

1983 Annual Report of the Executive Officer

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The year just ended, AAAS's 135th, saw the Association's assets secure and its agenda continuing to diversify. The powerful drives which propel the processes of scientific discovery and application, far from slackening, appeared to have picked up strength. On a national basis, the aggregate of public and proprietary input to research and development approached the extraordinary annual scale of \$100 billion. The sustainability of such a large and high-yield knowledge system beyond the short term calls for scrutiny in the light of demographic and other indicators relevant to prospects for replenishing the stock of scientific and technical workers and teachers of high quality. In the absence of an investment strategy proportional to near-saturation expenditures on R & D, the human resources base could deplete during the 1990's and bring about a crunch in scientific and technological capacity or troublesome distortions among fields and among skill distributions. Because science and technology, despite the size of R & D budgets, are not in the direct stream of policy planning and enter it in crabwise fashion, the decision process continues to deal with the above-surface aspects of the knowledge process and is slow to look to its infrastructure.

While 1983 strewed palms over science's achievements and witnessed a strong level of public expectations for science's roles in rescuing the nation from its multiple predicaments, the year also saw some unsettling behavioral patterns within the house of knowledge. For an enterprise celebrated for objectivity, surprising demonstrations of logrolling came to the surface at some cost to science's credibility. Although science's fortunes are tied remorselessly to the federal tax base and to political processes, the relationship has much to lose if the rules of peer review are undercut by special-interest pleading. At its winter meeting, the Board of Directors adopted a resolution expressing its concerns (see *Science*, 6 January, page 27).

A year ago, in this space, attention

was directed to government's heavy-handed interference with scientific communication in an effort to forestall leakage of data to adversary countries. The situation remains deeply troubling. Despite high-level assurances that forthcoming government decisions on tightening of controls appear unlikely "to prove objectionable to the scientific and university communities," there continue to be disturbing indications of anxious surveillance over academic and industrial research as well as chilling interventions into scientific and technical information practices. The long-standing partnership of science with government, to which much of science's advancement is owed, is unlikely to weather a one-sided suspension of the trust upon which the mutual relationship has been based. There is a low ceiling on the negotiability of open communication in unclassified research.

Over the past decade, AAAS has diversified its activities in the service of science and society while keeping a clear view of its independence and its mission. In extending its roles, AAAS has recognized the need to participate actively in the illumination of dilemmas involving the impacts of science and technology upon society and its institutions, and to sensitize the scientific community itself as to the costs and benefits of an escalating functional role in shaping national and global outcomes. In consequence, AAAS has taken major initiatives to make science understandable to the educated but nonexpert public. It has committed itself for the foreseeable future to restoring quality in precollege science and mathematics education. It has addressed the barriers impeding the entry and upward progress of women, minorities, and disabled persons in the scientific and technical professions. It has become a center for the defense of human and professional rights and freedoms of scientists, engineers, and physicians in the free world, the half-free world, and the closed world. It has formed meaningful partnerships between

the North American science and engineering communities and those of the developed and developing countries of Europe, Africa, Asia, and Central and South America. It has pioneered and sustained a well-respected annual examination of the federal budget for research and development. It has worked to strengthen the resources of the Congress and the media for coping with problems of scientific and technological choice. It has undertaken comprehensive studies for government on complex environmental questions. It has built a new capacity to address in a responsible way problems and choices at the junctions of science, arms control, and national security. It is creating a mechanism to focus on the set of problems involving population growth and global resources. It has carried out a 5-year program of scientific exchanges with the People's Republic of China. It has joined with the legal profession to examine problems at the interface between science and the legal process.

If all this has come about in a single decade, does it presage a comparable enlargement of scope in the next decade? How far can the Association's resources, including the immense uncompensated service of volunteer members, be stretched? AAAS is far from a rich organization. Four-fifths of its budget must go to the publication of *Science*, the flagship of AAAS, and our new and successful general audience magazine, now *Science 84*. AAAS earns its way as it goes, relying on members' dues and subscription and advertising income together with yields from modest investments. Budget margins are always narrow. Support from foundations, industry, and government is helpful for selected activities but does not swell general funds. But apart from the problem of how much AAAS can afford to add to its existing agenda is the question of what is appropriate or urgent to undertake in the coming years. What has a decade of growth and diversification told us about our strengths and limitations, about what we can do well, about necessary boundary conditions, and about how AAAS is perceived and graded? To that set of questions the Board of Directors began in midyear to address itself, meeting for a rare and all too brief summer study. Sharpening the atmosphere and the realism of the inquiry was the news that the veteran Editor of *Science*, Philip Abelson, is approaching retirement and that the current Executive Officer of AAAS will follow suit in due course. Thus, the questions of agendas and leadership converged.

