

state & society

NSF may pick up ARPA's interdisciplinary laboratories

The Defense Department's Advanced Research Projects Agency is attempting to transfer to NSF most of its support for its 12 interdisciplinary laboratories during fiscal year 1972. Negotiations are under way to effect the transfer, but the amount and extent of the transfer is far from certain. The outcome depends ultimately on Congressional action.

Over the ten years of its existence the IDL program cost ARPA an average of \$17 million annually. According to Edward Todd, deputy assistant director for research at NSF, the ARPA withdrawal amounts to about \$12.8 million. ARPA would retain a financial interest of about \$4 million, partly for buildings but largely to continue some residual research.

Conversations have occurred among ARPA, the Office of Management and Budget, the Office of Science and Technology and NSF in an attempt to arrange a transfer of funds. Todd said that NSF would be expected to pay for research facilities (such as crystal growing, low-temperature research) and for the actual interdisciplinary research groups.

A spokesman for ARPA told us that the transfer is in line with the agency's practice of "planting a seed, watering it, getting it growing and then getting out." Even five or six years ago, there was discussion about transferring the IDL's to another agency. Obviously, the spokesman said, there are also considerations of tight budget. In addition ARPA is trying to respond to the sense of the Congress, as originally manifested in the Mansfield amendment, that a larger share of basic research support should be transferred to the NSF.

The IDL's have always had local campus direction, with many individual investigators at the university receiving relatively small sums out of the money the university as a whole received. They had considerable leeway about what research they conducted, almost all of which was basic. Although it was almost impossible to justify individual man years as particularly relevant, there was usually good justification for the aggregation of projects. But the whole thrust of Mansfield's criticism was that every single project must be justified.

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Jobs for physicists in city planning?

Positions in urban problem solving will probably become available for unemployed scientists and engineers, according to Assistant Secretary Floyd Hyde of the Department of Housing and Urban Development. Through Hyde's work with the Model Cities program, which he heads, he found a big shortage of technical personnel in city, county and state government.

Hyde foresees 1000 to 2000 jobs available across the country that he would like to see filled by unemployed scientists and engineers, particularly those who worked in the aerospace industry. A spokesman told us that HUD, working with other agencies, would try to pool their funds to finance a program that would find the openings and match them to the unemployed. If successful HUD would organize brief (a month or so) orientation courses at two or three major universities to fa-

miliarize the technical people with urban politics and jargon. Most of their training, however, would be on the job. Their salaries would come from the cities, counties and states themselves with some federal subsidy, probably on a de-escalating basis. The program is still in the talking stage.

HUD would use various professional organizations to recruit candidates. Then it is anticipated that the Conference of Mayors, the International City Managers Association and the Conference of Governors would be asked to screen the candidates.

A physicist, for example, might join a team of lawyers, political scientists, engineers and chemists to look at a city as a system. The physicist might then consider superconducting transmission lines, high-speed transportation systems, limitations on structural materials, and their effects on urban environment.—GBL

Interdisciplinary laboratories

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The ARPA spokesman said that in the near term the transfer of IDL funds will mean a corresponding dent in the Defense Department's materials budget. Recently the overall materials-science and engineering program at DOD has amounted to about \$100 million. Over the last couple of years the materials-science program has shown a changing trend from basic to more applied research. It is expected that the trend will continue.

Todd said that a reasonable case can be made that the total level of effort in materials research in the United States should not be reduced, even if there is no longer a military requirement. "Therefore we are trying to present a case for the Foundation maintaining the total national support of the materials-science area by in effect compensating for the ARPA withdrawal." Meanwhile, by agreement with OST, NSF is preparing for a round of site visits, to conduct its own review and evaluation of the IDL programs. NSF has established an internal study group, headed

by William Wright (who is head of the mathematical and physical sciences division) to do the review and evaluation. One thing to be decided is how the IDL's could be treated administratively. In addition the NSF group will be assisted by outside consultants.

"Would you consider dropping a particular laboratory?" we asked Todd. "We'd drop our own mothers-in-law if we didn't like the science," he said. NSF takes the position that it has to do its own review and evaluation of anything it considers picking up after another agency has dropped it. However Todd assumes that the IDL investigators would have the same mixture of quality as NSF presently has in its own research program.

