Toward a National Science Policy?

Study Group, Washington Association of Scientists
Washington, D. C.

AFTER TWO YEARS IN GESTATION A National Science Foundation Bill emerged from the 80th Congress, only to be vetoed by the President (*Science*, September 12, pp. 236–239). This outcome is undoubtedly puzzling to those who have followed the course of the legislation and are aware of the almost unanimous support for the establishment of a strong national science policy. The paradox exists, however, only when viewed from a distance. Close analysis of the bills introduced into the 79th and 80th Congresses (*Science*, December 27, 1946, pp. 614–619), of the Congressional hearings and debates on these bills, and of the President's veto message and the relevant sections of the recent reports of John R. Steelman (*1*), special assistant to the President, and Attorney General Clark (*2*) shows a sharp cleavage between two opposed philosophies of the relation of science to government and society. From the introduction in the 79th Congress of the original Kilgore and Magnuson Bills, which were based on two sharply divergent conceptions of the nature and purposes of the proposed Foundation, down to the Presidential veto of S. 526, the fundamental dichotomy has persisted and prevented successful completion of the legislation.

In the most general terms, the conflicting philosophies appear to be these. That of the original Kilgore Bill, concurred in by the President and his advisers as well as by many scientists, is based on the premise that science is a national resource, that its raw material is the Nation's scientific manpower, and that, as a vital national resource, its furtherance should be entrusted to an authority directly responsible to the elected representatives of the people—the Congress and the President. The proponents of this philosophy place primary emphasis upon long-range planning for the whole field of science to ensure the development of scientific potential on the widest possible basis throughout the country. They seek guarantees which will deny to special interests a disproportionate influence in formulation of Foundation policy, or disproportionate benefits from its activities. They insist upon a patent policy which will permit free public access to discoveries made with public funds.

The opposing philosophy, embodied in the original Magnuson Bill and, in even more extreme form, in the recently vetoed Smith Bill, regards science as an auxiliary to the development of industry, medicine, and the national defense; it places complete confidence in the existing organizations and facilities for research and believes that these organizations should further the development of science with a minimum of control by the elected representatives of the people. It would thus simply expand scientific activity in the country by enlarging the existing structure, concentrating support in well-tested organizations and centers if results may be thus more effectively attained. It would place control of the Foundation in the hands of recognized leaders in science, industry, and national defense, insulating it from the people's representatives in the interests of security and immediate efficiency.

It is clear that these differences between the two opposed points of view are fundamental and underlie the swirl of controversy which has gone on about more specific issues, e.g. form of administration, inclusion of social sciences, geographic distribution, etc. The basic issue is none other than the proper role of the Federal Government in regulating those areas of our national life which are intimately related to the public welfare and security, in this instance the shape and scope of science. It is not surprising, therefore, to find that groups, organizations, and individuals have lined up on the National Science Foundation very much as they have on atomic energy, national health insurance, Federal support of housing, and similar issues. Science, with its present budget of approximately $1,000,000,000 and a recommended budget (Steelman report) of 1 per cent of the national income, can apparently no longer remain out of the political arena. Issues of fundamental national policy are involved, issues important enough to produce

This analysis of the present status of national science legislation, up to and including the Presidential veto and the subsequent Steelman report, was made by a Study group of the Washington Association of Scientists (a branch of the Federation of American Scientists), consisting of C. Grobstein (chairman), J. M. Conly, I. Feister, L. B. Heilprin, H. Olken, F. J. Pratt, J. W. Rowen, I. Schocken, G. R. Silbiger, R. D. Steiehler, F. J. Weiss, and L. A. Wood. The group had the advantage of being on the spot during consideration of the legislation by Congress, and obtained first-hand information through attendance at committee hearings and floor debate and through interviews and correspondence with interested legislators. Their analysis reveals the basic conflict which has so far prevented the passage of a National Science Foundation Bill.

an impasse between the executive and legislative branches of the Government, as expressed in the recent Presidential veto.

In actual fact, the area of agreement between the contending philosophies is limited to the most general features of the legislation. Nearly all parties concur that some Federal financing of science is required, that the responsible agency should be in civilian hands, and that major emphasis should be given to fundamental or basic research, albeit the exact definition of the latter has remained somewhat hazy. The necessity for increased training of scientific manpower also is generally supported, as well as the importance of coordinating the scientific work of Federal agencies and of encouraging international exchange of scientific information and personnel within the limits of national security.

But beyond these most general features the deep cleavage appears, and the debate becomes bitter. The form of administration of the Foundation has been a major storm center. To many observers this has seemed unfortunate since, it has been said, in the final analysis the success of an organization depends upon its personnel rather than its organization chart. But the opposing schools of thought have sensed in this issue the crux of their entire difference. The Magnuson-Smith school has sought to design the Foundation so as to effect a minimum of change in the existing structure of science. They have tried to erect an administrative barrier between the science agency and the ordinary instruments of Federal authority—a barrier, in other words, which would be permeable to the Federal dollar but impermeable to the virus of Federal control. They have placed final administrative authority in an unsalaried board consisting of scientists and other authorities serving on a part-time basis. In its most extreme form, the original Smith Bill introduced into the Senate of the 80th Congress, this board was to consist of 48 individuals. It was to elect from its own membership an executive committee of 9, which would in turn select a director, the actual administrative head of the Foundation. It was this complex structure which was denounced by the President in his veto message as implying "a distinct lack of faith in democratic processes" and offering the danger that "it would impede rather than promote the Government's efforts to encourage scientific research."

