Scientists, either individually or collectively, as scientists have the responsibility to provide technical expertise based upon training and experience and to endeavor to provide that expertise in a manner comprehensible to those who need the information. In the role of experts, scientists do not have the right to make a value judgment and then selectively present scientific information to support that value position. To do so is to negate the integrity of science.

Two types of situations are particularly troublesome. In one, rational decisions require technical information that is not available and cannot be generated through validated studies in the time available: in the other, scientists are asked to propose courses of action to solve societal problems. Both go beyond the technical expertise and, in some cases, way beyond the level of maturity of the science.

There are two choices. One is to refuse to go beyond technical competence and the other is to provide what I call informed judgment, an opinion based upon related knowledge and experience. The first is to deny the public the benefit of informed judgment, the second may jeopardize personal creditability and possibly the creditability of the discipline. In both, the scientist has responded to a request to go beyond his or her level of expertise, and the difference between opinion and knowledge must be established in the response.

The culture of scientific manpower is fundamental to everything we do. The term is being used here in a very comprehensive sense to include the entire professional life-span of scientists as well as the recruitment and early development of scientists, but space is limited and I shall simply propose that

1) current science education distorts the recruitment and development of scientists,

2) the current reward system within the profession distorts the distribution of scientific talent within the profession,

3) and both distortions are to the detriment of the scientific community and the public's well-being.

If academic education provides the environment that enables a student to accomplish something, then we must rethink what it is students should be enabled to do. I nominate for the top of the priority list "discover the integrity of science."

In conclusion, attention is called to some of the more visible AAAS activities related to issues touched on above: the annual review, in collaboration with a number of affiliated societies, of the federal budget for research and development, the consortium of affiliated societies involved in international programs, the activities of the committee on scientific freedom and responsibility, the publication of *Science 82* for the reading public, and the recent AAAS long-term commitment to the improvement of science education.

1981 Annual Report of the Executive Officer

William D. Carey

In 1981, despite deepening recession and a wholesale reorientation of government's budget policies, the AAAS had a positive and upbeat year. Membership continued to grow. Federal budget cutbacks had little direct impact on the Association due to our planned low exposure. Both *Science* and *Science 81* turned in strong performances. The Annual Meeting in Toronto and the June R & D Policy Colloquium were lively and well attended. AAAS's cooperative ventures with our affiliated societies grew in effectiveness. The three regional divisions demonstrated vitality and utility. Uncompensated volunteer work by members was again given generously in every facet of the Association's activities. And at the year's end the financial position of AAAS was sound.

The success achieved by *Science 81* in its second year as a publication of the AAAS has been striking. Its circulation grew from 500,000 to 700,000 giving it the largest U.S. distribution of any science magazine except *Popular Science*. In addition, about 100,000 copies per issue are distributed overseas in English and Italian editions, and other foreign language versions may follow. Subscribers are renewing at an exceptionally high rate for a new magazine. *Science 81* received three national awards for science writing and 11 for design and illustration in 1981. Thus, a major publishing venture has turned out well, for which its editors and staff deserve full credit. With a probable gross readership of 2.5 million, supplemented by radio broadcasts over eight stations, *Science 81* (now *Science 82*) represents a very substantial input to better public understanding of science and technology.

However reassuring may be the state of the AAAS, 1981 was a troubled year for the advancement of science in other respects. Adverse government decisions dealt serious blows to public investment in science education, the social sciences, international scientific and cultural cooperation, space exploration, energy conservation, and environmental protection. A new danger to the quality of science teaching in the public schools took the form of aggressive efforts to force "creationist science" into science classrooms. And within government, concerns for national security and trade protection rekindled pressures for constraints on scientific exchanges and the unclassified scientific literature. AAAS has not hesitated to take strong policy positions in opposition to these developments.

Three matters of internal business require brief mention. First, members are aware that suits in libel have been brought against the AAAS for material that appeared in the News and Comment section of *Science*. One suit was settled out of court. Two others are pending and will be stoutly defended if they reach the trial stage. It should not be supposed that our century-old journal has acquired a belated penchant for the sensational, nor that it has grown careless. Rather, the era of litigiousness has caught up with science journalism and will make the work of able science writers more difficult.

