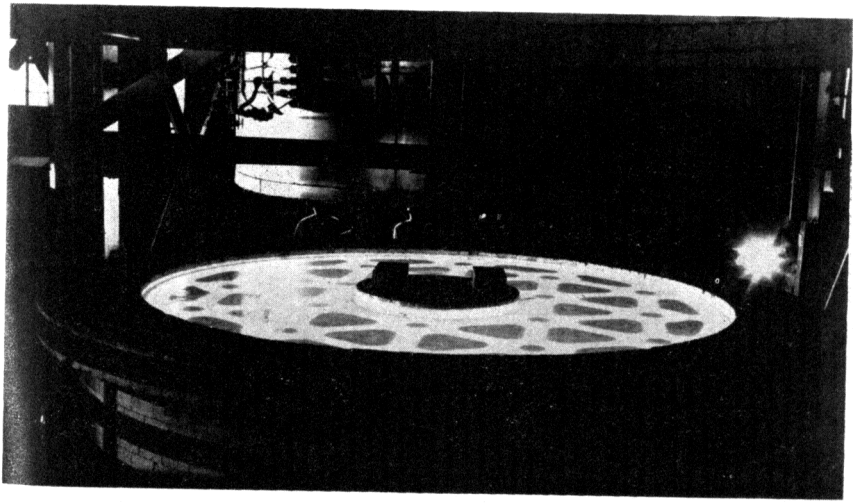


NIKE-ASP ROCKET LAUNCHED IN PROJECT SUNFLARE II

Project Sunflare II results showed that X-rays with energies as high as 80,000 electron volts—vastly greater than had previously been estimated—are produced in the most active phases of sun flares. Findings also showed that temperatures in the solar atmosphere may be as high as one hundred million degrees Centigrade, about 10 times hotter than has so far been estimated. The estimates were based on rocket observations of the streams of X-rays from massive solar storms. The rockets carried payloads of about 55 pounds to heights of as much as 150 miles as part of the International Geophysical Cooperation–1959 program, a continuation of IGY administered by the National Science Foundation.

TELESCOPE MIRROR CAST FOR KITT PEAK NATIONAL OBSERVATORY

The molten blank for the 84-inch telescope mirror to be located at Kitt Peak National Observatory in Arizona is here shown being moved from furnace to annealing kiln, where it slowly cooled for seven months prior to delivery. Patterns in the blank are ceramic cores placed to lessen total weight of the blank, which nevertheless weighs almost 4,000 pounds. Final grinding and polishing will be done at the observatory.



SCIENTISTS AT WORK IN ANTARCTICA

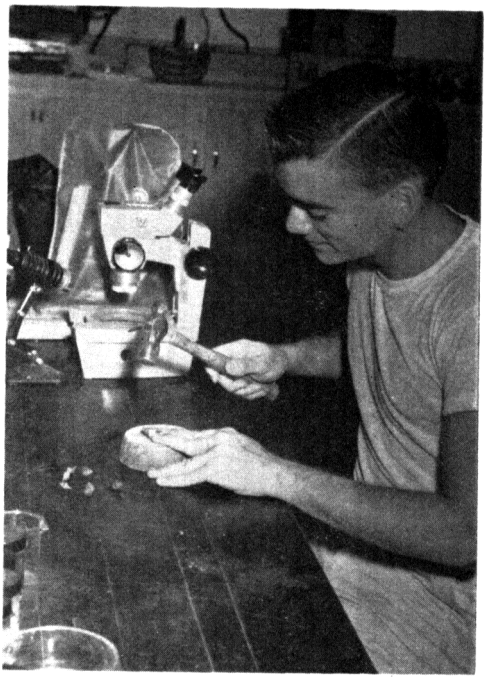
At left, glaciologists in a snow pit use dial thermometers and density tubes, at various levels indicated by meter stick, to obtain information on snow temperature and density. Seasonal changes in surface temperatures and snow accumulation are reflected down through the wall of the pit. The information gained leads to knowledge of quantity and type of snow accumulation at different seasons and in successive years. Pit depth represents about two years accumulation of snow.

Below, an auroral observer protected against 30-knot winds in —40° F. temperatures makes visual auroral observations in instrument tower raised above the snow drift zone. After becoming accustomed to the darkness, he notes the type of auroral activity (form and intensity), position in the sky, color, and direction of movement.

