1977 Report of the Executive Officer

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The state of AAAS is reflected in both its organizational vitality and its external performance. As to the first, AAAS at the end of 1977 was doing well. For the third successive year the operating budget showed a decisive surplus. Declining membership, which a year ago was a source of genuine worry, was reversed by a strong surge of new members. Staff productivity was very good, *Science* continued to advance in quality and readership, generous leadership was forthcoming from elected officers, Board members, and volunteers, and the Association survived a stretch of discord.

In terms of external performance, 1977 saw substantial gains. The Association's efforts to heighten awareness of the nation's energy predicament won it the Energy Achievement Award of the National Energy Foundation. Staff of *Science* received the American Heart Association's award for excellence in scientific reporting. AAAS initiatives on behalf of handicapped scientists and engineers paid off in responses from government and from educational institutions. In the field of international cooperation, marked gains took place in the development of the Western Hemisphere federation Interciencia, and an array of new scientific relationships were initiated in countries of Asia and Africa. Government, industry, and academia were brought together to examine problems of science, technology, and public policy through the AAAS report on *R & D in the Federal Budget* and the ensuing 2-day colloquium, now an annual AAAS event. AAAS leadership in convening a special seminar in Nairobi in conjunction with the United Nations Conference on Desertification contributed strongly to the outcomes of the conference. As a nongovernmental organization, AAAS made substantial inputs to the government's preparations for the 1979 United Nations Conference on Science and Technology for Development.

In the recombinant DNA controversy which flared in 1977, AAAS gave priority to dissemination of scientific information and opinion, as distinct from adversary lobbying. It was also a year in which the long-standing confusion surrounding the relationships between AAAS and its affiliated societies began to be corrected through convergence on problems of handicapped scientists and engineers, scientific freedom and responsibility, international cooperation in science, information for Congress, outreach to young scientists, and issues of national science and technology policy.

Meanwhile, the participation of affiliated societies in the Congressional Science and Engineering Fellows Program continued to grow. The Committee on Scientific Freedom and Responsibility set up a clearinghouse on persecuted foreign scientists, distributed a background paper on the problems of scientists in Argentina, coordinated the visits of two distinguished foreign scientists who had been treated harshly by their governments, and furnished the impetus for a visit to Argentina by Emilio Q. Daddario, chairman of the Board. On the domestic side, the committee reviewed 20 complaints of violations of scientific freedom in the United States, and initiated a review of the procedural difficulties involved in the "whistle-blowing" issue. These indicators of external performance point to healthy movement.

While the financial affairs of AAAS are in good shape for the time being—thanks to growing membership, the effect of past dues increases, and a remarkable growth in advertising in *Science*—the future is still troubling. *Science*, the flagship activity of the Association, is an essential but inevitably expensive product. Cost inflation in the production and distribution of *Science* has to be experienced to be believed, with most of the pressure coming from inexorable paper and postal rate increases. If other operations of AAAS are affected by a going inflation rate of 7 percent, these two elements of *Science*'s costs experience an annual rate of increase closer to 15 percent. On present trends, AAAS faces a doubling time of a decade or less in its total operating costs. This nightmare is a constant companion of the officers and staff of the Association. We are working to mitigate the intensity of the problem, but the membership faces inevitable increases in dues.

The Council heard a report of the work of the Board Committee on Future Directions, reflecting its 2 years of thinking concerning the course which AAAS should set for the coming years. This is an important aspect of self-evaluation and forward planning, and as a process it should be repeated frequently. It would be all too easy for us to be satisfied with our current stock in trade and to rely on being reactive to ad hoc needs as they arise, neglecting trends that suggest a changing climate for science and its advancement. A common thread in the concerns of the Committee on Future Directions is that AAAS must prepare to do much more in reaching out to public opinion on behalf of science and technology, and that it also must actively address the emerging global issues of an interdependent world. These are large orders, but they do not stretch the potential of AAAS too far. They suggest roles for which a great federation of scientific societies would have to be invented if it did not exist.