My next point concerns our annual

elections. Ballots go out in the late summer to our 140,000 members, and the Elections Issue of *Science* carries information on the candidates vying for office. The voter response has never been overwhelming, but the 1981 results may have set a new low, with only 18.65 percent returning ballots. This is less than fair to the members we cajole into standing for election, and it raises a question as to what AAAS accomplished some years ago in adopting constitutional reforms aimed at democratizing our practices. With the vast majority of members ignoring the whole thing, something is plainly wrong, and I would welcome advice and counsel.

I come now to the matter of a headquarters building for the Association. In 1982, the AAAS finds itself quartered in four separate buildings in Washington. One building is owned, and space in the other three is rented. Aside from the high cost of leasing office space in Washington in an inflationary climate, the operational problems of a four-location situation hardly need spelling out. A vigorous search is under way for a site on which a new building can be erected on terms that the Association can afford, and hopefully a solution is only weeks away. It is unlikely that a new headquarters could be occupied before 1985. The financing arrangements will depend upon partners in the project, mortgage availability, realization on the disposal of our present owned building, and the results of a capital fund campaign addressed to members and nonmember organizations. We will need a great deal of help and support.

Finally, the crisis in science education has occupied every meeting of our Board of Directors during the year. As the White House terminates the National Science Foundation's science education efforts, the responsibilities of the scientific and engineering societies mount. We have appointed F. James Rutherford as Chief Education Officer of the AAAS to develop initiatives for AAAS and joint efforts with our sister societies. Three distinct tests are under way to adapt materials from *Science 81* for teachers. A major project to design new resource materials in the field of mathematics learning is getting under way involving AAAS, the Advanced Studies Institute at Princeton, the Carnegie Institute for the Advancement of Teaching, and J. C. Crimmins & Co., Inc., funded for 4 years by grants from Phillips Petroleum. In this context I acknowledge the contributions of Arthur Livermore, who retired in 1981 as head of our education programs after 18 dedicated years of service.

Highlights of the Year

Science

The past 12 months have been another good year for *Science*. Circulation has increased, advertising revenue is up, the magazine's coverage has been timely, and authors avidly seek to publish in it.

During the year three special issues were published. Our 20 March issue treated the topic of sexual dimorphism. The 10 April issue provided the first scientific publication of results obtained by Voyager I in its flyby of Saturn. The 3 July issue dealt with geodynamics.

At *Science*, one of our major assets is the high quality of the readership. About two-thirds of the members of AAAS have a Ph.D. or equivalent degree. *Science* is closely followed in Washington by both the legislative and executive branches. News writers use *Science* as a source for stories.

Another major asset is the willingness of invited authors to prepare and give manuscripts to *Science*. Two examples are experiences with Nobel Prize winners' appreciation pieces and with authors of a special issue on computers that is to be published 12 February 1982. Authors of the Nobel pieces readily agreed to produce manuscripts when asked and they dispatched them to us within 24 to 72 hours.

The special issue on computers will include 21 articles. Authors include some of the most distinguished participants in the field. Once suitable topics and authors were identified, each potential author was contacted by phone. Response was unanimously positive.

A consequence of the sociology of publishing and of our necessarily high rate of rejection of manuscripts is a strong bias toward imbalance of material submitted to *Science*. In highly competitive fields of research, authors of reports shy away from our 75 to 80 percent rejection rate. On the other hand, if specifically invited to submit an item, they are pleased to do so.

In the past, about half the articles have been solicited, while comparatively few reports have been invited. We are now moving toward more active solicitation of reports.

The News and Comment section remains a lively and occasionally controversial part of the journal. AAAS goes to great lengths to assure the reportorial independence of the news writers, asking in return only for fairness, accuracy, and balance. A unique service to science and public understanding is the result, and awards flow steadily to our writers. But as with all species of vigorous journalism, not everyone will be pleased all of the time, and we will not be infallible.

Competition for space in *Science* calls for continuing efforts to improve the peer-reviewing system. Space in *Science* is an extremely valuable commodity. *Science* provides worldwide distribution of research findings and an opportunity for authors to make their names known to numerous other scientists. Many readers occupy positions that enable them to structure faculty and research appointments as well as grant proposals. Others are in positions that enable them to better formulate public policies about research.

