for the program. Because of this response, NSF is expected to continue the project in 1957–58.

■ Massachusetts Institute of Technology has planned a special summer program on orbital and satellite vehicles 6–17 Aug. The program will be directed by Paul E. Sandorff, associate professor of aeronautical engineering; its purpose will be to provide an over-all assessment of the technology of orbital vehicles of the present.

In addition to members of the M.I.T. faculty the following guest lecturers will participate in the program: Donald H. Menzel, director of the Harvard Observatory, Harvard University; Milton Rosen, head of the Rocket Development Branch, Naval Research Laboratory; William Purdy, project engineer, Glenn L. Martin Company, Baltimore, Md.; Thorp B. Walker, senior engineer, Liquid Engine Division, Aerojet-General Corporation, Azusa, Calif.; Orien L. Hogan, engineer, North American Aviation, Inc., Rocketdyne Facility, Los Angeles, Calif.; James A. Van Allen, chairman, Upper Atmosphere Rocket Research Panel, and head of the department of physics, State University of Iowa; and Hubertus Strughold, head of the department of space medicine, U.S.A.F. School of Aviation Medicine, Randolph Field, Texas.

■ The U.S. Atomic Energy Commission has announced that the commission has approved the construction of two high-energy particle accelerators, one of which will be a joint Harvard University–Massachusetts Institute of Technology project located at Harvard, and the other a joint Princeton University–University of Pennsylvania project located at Princeton. The Harvard–MIT accelerator will be a 6-Bev machine that will cost the Government approximately $6.5 million. The Princeton–Pennsylvania machine will have an energy of 3 Bev and will be built at an estimated cost to the Government of $5.8 million. It has been proposed that the machines be made available to scientists from other institutions in addition to those on the staffs of the four participating universities. The facilities will be operated under AEC contracts.

The Harvard–MIT machine will be a circular alternating gradient electron synchrotron, with a 118-foot radius. It will be constructed in about 3½ years on a site adjacent to the Harvard Cyclotron Laboratory. The Princeton–Pennsylvania accelerator will be a uniform gradient proton synchrotron, to be completed in about 3⅔ years at the Forrestal Research Center. It will resemble the cosmotron at Brookhaven National Laboratory but is expected to have a higher beam intensity.

■ The regents of the University of Oklahoma have officially designated the Oklahoma City campus as the "University of Oklahoma Medical Center." A $400,000 modernization program is now under way there. In addition to being dean of the School of Medicine, Mark R. Everett is now director of the medical center.

■ To help teachers cultivate a greater interest in science among elementary and high-school students, New York University will hold a Science Teachers' Workshop, 3 July–10 Aug. The program will be presented by the School of Education, with the assistance of the Graduate School of Arts and Science and the Washington Square College of Arts and Science. The course will include guest lecturers, trips to nearby laboratories, demonstrations and experiments, small-group conferences with specialists in science teaching, and individual consultation on effective science teaching at the various school levels.

Grants, Fellowships, and Awards

■ Fellowship awards totaling more than $1.1 million, granted to 275 scholars and artists, have been announced by the John Simon Guggenheim Memorial Foundation. This is the largest number of fellowships with the largest total of grants ever announced by the foundation in 1 year. Awards are made to citizens of all the American republics, the Republic of the Philippines, Canada, and the British Caribbean area. A list of the fellows in science follows.

Mathematics and statistics: Clifford A. Truesdell III, professor of mathematics, Indiana University; Edwin E. Moise, associate professor of mathematics, University of Michigan; Joseph L. Hodges, Jr., associate professor of statistics, University of California, Berkeley; Wolfgang H. Fuchs, associate professor of mathematics, Cornell University; Edward W. Barankin, associate professor of statistics, University of California, Berkeley.