It is of course difficult to define just what proportion of IDL research is physics, particularly because the whole concept of interdisciplinary research is alien to singling out physics as such. However, the proportion is between 30 and 50%, according to Wright. The present NSF materials-science effort is \$11.6 million; so if the proposed transfer occurs, NSF would roughly double its support of materials research.

The concept of interdisciplinary laboratories dates back to John von Neumann at the AEC. By the time the laboratories were established in 1960, it was ARPA who actually took on their support. In the materials-science laboratories that were established, interdisciplinary teams of physicists, chemists, metallurgists, crystallographers and engineers join in basic research.

In 1969 the IDL program received 35% of its support from ARPA, 17% from the rest of DOD, 26% from other government agencies and 22% from industry and university sources. The IDL program supported in that year 2400 graduate students and 580 faculty members, who turned out about 350 PhD's each year. ARPA supported 1100 projects, involving the work of 600 graduate students and 250 faculty members.

The IDL's are located at Brown University, Cornell University, University of Chicago, Harvard University, University of Illinois, University of Maryland, Massachusetts Institute of Technology, Northwestern University, University of North Carolina, University of Pennsylvania, Purdue University and Stanford University.

—GBL

in brief

The American Vacuum Society is offering two scholarships in 1971-72 for graduate work in vacuum science and technology, vacuum metallurgy, surface physics, thin films and related areas. Each is worth up to \$4000, depending on need. Applications are available from the American Vacuum Society, 335 East 45 Street, New York, NY 10017. Deadline is 1 April; selections will be announced by May.

Three new members have joined the Committee on Physics and Society (COMPAS) of the American Institute of Physics. They are Thomas Kirk of Harvard University, Philip M. Platzman of Bell Telephone Laboratories and Daniel Alpert of the University of Illinois.

NSF has awarded a total of \$276 000 to 21 scientific societies to support visits by leading scientists to junior colleges, colleges, and small universities in the 1970-71 academic year. The largest grant, \$31 000, went to the American Institute of Physics.

Mosaic, "a source of information for the scientific and educational communities served by the National Science Foundation," is a new quarterly published by NSF and available from the Government Printing Office for \$2.50 per year.

PhD Scientists and Engineers in Private Industry 1968-80, a Labor Department study available from the Gov-

ernment Printing Office, puts total 1968 PhD employment in industry at 35 800, including 19 500 physical scientists. For 1980 the projected total is 55 000, with 29 500 physical scientists.

The University of British Columbia's newly formed Interdepartmental Institute of Astronomy and Space Science has received \$539 000 from the National Research Council of Canada to start a new research program in astronomy and astrophysics.

Gustavus Adolphus College, Minot State College, University of Tulsa and Old Dominion University have been awarded a total of \$822 000 from NSF's College Science Improvement Programs to strengthen undergraduate science education.

Hadron, Inc. of Westbury, New York has acquired the TRG laser department and electro-optics products of Control Data Corporation's Melville Space and Defense Systems Division. Hadron now provides a wide range of solid-state laser devices.

Zygo Corp, a new applied-science and technology enterprise, is planning to link the technical spin-off from basic research at Wesleyan University with the industrial capabilities of Canon Inc, a Japanese-based firm. Paul F. Forman, former director of optical science and engineering for Perkin-Elmer Corp, is president and chairman of the board.

European groups join forces to design 3.6-meter telescope

Thanks to an agreement recently signed by CERN and the European Southern Observatory, ESO's new 3.6-meter telescope will be designed and constructed at the CERN laboratory near Geneva.

An intergovernmental organization of six European countries (Belgium, Denmark, France, West Germany, the Netherlands and Sweden), ESO exists to establish a center for optical astronomy in the southern hemisphere. It already has three telescopes on its site at la Silla in Chile, 500 km north of Santiago.

Under the agreement between the two international organizations, an ESO Division of some 30-40 astronomers and engineers will be set up at CERN under the direction of S. Laustsen of ESO. The new division will be autonomous and will have to pay its own way, but it will be able to draw on CERN's support services and experience in the design and construction of large and expensive equipment. The 3.6-meter telescope, which will be ESO's main instrument at la Silla, is due to be completed in 1975 or 1976.

NNCSC uses computer for data compilation

One of the four major data centers for nuclear neutron data recently released its first computer-produced compilation, "Angular Distributions in Neutron-Induced Reactions." Major advantages