Science also makes authors' names and results accessible to users of archives. These archives include 20,000 university, research, public, and school libraries that receive the paper edition; other libraries that receive only microfilm editions; and many secondary distribution systems, including about 40 indexing and abstracting services and computer data bases.

These factors alone make *Science* attractive to authors, but the peer-review system we have built up increases the value substantially. Space in peer-reviewed interdisciplinary journals is in short supply, the competition for it is great, and the funding and thus the direction of future research may be affected by the material we choose to publish. Under these circumstances it is necessary for us to be tough-minded about the space we award.

Our editors must guide a large volume of papers on many subjects through the reviewing process. To make good decisions, they must choose referees carefully and assess their judgments, which sometimes are contradictory or idiosyncratic or even perfunctory. They continually seek new and more competent reviewers and better evaluations of manuscripts.

One of the ways in which selection can be strengthened is by giving more attention to statistical inference. There appears to be incomplete appreciation on the part of the public, the press, and even some scientists of how dependent much biomedical, epidemiological, sociological, and other research is on statistical reasoning and of the many pitfalls for the unwary in statistical methodology. We have now arranged for (i) a survey, under the guidance of officers of Section U, of the quality of the statistical work in the papers we are publishing; (ii) enlargement of our files of recommended referees among statisticians; and (iii) the

working out of a more detailed formulation of the standards we require authors to meet in presenting the statistical aspects of their research.

The Section U committee is now examining the names of AAAS members who have informed us of their interest in statistics. These consist of 800 members of the statistics electorate and nearly 3500 members of other electorates who have a secondary interest in statistics. The next steps will be decided after this review is complete.

Membership

Membership in AAAS continued to increase, reaching an all-time high of 140,087 in June. Year-end membership for 1981 is estimated at about 8000 above the 1980 figure. This trend is decidedly encouraging in the face of unavoidable dues increases. The results are due largely to new and vigorous recruitment activities.

A preliminary test survey was made to determine why members let their AAAS membership lapse. Of the sample of respondents, 37 percent felt that *Science* was not relevant to their work and 32 percent complained that dues were too high. A detailed survey of lapsed members will be conducted in 1982.

Radio Communications

With the launching of *Science 81*, AAAS's Office of Communications collaborated with the CBS Radio Station News Service in bringing out the "Report on Science" program, featuring Allen Hammond, editor of *Science 81*, which is now heard regularly in the United States and Canada. Material is taken partly from *Science 81* but much of it also comes from scientific meetings, journals, and other sources. The program reaches a potential public audience of several million.

The audience for the "Focus" radio series also grew in 1981. This series of half-hour programs is produced by the AAAS and six other nonprofit organizations. Since the fall of 1980 the series has been beamed to all National Public Radio stations via satellite, and in addition it is sent on cassette to more than 200 small public radio stations. The 1981 segments were produced on science and peace, short-term toxicological tests, contributions of the social sciences, energy issues and Native Americans, and other topics.

Apart from radio and handling normal AAAS contacts with the media, the Communications Office has found large and appreciative audiences for the *Reporters' Guide to Key Research at Colleges and Universities* and its *Public Information Contact Directory*. Both serve as resource materials for the news media.

Development

While the AAAS relies chiefly upon member dues, journal and magazine advertising, and investment income as its sources of annual revenue, we depend also upon contributions and grants to support discretionary activities. A significant fraction of our members make contributions over and above regular dues. Corporate giving to the AAAS has been quite modest, but it rose decisively in 1981 as 17 corporations assisted the Association. Government grants and contracts, on which the AAAS has not gone overboard in recent years, continued to fund selected projects on a priority basis.