There is much in the operations and the potential of AAAS that is good, but there is also unfinished business and areas of dissatisfaction. The AAAS fellowship question is one of them. Despite repeated attempts to get a better grip on criteria and procedures for electing Fellows, the matter has reached a stage of irritation and disaffection. The Council decided to place a moratorium on the nomination of Fellows and to put to the membership the question of whether AAAS should go on with the fellowship designation or terminate the ordeal, leaving the award of scientific honors to its disciplinary affiliates.

Another set of issues concerns the 21 Sections of AAAS. Some appear too large to be manageable, others too small. There is a case for reorganization. But beyond the aspects of size and manageability is the problem of Section roles. Their most valuable contributions are in planning and arranging symposia for the Annual Meeting, and participating in the governance of AAAS through the Council. I should like to see matters so rearranged that the Sections take a responsible part in other main arenas of our activity. An illustration comes to mind with respect to Section Q–Education, where the Section Committee is preparing a series of white papers on current issues in

science education. Perhaps wistfully, I view the Sections as engines which ought to help to drive the Association, amplifying and extending what it is trying to do in communicating science, addressing issues of science and public policy, advancing the opportunities of minority and handicapped scientists, focusing on emerging problems of the global environment, and addressing the roles of science and technology in stimulating a drifting, low-innovation national economy. I ask the Section officers to give serious thought to the ways in which the Section machinery can assume a significantly larger share of the Association's work.

Program Highlights of 1977

The federal tax-exempt status of AAAS is not a free gift from government. It is conditioned by the expectation that our activities will benefit society and not merely our membership. That this test is being met is borne out by a brief account of current AAAS activities.

Science

The magazine continued to make its influence felt on contemporary thought and knowledge. The vexing problems of recombinant DNA experimentation and containment were aired in the 8 April 1977 issue, which included 25 reports on recombinant DNA. Letters and editorials helped to coalesce the views of the scientific community as Congress deliberated legislative alternatives for regulation of experimental research. A second important initiative was the publication of a special issue of *Science* featuring 25 articles on the "Electronic Revolution" and its societal impacts. The acute problems of energy policy continued to receive heavy attention by *Science* in editorials and in Research News, and during the autumn 18 articles were recruited on various facets of energy, with expected publication in 1978. Planning is under way for a special issue devoted to health care.

Both circulation and advertising income rose impressively in 1977. The trend in paid circulation, which had been declining since 1971, was turned around and reached the 1974 level of 150,000. Advertising revenue increased for the third consecutive year and reached a new high of $3 million. The improved budget position of AAAS made possible increased allocations to *Science* and the staff was able to initiate several new projects that will affect future operations. Among them were advance preparations to comply with the new copyright law; surveying our actual and potential use of computers for such tasks as typesetting, referee selection, tracking manuscripts, indexing, and printing management; reviving newsstand sales; and creating our own index.

The audience for *Science* reached into the millions as hundreds of newspaper and magazine articles and radio and television newscasts picked up items from the journal and gave them wide visibility. Clippings from *Science* alone averaged more than 100 per month. Also, bylined articles and editorials were often reprinted in part or in toto in other publications.

Science will publish its centennial issue in 1980. To mark this milestone, President Edward E. David heads a committee established by the Board of Directors to plan an appropriate observance.

Opportunities in Science

Efforts to advance the status of women in science centered on a contract funded by the National Science Foundation to gather data on a sample of women and men who had received doctoral degrees in science since 1971, a conference held in October, and the development of policy and program guidelines for the National Science Foundation to consider. Major gains were achieved for AAAS's work with the handicapped, notably by gaining support from educators and in seeing the start of a new program for the handicapped at the National Science Foundation and willingness on the part of other government agencies to fund projects for the handicapped in science. Working closely and effectively with educational associations and AAAS affiliates, the Office of Opportunities in Science has been instrumental in changing attitudes and reducing barriers to career opportunities for the handicapped. This is a bright chapter in the affairs of AAAS. With respect to Native Americans in Science, the main achievements in 1977, apart from productive meetings and timely publications, were in terms of impacts on tribal institutions, federal agencies, and private organizations. Important initiatives in science program development for Indians, to be launched by the National Institutes of Health, the National Aeronautics and Space Administration, the National Science Founda-

Summary budget for 1978.

