

state & society

Physics and physicists in industry: two views

Prospects for physicists in industry look good, according to the featured speakers at the annual meeting of the American Institute of Physics Corporate Associates in Washington in September. C. Branson Smith spoke on the NSF Experimental R&D Incentives Program, which he heads. This program is intended to set up experiments testing various methods of promoting a more rapid transfer of technology to the public and private sectors of the economy. Lewis Branscomb, IBM Chief Scientist, talked about what can be done to increase the opportunities for physicists in industry.

The Experimental R&D Incentives Program will be aimed largely at devising and experimenting with ways to overcome "blockages" that now slow down or prevent application of science and technology in industry and government. Some of these are fractionated markets, subcritical producers and cases where the technical knowledge needed by an industry exists in the universities but there is no effective means for communicating the need or the solution between the two parties.

The program is expected to fund a first block of experiments early next year, with the possibility of one or two starting even earlier. These could take the form of an industry-university coupling, where university scientists would work in an industrial lab for a period, sharing their viewpoints with those of the industrial scientists. These may take the form of the proposed AIP and American Chemical Society programs (see *PHYSICS TODAY*, June, page 66), although there is no word that any specific program has been funded yet.

Another program that was mentioned as being appropriate for funding was one that would give opportunities for scientists to work with state and local governments as advisers for the governments' technical problems.

In complex cases (such as the use of tax incentives) background studies will be funded; these will strive to clarify the understanding of the problem before an experiment is launched. Some possible experiments were mentioned, albeit cautiously, such as collective research between corporations.

So far, the program that Smith spoke about has had \$18.5 million appropriated, although only \$2 million has been released by the Office of Management and Budget. Of this amount, \$10.7 million will be used for experiments in the industrial sector, \$5.5 million for the public and governmental sector and \$1.0 million will go to experiments with human resources.

Raymond Bisplinghoff, Deputy Director of NSF, told us that he expects the program to be funded at about the \$18-million level for the entire duration of the program, which he estimated would be about five years. He said that after five years the program should have come up with some results and that then other agencies would probably apply the results of the successful NSF experiments.

A similar program is being funded in the Department of Commerce; it is called the Experimental Technology Improvement Program. This program

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SMITH

Need a grant? Try Research Corporation

We recently visited with some of the officers of Research Corporation, a foundation that funds physics researcher nationally but is apparently not well known. One of the surprising things that came out of our conversation with Sam C. Smith, Vice President for Grants and Richard S. Baldwin, Secretary, is that Research Corporation would like to see more outstanding applications for grants.

Research Corporation has two grant programs to which physicists may apply, the Cottrell College Science Grants and Cottrell Research Grants. These are both named for Frederick Gardner Cottrell, the inventor of the Cottrell precipitator, who formed Research Corporation in 1912.

The college science grants are awarded to private, predominantly undergraduate institutions to help maintain and improve science programs in private colleges. They are usually given to a researcher who will work with undergraduates on his own project. Twen-

ty-one percent of the spring-1972 grants went to physics projects.

Cottrell Research Grants, which generally range between \$5000 and \$20 000, Smith told us, mainly support the work of younger scientists. Most of the grants are to people at the larger universities and graduate schools. Forty percent of the proposals funded in the spring of 1972 went to physicists.

Research Corporation has awarded about \$2 million for basic research in physics since the beginning of 1969. In the first year that Cottrell College Science Grants were awarded, about \$300 000 was given for research in physics.

Smith and Baldwin noted that Research Corporation grants often played the role of getting a younger researcher started in his field, after which he would usually be able to get funding from other sources.

They said that Research Corporation grants have, over the years, given early support to a large number of physicists

who later became well known for their work. The list of scientists who received grants from Research Corporation in their early days includes Robert H. Goddard; Grote Reber, the inventor of the radio telescope; R. J. Van de Graaff; Ernest O. Lawrence; James A. Van Allen; Neil Bartlett, who showed that noble gases react with fluorine compounds, and many others.

Grant applications are processed by a referee system and a scientific advisory panel and are awarded three times a year. "Virtually all the proposals we get that are able to stand up under scrutiny of their scientific merit get funded," Smith said. "We'd like to see more really good applications coming in and let their pressure determine whether more money can be made available."