Research engineering: Julian D. Cole, associate professor of aeronautics and applied mechanics, California Institute of Technology; Milton C. Shaw, professor of mechanical engineering, Massachusetts Institute of Technology; George Winter, professor of structural engineering, Cornell University; Leonid M. Tichvinsky, professor of mechanical engineering, University of California, Berkeley; Thomas P. Goodman, assistant professor of mechanical engineering, Massachusetts Institute of Technology; Joseph Marin, professor of engineering mechanics, Pennsylvania State University; Israel I. Cornet, associate professor of process engineering, University of California, Berkeley.

Physics: Malvin A. Ruderman, assistant professor of physics, University of California, Berkeley; William S. Rodney, physicist, National Bureau of Standards, Washington, D.C.; Felix M. Villars, associate professor of physics, Massachusetts Institute of Technology; Georges M. Temmer, research physicist, department of terrestrial magnetism, Carnegie Institution of Washington; Jack Steinberger, professor of physics, Columbia University; William F. Fry, associate professor of physics, University of Wisconsin; John H. Reynolds, assistant professor of physics, University of California, Berkeley; Sherman Frankel, assistant professor of physics, University of Pennsylvania; Russell A. Peck, Jr., associate professor of physics, Brown University; Harry W. Fulbright, associate professor of physics, University of Rochester; Gerald C. Phillips, associate professor of physics, Rice Institute, Houston, Texas; Clemens C. J. Roothaan, assistant professor of physics, University of Chicago; David S. Saxon, associate professor of physics, University of California, Los Angeles; Leonard I. Schiff, professor of physics, Stanford University; Harvey Brooks, professor of applied physics, Harvard University; Joseph W. Straley, associate professor of physics, University of North Carolina; James S. Koehler, professor of physics, University of Illinois; Fred H. Schmidt, associate professor of physics, University of Washington, Seattle; Myron A. Jeppesen, professor of physics, Bowdoin College, Brunswick, Maine; M. Avramy Melvin, professor of physics, Florida State University; Charles Kittel, professor of physics, University of California, Berkeley.

Astronomy: John G. Phillips, assistant professor of astronomy, University of California, Berkeley.

Chemistry: Elias J. Corey, assistant professor of chemistry, University of Illinois; Frank A. Cotton, instructor in chemistry, Massachusetts Institute of Technology; Kurt M. Mislow, assistant professor of chemistry, New York University; Paul D. Bartlett, Erving professor of chemistry, Harvard University; Gene B. Carpenter, assistant professor of chemistry, Brown University; Christian S. Rondestvedt, Jr., assistant professor of chemistry, University of Michigan; William L. Marshall, Jr., senior research chemist, Oak Ridge National Laboratory; Robert L. Letsinger, associate professor of chemistry, Northwestern University; Walter J. Kauzmann, associate professor of chemistry, Princeton University; John E. Kilpatrick, professor of chemistry, Rice Institute; John W. Williams, professor of chemistry, University of Wisconsin; Donald S. Noyce, associate

professor of chemistry, University of California, Berkeley; William E. Truce, associate professor of chemistry, Purdue University; Robert L. Pecsok, associate professor of chemistry, University of California, Los Angeles; Arthur J. Madden, Jr., associate professor of chemical engineering, University of Minnesota; Sigurd W. Melsted, professor of soils, University of Illinois; W. Conrad Fernelius, professor of chemistry, Pennsylvania State University; Walter F. R. Edgell, professor of chemistry, Purdue University.