Major category of revenue	1978 revenue budget	Office/Center	AAAS funds	Direct grant and contract funds	Total expense
Revenue (in thousands)			*Expense (in thousands)*		
Dues of annual members	$ 3,625	Executive Office	$ 495	$ 9	$ 504
November subscriptions	1,390	Contingency reserve	100		100
Advertising in *Science*	3,000	Office of Administration	1,142		1,142
Grant and contract funds	1,102	Office of Comptroller	295		295
Subscriptions to *Science Books & Films*	90	Membership and Public Information Office	321	50	371
Annual meeting registration and exposition	165	Development Office	55		55
		Editorial Center (*Science*)	5,500	5	5,505
Investment income	360	Meetings and Publications Center	589		589
Product sales	410	Programs Center	492	933	1,425
Contributions and other items	250	Contingency for potential income taxes	190		190
Total revenue	$10,392	Total expense	9,179	997	10,176
		Unexpended operating balance	216		216
		Total	$9,395	$997	$10,392

tion, the Department of Energy, and tribal colleges and majority educational institutions, are the result of this AAAS project. Nearly $400,000 in outside funding has been attracted to support the programs of the Office of Opportunities in Science, reflecting the interest of five federal agencies, four corporations, and two private foundations.

Public Sector

1977 was the second year to see publication of the AAAS report on *R & D in the Federal Budget*, a crosscutting examination of current and long-range trends and issues in federal funding. This study, directed by Willis Shapley with the guidance of the AAAS Committee on Science, Engineering, and Public Policy, annually provides a unique analytical window on decision-making as it affects direction in science and technology. AAAS is grateful for support from the Sloan Foundation in making this work possible.

The Shapley report was again the basis for a 2-day Washington Science Policy Colloquium in June, attended by some 250 participants from Congress, the Executive Branch, industry, universities, and state governments. This spring Science Policy Colloquium, initiated during the presidency of William D. McElroy, is becoming a major annual event for AAAS. The 1978 Science Policy Colloquium will be held in Washington on 20 and 21 June.

The AAAS Mass Media Intern Program completed a third successful year. Aimed at building better relations between the scientific and media sectors, the 1977 program selected 20 scientists and engineers from a field of 450 applicants. Interns were assigned for summer employment with newspapers, a magazine, and radio and television outlets. Funds to support this program have been provided by the Russell Sage Foundation and the National Science Foundation.

An important activity continues to be the Congressional Science and Engineering Fellows Program. It is the best example of collaboration between AAAS and its affiliates, which together supported 20 Fellows in 1977 for 1-year assignments in Senate and House offices and committees. In 1978 AAAS will initiate four new Congressional Fellowships in the area of child policy, with financial support from the W. T. Grant Foundation and the Foundation for Child Development. In 1977, 12 organizations sponsored Congressional Science and Engineering Fellows and participated in the AAAS-coordinated program, including ten affiliates of the Association. In 1978 several more affiliates will select and sponsor Fellows. Major articles on the Program appeared in the August issue of *Physics Today* and a fall issue of *The Bulletin of the Atomic Scientists*, and another will soon appear in *Grants Magazine*. As has been the case in each of the past 4 years, a symposium in which several present and past Fellows described congressional issue areas was presented at the 1978 Annual Meeting.

The AAAS program of Regional Seminars in the Public Understanding of Science has been focused on decision-makers, including state legislators, reflecting our judgment that in order for a modest program to make a difference in public understanding it should select critical current issues and aim for action-oriented audiences. The last National Science Foundation–supported seminar took place at the University of Georgia, and was concerned with the recombinant DNA research issue. Subsequently, AAAS fielded several energy-related regional seminars. A conference on National Energy Policy, co-sponsored by AAAS with the MITRE Corporation and the Carnegie Institution of Washington, was followed by two regional seminars funded by the Energy Research and Development Administration. One in Philadelphia at the Franklin Institute on "Regional Implications of the National Energy Plan" was cosponsored with Sigma Xi, and the other was held at Billings, Montana, with the Inter-Tribal Board as cosponsor, on the subject of energy resource development in relation to Indian lands.

