

tional policy on basic research and education in science. They now must make an annual report to the President and Congress on the state of American science. In the same bill Congress directed the NSF to broaden its financial support to include applied research and the social sciences.

With these changes as added motivation, the long-range planning committee of the National Science Board has begun a study of how the foundation can best anticipate three general challenges: those arising from the impact of new technologies and a new understanding of man and his universe, those arising from the rapid growth of higher education and those arising from the social problems confronting the country.

Three persons have joined the

board's planning committee for the study: Emanuel Piore, chief scientist of IBM; John B. Oakes, editor of the New York Times editorial page, and Ben W. Heineman, chairman of the Chicago and Northwest Railroad Co. John F. Sherman, deputy director of the National Institutes of Health, is directing the steering committee. Among those working with Sherman is Merle Tuve of the Carnegie Institution of Washington.

No date has been set for completion of the major study. Nor had a date been set by the end of December for the first "State of Science" report to the nation.

The companion study on NSF reorganization is expected to be completed by late spring; John V. Vinciguerra, assistant general manager for administration of the Atomic Energy Commission, is chairman. This group will

report to the NSF director, Leland J. Haworth.

The foundation faces further change this summer. Haworth is expected to retire when his six-year term expires 30 June. President Nixon will name a successor. The director's job was upgraded in last year's reorganization; the NSF chief is now the equal of the AEC chairman, the director of NASA and the secretaries of the three military services.

NSF Grants \$14 Million To Improve Science Teaching

Grants totaling \$14 million to improve the teaching of science and mathematics at the high-school and college level have been announced by the National Science Foundation. The money will be used for summer study and research, short courses and inservice training.

Nearly \$9 million will be spent to enable some 1400 high-school teachers to spend a full academic year studying at any of 63 colleges and universities in 38 states. Known as the Academic Year Institutes, this program is in its 14th year.

Another \$2.7 million will pay for 1766 college teachers to study at any of 61 summer institutes at 48 colleges and universities. Each institute enrolls about 30 teachers for five to twelve weeks. Last year grants were provided to 2330 teachers.

Summer research opportunities for teachers from colleges with inadequate facilities will be provided to 359 teachers under a \$950 000 award. The 55 separate grants were awarded to colleges, universities and nonprofit institutions. Another \$352 000 grant will enable 176 past participants in such projects to continue their research at their home institution.

IPPS Members Approve Royal-Charter Application

Members of The Institute of Physics and The Physical Society, the British organization, have authorized their officers to apply for a royal charter. IPPS officers believe the prestigious designation will give it greater freedom of activity as well as optimal status and authority at the national and international levels.

Just eight years ago the Institute of Physics, predominantly industry-oriented, and the Physical Society, predominantly academically oriented,

IN BRIEF

Metallography, a new journal devoted to the study of the internal and surface structure of materials, is being published quarterly by American Elsevier.

A Raman-spectroscopy newsletter will be published under the sponsorship of a group of instrument manufacturers and government agencies. For information contact P. R. Wakeling, 1500 Massachusetts Ave, Washington, D. C. 20005

A new brochure, *Instrumentation Training Aids*, is available from the Instrument Society of America. It describes films, filmstrips and printed matter.

A revised edition of *Radiation Quantities and Units* has been published by the International Commission on Radiation Units and Measurements. The International System of Units (SI) has been adopted. More information may be obtained from the commission office at 4201 Connecticut Ave, N.W., Washington, D.C. 20008.

The National Association of Science Writers has published a guidebook, *Science News Communications*, to aid those involved in publicizing science and medicine. Copies are available from NASW, P.O. Box H, Sea Cliff, N. Y. 11579.

The Oregon Graduate Center plans to accept its first full-time graduate students in 1969. It will offer advanced degrees in chemistry, physics,

ics, metallurgy, physical electronics and applied mathematics.

Edwin H. Land, president of Polaroid Corp., has established a trust fund to provide \$480 000 a year for the next three years for educational development at MIT. Land is presently a visiting professor at the institute.