Biochemistry: Harold A. Scheraga, associate professor of chemistry, Cornell University; Max Alfert, assistant professor of zoology, University of California, Berkeley; David M. Bonner, research associate in microbiology, Yale University; Allan H. Brown, professor of botany, University of Minnesota; Howard K. Schachman, associate professor of biochemistry, University of California, Berkeley; Sidney Roberts, associate professor of physiological chemistry, University of California Medical Center, Los Angeles; Clara M. Szego, associate professor of zoology, University of California, Los Angeles; Jacob G. Kaplan, associate professor of physiology, Dalhousie University, Halifax, Nova Scotia; Donald M. Reynolds, assistant professor of bacteriology, University of California, Davis; David Shemin, professor of biochemistry, Columbia University; Nathan Kaliss, research associate, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine; Milton Levy, professor of biochemistry, New York University; Charles Tanford, associate professor of physical chemistry, State University of Iowa; Martin D. Kamen, associate professor of radiochemistry, Washington University Medical School, St. Louis; Cyril H. Long, professor of physiology, Yale University; Herbert Friedmann, curator of birds, Smithsonian Institution, Washington, D.C.; Nicholas Nicolaides, research associate, Department of Medicine, Section of Dermatology, University of Chicago.

Genetics: Spencer W. Brown, associate professor of genetics, University of California, Berkeley; Melvin M. Green, associate professor of genetics, University of California, Davis; Herman B. Chase, professor of biology, Brown University; I. Michael Lerner, professor of poultry husbandry, University of California, Berkeley.

Microbiology: Arthur L. Cohen, professor of biology, Oglethorpe University, Georgia; Seymour P. Halbert, associate professor of microbiology, Columbia University; Edward A. Adelberg, associate professor of bacteriology, University of California, Berkeley; Harold E. Pearson, professor of public health, University of Southern California and microbiologist, Los Angeles County Hospital.

Biology: Huai C. Chiang, assistant professor of zoology, University of Minnesota, Duluth Branch; William H. Elder, professor of zoology, University of Missouri; Victor C. Twitty, professor of biology, Stanford University; Kanjyo Sakimura, associate entomologist, Pineapple Research Institute, Honolulu, Hawaii; Philip J. Darlington, Jr., curator of insects, Museum of Comparative Zoology, Harvard University.

Botany: Clarence Sterling, assistant professor of food technology, University of California, Davis; Charles A. Schroeder, associate professor of subtropical horticulture, University of California, Los Angeles; Ralph Emerson, professor of botany, University of California, Berkeley; John T. Curtis, professor of botany, University of Wisconsin; William J. Robbins, professor of botany, Columbia University and director, New York Botanical Garden; Frank E. Egler, botanist, Aton Forest, Norfolk, Conn.

Earth sciences: Gustaf O. Arrhenius, assistant research oceanographer, Scripps Institution of Oceanography, La Jolla, Calif.; Francis A. Richards, chemical oceanographer, Woods Hole Oceanographic Institution, Woods Hole, Mass.; Zdenek Sekera, professor of meteorology, University of California, Los Angeles; Ernest Cloos, professor of geology, Johns Hopkins University.

Paleontology: Arthur J. Boucot, geologist and paleontologist, U.S. Geological Survey, Washington, D.C.; Harry B. Whittington, associate professor of geology, curator of invertebrate paleontology, Museum of Comparative Zoology, Harvard University; Robert W. Wilson, associate curator of vertebrate paleontology and associate professor of zoology, University of Kansas; Kenneth E. Caster, professor of geology, University of Cincinnati; Siemon W. Muller, professor of geology, Stanford University.

Medicine and medical physics: Cornelius A. Tobias, professor of medical physics, University of California, Berkeley; Theodore Enns, assistant professor of medicine, Johns Hopkins University; Heinz Von Foerster, professor, Electron Tube Research Laboratory, University of Illinois; Ralph S. Mackay, Jr., assistant professor of electrical engineering, University of California, Berkeley, and director, Research and Development Laboratory, University of California Medical Center.

Psychology: Mason Haire, associate professor of psychology, University of California, Berkeley.

History of science: I. Bernard Cohen, associate professor of history of science, Harvard University; Gobind B. Lal, science editor emeritus, Hearst newspapers, New York, N.Y.; Charles M. Goss, professor of anatomy, Louisiana State University; Eugene M. K. Geiling, professor of pharmacology, University of Chicago.

