Scientists Call for "National Commitment" at Senate Hearings

AAAS president E. Margaret Burbidge and AAAS chief education officer F. James Rutherford represented research and science education at the Senate authorization hearings for the National Science Foundation last month. Also testifying before the Senate Committee on Labor and Human Resources were National Science Foundation director John B. Slaughter and National Science Board chairman and IBM chief scientist Lewis M. Branscomb.

Burbidge described the U.S. scientific and technological enterprise as the strongest in the world—we have the greatest number of R&D scientists and engineers; Americans continue to dominate the Nobel awards in science; and the United States continues to sell about nine times more technology than it buys.

"This is not a portrayal of a system in a state of collapse," she said. "And it is reassuring that the Reagan Administration has reiterated and endorsed a strong federal commitment for the support of research and development.

"However, despite large levels of R&D funding, our R&D investments are declining relative to other [nations']—and more and more of our support goes to military R&D. . . . I feel confident in pointing to the need for continuing substantial R&D investment—public and private—for the long-range well-being of our nation. Given the technological successes of some of our international competitors, we can ill afford to follow a policy of 'no real growth' in R&D over the long term."

Burbidge noted that special attention should be given to several programs within the National Science Foundation, including international programs; instrumentation; programs for women, minorities, and the handicapped; and science and engineering education.

In her concluding remarks, Burbidge called for some redressing of the imbalance between military and nonmilitary R&D expenditure, more attention to the role of R&D in economic planning, and a new national commitment to solving the problems of science and engineering education.

Richard A. Bloom

AAAS President E. Margaret Burbidge testifies before Senate committee.

Accompanying Burbidge before the Senate were F. Thomas Juster, director, Institute for Social Research, University of Michigan, on behalf of the Consortium of Social Science Associations; William S. Partridge, president, University of Utah Research Institute; Laurence Berlowitz, provost, Clark University, on behalf of the Association of American Universities; and Robert Parry, president, American Chemical Society, and Distinguished Professor of Chemistry, University of Utah.

Rutherford told committee members that science, mathematics, and engineering education in this country are in rapid decline, and the "price that the Nation is paying is a not so gradual undermining of our economic health, productivity, and national security."

Other nations, he pointed out, including the Soviet Union, Japan, Germany, and the People's Republic of China, are putting great emphasis on science education to ensure their positions in the world. At the same time, the United States is witness to falling test scores, fewer students electing to take courses in science and mathematics at all levels, and complaints from industry that workers are insufficiently trained to carry out their work.

Rutherford called for a "national partnership to deal with the problem. The individual schools and colleges and each and every state have essential roles to play, but the role of the federal government is unique and absolutely necessary."

Some areas Rutherford pointed to as particularly critical for improving U.S. science and engineering education include:

1) There needs to be an increased emphasis on programs aimed at training more women and minorities for careers in science and engineering.

2) Elementary school science has almost ceased to exist with the withdrawal of federally funded science specialists.

3) Problems are particularly severe at the graduate level in engineering and computer science. With industry offering high salaries, most college graduates are not entering doctoral programs; thus the pool of researchers and professors is shrinking. This has produced two results—departments of engineering and computer science are restricting admissions even though there is a national

shortage of engineers and computer scientists, and the United States is becoming increasingly dependent on foreign instructors and foreign graduate students in these critical areas.

4) Scientific equipment, books, and supplemental materials are generally outdated and in disrepair. Without federal support, most school systems and colleges cannot afford to replace these items.

Rutherford urged that ". . . as a nation, we need to get on with the job right now of strengthening our science education enterprise." The National Science Foundation must "continue to support the essential programs addressing these problems. . . . We must not lose momentum. The scientific research capacity, and the Nation cannot afford it."