Opportunities in Science

While budgetary and philosophical goals of the new Administration have slowed initiatives on behalf of women, minorities, and the physically handicapped in science, the government nonetheless has maintained or increased selected programs in developing institutions and minority institutions, including black colleges. AAAS has conducted a variety of activities designed to contain budgetary damage and provide opportunities for mutual interchange by affected groups with government offices and congressional staff. With NSF support, three workshops were held on Science and Technology to Aid the Physically Handicapped, involving scientists, engineers, manufacturers, therapists, and disabled scientists and engineers. With Ford Foundation support, a new network of organizations was assembled in areas of mathematics, engineering, science, and health with the aim of increasing careers for minorities. In addition, a network for Puerto Ricans in Science has been created, recognizing the fact that this group has the lowest participation in science and the lowest high school completion rate of any U.S. minority group. In the face of heavy government employee layoffs, AAAS is monitoring the effects of the personnel reductions on women and minority scientists and engineers, groups that are fairly recent entrants to this work force.

With NSF support, the project on Out-of-School Programs in Science is resulting in a directory of available science enrichment programs for disabled students, as well as a booklet on placing disabled students in such programs which have been shown to be highly effective. With funding from the U.S. Department of Education, an ongoing project aims to assist corporations in locating and placing scientists and engineers who become disabled in mid-career. This project relies on the placement and counseling activities of our affiliated societies. A new program, funded by the Department of Education and AAAS, will feature Visiting Science Consultants who will visit minority institutions to assist faculty and staffs in solving specific problems at the institutions.

Recognizing the barriers of sex and race which impede the participation of minority women in science and engineering careers, the Office of Opportunities in Science will develop specific printed materials to inform and inspire junior high school girls in this Department of Education–supported project.

Focusing on the physical sciences, engineering, and mathematics and computer science, three booklets will be prepared in Spanish and English and will be field-tested by a variety of dissemination strategies. The materials will outline high school and college course requirements, professional opportunities and financial aid sources, using minority women scientists as role models to convey the more subjective aspects of science career decision-making.

International Relations

The sharp federal cuts in support for international exchanges and cooperation serve to challenge the scientific and engineering communities to find cost-effective ways for sustaining the transnational interaction and communication essential both to developed and developing countries.

The Western Hemisphere Cooperation program, initiated at the 1973 AAAS Meeting in Mexico and linking AAAS with seven Latin American scientific associations, was hard hit in 1981 by cutbacks by the Agency for International Development (AID). The long-term Climate project similarly suffered from the Department of Energy's decision to stop its financial participation, although the Department of Agriculture and the Environmental Protection Agency are providing limited support. On the brighter side, our Committee on Arid Lands has under-

Table 1. Summary budget for 1982.

Major category of revenue	1982 revenue budget	Office/Center	AAAS funds	Direct grant and contract funds	Total expense
Revenue (in thousands)		*Expense (in thousands)*			
Dues of annual members	$ 6,180	Executive Office	$ 873	$ 8	$ 881
Institutional subscriptions (*Science*)	1,850	Office of Administration	2,368		2,368
Advertising in *Science*	5,880	Office of Comptroller	592		592
Science 82 subscriptions	7,811	Office of Communications and Membership	1,165	21	1,186
Advertising in *Science 82*	5,031	Development Office	245		245
Grant and contract funds	1,092	Editorial Center (*Science*)	9,702		9,702
Annual meeting registration and exposition	226	Editorial Center (*Science 82*)	13,046		13,046
Investment income	1,200	Meetings and Publications Center	817		817
Product sales	1,738	Information Systems and Services Office	136		136
Contributions and other items	250	Programs Center	1,136	938	2,074
Total	$31,258	Contingency reserve	100		100
		Total expense	30,180	967	31,147
		Unexpended operating balance	111		111
		Total	$30,291	$967	$31,258

taken a 2-year project on "Methods for Environmental Studies" for development planning, supported by the National Park Service with funds from AID.

AAAS continued to have a constructive relationship with the Department of State. The Science, Engineering and Diplomacy Fellows Program continued through 1981. In addition, AAAS, in cooperation with several affiliated societies, provided State with two expert panel reports, one on foreign policy implications of genetic engineering and the other on energy cooperation with developing countries.

Because most foreign embassies in Washington have senior officials designated as Science Counsellors or Science Attachés, AAAS has held frequent seminars for these officials, affording opportunities for briefings and discussions on science, technology, and public policy.