Catholic University of America has become the 27th member of the University Corporation for Atmospheric Research in Boulder, Colo. C. C. Change, chairman of the university's department of space sciences, is leading a study of tornado dynamics. Grants totaling \$45 000 have been awarded to 19 young scientists in six Latin American countries under a Fund for Overseas Research Grants and Education program. Bentley Glass of the State University of New York at Stony Brook, who also is president of the fund, said the grants were designed to slow the "brain drain."

Laser Sciences Inc has begun development and production of lasers in Bethel, Conn. The company was started by Marvin J. Fenton, formerly director of laser systems at Perkin-Elmer.

NASA has reorganized its Electronics Research Center in Cambridge, Mass. Four research divisions have been replaced by three organizations: research, advanced technology and technical programs.

merged to form the present organization.

At an extraordinary meeting 27 Nov. in London, some members objected that one aspect of the charter application, elimination of the title

Fellow of the Physical Society (retained after the merger), violated a gentlemen's agreement that the historic distinction be maintained. Others feared too heavy a concentration on the professional status of phys-

ics. The vote, however, approved the application.

The decision on whether to go ahead with the application rested with the IPPS Council at the beginning of January.

Lycoming College Enjoys High-School Physics Day

The enthusiastic atmosphere in the physics department of Lycoming College effervesced at its second annual High-School Physics Day recently. Students from the neighboring Pennsylvania area hurried down corridors, wandered from optics to electronics and quietly listened to instructors.

In exposing talented high-school juniors and seniors to physics as a professional goal, the department hopes to combat the drop in college physics enrollment. A total of 140 students from 14 schools visited Lycoming.

Morton Fineman, department chairman, expressed the program's philosophy: "Physics is the science which the better high-school student should consider entering, not only for financial rewards, but more particularly for the great satisfaction physics can bring to those involved."

In rotating groups of 15, physics and chemistry students visited the introductory and advanced laboratories, where they argued over the kinds of displays on an oscilloscope, viewed a laser beam and saw centripetal force exhibited. Lycoming students also demonstrated trajectories, voltage am-

plification, magnetic susceptibility, determination of refractive index, wave superposition, uniform accelerated linear motion and the production of metastable molecules by electron impact. Several short films were shown continuously.

At an informal meeting Philip R. Marshall, the dean, welcomed the students and described the expanding physics department. The physics faculty, consisting of Willy Smith, M. R. Jamison, M. U. Kim and Fineman, discussed the opportunities of physics as a profession. "Physics is not so tough," stated Smith. "All you need is a feeling for math and an inquisitive mind."

Fineman outlined the Lycoming physics program, which has been revamped since his appointment three years ago. Two more PhD members were added to the faculty. Courses were improved to prepare students for graduate school; more emphasis was placed on research.

In the spring of 1968 Lycoming secured its first National Science Foundation grant to conduct research on the excitation of neutral to metastable

states by electron bombardment with crossed beams. Qualified seniors can now participate in the independent research program, initiated last summer with two students doing research under Fineman's direction.

Supplementing the new emphasis on research and improvement, Lycoming started weekly Physics Colloquia. This program brings to the campus physicists active in research or industry; local high school teachers and industrialists attend as well as students. Recent guests have been John R. Taylor of the University of Colorado, Edwin H. Fisher of Princeton Applied Research Corp and W. Lewis Hyde, provost of New York University, University Heights campus.

Fineman stressed that visiting physicists do not receive an honorarium; yet he has no problem in getting speakers.

Lycoming also has a three-two pre-engineering program. A physics major may attend Lycoming for three years and Penn State or Bucknell for two years, receiving a BA from Lycoming and an engineering degree from the other school. —TJ



FIGURING OUT RESULTS. Acting as instructor, a physics major at Lycoming College computes data from experiment as interested high-school students look on.

AIP Holds First Three-Day Science-Writers Seminar

The American Institute of Physics this year scheduled its first three-day seminar for science writers for 30 Jan. to 1 Feb., in place of the usual one-day meetings scattered throughout the year.

"Physics and Astronomy 1969" was held at the New York Hilton just before the annual meeting of the American Physical Society and the American Association of Physics Teachers.

On Thursday morning Gerald Feinberg led discussion on pulsars and quasars. He is professor of physics at Columbia University. Also from New York was panelist Hong Yee Chiu, a professor at the State University of New York at Stony Brook. In the afternoon Irwin I. Shapiro, pro-