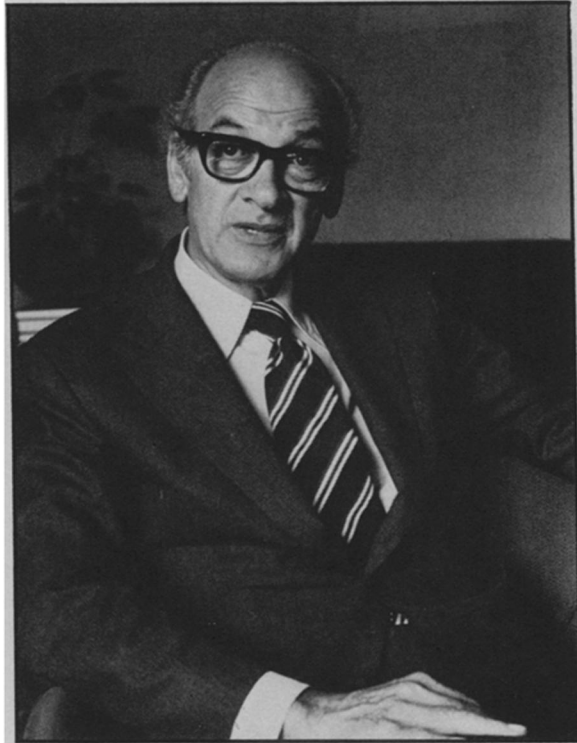


Handler:



5 Years At The Helm

The National Academy of Sciences was formed over a century ago to act as intermediary between Federal policy makers and the scientific community. Recently, the academy's role has again become crucial in helping repair the breakdown of communication that grew between the Administration and academic scientists during the Vietnam War and culminated in the expulsion of the whole science advisory apparatus from the White House (SN: 1/27/73, p. 52). An academy committee led by James R. Killian (President Eisenhower's science advisor) has recommended a restructured White House advisory apparatus called the Council for Science and Technology (CST) (SN: 7/6/74, p. 4) and academy President Philip Handler has suggested modification of the university structure to facilitate the application of scientific talent to the practical problems facing the United States.

In an interview with SN's Science and Society Editor, John H. Douglas, Handler reviews the events of his term in office, talks about the challenges con-

fronting science and takes an optimistic look at the future.

Q: When you became president of the National Academy of Sciences five years ago this month, the academy had a reputation of speaking only when spoken to and you promised to give it "a little shaking up." In what ways do you believe you've succeeded?

Handler: Well, not so much in visible deeds that are easily identified, as in the restructuring of the National Research Council so that it is better equipped to deal with the kinds of problems involving science and technology that now trouble the Government. By that action and such public attention as it has received, the Congress and the Executive Branch have both been turning to this institution more and more for the kind of assistance we tooled up to provide. I think that really is the major accomplishment . . . rather than any public posturing on any particular matter.

Q: How do you believe science can be made more accountable and respon-

sive to the needs of society without damaging its traditional role of seeking out the unknown? How, for example, can science help in the population *cum* food crisis?

Handler: In the narrow sense—the "search for truth"—science cannot deal with crises. That search follows its own pace, its own time scale, provided the resources are there. It's very difficult to hurry.

In the broader sense—speaking not so much of science but rather of the technical community—first, I think it would be unfair to suggest that those who developed the new strains which constitute the green revolution misled the world or the developing nations. . . . I seriously doubt that those so engaged at the time understood the criticality of energy to the actual social value of those strains. . . . What we seek now is labor-intensive rather than energy-intensive or capital-intensive agriculture, at least for the developing nations. [But traditional strains of grain are simply unable to provide adequate yields, and the search for new strains]

has to be continued, except that one's view of success will change.

Q: That will take scientific manpower. It has been said that 90 percent of the creative work of science has been done by 10 percent of the scientists. With budget cuts and de-emphasis of science at the national level, are we still getting that brilliant 10 percent?

Handler: First, I suspect we have lost a number of very bright young people who are turned off from science by the complex social changes in the United States in the last decade—mysticism, irrationality, anti-Vietnam sentiment, anti-establishment sentiment—the thought that science-based technology has done more harm than good. . . . Second, it has become significantly more difficult for new entrants into graduate school to find financial support. . . . [we can't measure the full impact.] What I can say on the other side is that in talking to members of the scientific community across the nation, they will all tell you that their newest recruits—the first- and second-year graduate students—are the brightest and best trained people, and the most highly motivated, they've ever seen.

Q: Within the time you have headed the NAS, there have been great upheavals in the national Government's science advisory apparatus. The Office of Science and Technology (OST) and the President's Science Advisory Committee (PSAC) have been expelled from the White House and research budgets have been cut. Do you see any reversal of this trend and would the proposed Council for Science and Technology (CST) help?