Faced with these large questions, the

summer study did not rush to hasty answers. There was no opinion that the AAAS should recant from its present programs or the style with which they are conducted. But there were decided views in favor of closer organizational and membership ties with allied professions, notably engineering. There was strong endorsement for a lively and alert AAAS role in science and technology policy debates, a role less of advocacy than one of informing the debates and the debaters. The Board felt that since the financial resources of AAAS are finite, future initiatives of significant scale would depend on external grants. For the rest, the priorities should see to the continued high quality of ongoing activities, particularly the well-being of *Science* and *Science 84*, together with increasing the effectiveness of AAAS in areas of education, public understanding, cooperation with affiliated societies, science and technology policy, science and ethics, and the building of international networks of communication. Future discussions within the Board will be designed to hone these priorities further and to search for more opportunities for bringing individual members of AAAS into the mainstream of its activities.

Highlights of the year include:

- For an unprecedented second year running, *Science 83* won the National Magazine Award for general excellence in the 400,000 to 1 million circulation category. The award was for material published in 1982.

- Agreements were undertaken with

two major book publishers, Charles Scribner's Sons and Macmillan Publishing Company, whereby Scribner's will publish and distribute books based on materials from *Science 83* and Macmillan will publish and distribute books developed from other AAAS sources.

- With financial support from the Environmental Protection Agency, seven of a nine-seminar series on biotechnology were conducted by AAAS. A Proceedings volume is in preparation.

- As part of "Black History Month," the Office of Opportunities in Science, in cooperation with the National Science Foundation and the Smithsonian Institution, brought together several outstanding black scientists who had earned their advanced degrees in the 1930's and 1940's. The program was videotaped for use in the classroom.

- Some 40 Fellows participated in the Congressional Science and Engineering Fellows Program, jointly supported by AAAS, its affiliated societies, and the Congressional Office of Technology Assessment. The Environmental Science and Engineering Fellows Program, funded by EPA, continued for a third productive year, while the Science and Diplomacy Fellows Program was conducted for the fifth year in cooperation with the Department of State.

- 1983 was the 10th anniversary for the Congressional Fellows Program, which at the year-end had about 300 alumni or alumnae.

- Fifteen Mass Media Science and Engineering Fellows continued their excit-

ing program in 1983, for the first time with support coming predominantly from leading U.S. science-related corporations; the alumni roster is at 153.

- The AAAS-ABA National Conference of Lawyers and Scientists held workshops on "Science and the Federal Rules of Evidence" and "Scientific Evidence in Litigation."

- Seventy affiliated societies, constituting the Consortium for International Programs, took part in AAAS-coordinated symposia, workshops, and seminars.

- The Western Hemisphere Cooperation Program continued its support of Interiencia Association, which held four substantial regional symposia, continued publication of a trilingual journal of science and technology for development, and initiated a major Bioresources Program for the countries of the hemisphere.

- Frequent and well-attended seminars were given for foreign embassy science counselors and attachés. Topics included "Frontiers in Food Production" and "Economic Impacts of Hybridoma Technology." Two of the five seminars were organized by affiliates, the American Statistical Association and the American Society for Microbiology.

- With financial support from the Institute of International Education, a handbook was prepared entitled "Graduate Students from Developing Countries in U.S. Science Departments" and was distributed to all natural science departments of Ph.D.-granting institutions.

Table 1. Summary budget for 1984.

Major category of revenue	1984 revenue budget	Office/Center	AAAS funds	Direct grant and contract funds	1984 expense budget
Revenue (in thousands)		Expense (in thousands)			
Dues of annual members	\$ 6,900	Executive Office	\$ 1,058	\$ 210	\$ 1,268
Institutional subscriptions (<i>Science</i>)	2,000	Office of Administration	2,941		2,941
<i>Science 84</i> circulation	8,864	Office of Comptroller	647		647
Advertising in <i>Science</i>	6,950	Office of Communications	1,402	21	1,423
Advertising in <i>Science 84</i>	6,073	and Membership			
Grant and contract funds	4,217	Office of Development	105		105
Product sales	1,362	Office of Information Systems	308		308
Investment income	1,125	and Services			
Annual meeting registration	250	Editorial Center— <i>Science</i>	9,717		9,717
and exposition		Editorial Center— <i>Science 84</i>	14,532		14,532
Contributions and other items	305	Meetings and Publications Center	990		990
		Programs Center	1,539	3,811	5,350
Total	\$38,046	Contingency Reserves	400		400
		Total expense	33,639	4,042	37,681
		Unexpended operating balance	365		365
		Total	\$34,004	\$4,042	\$38,046

- The Continuing Committee on the Role of Scientific and Engineering Societies in Development (a multisociety and multinational enterprise) met in New Delhi. U.S. disciplinary societies and their Indian counterparts prepared plans for joint programs in India on statistical data bases, biomedical engineering, regional firewood planning and management, and immunology.

- A 1984 African Regional Seminar is set for the Ivory Coast.

- The AAAS Climate Project published a substantial reference work, *CO₂ and Plants*, summarizing current knowledge of CO₂ as an agricultural feedstock. Under way is a project to review for the Department of Energy 40 state-of-the-art papers related to CO₂ and climate change.

- AAAS and the U.N. Advisory Committee on Science and Technology for Development convened a Panel on Science, Technology and Women at Mount Holyoke College. A report is in preparation for worldwide distribution.

