News and Comment

Academy and Congress: NAS Panel Completes Its First Assignment in New Relationship with Congress

For the first 101 years of its existence, the National Academy of Sciences generally maintained a cordial but distant relationship with the U.S. Congress.

The Congress had little reason to avail itself of the Academy's services as scientific adviser to the federal government. The Academy, repelled by the harshness and stridency of congressional politics, preferred to work with the executive agencies, and didn't seek to develop ties with Congress. But when budgetary and political pressures began to affect seriously federal support for science, both the Academy and Congress showed more inclination to work with each other. Last year this new attitude resulted in a formal contract for the Academy to provide counsel for the House Committee on Science and Astronautics. The contract was shortly followed by the committee's first assignment for the Academy, a request for answers to two questions:

1) What level of federal support is needed to maintain for the United States a position of leadership through basic research in the advancement of science and technology and their economic, cultural, and military applications?

2) What judgment can be reached on the balance of support now being given by the federal government to various fields of scientific endeavor, and on adjustments that should be considered, either within existing levels of over-all support or under conditions of increased or decreased over-all support?

The vagueness of the questions and their essential unanswerability inspired a fair degree of despair behind the Academy's marble facade. But there were the questions, reasonable ones from the point of view of legislators who must appropriate money, and the Academy accordingly turned to the task of answering them. The assignment was given to the Academy's Committee on Science and Public Policy, which set up a 15-member *ad hoc* committee, which in turn decided that, rather than seek a consensus, it would give the House Committee the separate views of all 15 members. Those views were delivered last Monday in a 310-page report, "Basic Research and National Goals."* Except for a few humble and carefully circumscribed attempts, the papers don't try to answer the unanswerable, but they do provide some of the most provocative and best informed discussions yet to appear any place on the economic and political problems of federal support for science.

Harvey Brooks, dean of applied physics and engineering at Harvard, provides a lucid analysis of the difficulties involved in trying to employ dollar amounts as a measure of scientific activity. Noting, for example, that the National Science Foundation reported federal support for basic research to be $1.6 billion in fiscal 1964, Brooks asserts:

"It turns out that nearly half of this amount was spent by the National Aeronautics and Space Administration and that approximately 80 percent of the NASA expenditure was for the design and procurement of scientific space vehicles, the operation of tracking ranges, and payments to military missile ranges for putting the vehicles into orbit. A significant part of the oceanography budget," he continued, "goes into simply keeping research vessels at sea, without any science." These costs, he conceded, are necessarily incurred in the conduct of basic research, and are therefore legitimately chargeable to basic research. But, he noted, "A basic research budget that rises annually by 15 percent may appear to be adequate or even generous, but if most of the cost increase is merely to ensure the availability of certain new facilities, then the increased budget could actually be supporting the activities of fewer scientists. The situation would be a little like building a new department store that was so expensive to keep open that it was necessary to fire all the salesmen."

Brooks went on to point out that "much of the planning for new research facilities that took place in fiscal years 1962 and 1963 was based on an implicit assumption of continuing expansion of research budgets. Now, in fiscal 1964 and 1965, when these facilities are just coming into operation, the expenses of merely making them available —without any science—are confronting fixed or even declining operating budgets for basic research."

To avoid this dilemma, Brooks recommended segregating the costs of major scientific equipment—such as accelerators, oceanographic vessels, and space vehicles—to distinguish them financially from the costs of performing research. In regard to Brooks's proposal it might be argued that the pie is still the same size, no matter how it's sliced. But in terms of congressional attitudes, the proposed budgetary distinctions might be extremely significant. When research budgets are lumped together, Congress tends to pay attention to overall growth, rather than to the financial problems of any particular segment; it is therefore tactically difficult to plead poverty when the overall sums are rising substantially.

The panelist who was most provocative and most out of step with his colleagues was Harry G. Johnson, Chicago economist. Addressing himself to the contention that science should be supported because of its cultural value, Johnson stated:

"The argument that individuals with a talent for research should be supported by society, for example, differs little from arguments formerly advanced in support of the rights of the owners of landed property to a leisured existence, and is accompanied by a similar assumption of superior social worth of the privileged individuals over common men. Again, insistence on the obligation of society to support the pursuit of scientific knowledge for its own sake differs little from the historically earlier insistence on the obligation of society to support the pursuit of religious faith, an obligation recompensed by a similarly unspecified and problematical pay-off in the distant future. At the more popular level, the interest in scientific accomplishment represents a leisure-time activity, more

* The report is available for $1.25 from the Superintendent of Documents, Government Printing Office, Washington, D.C.

elevated than following professional sport and less culturally demanding than the appreciation of artistic endeavor, and hence peculiarly appropriate in the affluent mass society."

