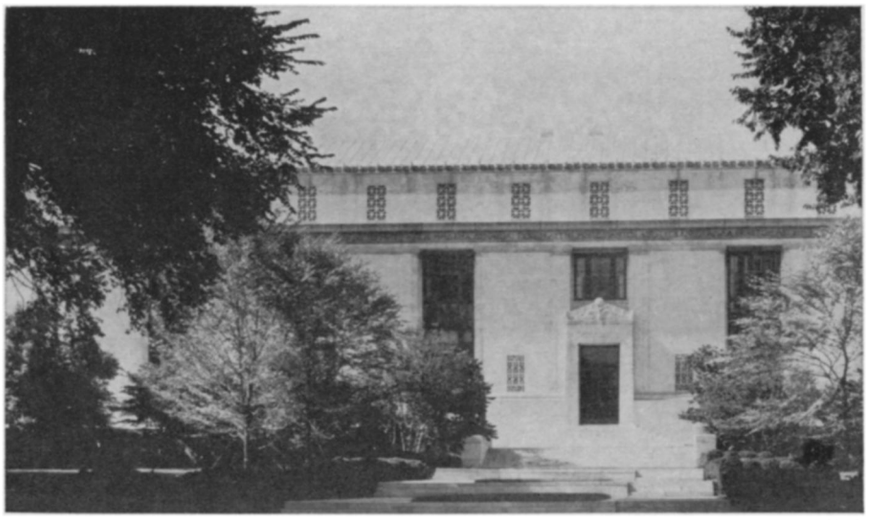
On the road to advocacy

The NAS moves cautiously toward scientific activism

By Barbara J. Culliton



NAS

The National Academy of Sciences: Accepting the need to establish priorities.

Biologists routinely sit in judgment of their peers, labeling one man superior, another mediocre and others competent, solid, somewhere in the middle. Physicists, awarding grants or promoting colleagues, do the same. So do astronomers and chemists and scientists of all breeds.

As long as disciplinary boundaries are neatly drawn and strictly respected, peer review proceeds without fanfare and with little ruffling of more than a few individual feathers.

But suggest that a biologist become a physicist's judge, suggest that rankings can be set among disciplines, and scientists panic. The notion that one branch of science is more important or more urgent than another is repugnant to the scientific community, whose members argue against ranking disciplines on grounds that it is intellectually impossible to do so.

For a long time, science has functioned well, even flourished, under this nonsystem. But because society's demands are changing and because the coffers from which research draws its support are dwindling, there is mounting pressure for, among other things, the orderly establishment of priorities among sciences—the feeling that if choices have to be made, they should not be left to the scientifically untutored men in the Bureau of the Budget.

The National Academy of Sciences, in the persons of its influential Committee on Science and Public Policy (COSPUP), has volunteered to undertake the job. At least, it has volunteered to consider it, with the hope that if it can come up with a set of priorities, Congressional and Executive Branch budgetmakers will use its guidelines in decision-making.

The undertaking is fraught with hazards, not the least of which is the potential for losing friends and creating dissension among the ranks that need to be united for self-preservation. But the Academy has opted to take the risk.

That choice is a measure of the new directions and attitudes the century-old institution is struggling to bring about within its own house and with its relationship to the outer world, principally the White House and Capitol Hill, its official advisees.

It is also a reflection of the man who now holds the Academy presidency, Dr. Philip Handler, the Duke University biochemist who took command a year ago (SN: 6/14, p. 579), amidst considerable interest in his stated intention to nudge the Academy into a path of increased activism. Priority setting is an example of a complex problem the Academy has traditionally shunned but now seems willing to tackle.

"Priority setting is not a necessary occupation when there is a pluralism of support for science," Dr. Handler declares, "but that no longer holds. I've asked COSPUP to see if it is feasible and given them a year to explore. If we don't set priorities, someone else will."

While firm in his conviction that the job of making choices must be done, Dr. Handler is quick and emphatic in allaying fears that there will be a verdict declaring biology preeminent to physics, awarding astronomy a gold star and oceanography a silver. The challenge, as he sees it, is to make rational judgments, sacrificing as little in scope and quality as possible.

Thus, he observes, "Making choices in big science may be easier than it is in small science." Slicing $10 million from oceanographic research might mean shelving plans for a single vessel. Cutting the same amount from academic chemistry could put hundreds of productive scientists out of work. Though COSPUP has yet to offer even preliminary utterances, it is thinking along those lines.

In the years since its creation by the Academy in 1962, COSPUP has emerged as one of the most respected science advisory bodies in the United States. President Kennedy's science adviser, Dr. Jerome B. Wiesner, credited COSPUP's 1963 report warning against uncontrolled population growth with influencing the President's decision to provide Government support for family-planning programs. It has commissioned exhaustive reviews of various sciences, including chemistry and physics, which catalogue past achievements and chart future courses. Its most massive undertaking along these lines was a three-year review of the life sciences; its recommendations are soon to be released. Whether these documents have done or can do much to reverse deflating budgets is a question, but they have had considerable impact on the scientific communities involved and have been regarded with particular esteem by foreign institutions.

While the activities of COSPUP can hardly be classified as radical, its forays into policy issues characterize the Academy's evolving desire to speak with a broad and authoritative voice on major questions and to achieve new levels of visibility and influence. Increasingly, the Academy is demonstrating sensitivity to complaints that it has in the past been too passive on important national issues.

The desire to be heard by the Federal Government is not the special province of today's Academy members. It was, in fact, the force that motivated a corps of scientists to create the NAS in the first place. Its charter was granted by Congress in 1863, designating it the quasi-governmental body to which all branches of Government could turn for objective scientific advice. However, in its formative days the NAS' influence-peddling was often restricted to less than earthshaking matters, such as rendering advice on the selection of stone for a Chicago customs house.

