at many points on the Antarctic continent. Projects under the direction of Norman J. Oliver, Jr., of the Arctic Institute of North America, seek information on the morphology, direction, movement, and color of auroral displays by photographic and visual observation. A comparative examination of the development and activity of the aurora australis and the aurora borealis is also being undertaken, and possible correlation between auroral and magnetic activity is under study. Simultaneous observations at Byrd Station and at a substation 30 miles away are being used to determine auroral heights.

The four magnetic observatories at Byrd, Hallett, Pole, and Wilkes Stations, which have operated since 1956, are continuing their activities. Studies are in progress on the temporal variations in the magnetic-field vector, the extent and distribution of the Van Allen belt, and the distribution and variation of cosmic rays. It is hoped that a more complete picture of the entire terrestrial magnetic field and its variations during periods of storm activity will be developed. In addition to the station recordings, measurements of the magnetic field have been taken at selected points on the routes of oversnow traverses. The geomagnetic work is being carried out by the US Coast and Geodetic Survey under its director, Rear Admiral H. Arnold Karo.

Studies of the time variation of primary cosmic radiation continue at McMurdo Station, near the geomagnetic pole, where unique field conditions permit the recording of changes in intensity of even the lowest-energy primaries. These data will be compared with those obtained from a similar station at Thule, Greenland. This project is directed by Martin A. Pomerantz of the Bartol Foundation. The University of Maryland is operating a cosmic-ray-recording meson monitor at Hallett Station.

While many of the projects are active during the austral summer only, several continue on a year-round basis. Geomagnetic, ionospheric, and cosmic-ray studies continue through the winter. For auroral studies the winter darkness is especially important. Of the approximately 120 persons who spent the last austral summer on USARP projects, 43 were expected to stay the winter. With the coming of the next summer in December of this year, others will return to resume projects interrupted by the darkness and extreme weather of the polar winter. Logistical support and transportation for USARP projects are provided by the US Navy.

Materials Research

An expanded program of fundamental research on the physical structure of solids is planned at the University of Chicago. The University has signed a four-year $2.3-million contract with the Advanced Research Projects Agency to carry out studies in solid-state physics, inorganic and solid-state chemistry, and selected areas of geochemistry, and it is estimated that

the number of faculty members engaged in various aspects of materials research will be increased about 25 percent. The University has also predicted an increase of about 70 percent in the number of graduate students primarily concerned with such studies.

The accelerated program will be conducted mainly in the Institute for the Study of Metals and in the Physics Department, although, to a lesser extent, both the Chemistry Department and the recently-established Department of Geophysical Sciences will be involved. With the added funds provided under the contract with ARPA, the University anticipates a total expenditure of nearly $11 million in government and University funds in support of materials research at Chicago during the four-year period.

Polymer Research

A center for fundamental research in the science of polymers, currently under construction at North Carolina's Research Triangle Institute, is expected to be ready for initial occupancy in September upon the completion of the first unit of RTI's new Camille Dreyfus Laboratory. The Laboratory, which is named in memory of the founder and first president of the Celanese Corporation of America, will be under the direction of Anton Peterlin, who has served for the past year in Germany as head of the Physics Institute at Munich's Technische Hochschule. Known for his research in the rheological and optical properties of liquids and polymer solutions, Dr. Peterlin is a native of Yugoslavia and during the ten-year period 1949–59 he headed the J. Stefan Institute of the Yugoslav Atomic Energy Commission. In 1959–60, before going to Munich, he served as a visiting professor at Harvard and at Wayne State University.

The establishment of the Dreyfus Laboratory, one of five divisions and laboratories within RTI, was made possible by a $2.5 million grant provided by the Camille and Henry Dreyfus Foundation of New York City. The center's research staff will conduct basic investigations in the physics and chemistry of polymers and their derivatives. In addition to its fundamental studies, the Laboratory is expected to be engaged in some applied activities supported by outside contracts.

Cryogenics

A low-temperature facility to be used in applied research and development of cryogenic products, particularly those involving the application of liquid hydrogen, is to be constructed in Davenport, Iowa, by the Pioneer-Central Division of the Bendix Corporation. The Bendix Cryogenic Development Laboratory will be under the direction of Thomas Flynn and will be equipped for the study of liquid-state gases at temperatures as low as −459°F. It will be operated in conjunction with a liquid-oxygen research facility which has been maintained by the company for nearly 18 years.