The Global Seminar on the Role of Scientific and Engineering Societies in Development provided an important focus of activity for the second year running. The Seminar *Report* was prepared jointly with our Indian cosponsors, printed in New Delhi, and distributed by AAAS. A Continuing Committee on the Role of Scientific and Engineering Societies in Development was formed; its goal is to facilitate communication within a network of scientific and engineering societies around the world, and to provide advice for the implementation of the Global Seminar recommendations.

Despite some financial setbacks, AAAS participation in the Interciencia Association continued vigorously. The consortium held two panels at the Toronto Annual Meeting on acid rain and cancer cell surface. A meeting in Caracas dealt with the roles of the scientific community in development, cosponsored and funded by the Venezuelan association. A symposium on biomass substitutes for liquid fuels, to be held in Brazil and cosponsored by the Brazilian association and BOSTID, will take place in 1982. The Brazilian, Colombian, and U.S. experts working on a feasibility study for a Bioresources Network produced a study plan which resulted in a grant from the Inter-American Development Bank, and completion is expected in 1982.

AAAS maintained and strengthened contacts with a variety of foreign societies. In many cases, those ties were spurred by the Global Seminar. We continued both our exchanges of delegates to annual meetings and specific bilateral activities, and explored important new avenues of collaboration with German scientific and engineering organizations.

Contacts have been maintained—or established—with a large number of scientific and engineering associations, in an effort to establish a network of scientific and engineering societies in development.

Developing Country Linkages

AAAS was represented at the annual meetings of the following associations:

Indian Science Congress Association (ISCA), 68th Congress, held in Varanasi, January, by Dr. David G. Dickason, Professor of Geography, Western Michigan University, and Dr. Bernard Witlin, Professor Emeritus, Pennsylvania College of Optometry.

Sri Lanka Association for the Advancement of Science (SLAAS), 37th Annual Session, December, by Dr. William C. Burnett, Professor of Oceanography, Florida State University.

Philippine Association for the Advancement of Science, 30th Convention, December: Dr. Roger H. Bezdek, Special Assistant on Energy, U.S. Department of the Treasury, was selected as the AAAS delegte but had to cancel his travel plans.

Bangladesh Association for the Advancement of Science, 6th/7th Annual Conference, February 1982: Dr. Robert W. Mahley, Director of the Gladstone Foundation Laboratories for Cardiovascular Disease and Professor of Pathology, University of California, San Francisco, was selected as a delegate.

Representatives of foreign associations also participated in the AAAS Annual Meeting. ISCA was represented at the 1981 Annual Meeting, and SLAAS was represented at the 1982 Annual Meeting. Chinese delegations were received at both.

The AAAS cooperative agreement with the China Association for Science and Technology (CAST) continued in 1981. A joint AAAS-CAST symposium was held at the Toronto Annual Meeting. The AAAS and the National Association of Science Writers co-hosted the first delegation of Chinese science writers to visit the United States. With the support of a grant from the International Foundation, the AAAS arranged a pilot program of short courses for college teachers in China. In October, a six-member delegation visited China to participate in a AAAS-CAST symposium on the environmental sciences. A Chinese delegation attended the Washington Annual Meeting, and further exchanges are anticipated in 1982.

Through the intermediary of the Vereine Deutscher Ingenieure (VDI) of Germany, AAAS was asked to coordinate the organization of the U.S. delegation to the Second International Conference on Technology for Development, originally scheduled for 14–17 November 1981. A list of nominees was developed with the assistance of our affiliates. Because of the assassination of President Sadat, the Conference has been postponed to March 1982. Contacts continue with the General Organization for Industrialization (GOFI) in Egypt.

Industrialized Country Linkages

Great Britain. AAAS was represented by D. Allan Bromley, E. Margaret Burbidge, and William T. Golden at the 150th annual meeting of the British Association for the Advancement of Science in September.