Gradually, however, it faced more

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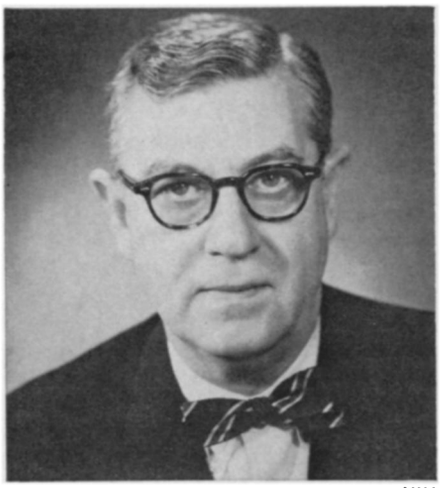
Handler: Toward increased activism.



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Shannon: Representation for doctors.

formidable issues. It was instrumental in fostering, among other things, the National Bureau of Standards, the Manhattan Project, and subsequently the Atomic Bomb Casualty Commission operating in Japan. The International Geophysical Year was a brainchild of the Academy and much of the credit for the United States oceanographic research efforts can be laid at its door. Most recently, it has made itself felt through its review of drugs marketed between 1938 and 1962, a task it accepted at the request of the Food and Drug Administration.

Actually, the Academy is a two-headed creature—technically the National Academy of Sciences-National Research Council. The former is an elite club of some 870 scientists, most of whom are pushing 60 or better, elected to sit at the apex of American science in recognition of original contributions to their fields. Generally, members are picked from academia, with major East and West Coast institutions most heavily represented. Some take an active part in Academy goings-on; many do little more than appear for the annual spring meeting to listen to papers, bestow membership and converse with colleaues in the Academy's marble halls.

The National Research Council is more a nuts-and-bolts operation. Established in 1916, the NRC is, for the time being, a working conglomeration of some 450 panels of scientists, by-and-large not Academy members, convened to mull over specific scientific questions. It was an NRC group, for example, that actually did the work of reviewing drugs for the FDA, though its decisions were released under the joint NAS-NRC byline.

Before assuming the NAS presidency, Dr. Handler laid out some of his thoughts for rejuvenating and tuning the Academy in on the needs of science and society in the 1970's. He cited the framework of the NRC, now structured by eight divisions that adhere to traditional disciplinary limits, as a prime target for change. A high priest of the school that preaches that scientific issues no longer—if, indeed, they ever did—fall into simple, disciplinary packages, Dr. Handler has been among those NAS members who want to see the NRC rebuilt along problem lines—transportation, urban development and environment, for example. An ad hoc review committee headed by Dr. Franklin Long of Cornell University put this thinking into an official recommendation submitted to the Academy membership at its April get-together (SN: 5/9, p. 453), and some reorganization of the NRC seems sure to come about. Already most of the foundations have been laid for a board on transportation, a body that will deal with air, land and sea transportation, considering not only such narrow questions as how to build a highway but, more broadly, where to build one, or whether to build it at all.

In addition to calling for revisions in the NRC, the Long committee, responding to agitation from the scientific community at large, proposed creation of four sub-academies. Agricultural scientists, social scientists and members of the medical profession have, of late, been knocking on the Academy's door, calling for admission. There are, for example, not more than 30 M.D.'s recorded in the membership files. In view of this, and spurred by the urgent need for an authoritative voice to speak to problems of the delivery of health care —a voice without the political flavor attached to the American Medical Association—pressure arose for creation of a National Academy of Medicine to operate under the mantle of the NAS. Drs. Irvine Page, director of the Cleveland Clinic, and James A. Shannon, an NAS council member and former director of the National Institutes of Health, spearheaded the move.

The Academy members, jealous of their elite position in American science and concerned that fragmentation of existing structures would do little to help a scientific community that is already in deep trouble, accepted the Long committee's idea "in spirit," as one spokesman put it, but not in fact. Attempting to head off demands for a National Academy of Medicine, the NAS will create an Institute on Medicine to focus on broad policy questions of health care delivery.

The Institute on Medicine should eventually become a 200-man outfit with members elected for specified terms from the nation's medical community; it will also include lawyers—Harvard jurist Adam Yarmolinsky has already been named—public health officials, economists, social scientists and a representative of the American Medical Association. The new institute may not satisfy those who were bucking for a full-fledged academy. Dr. Page says, "I've yet to be shown that it will work," and Dr. Shannon, although unconvinced that it is a satisfactory substitute, is withholding judgment.

The medicine institute, in Dr. Handler's view, is going to have to explain why the health care system, or non-system, a $60-billion-a-year enterprise, does not work. It must take a close look at medical education from first year anatomy courses through the residency programs "for which no one is clearly responsible." Testifying in July before the House Subcommittee on Science, Research and Development, he offered his own judgment on one route that must be traveled. In essence, he spoke in defense of basic research.

"It is not those diseases for which we have available definitive procedures for prevention or therapy which place the great demands upon our medical resources," he observed, "but rather those diseases for which we can offer only palliative halfway measures." Once science achieves a fundamental understanding, perhaps at the molecular level, of what happens in cancer, heart disease, senile psychoses, genetic disorders and kidney impairments, for instance, expensive but inadequate treatment and lengthy hospital stays will no longer be necessary financial burdens.

As the NAS charts its second century, hoping to expand its voice and influence, it is being driven by the conviction that science can contribute more to the amelioration of societal problems if those problems stand as guideposts of scientific decision-making. The evolution of the Academy into social activism, like all evolution, will be a slow and inevitably somewhat painful process for at least part of its membership—those senior citizens of science who are used to limiting their focus to the life of their own labs and who are fearful of what will happen as the NAS becomes more an advocate than an observer. □