Other members of the science education panel, who did not testify but appeared with Rutherford to respond to questions, were Sarah Klein, president, National Science Teachers Association; Lewis S. Salter, president, Wabash College, on behalf of the Independent Colleges Association; John E. Gibson, Commonwealth Professor and dean, School of Applied Science and Engineering, University of Virginia, on behalf of the Council of Graduate Schools in the United States; and Anne M. Briscoe, director, Biochemistry Laboratory, Harlem Hospital Center, Columbia University, on behalf of the Association of Women in Science.

Slaughter detailed some of the highlights from the National Science Foundation's proposed fiscal year 1982 budget. They include increases for fundamental research, particularly in the physical sciences, engineering, and the social and behavioral sciences; research instrumentation and major equipment; and programs aimed at increasing the participation in science of women and minorities.

Branscomb announced formation of a Commission on Precollege Education in Mathematics, Science, and Technology. "The National Science Board," said Branscomb, "is initiating the Commission not for the purpose of studying the problem, but to do something about it." Membership of the commission will be announced soon.

Appearing with Slaughter and Branscomb was Donald L. Langenberg, deputy director of the National Science Foundation.

JOAN WRATHER
Office of Communications

Conferences to Address Issues in Science Education

• The Office of Science and Technology Education will host a working conference of AAAS affiliate organizations to lay the groundwork for establishing a "Coalition of Affiliates for Science and Mathematics Education" on 13–14 May in Washington, D.C.

In response to a growing consensus that America's science and mathematics education is in serious trouble, education representatives of affiliates will develop plans for a coalition to exchange information about their current efforts to address various aspects of the crisis—either in the schools, among the general public, or at the policy level, and coordinate these efforts to reverse today's negative trends in science and mathematics education, especially in the secondary schools.

Conference discussions will focus on student learning in science and mathematics; supply and utilization of qualified teachers of science and mathematics; and local, state, and federal policies and trends that bear upon science and mathematics education.

The major portion of the conference will be devoted to working sessions to outline communication needs and services essential for an action-oriented coalition; approaches to the marshaling of the human and organizational resources of coalition members; and methods of keeping track of, and interacting with, policy-makers at the local, state, and federal levels.

A report of the deliberations and recommendations of the conference will be prepared for formal consideration and action by the individual AAAS affiliate organizations.

• AAAS and the Association of American Colleges are jointly sponsoring a national invitational conference on Science and Technology Education for Civic and Professional Life: The Undergraduate Years.

The conference will address ways colleges and universities can revise curricula, course content, and instruction to confront the growing scientific and technological illiteracy that has been documented as a major problem of our society. Participants will include decision-makers from both inside and outside the academic community. They will formulate a set of practical actions and strategies that individual undergraduate colleges can use to raise the level and quality of science and technology education received by their students and better

Policy Colloquium Set for June

The Seventh Annual AAAS Colloquium on R&D Policy will be held on 23 and 24 June at the Shoreham Hotel in Washington, D.C. Using the proposals for R&D contained in the Reagan Administration's fiscal year 1983 budget as a point of departure, the colloquium will feature discussions of current R&D policies and priorities; congressional responses to administration directions; the climate for industrial R&D; key R&D budget and policy issues in the major federal agencies; and the likely impacts on the institutions of science and technology of new patterns of federal funding. Featured on the program will be leading figures from Congress and the Executive Branch involved in R&D policy-making, and noted members of the scientific and engineering communities, including persons from universities, national laboratories, and industry.

Advance registrants to the colloquium will receive *Research and Development: AAAS Report VII*, by Willis H. Shapley, Albert H. Teich, and Jill P. Weinberg, prior to the meeting. This report will include an analysis of R&D in the budget for fiscal year 1983; an in-depth look at R&D budget and policy issues in the major federal agencies and departments; a discussion of R&D in industry; and an examination of the impacts of recent R&D budget trends on the institutions where R&D is performed. Registrants will also receive the published *Proceedings* of the Colloquium.

For further information and registration forms, contact the Office of Public Sector Programs at the AAAS address.