Two other collaborative activities call for brief mention. The National Conference of Lawyers and Scientists, a joint undertaking by AAAS and the American Bar Association, is dealing with a range of difficult conceptual and procedural problems at the interface of science, technology, and the legal process. During the 1978 Annual Meeting, the conference sponsored a symposium on "Assessing Technological Risk." A major project is planned to begin in 1978—a series of scholarly articles related to problems occurring at the law-science interface to appear in *Science* and the *ABA Journal*.

Another collaborative program involving many AAAS affiliates is the group known as AISLE (An Intersociety Liaison Committee) which brings state legislators together with scientists, engineers, and other technical professionals to work toward solutions of public policy questions in the energy-environment area. The Maryland General Assembly was host in December for the fourth AISLE conference/workshop, "Energy Dilemma: A Challenge for Maryland," which included more than 30 legislative and 70 professional society participants."

Finally, a new initiative begun in 1977 with cooperation of our affiliates is aimed at enlarging and improving the response capabilities of the scientific and engineering communities to the needs of the national legislative process. Still in the trial and error stages, this program will test the capacities of the scientific and engineering communities to provide information to the Congress and its institutions as a public service activity. The emphasis will be on important public policy issues with a substantial scientific and technological content.

International

Seventy-eight AAAS affiliates have nominated representatives to the AAAS Consortium of Affiliates for International Programs, which was formed in 1976 to exchange information and plans concerning international scientific and technical programs. Consortium seminars in 1977 dealt with federal organization for international science and technology, international science education, and nongovernmental organization initiatives for the United Nations Conference on Science and Technology for Development.

AAAS held meetings for government officials on such subjects as new uses of advanced technologies in developing countries, bilateral agreements with Mexico and India, the United Nations Water Conference, and problems in scientific freedom and responsibility. The Office of International Science assisted the Environmental Protection Agency in compiling a publication on selected organizations engaged in international environmental studies. It also took part in workshops to assist the Agency for International Development (AID) in devising guidelines for programs in population and appropriate technology, participated in a State Department seminar examining U.S. development policies for Asia, and took an active role with the State Department concerning the contributions of nongovernmental organizations to preparations for the United Nations Conference on Science and Technology for Development. Three seminars were organized for foreign attachés posted to embassies in Washington, dealing with the U.S. information industry, the Office of Technology Assessment, and regulation of research on recombinant DNA.

AAAS sent a delegation led by Margaret Mead to the Pacific Science Association Inter-Congress Meetings on Appropriate Technology, held in Bali in July. The Congress addressed such questions as technology transfers between developed and less-developed countries, and criteria for selecting appropriate technologies by less-developed countries. The East African Academy was a cohost for the Nairobi Seminar on Desertification, while the West African Science Association was represented at the AAAS Annual Meeting in Denver. Other associations which sent representatives to Denver were the Korean Federation of Scientific and Technological Societies, the French Association for the Advancement of Science, the Pacific Science Association, the Interciencia Association, and SCITEC of Canada. The meeting was also attended by representatives of the Intermediate Technology Development Group (England), the Shahdol Intermediate Technology Group (Indian), and the Technology Consultancy Center (Ghana).

AAAS was represented at the annual meetings of science associations in Sri Lanka, India, and France. It was also represented at a workshop on energy utilization sponsored by the Tanzanian National Scientific Research Council and at the founding meeting of the Association of Faculties of Science of African Universities.

A high priority of AAAS is the continued development and strengthening of the Interciencia Association, a federation of scientific associations of the Western Hemisphere which has grown out of the 1973 AAAS-CONACYT Special Meeting in Mexico City. Past AAAS presidents Leonard Rieser and Roger Revelle have given generously of their time and skills to this activity, as has the editor of *Science*, Philip Abelson. The federated associations participate in joint symposia on scientific and technical topics, and the trilingual journal *Interciencia* is in its second year of publication despite severe growing pains. A major symposium on "Nutrition and Agriculture: Strategies for Latin America" was held in Washington, D.C., in February, and "Energy and Development in the Americas" in Brazil in March. A third symposium on "Arid Lands and Desertification" (Mexico in August) is under discussion.