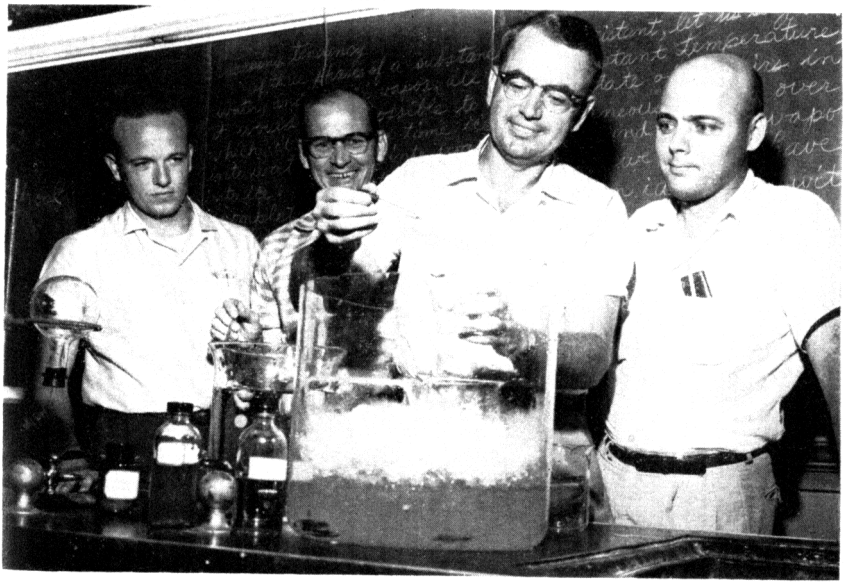
Information from these NSF-supported projects is forwarded to data centers established during the IGY.

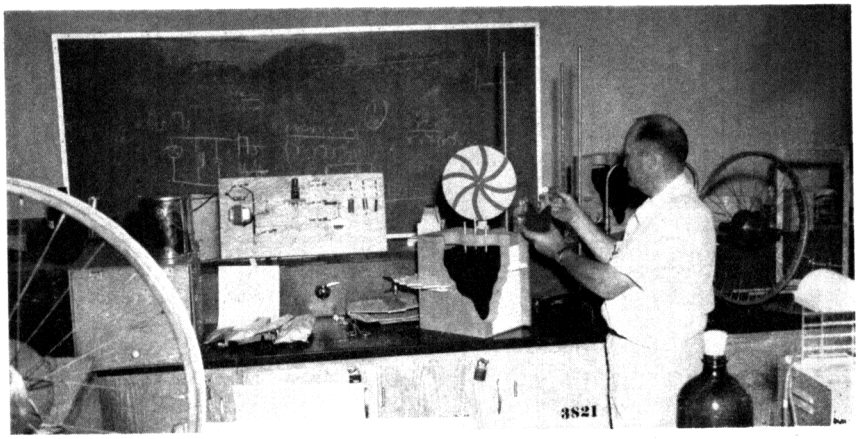
SUMMER SCIENCE TRAINING FOR STUDENTS AND TEACHERS

At right, an undergraduate research student pries open an oyster in a project that is part of concentrated summer biology studies in marine research. Students in this program each worked under the supervision of a scientist. NSF summer training programs for undergraduates enabled about 2,200 students at 213 institutions to get working experience in the methods and techniques of science.



Below, high school teachers participating in an NSF summer institute perform a thermodynamic demonstration. Conducted in a chemistry laboratory, their experiment illustrates that, below a given pressure called its triple point pressure, a solid can be converted directly into vapor without melting. During the summer 348 institutes were held for college and secondary school science teachers, with from 10 to 150 participants in each institute.





CARRYING SCIENCE TO THE NATION'S HIGH SCHOOLS

Specially trained high school science teachers are provided with science equipment-packed station wagons. The traveling teacher visits high schools for about a week at a time giving lecture-demonstrations. Previous experience with this Foundation-supported program has shown that these visits motivate students toward scientific careers, inspire science teachers to improve their instruction, and stimulate community interest in science.

The car shown here is one of twenty used by teachers trained at Oklahoma State University who will visit 600 schools in the 8 surrounding States. Other regional centers are Michigan State University, University of Oregon, and the Oak Ridge Institute of Nuclear Studies, Inc.