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to the chairman, has been appointed to the post. He will have jurisdiction over the divisions of environmental affairs, operational safety, waste management and transportation. Schlesinger announced that the new assistant general manager will have "responsibility for coordinating AEC environmental and safety activities within Commission-owned facilities, including the preparation of environmental reports that present the impact on the environment by AEC operations for broad review."

A new division of applied technology has been formed, bringing together the Plowshare program of peaceful nuclear explosives, isotope development and non-nuclear technology programs. This division is included under the jurisdiction of the assistant general manager for energy and development programs, who also has responsibility for reactor development and technology, international programs, space nuclear systems, and nuclear education and training. The latter division was transferred from the jurisdiction of the assistant general manager of research.

Such reorganizations are relatively common, as AEC functions change with changing national priorities. They are usually done for more efficiency and effective grouping, according to a former AEC official. —SMH

Two-part program for technician education

A Technician Education Development Program has been instituted by the National Science Foundation. One part of the program consists of grants to organizations, institutions or groups of technicians or scientists for curriculum development.

The other part of the program consists of direct aid to colleges. Initially, sup-

port will be restricted to those programs providing training in the physical sciences and engineering.

Information can be obtained from the Technician Education Development Program, Division of Undergraduate Education in Science, National Science Foundation, Washington, D.C. 20550.

Societal applications of space work to be examined

A series of pilot programs to explore the application of aerospace technology by state and local governments in coping with the environmental, economic and societal problems, has been funded by the National Science Foundation. The six projects include placement of scientists and engineers in decision-making positions, a study of the transferability of displaced scientists and engineers to other areas of the economy, the establishment of science and technology promotion activities by the states, development of a program to provide county engineering services and analysis of manpower needs at the local level. The awards total \$309 000.

Emory University to retrain space scientists

The National Science Foundation has awarded a \$51 000 grant to Emory University in Atlanta, Ga. for an experimental program to retrain former defense-aerospace scientists and technologists into research on societal problems. The project, which will focus on research in public-service areas such as waste disposal, health care, transportation and water pollution, will team up an unemployed scientist or technologist with a professor.

Twelve thousand dollars in support of the project has been pledged by citizens of Cobb County, Ga., who have joined with Emory University in developing this program.

Ultraviolet star catalog coming from Smithsonian

The first catalog of the stars as they appear in ultraviolet light will soon be published by the Smithsonian Astrophysical Observatory, according to Fred L. Whipple, observatory director.

More than 4500 of the 8568 ultraviolet television pictures received by Project Celestee, the Smithsonian experiment aboard OAO-II (Orbiting Astronomical Observatory) were used to make up the catalog.

The catalog, which contains both uv and earth-based data on some 5000 stars, will be placed on tape at the Na-

tional Space Science Data Center at NASA's Goddard Space Flight Center in early 1972. Tape copies will then be available. A printed version of the catalog based on all of the usable data (7778 pictures) is scheduled to be offered in the fall of 1972.

Support available for work and travel abroad

The National Science Foundation is offering foreign-currency awards for scientific research, science education and related activities in countries where costs will be payable in the currencies of Burma, Guinea, India, Morocco, Pakistan, Poland, Tunisia, the United Arab Republic or Yugoslavia. Support is available for collaborative research under the direction of co-principal investigators in the US and the host country, the appointment of a visiting American scientist to a foreign institution, maintenance and advancement of scientific activities in the countries of interest, research and training of American scientists and students in the host countries and international travel for meeting participation.

Space-science board urges outer-planet exploration

Exploration of the outer planets was given high priority in a report recently published by a study group of the Space Science Board of the National Academy of Sciences—National Research Council. The report, *Outer Planets Exploration 1972-1985*, calls exploration of the planets beyond Mars "one of the major objectives of space science in this decade." The group was made up of leading space scientists and chaired by Charles H. Townes.

The report offers suggestions for exploration of the outer planets according to various funding levels. Grand Tour missions for exploration of the outer planets can be most successfully accomplished with Thermoelectric Outer Planet Spacecraft, according to the report. The TOPS system is matched to the requirements of exploration beyond Saturn. The report recommends that TOPS-type spacecraft be used in a series of four launches in the late 1970's. Two of these should include entry probes to make measurements of planetary atmospheres.

For exploration of Jupiter and Saturn, modified Pioneer-type spacecraft will be adequate. The report asks for maintenance of a program of exploration of the two planets with these craft at a launch rate of about one every two years, whether or not funds are found for TOPS. The study group asked that at least two Pioneer-type spacecraft at-

tempt to evaluate the atmospheric environment of Jupiter.

The report supports development of the seven-segment Titan launch vehicle. Work on advanced methods of solar and nuclear electrical propulsion was also recommended. These will be needed in the 1980's, when the outer planets are no longer aligned to permit a single flyby mission that will pass them all.

Earth-based studies, including observation with satellites, rockets, balloons, aircraft and ground-based instruments as well as laboratory and theoretical studies, were also rated as important by the study group.