In 1977 the International Office completed a research project funded by AID on Cultural Factors in Population, originally stimulated by population anthropologists in Section H. The resulting publication in 1977, *Village Women: Their Changing Lives and Fertility* joined two previous AAAS publications, *Culture and Population Change* (1976) and *Population: Dynamics, Ethics and Policy* (1975). Pergamon Press published *The Many Facets of Human Settlements: Science and Society*, a collection of papers, edited by Irene Tinker and Mayra Buvinic, commissioned by AAAS for the United Nations Habitat Conference of 1976.

Anticipating the United Nations Conference on Desertification in 1977, AAAS drew on the resources of its Committee on Arid Lands. The focus of the AAAS input was on developing indicators of desertification in the physical, biological, and social fields which would be useful for monitoring and understanding the process and in planning antidesertification programs. A scientific seminar was arranged at Nairobi immediately before the conference formally began, cosponsored by the French and British Associations, the East African Academy, the Indian Science Congress, and the Interciencia Association. This was a successful initiative which contributed largely to the effectiveness of the United Nations conference and heightened public awareness of the nature and extent of the problem by generating widespread international media attention. The seminar statement, prepared in Nairobi and translated from English into French, Spanish, Chinese, and Russian, was distributed as a conference document by the Secretariat to conference delegates. In further recognition of the conference, the *Directory of North American Arid Lands Research Scientists* was presented as a AAAS contribution and a model of a potential worldwide directory.

Scientific Freedom and Responsibility

In 1977, the membership voted to amend the constitution of AAAS by adding a new objective, "to foster scientific freedom and responsibility." During the year, the Committee on Scientific Freedom and Responsibility, chaired by past president Bentley Glass, initiated the creation of a clearinghouse on persecuted foreign scientists, which gathers information on repression of scientists in other countries, a review of individual claims of violations of scientific freedom in the United States, and a study of alternative due process and appeal mechanisms for scientists and engineers involved in "whistle-blowing" issues.

Following announcement in *Science* of the existence of the clearinghouse on persecuted foreign scientists, more than 120 claims of persecution were received and are in various stages of review and verification. Thirty-two affiliated societies now participate in the clearinghouse activity, and 14 claims have been referred to them for investigation.

In addition to case reviews and referrals, a workshop was held on human rights and scientific freedom, with more than 25 participants from scientific societies and human rights organizations participating. The committee issued a background paper on the situation of scientists in Argentina and coordinated the visits of Dr. Maximo Victoria from Argentina and Dr. Mark Azbel from the Soviet Union. As a result of Dr. Victoria's visit, the committee recommended that AAAS sponsor an on-site visit to Argentina to express the concern of the U.S. scientific community and in December the visit was made by President Emilio Q. Daddario.

With respect to review of individual claims of infringement on scientific freedom in the United States, interim procedures were drafted and 20 complaints were studied. The subcommittee determined that 13 of the cases were not appropriate for further review. Five cases are being reviewed, another has been referred to a different subcommittee, and one has been sent to an affiliated society for further action.

The Subcommittee on Professional and Social Responsibilities of Scientists initiated an extensive study of the procedural difficulties involved in the whistleblowing issue, focusing on cases involving scientists working in government regulatory agencies. Several articles on whistle-blowing were published by committee members as part of this study, including articles in *Physics Today*, *Bioscience*, the newsletter on *Technology and Society*, and other publications.

During the 1978 Annual Meeting, the committee sponsored symposia on scientists and human rights, whistle-blowing, the regulation of scientific research, and low-level radiation.

Four members of the committee testified in hearings on science policy implications of regulation of recombinant DNA research held by the House Committee on Science and Technology.