Information about grants may be obtained from Research Corporation, 405 Lexington Ave., New York, N.Y. 10017.

—SMH

Industry

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had not received its funding as of this writing, but it was expected to get between \$7.0 million and \$14.0 million for FY 1973.

In his talk Branscomb noted a need to improve the environment for using research in industry to involve more physicists. He said that during the period from 1966 to 1971 there had been a decline in federal investment in R&D with a concurrent increase in industrial R&D support.

He remarked that there are two broad uses of R&D in industry and that each is supported differently by industry. Research, he said, can be used to bring new technology to the market place, or it can be used to increase productivity.



BRANSCOMB

The former case is difficult to fund, he asserted, because of the high technological and market risks involved. In fact, most industrial physics is now involved in the latter area. Branscomb noted that in the future the service industries may become important sources for R&D funding.

He observed that industrial research is not only limited by the R&D community, but by other social and governmental factors. He mentioned the difficulties often encountered when introducing new technology, difficulties caused by the inability of industry, labor and government to link up their efforts rapidly enough.

Branscomb said that the opportunities for physicists in industry also depend on the physicists themselves. Physicists probably have an educational advantage but, during the 1960's physicists had a mistaken idea of employment opportunities. He believes that it is unfortunate that the mission-oriented agencies have cut back on support in the "useful disciplines" such as solid-state physics and atomic and molecular physics.

—SMH

Four physicists appointed to National Science Board

The following physicists were appointed to the National Science Board of the National Science Foundation: Hubert Heffner, professor of applied physics, Stanford; William A. Nierenberg, director, Scripps Institution of Oceanography; Russell D. O'Neal, Executive Vice President for Aerospace, Bendix Corporation, and Joseph M. Reynolds, professor of physics and vice president for instruction and research, Louisiana State University. Members of the board serve terms of six years.

General Motors expands science-research effort

General Motors Research Laboratories are being expanded with a concurrent increase in the number of staff physicists. The expansion will take place over the next five years.

A General Motors Science Advisory Committee, headed by Charles H. Townes, studied the scientific research activities at GM and found that a large part of the research effort was being directed to applied research in areas such as air-pollution control and automotive safety. The committee advised GM to move into additional areas of basic research. As a result, GM management decided to expand the research activities of the laboratories.

The General Motors Research Laboratories professional staff numbers about 550, of whom 50 are physicists. GM estimates that the expansion will

bring in about 250 more professional scientists over the next five years; the increase in staff will take place concurrently with the expansion. A GM spokesman told PHYSICS TODAY that they estimate 10 PhD physicists will be hired over the next year.

General Motors Research Laboratories supports physics research in the following areas: solid state, surfaces, physical electronics, chemical physics and magnetics, metal physics and mathematical physics. In addition, General Motors physicists have done innovative work in traffic science.

—SMH

Alvarez to join PSAC; Tape is reappointed

Luis W. Alvarez, professor of physics at the University of California at Berkeley and Gerald F. Tape, president of Associated Universities, have been appointed members of the President's Science Advisory Committee. Tape, who had been filling a short-term appointment on the committee, was reappointed for a full term. The appointments expire 31 Dec. 1975. The committee now has 20 members.

Scientists are needed for White House fellowships

The White House Fellows Program gives an opportunity to about 20 Americans between the ages of 23 and 35 annually to spend a one-year internship as special assistants to members of the President's Cabinet and White House staff. Presidential Science Adviser Edward E. David Jr said "There is an unquestionable need for highly qualified scientifically and engineering oriented young men and women to gain the unique experience the White House Fellows program offers."

Those interested should contact the director of the program, Bernard Loeffke, in Washington D.C. at (202) 382-4661.

Physics at NYU gets new building, new programs

The opening of New York University's new Andre and Bella Meyer Hall of Physics was marked this spring with a symposium on "Frontiers of Physics." Prior to the opening of Meyer Hall, the physics department's teaching and research activities were spread over five buildings on both the Washington Square and Bronx campuses. All physics activities will now be conducted at Meyer Hall, which is located at 2 Washington Place in the Washington Square Center.

The opening of Meyer Hall repre-