Wisconsin receives grant for fusion design study

A \$100 000 grant has been awarded to the University of Wisconsin's department of nuclear engineering to study the problems associated with converting nuclear-fusion energy into useful electric power. It will involve over 25 faculty members and over a dozen graduate students. The project will be a design study to explore engineering problems and possible solutions, and it will not involve the actual construction of models.

The grant was made possible by \$40 000 committed by the Wisconsin Utility Research Foundation, \$10 000 by the Northern States Power Co and \$50 000 by the US Atomic Energy Commission. However, it is estimated that more than \$1 billion is needed to fund the entire project, which will extend over a three-year period. Requests for this amount have been submitted to AEC and the Edison Electric Institute. Funding for the calendar year 1972 is expected to be arranged by the end of this year.

UCLA starting PhD program in environmental problems

The University of California at Los Angeles is implementing an experimental doctoral program aimed at training scientists and engineers to deal with environmental problems.

This interdisciplinary program, which is being supported by a National Science Foundation grant of \$198 555, the Scaife Family Charitable Trust and the Shell Foundation, is under the direction of Willard F. Libby, director of UCLA's Institute of Geophysics and Planetary Physics. The 22 students entering the program this fall will first earn an MS degree in a particular area of science, and then participate in a field-training experience as a member of a team working towards the solution of an environmental problem.

in brief

For information regarding NATO Advanced Study Institutes and research grants write to the Advanced Science Education Program, Graduate Education in Science, National Science Foundation, Washington, D. C. 20550.

Journal of Nonmetals, a new publication of Gordon and Breach, will be published quarterly. The annual subscription price of the new journal, which will be edited by Arthur C. Damask, George J. Dienes and Roman Smoluchowski, will be \$14.50 for individuals and \$50.00 for libraries.

The Journal of Color and Appearance will be published by Gordon and Breach. The annual domestic subscription price for the new journal, which is edited by S. Gray Maycum, will be \$12.00 for individuals and \$24.00 for libraries.

The National Science Foundation has awarded two grants to the American Institute of Physics for the support of physics-education programs. \$48 600 was granted for a study of high-school physics teaching and \$67 200 for a consultants program in physics education.

As part of its Visiting Scientists Program, the National Science Foundation has awarded \$21 000 to the American Astronomical Society and \$31 400 to the American Institute of Physics.

SPPSG, a newsletter on science and public policy, is now being published by the Science and Public Policy Group at the Massachusetts Institute of Technology. Information regarding the newsletter can be obtained from MIT Press, Cambridge, Mass. 02139 or from SPPSG, E53-450, MIT, Cambridge, Mass. 02139. The subscription cost for ten issues is \$10.00 for individuals and \$25.00 for institutions.

The *Proceedings of the Conference on Computers in Undergraduate Science Education*, which was held in Chicago, 17-21 August 1970, are available from the American Institute of Physics, State University of New York, Stony Brook, 11790.

The Australian Institute of Nuclear Science and Engineering is offering Research Fellowships to recent PhD's in engineering and science. Information can be obtained from the Executive Officer, AINSE, Private Mail Bag, Post Office, Sutherland, 2232 N. S. W., Australia.

The Gravity Research Foundation is offering five awards, ranging from \$1000 to \$100, for short essays on gravitation. Inquiries should be addressed to George M. Rideout,

Gravity Research Foundation, Gravity Village, New Boston, New Hampshire 03070. Entries are due by 15 April.

The name of the California Institute of Technology's Division of Geological Sciences has been changed to the Division of Geological and Planetary Sciences. According to Eugene Shoemaker, the chairman of the division, the change in name is due to the increasing involvement of the division with studies of the planets and other extraterrestrial objects.

Research and Development in Industry, 1969 (NSF 71-18) is available from the Superintendent of Documents, Washington, D. C. 20402 for \$1.00 per copy.

Scientific Activities of Independent Nonprofit Institutions, 1970 (NSF 71-9) can be obtained from the Superintendent of Documents, Washington, D. C. 20402 for \$.70 a copy.

Research and Development in Local Governments, Fiscal Years 1968 and 1969 (NSF 71-6), has been released by the National Science Foundation. Copies of the report are available from the Superintendent of Documents, Washington, D. C. 20402, for \$0.65 a copy.

The first building of the multidisciplinary Institute of Materials Science of the University of Connecticut was recently dedicated. The building, which cost \$4.5 million, was partially funded by \$1.8 million from the federal Government, and is architecturally a twin to the university's new physics building.

The University of Chicago is dismantling its 450-MeV synchrocyclotron, which ceased operation in July. The synchrocyclotron's 250-ton magnet will be used at the National Accelerator Laboratory, starting in July 1972, for a study of the scattering of high-energy muons from targets made of liquid hydrogen and other materials.

Coherent Optics, a Rochester, New York producer of laser accessories and dye lasers, has been acquired by Spectra-Physics Inc, in Mountain View, Calif. Coherent Optics was previously a partly-owned affiliate of Coherent Radiation in Palo Alto, Calif.

The National Science Foundation will act as the coordinating agency for US observations of the total solar eclipse that will be seen on 30 June 1973 in Africa. Scientists are requested to notify coordinator Ronald R. La Count at NSF of their observation plans no later than 1 July 1972. Transportation and logistical support will be provided by NSF to a limited number of experimenters.