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Research Funding

Federal, state, and industrial funding of research and development were the topics of an in-depth symposium held 11 and 12 April in Washington, D.C.* The meeting, organized by AAAS staff, was the 15th of an annual series, and the speakers included key scientific members of the Bush Administration, a congressman, a senator, an ex-governor, and experts in science policy matters. The content of the remarks and the atmosphere of the occasion created the impression of a step-function change in the rate of evolution of the relations of scientists to their sponsors. This was particularly true of the federal scene. Politicians and politics seem slated to have an expanded role in setting priorities in the support of research.

Change was already in motion, but its speed has been accelerated by a confluence of circumstances and events: (i) The huge federal deficit and recent legislation have placed caps on federal spending. (ii) State governments—some facing recessions and deficits—have increased an avid appetite for federal research funds. (iii) The hypothesis that basic research in the United States automatically leads to jobs and new products here is no longer believed. (iv) Politicians have become convinced that the scientific community is incapable of setting priorities for the expenditures of limited funds. (v) The fiscal integrity of research universities has come under question. (vi) Instances of scientific misbehavior have been spotlighted. (vii) Events involving David Baltimore were damaging.

Legislation in October 1990 created a 5-year plan to curb the federal deficit. Funds for the National Science Foundation and the National Institutes of Health can be substantially increased only by cutting family support, veterans' benefits, and other politically attractive programs. Congressmen have expressed the opinion that the Bush proposal for an 18% increase in NSF funds will not be accepted.

All the states and their universities desire expanded federal support for research. Until recently senators were acquiescent to a distribution of funds for academic research based almost entirely on merit as determined by peer review. However, 5 states with 10 senators obtain more than 50% of the R&D funds, whereas 15 states with 30 senators receive less than 2%.

There is widespread belief that scientific research has had an important role in the great improvement in health and in standards of living. However, loss of U.S. ability to compete in global trade is taken to indicate a failure of the hypothesis that basic research leads automatically to prosperity and jobs. The failure also raises questions about priorities. Are limited federal funds being spent in a way to advance national priorities? In the field of biomedical research the question is not now urgent. A steady stream of announcements of medical progress and success of biotechnology firms is reassuring. However, with respect to the physical sciences, there is more basis for apprehension.

In the past, members of Congress have repeatedly asked the scientific community to furnish priorities for federal support. No satisfying response has been forthcoming. As a result, the Administration and Congress will set priorities. Indications are that scientific merit will not be the sole criterion.

One of the talks at the AAAS symposium described a document issued by the Office of Technology Assessment.† Part of the remarks dealt with priorities. It is well known that about 10% of proposals are of outstanding quality. Most of the remainder are excellent and it is difficult to differentiate among them. The OTA document proposes that additional criteria be employed in the decision. For example, concerns for development of human resources and building regional and institutional capacity should be considered. Questions have been raised elsewhere about the status of teaching at research universities. The argument that an active researcher is necessarily a superior teacher also has been questioned.

At this time it is too early to form a realistic estimate of the effects of lack of trust engendered by the widely reported events involving Stanford University. The financial conduct of other universities will surely be subject to detailed examination, and further small but inexcusable irregularities probably will be spotlighted. Additional instances of scientific misbehavior will probably be identified. Scientific and university administrators generally must proceed vigorously in ensuring integrity of their operations if permanent damage is to be minimized.—PHILIP H. ABELSON

*Proceedings of the AAAS symposium will be issued in the fall. †Office of Technology Assessment, "Federally Funded Research: Decisions for a Decade" (Government Printing Office, Washington, DC, 1991).