On the other hand, the Kilgore-Administration school believes that science has grown to such stature, and is so important for the national well-being, that its management can be left neither to chance nor in the hands of a small group of private citizens, serving part-time, no matter how well qualified or well intentioned they may be. Moreover, they feel that an activity which is fundamentally geared into the main drive-shafts of our economic and social life cannot be left free from the normal processes of democratic political control. Recognizing the need for protection of the freedoms of the individual investigator from irresponsible political meddling, they nevertheless would firmly integrate the National Science Foundation in the Federal governmental structure. Thus, they would place the direction of the Foundation in a single individual, or at most a small, full-time commission, appointed by the President and confirmed by the Senate, and fully responsible to these elected representatives of the people. They would retain the advantages of a larger part-time board by establishing it in a purely advisory capacity.

Thus, the quarrel over administration is essentially one over the nature of the Foundation. The former view would make of it a virtually autonomous agency, Federal only in its financing, quasi-governmental in structure. The latter would make of it a truly Federal agency, integrated in the governmental structure and capable of closely coordinated action with agencies responsible for other aspects of the national life—education, industry, agriculture, defense.

No less sharp has been the cleavage over patent policy. The Magnuson-Smith school seeks to avoid the problem by directing the Foundation to remain within the limits of existing patent policies and practices, executing its contracts "in a manner calculated to protect the public interest and the equities of the individual or organization" (S. 526) involved. The opposing school argues that new problems have been created by the wide-spread support of research by Federal funds, and that existing patent practices and policies are inadequate both to protect free scientific publication and to insure the full exploitation for the benefit of the public of discoveries financed by public funds. They advocate, with certain safeguards, the free availability or the free dedication of all patentable discoveries arising from government-financed research.

Again, in the matter of distribution of funds in support of research, the basic conflict is revealed with the Magnuson-Smith school arguing against any specific directive on the basis of population and geography, on the ground that such mandatory distribution would hamper the Foundation and constitute a "pork-barrel" for all future Congresses. The Kilgore-Administration school argues that the widest possible distribution is required in order to stimulate the growth of science throughout the Nation, and mandatory provision of some kind is the only guarantee against the natural tendency toward centralization of support in already well-established institutions and organizations.

Thus, after nearly three years of debate the issues remain undecided, the contending philosophies unreconciled. It is impossible to predict at this moment what new action may be expected when the 80th Congress reconvenes. The probability of passage of politically disinterested legislation by a Congress in a presidential election year is notoriously low. Meanwhile, new trends are developing, and patterns are being established in the

relationship between science and the remainder of society. In spite of almost universal desire for control of science policy by civilians, the absence of a National Science Foundation is establishing control more firmly in military hands. It is widely conceded that we have been weakest in fundamental research, and that strong measures are required to strengthen this aspect of our science. But the present tendency appears to be strongly in the opposite direction, with available funds for research bearing on industrial, military, and health problems enormously overbalancing those available for research having no obvious immediate practical importance. We are in grave danger that our universities will become adjuncts of, and recruiting grounds for, the laboratories devoted to application. Here again goes the goose that lays the golden egg.

As scientists we cannot escape our share of responsibility for the present hazardous state. Congressmen who were interviewed displayed a flattering interest in the views of scientists and their organizations on national science legislation, but many confessed their lack of knowledge of details of the legislation and stated that they had had little advice from home to guide them. One remarked ruefully that, if this were a labor issue, he would have heard from every labor leader in his district. He was forced to conclude that scientists were not very much interested one way or the other.

It must, indeed, be regarded as amazing that individual scientists have made so little effort to influence the legislation, considering the inescapable effect on science and on their personal future that the establishment of a National Science Foundation must have. National scientific organizations banded together in the Inter-Society Committee, and their representatives participated in committee hearings. But when the chips were down and the individual legislators were making up their mind on how to vote, there was very little pressure of the kind that counts—communications from individuals, colleges, institutes, societies, and academies in the *home districts*.

With the formation of the Inter-Society Committee at Boston in December 1946, was there a complacent tendency on the part of individual scientists to overestimate the potential effectiveness of this organization, with a resulting decline in other types of activity? Have we misread the tactical picture assuming the issue to be National Science Foundation, yes or no? The Inter-Society Committee spoke strongly and effectively in favor of the establishment of a National Science Foundation, but was much less clear in its stand on the specific questions which lay at the heart of the controversy and prevented a successful outcome for the bill. Do recent events indicate that the issue is not whether we shall have a Foundation, but, rather, what kind of a Foundation we shall have? What indeed is the proper role of the Federal Government in the support, planning, and direction of science?

As the time for a new Congressional session draws near these are the questions which occupy the minds of observers here in Washington. National science policy will be decided with or without the participation of scientists. But the wisdom of the decisions will in large measure depend upon the forcefulness with which scientists on both sides of the controversy express their considered judgments, both publicly and to their representatives, *now*.

References

1. *Science and public policy.* Vol. 1: *A program for the nation.* (A report to the President by John R. Steelman, chairman, The President's Scientific Research Board, August 27, 1947.) For sale by Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. $.20.
2. *Investigation of government patent practices and policies.* Vol. 1: *Final report proper.* (Report and recommendations of the Attorney General to the President.) For sale by Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. $.35.