- The AAAS Committee on Scientific Freedom and Responsibility was funded by the National Science Foundation and the National Endowment for the Humanities to prepare background papers for a series of seminars on the effects of secrecy and openness on the conduct of research. The 1984 seminars are to be cosponsored by AAAS and the Illinois Institute of Technology, Vanderbilt University, the Massachusetts Institute of Technology, and the University of California (San Diego).

- AAAS organized and cosponsored a fact-finding mission to El Salvador in conjunction with "disappearances" of health professionals and with the added purpose of examining the quality of medical treatment of political prisoners and the effects of violence on public health services. A second cosponsored fact-finding mission was organized to visit the Philippines in connection with reports of human rights violations of scientists and health professionals.

- The AAAS annual Scientific Freedom and Responsibility Award for 1983 was shared by Drs. Anatoly I. Koryagin, an imprisoned Soviet psychiatrist, and Jose F. Westerkamp, an Argentine physicist. Dr. Westerkamp accepted his award in person at the Detroit Annual Meeting. Dr. Koryagin's award was conferred in absentia.

- Two AAAS radio programs continued to be heard by large listening audiences. *Report on Science*, a news feature program with an estimated audience of 5

million, is carried by CBS. FOCUS, a 30-minute public affairs radio program, airs on public radio.

- AAAS continued publication of the *Reporters' Guide to Key Research Activities in Science and Engineering*, as an aid to news media. In addition, AAAS produces a *Public Information Contact Directory* with listings for 364 colleges, universities, scientific and engineering associations, and research institutions.

- *Science*, in addition to its articles and reports, carried in its News Section in 1983 some 220 "News and Comment" pieces covering the spectrum of science policy, defense, space, education, biomedical research, energy, the environment, and international developments affecting science. In addition, *Science* carried 242 news briefings. The Research News Section carried, in addition, 175 articles spanning the biological and physical sciences.

- *Science*, under Philip Abelson's editorial direction, has earned a reputation for its "special" issues which provide a comprehensive overview of the state of selected fields of fast-moving science. In the wake of three special issues on recombinant DNA, *Science* in 1983 published its biotechnology issue and, later in the year, an issue devoted to biological frontiers. A further accomplishment in 1983 was the reduction of *Science's* time lag for publication of reports from some 20 weeks to 10 weeks or less. At the same time, the journal's peer review system was substantially improved through the assistance of Joseph Cameron, an experienced statistician who undertook a consulting arrangement under the auspices of Section U.

- AAAS's Opportunities in Science program continued effective efforts in reducing barriers to education and employment of minorities, women, and physically handicapped persons. A trusted and widely sought source of advice and initiatives to government agencies, universities, scientific and engineering associations, this small unit in AAAS produces consistently astounding results for which it wisely credits others.

- Through its Committee on Science, Arms Control, and National Security, AAAS in 1983 began the major task of producing a book for wide public readership aimed at presenting a balanced and informed examination of the "verification" factor in arms control negotiations and agreements. Publication is expected early in 1984.

- The *Science Resources for Schools Project*, funded through a generous grant

from the Standard Oil Company of Ohio, progressed as planned in producing packets of information and ideas to improve science education in junior high schools. The packets contain material for use by teachers, principals, counselors, and librarians, and include reproducible activity sheets. Three pilot states (Colorado, Ohio, and North Carolina) are testing the program, which will be extended to more states in 1984.

- *Challenge of the Unknown*, a substantial AAAS project financed fully by the Phillips Petroleum Corporation, is in the final stages of production of films, publications, and computer programs to upgrade and enrich high school mathematics education. Twenty-eight stories have been outlined, and filming is well advanced. A teacher's guide is in preparation. Materials are expected to move into schools in 1984.

- The 1983 Annual Meeting, held in Detroit over the Memorial Day holidays, was a substantive and media success but a disappointment in terms of attendance. On the plus side, the meeting set a new record when more than 3000 high school students came to the Youth Symposium accompanied by hundreds of teachers.

- Our three Regional Divisions had a notably productive year with activities including well-attended annual science conferences, special publications, and active participation by graduate and high school students. The Pacific Division and the Southwestern and Rocky Mountain Division, for the first time in more than 50 years, held their annual meetings jointly. The Arctic Division, whose members reside in Alaska, the Yukon Territory, and the Northwest Territories of Canada, journeyed to the heart of the Yukon Territory to hold its annual meeting, with strong Canadian participation.

Preparing an annual report is, in a way, an experience in selective recall, a reaching back to average the quality of AAAS's activities within the parentheses of 12 months. This risks missing the continuities, the upthrusts, and downthrusts which shape and alter organizational goals over longer intervals. Somewhere here is the factor of organizational learning, the presence in every adaptable organization of a functioning memory, and the capacity to project the meanings of experience into an uncertain future. My sense is that this factor is operating well in AAAS, and that it positions your Association to cope with the new conditions that bear centrally on the advancement of science as a humane enterprise.