Science Education

More than 3000 college teachers are taking part in the 1977–78 program of Short Courses for College Teachers, funded for the eighth year by the National Science Foundation. The program, which is designed to keep college science teachers up to date on developments in their own and related fields, continues to receive high marks from college educa-

tors. The 1977–78 series comprises 52 courses. AAAS has reached a transitional understanding with the National Science Foundation whereby AAAS will henceforth limit its roles to selection of course topics and speakers, and arrangements for the program. Other AAAS offices, particularly the Office of Opportunities in Science, advise and assist the Office of Science Education in developing the short course program.

The Office of Science Education has been working closely with the officers of Section Q, and it has been agreed that a series of issue papers will be drafted dealing with trends and problems in science education and laying out policy recommendations. Five half-day symposia on Issues in Science Education were scheduled for the 1978 Annual Meeting, and it is expected that the issue papers will flow from these symposia.

The Board of Directors charged the science education staff with the task of examining new and useful initiatives for reaching young people of school age. As a first step, data were gathered on the youth activities of affiliates and academies of science. In September the Forum for the Advancement of Students in Science and Technology (FASST), in collaboration with the Office of Science Education, conducted a survey of youth programs of AAAS-affiliated societies. Recommendations to the Board are in preparation.

Under a grant from the National Science Foundation, the Office of Science Education made a survey of academic programs and courses in ethics and values in science and technology. The results will be published later this year.

Annual Meeting

The 1978 Annual Meeting in Washington, D.C., in February was both a scientific and cultural success, keyed to the theme "Science and Technology: New Tools, New Dimensions." The Local Advisory Committee, cochaired by Gilbert Grosvenor and Robert Nathan, brought the Capitol area community into vigorous participation. Nearly 6000 persons attended the meeting, which offered 138 symposia, ten public lectures, 950 speakers, the film festival, and an excellent exhibits program. Physically handicapped scientists and engineers continued to take advantage of the barrier-free meeting in growing numbers. Press and media coverage was extensive, including international reporting.

In the light of the overall quality and balance of the Washington meeting, the Association can only feel profound frustration over the inexcusable indignities to which speakers in the session on "Sociobiology" were subjected. We are all diminished by such conduct, and the Association cannot condone it.

Membership

Redirection of membership recruiting activities paid off very well in 1977, reversing years of falling enrollment. As of mid-December, AAAS membership stood at 127,832—an increase of 12.7 percent from a year ago. New members added in 1977 numbered 28,105, of whom 17,986 are regular members, 9488 are student members, and 631 are foreign members. If these gains are sustained through 1978, the Association should reach or exceed its previous peak enrollment of 131,829 in 1971. The cooperation of AAAS members in nominating potential members has been instrumental in this growth, and we are counting on its continuation.

Several new or enlarged benefits were added in 1977. AAAS members were extended discounts on virtually all Association products, especially publications. For the first time, members enjoyed a $5 reduction in their Annual Meeting registration fee. The reduced fee was also made available to persons who both register for the Meeting and join AAAS at the same time. At the year's end, AAAS signed a letter of agreement with Association Consultants, Inc., of Chicago, to develop and administer a group life insurance program for AAAS members. This new benefit is expected to be available to members early this year.

Public Information Office

Two pilot half-hour radio programs were produced by AAAS Public Information staff for the "Focus" series, a program sponsored by Resources for the Future and the Brookings Institution. Some 200 noncommercial stations use all or part of the 52-program radio series. AAAS contributed a discussion/interview on solar energy with Dr. Eric Willis of the U.S. Department of Energy, Dr. John Andelin of the staff of the House Committee on Science and Technology, and Dr. Ted Taylor of Princeton University. In addition, AAAS added a new dimension to the radio series by producing a magazine-format show comprising summaries of News and Comment stories from *Science*, using actual interviews with the principals involved. On the basis of this experience, the Association expects to increase the scale and frequency of radio production activities.

Perspective

On balance, the affairs of AAAS went well in 1977. In 1978, another decade begins, the 13th since AAAS was organized in Philadelphia in 1848 with 461 charter members led by Louis Agassiz and Joseph Henry. Such a milestone testifies to continuity and to the racing advance of knowledge and discovery. Now, science, technology, and humanism run together and define dilemmas which Agassiz and Henry could only imagine. Whether AAAS will deserve high or low marks will be decided by its responses to the new context.