■ The National Science Foundation has announced that 167 grants totaling $2,068,600 were awarded during the quarter ending 31 Mar. for the support of basic research in the sciences, for conferences in support of science, for exchange of scientific information, for training science teachers, and for the support of summer and short-term research by medical and other advanced science students. This is the third group of awards to be made during fiscal year 1956. Since the beginning of the program in 1951, 2206 such awards have been made totaling more than $26 million.

■ A new fellowship program designed to provide an opportunity for pediatricians to prepare for an academic career in pediatric education with an emphasis on the social science and psychological aspects of pediatrics will be initiated next fall by the department of pediatrics of the State University of New York Medical Center in Syracuse. The program will make it possible for fellows to participate in conferences, seminars, and clinical experiences with faculty members in the fields of pediatrics, child psychiatry, psychology, social work, sociology, and anthropology. Opportunities to explore psychoanalytic concepts concerning child care and rearing will also be available.

The program provides for a 3-year training period with the appointment of one fellow each year, so that a maximum of three fellows will be in training at one time. Candidates should have completed their residency training in pediatrics.

This program is being supported by a grant from the Commonwealth Fund. Inquiries should be addressed to: Dr. Julius B. Richmond, Department of Pediatrics, State University College of Medicine, Syracuse 10, N.Y.

■ The Monsanto Chemical Company, St. Louis, Mo., has announced an expanded program of financial aid to scientific education during 1956–57. A total of 83 American colleges and universities will benefit from 111 awards. When compared with last year's program, these figures show an increase of 30 in the number of schools aided and of 39 in the number of awards made. The awards for the coming year include 29 fellowships, 41 undergraduate scholarships, and 41 cash grants.

■ The New York Academy of Medicine has announced that $1900 of the Louis Livingston Seaman Fund is available for assignment in 1956 for the furtherance of research in bacteriology and sanitary science. The amount may be used only for research or scholarships. Ex-

penditures may be made for securing technical help, aid in publishing original work, and purchase of necessary books or apparatus.

The award committee will receive applications from either institutions or individuals *until 1 July*. Communications should be addressed to the chairman of the fund, Dr. Wilson G. Smillie, 105 E. 22 St., New York 10, N.Y.

■ Marshall Field Awards, Inc., a nonprofit organization, has been formed "to recognize and reward fundamental and imaginative contributions to the well-being of children." Six to nine awards will be made annually to individuals, organizations, and communities in the fields of education, physical and mental development, social welfare, and communications. Each award will consist of $2000, a scroll, and a statuette. The winners will be selected by a board of directors which, in addition to Field, is composed of 19 authorities in child life.

The areas in which awards will be made cover a broad range of activities related to children: programs and services associated with formal and informal schooling; health, medical care, nutrition, recreation, and rehabilitation; private and public programs in adoption, foster care, delinquency, institutional and day care, and maintaining family income; and publications, advertising, movies, radio, and television.

Under the program, children are defined as those who have not yet reached legal majority. Offices for the new organization have been opened at 598 Madison Ave., New York, N.Y. *The deadline for nominations for the first awards is 1 Oct.*

■ The Lalor Foundation has announced the allocation of 41 faculty summer research awards in the biological sciences. The winners were selected from a group of 115 applicants. The award is approximately $1100.

Of the 31 awards in the zoological sciences, 12 are in general physiology; five in genetics; four in cytochemistry and microbiology; three in insect physiology; two each in comparative biochemistry, embryology, and endocrinology; and one in ecology. The ten awards in the botanical sciences are eight in plant physiology and two in mycology.

■ Twenty-five new medical research grants have been approved by the National Tuberculosis Association. The grants are in addition to 16 others already in effect and bring to 41 the total number of grants which the NTA is now aiding from Christmas Seal funds. Additional medical research grants are being aided by grants from a number of associations affiliated with the NTA.