Federal Republic of Germany. Following the Global Seminar, strong ties were developed with several German organizations, including: Vereine Deutscher Ingenieure (VDI), the Deutscher Verband Technisch-Wissenshaftlicher Vereine (DVT), the Deutsche Forschungsgemeineschaft (DFG), the German Ministry of Science and Technology, the Max-Planck Institute, and the Fraunhofer Institute. A series of visits to those organizations was made in April by Emilio Q. Daddario and J. Thomas Ratchford. Possible future collaborative activities were discussed, including projects with scientific and engineering societies in developing countries as partners, as well as possible cooperative sponsorship of seminars on public policy issues of common interest.

Japan. Contacts were established with the Japan Society for the Promotion of Science, the Japanese Science and Technology Agency, the Science Council of Japan, and the Toyota Foundation.

Nonmarket Country Linkages

In addition to China, closer relations were forged with a number of nonmarket countries. The most common interaction was through receipt of foreign visitors from such countries as Bulgaria and Cuba. Increased attention will be paid to these countries in 1982.

Scientific Freedom and Responsibility

The standing Committee on Scientific Freedom and Responsibility (CSFR) is charged with reviewing problems and issues related to the professional rights and duties of scientists and engineers. It monitors governmental policies in the United States and in other nations which may restrict the freedoms of scientists or engineers or interfere with the exercise of their professional responsibilities. The Committee works with the AAAS-affiliated societies in the development of policies and procedures designed to foster scientific freedom and responsibility.

The Committee has initiated two major projects: a Clearinghouse on Science and Human Rights, and a Project on Professional Ethics. During 1981, the Committee also developed a new area of major concern—the impact of national security policies on scientific communication. In addition, the Committee sponsors activities exploring the issue of "whistle blowing" in the context of scientific responsibility, and reviews policy questions related to the control and use of preliminary research data. The Committee will take up other issues from time to time as the need arises and resources become available.

In 1981, the following topics constituted the major areas of CSFR activity:

1) *National Security and Scientific Communication.* The Committee became increasingly concerned about proposed revisions in arms export and commercial trade regulations which are directed toward restricting the flow of "sensitive" technical data beyond U.S. borders. The Committee recognizes the legitimate needs of the U.S. government to control access to technical equipment which may be important to U.S. security interests. However, it has expressed concern that the proposed restrictions on the publication or communication of technical data may go beyond the appropriate arena of U.S. security needs, and may adversely restrict the future development of scientific and technical knowledge in the areas singled out for selective control. The Committee commissioned a background paper by CSFR member Stephen Unger (Columbia University) on this topic, and has participated in numerous discussions with government officials to explore remedies to resolve this problem.

2) *Control of Preliminary Research Data.* Over the past few years the Committee has reviewed cases and controversies involving conflicts over the use of preliminary research data. In 1981, a background paper by Dorothy Nelkin (Cornell University) was commissioned to summarize these incidents and to highlight developments in public policy in this area.

3) *Professional Responsibility and Whistle Blowing.* In 1981, the Committee initiated correspondence with the directors of the national weapons and energy laboratories to identify existing procedures directed toward resolving employee/management disputes involving questions of professional judgment. The Committee also reviewed several individual cases involving such disputes in private corporations and government agencies, and developed a preliminary proposal for a joint AAAS–American Bar Association project directed toward providing legal resources for scientists and engineers who are involved in litigation related to their professional rights or duties.

4) *Science and Human Rights.* Over the past year, the Committee and the CSFR Clearinghouse have assisted AAAS affiliates in responding to human rights violations directed at scientists in several countries. The Committee sponsored a workshop on "Scientific Cooperation and Human Rights in the Americas" during the 1981 AAAS Annual Meeting, in which 56 scientists from North and South America discussed ways in which individual scientists and scientific societies can respond to human rights violations directed at scientists in the region.

In March 1981, the Committee took a lead role in activating appeals from the American and international scientific community on behalf of Argentine physicist Jose Westerkamp and four others who were detained by the police in Argentina. Westerkamp and the others were eventually released and all charges dropped.

In June 1981, the Committee cosponsored with four other U.S. scientific groups a visit by two North American physicians to Chile to investigate the detention of three physicians who had been active in recent years in providing medical care to torture victims and hunger strikers protesting government policies. A month after the visit the physicians were released by order of a civil court.