Johnson said that "there is no disputing that basic research has played a significant part in the growth of the U.S. economy," but he said that it was difficult, if not impossible, to determine the extent, and like most of his colleagues on the panel he declined to attempt to answer the questions posed by the House committee.

Among the few panelists who attempted to provide direct answers to the House Committee's questions were Brooks and George Kistiakowsky, of the Harvard chemistry department. They took the position that a minimum annual increase of approximately 15 percent in university research support is essential to meet national requirements. Brooks also suggested "that 10 to 15 percent of the applied effort might be a good rule of thumb for the basic research effort." John Verhoogen, University of California geologist, suggested that in "little science"—designated by research costing less than $20,000 a year—"ideally every scientist who is capable of raising a valid scientific question and contributing significantly to its solution" should be supported. He estimated that this would apply to at least 50,000 scientists. As for "big science," there was general agreement that because of its costs, there was a necessity to pick and choose among possibilities. And there was also general agreement with a view most forcefully advanced by Edward Teller, of the University of California, that graduate science training places insufficient emphasis on applied science.

One area of considerable agreement among the panelists was the view that the future of basic research in the United States is becoming closely tied to the fortunes of the National Science Foundation, and that increased support for NSF is essential if research is to thrive.

Alvin Weinberg, director of the Oak Ridge National Laboratory, warned that government agencies with narrowly defined technical objectives have been reducing their support of basic research because of budgetary pressures. "Whether or not basic physical science continues to flourish," he said, "will therefore depend largely on whether or not Congress encourages the growth and vigor of the Foundation. Expansion of the National Science Foundation is perhaps our country's central political problem related to the support of science."

Members of the Academy's Panel on Basic Research and National Goals who participated in the preparation of the report to Congress are:

George Kistiakowsky, Harvard University, *chairman*
Lawrence R. Blinks, Stanford University
H. W. Bode, Bell Telephone Laboratories
Harvey Brooks, Harvard University
Frank L. Horsfall, Jr., Sloan-Kettering Institute for Cancer Research
Harry G. Johnson, University of Chicago
Arthur Kantrowitz, Avco-Everett Research Laboratory
Carl Kaysen, Harvard University
Saunders MacLane, University of Chicago
Carl Pfaffman, Brown University
Roger Revelle, Harvard University
Edward Teller, University of California, Berkeley
John Verhoogen, University of California, Berkeley
Alvin M. Weinberg, Oak Ridge National Laboratory
John E. Willard, University of Wisconsin

The House committee for which the report was prepared received it with a warm statement of appreciation. Chairman George P. Miller (D–Calif.) said: "It is my belief that this report represents not only genuine achievement and utility in itself, but a significant milestone in congressional methods of gathering talented, objective assistance to its use."

It appears, however, that the Academy, whose panelists labored with great diligence to produce their papers, is not so certain that a lengthy compilation of individual views is actually the best way to serve the requirements of busy congressmen.

The introduction to the report disclaimed any group responsibility for the views of the individual authors, stating that "neither the other members of the ad hoc panel, nor the Committee [on Science and Public Policy], nor the Academy assumes responsibility for the opinions expressed, except where explicitly stated." In explaining why it chose to present 15 papers rather than a committee report, it offered the statement that "it has been traditional for groups of this kind to develop a consensus as a basis for unanimity in the public statement of their findings addressed to the Executive Branch of the Government. We concluded that, in view of the nature of the legislative process, this may be less desirable in a response to a request from a Congressional committee."

Just why this should be the case wasn't made clear. But it is possible that the Academy is still uneasy about its new relationship with Congress and wants to feel its way before committing its prestige fully. One thing in favor of a closer relationship is the scientists' respect for Representative Emilio Q. Daddario (D–Conn.), chairman of the House Committee's subcommittee on science, research, and development. It is generally agreed that Daddario has been running his subcommittee in a responsible and intelligent fashion, and that the subcommittee is developing into an important channel of communication between the scientific community and the Congress.

—D. S. GREENBERG

Congress: House Subcommittee To Concentrate on PHS, NIH, FDA in Study of Parent Department

The organization and operations of the Department of Health, Education, and Welfare, the Austro-Hungarian Empire of the federal bureaucracy, is again under study, this time by a special subcommittee of the House Interstate and Foreign Commerce Committee's investigations subcommittee.

Commerce Committee chairman Oren Harris (D–Ark.) says, "The main purpose of the subcommittee will be to study the organization of the Department of Health, Education, and Welfare as it pertains largely to public health. We have particularly in mind the U.S. Public Health Service, including the National Institutes of Health