Handler: There has been a never-ending pressure to use our scientific and technical resources on those problems from which there will be the quickest, earliest return. . . . [For example] the "cancer crusade," so-called, was allowed to warp the total shape of the National Institutes of Health program. . . . Had that been add-on money, and had there been people willing to do it who were qualified, that wouldn't have disturbed me. What did disturb me was that the funds were generated, in very large measure, by deleting them from the basic science budgets of other elements of the NIH, most particularly the Institute of General Medical Science. . . . [Though this has not yet happened with the Research Applied to National Needs program of NSF] it is a fear I hold that one day that tail will wag that dog. . . .

I am not sure science has been downgraded in the Administration, across the board. . . . The total [budgetary] package isn't all that bad. . . . It is inflation that has made things as difficult as they have become; and the

failure to fund inflationary rises. . . .

[Regarding the director of NSF acting as science adviser to the President]: Dr. Stever hasn't been given the tools to do what OST and PSAC used to do. He's been told to stay away from the military R&D entirely . . . and I am uncertain whether his office has been able to relate to OMB [Office of Management and Budget] in as equal a fashion OST did at one time. . . . [Stever has to devote his attention] to those activities where he is most visible and vulnerable, and that must mean that at this time a very large fraction of his effort is going in that direction. Therefore I can only assume, without knowledge, that the deputy director of NSF is really running the store. . . .

[The Killian report on CST] really speaks for itself. The committee and our council really do believe there is a genuine, serious need for an appropriate mechanism in the White House; or let's say, within the Executive Office of the President.

Q: Might CST help to avoid such problems as the NIH cancer program?

Handler: In the end, that series of events was the consequence of political decisions, and most major events made in government *are* undertaken on the basis of political decisions. All I can ask is that those who make the political decisions be as enlightened as possible, as they go about their business. In the present instance that you raise, there *was* a PSAC, and there *was* an OST at the time that was done.

Q: But in an Administration not noted for its openness to anyone outside a small select circle, what are the chances that CST will be adopted, or that if Congress made them adopt it, that it would be listened to any more than Dr. Stever is now?

Handler: I don't know to what extent Dr. Stever is actually heard. Everything I hear indicates he does have access to the *working echelons* of the White House. . . . If [CST] were there in the Executive Office of the President, and it is clear to the President that this is part of his whole team . . . well then I think he might very well use them. . . . That which is proposed is significantly different from the old OST-PSAC arrangement. It does not include what is essentially a foreign body within the Office of the President. . . .

Q: You have also proposed a reorganization outside the Government—what you called a "university core with satellite institutions"—as a way of preserving the traditional separation of "relevance" and the "quest for truth." Would you elaborate on that plan?

Handler: Well, at the universities both the students and faculty have an urge to find their consciences, to address what they consider "real" problems, problems of American life and

society. . . . To achieve any success in finding useful improved technologies for getting at these matters, including social technologies, you have to put together packages of people, who will pool their disciplinary skills. The university was simply never built to do that. It is the home of disciplinary intellectual structure. I would be very loath to watch the disciplinary departments of the universities disappear while we raised instead a School of Environmental Studies, or a School of Urban Studies, or this year, a School of Energy Studies. We had a series of "urban studies" [programs], and we can point to quite a collection of absolute, out-and-out failures. . . .

[I propose] that there be satellite organizations, which are *at*, but not really *of*, the university. Into these, members of the faculty and students could flow for variable periods, there to work cheek by jowl with people from other disciplines who also want to address the same kinds of problems. . . . These would strengthen the university, which could serve society with new functions without taking away from the old. . . .

Q: Looking to the future: You once said that science is now "entering its adolescence," in the sense of putting together the bits and pieces of knowledge it has gained in various disciplines. But adolescence also implies accepting a more mature sense of moral responsibility. How do you see this adolescence progressing, both in terms of learning and in terms of accepting responsibility?

Handler: The sense of responsibility, I think, is acquired. . . . It's part of maturation. You develop your moral structures as much by making mistakes and having them corrected as by anything else—or by witnessing the mistakes of others. We have lived through a trying time recently. We have understood as we never have before that suddenly it is true: We *are* our brothers' keepers. We have a sense of responsibility for the planet itself. . . . [First came the loud advocates of environmentalism and consumerism, without many facts, but the rest of the establishment has now joined them in finding facts]: We have virtually institutionalized the process. We have an Environmental Protection Agency—that's amazing! . . .

Our problems are generated by the fact that most matters that give us pause involve benefits and either costs or risks, and we are not very good at making that analysis for decision making. It's a big new skill we have to develop as an organized society, and there are just very few instances to point to now where we have done it. But we are determined to do so, and that's an immense step forward. □