■ The National Research Council of Canada has granted 269 scholarships for 1956–57, with a total value of $345,500. These scholarships include 65 bursaries worth $800 each, and 155 studentships worth $1200 each. All of these are to be held in Canada.

Special scholarships awarded for study abroad include 27 awards worth $2000 each. These special scholarships are to be held in the following countries: nine in the United States of America, 15 in the United Kingdom, one in France, and two in Sweden.

Twenty-two postdoctorate overseas fellowships at $2500 each have been granted for work in the following countries: 14 in the United Kingdom, one in Germany, three in France, one in the Netherlands, and three in Switzerland.

In the Laboratories

■ The Southwest Research Institute and the Southwest Foundation for Research and Education, San Antonio Tex., have announced that a $50-million Science City is being built on a 300-acre site surrounding the two institutions. The development will have research facilities and residential and recreational areas.

This scientific center is being provided so that industry may set up advanced research facilities in the Southwest. A $5-million development program has been started, and an auditorium, a new building for the technical library, a swimming pool, a cafeteria, a golf course, a club house, and a riding stable will be built. The Southwest Foundation for Research and Education has also offered the San Antonio Hospital District Foundation 200 acres for a hospital center within Science City.

Forty large plots have been set aside on the grounds of Science City for industrial research laboratories and high level, technical manufacturing units. Laboratories will either be built to meet specific industrial needs and will be available on a long term lease basis, or companies may lease the land and build their own laboratories.

■ A new addition to the chemical research laboratories of the Ethyl Corporation has gone into operation at the company's research and engineering center in Baton Rouge, La. The 18,000-square-foot building will be devoted to research in petrochemicals, chlorination, organometallics, electrochemistry, and other fields.

■ The facilities and staff of the Merck Institute for Therapeutic Research have been approximately doubled by the addition of several research groups at West Point, Pa., which were formerly a part of the Sharp and Dohme division of Merck and Company, Inc. The expanded organization will have a staff of approximately 300, more than half of whom will be professionally trained, with 65 holding the M.D. or Ph.D. degrees.

L. Earle Arnow, formerly vice president and director of research for Sharp and Dohme, has been elected executive director of the Merck Institute. Arnow is also vice president of the Merck Sharp and Dohme Research Laboratories division of Merck and Co., Inc.

Hans Molitor, director of the institute since its founding in 1933, has been appointed director of scientific relations for the Merck Sharp and Dohme Research Laboratories. Molitor was also elected chairman of the board of trustees of the Merck Institute, succeeding George W. Merck, who resigned.

Harry J. Robinson, formerly associate director of the institute, has been appointed director of the Rahway unit, and Karl H. Beyer, formerly head of pharmacological research at Sharp and Dohme, has been appointed director at the West Point unit.

■ The General Electric Company Lamp Division will build an Advanced Lamp Development Laboratory at Nela Park, Cleveland, Ohio, at a cost estimated between $4 and $5 million. Ground will be broken this summer, and the structure is expected to be finished late in 1957.

Approximately 150 persons will be employed when the building is opened, but ultimately 250 persons will work in the laboratory. The laboratory staff will include chemists, physical chemists, metallurgists, physicists, and all kinds of engineers.

■ Information for Industry, Inc., Washington, D.C., has announced the availability of a Uniterm index of United States electronics patents. Under this indexing system, complex electronics subjects are reduced to basic words. Information for Industry, Inc., has already applied its Uniterm system to American chemical patents.

The new index of electronics patents will disclose easily and quickly data pertaining to telephony, telegraphy, communications, radar, television, radio, components, instrumentation, nuclear energy, magnetics, vacuum tubes, solid-state devices, propagation, avionics, circuity, miniaturization, automation, printed circuits, facsimile, industrial control, and so forth. With the Uniterm system, it is possible to make both broad and specific searches of electronics patent information; further, the system is expected to provide industry with a common electronics language in research, sales and marketing, product development, and patent evaluation.