The CSFR Clearinghouse has worked with the American Statistical Association throughout 1981 in developing several human rights activities to take place during the International Statistical Institute (ISI) meetings in Argentina in late 1981.

During 1981, the CSFR Clearinghouse worked with AAAS affiliates on behalf of 51 foreign scientists whose basic human rights were violated or who experienced restrictions on their teaching or research activities. The majority of these cases have come from Argentina, Chile, Czechoslovakia, El Salvador, Guatemala, German Democratic Republic, Indonesia, Iraq, South Africa, Soviet Union, Taiwan, and Uruguay.

Science, Engineering, and Public Policy

The quality of science's partnership with government is of central importance to the advancement of science. The AAAS has long understood this, and its standing Committee on Science, Engineering, and Public Policy plays a key role in the affairs of the Association.

For the sixth successive year, AAAS published its annual report on Research and Development, written in 1981 by Willis Shapley, Albert Teich, and Gail Breslow. These reports, examining federal and nonfederal resource allocations for research and development, have earned national and international respect as authoritative sources of information on U.S. science policy. The annual Colloquium on R & D Policy, again held in 1981, draws capacity attendance. AAAS's affiliated societies now participate actively in preparing analytical chapters for the "Early Bird" report on the presidential budget, preceding the formal AAAS annual report on R & D. With budget policies constantly changing, and with reductions piled on previous reductions, timely information from AAAS was of premium value to the scientific and engineering communities in 1981.

In addition to these reports and the Colloquium, AAAS officers found it necessary to lodge strong protests against targeted budget cuts aimed at social science research and programs in science education. AAAS also participated in the National Academy of Sciences' conference in September on the budget for research and development. And for the second year in a row, AAAS held a "Consultation of Presidents of Affiliated Societies," focused on policy aspects of federal funding for research and development.

The AAAS contribution to the *Second Five-Year Outlook for Science and Technology* was completed and submitted to NSF during 1981. The AAAS report, entitled *Policy Outlook: Science, Technology and the Issues of the Eighties*, will be published by NSF, together with reports submitted by the National Academy of Sciences and the Social Science Research Council, as part of the second *Outlook* document. The AAAS report will also be published separately in the spring of 1982 by Westview Press, both in paperback and hardcover, under the title *Science, Technology and the Issues of the Eighties: Policy Outlook*. We are most grateful to the 12 principal authors of the AAAS report.

Following completion of the *Policy Outlook*, NSF granted AAAS an 8-month, no-cost extension to its contract to continue work with the Office of Special Projects. Under this extension, AAAS commissioned and oversaw preparation and review of three "issue definition briefs," which are short policy papers intended to become part of the *Fourth Annual Science and Technology Report* (ASTR-4).

Two congressional seminars were held in 1981. A seminar on "Innovation and Productivity: A Human Perspective," jointly sponsored with the House Task Force on Industrial Productivity and the House Committee on Science and Technology, illustrated the uses of social science research in an area of difficult public policy. About 90 members of Congress and staff attended. A second seminar, on "Work and Retirement," jointly sponsored with the Senate Special Committee on Aging and co-organized with the Consortium of Social Science Associations, drew over 100 Senators, Representatives, and staff. In addition, AAAS sponsored a breakfast meeting for members of Congress and the Delegation for Basic Biomedical Research, including several Nobel laureates. All these activities call for more emphasis in the future, as the rapid turnover of Senators and Representatives affects continuity of understanding of science- and technology-related issues.

AAAS continues to coordinate the Congressional Science and Engineering Fellows Program, which now is financed by our affiliated societies. A total of 32 Fellows made up the 1981–82 program, comprised of 25 Congressional Fellows, four Fellows from the Congressional Office of Technology Assessment, one from the Congressional Research Service, and two Science and Diplomacy Fellows. In addition, with funds from the Environmental Protection Agency, AAAS began a program of summer environmental fellowships, with six awards for the summer of 1981.

The working group on nuclear arms control and disarmament, chaired by George Rathjens, was reorganized in 1981 as a standing Committee on Science, Arms Control, and National Security. A series of symposia was held successfully at the Toronto Annual Meeting, and three major symposia were sponsored by the Committee for the Washington Annual Meeting. The Committee's assignment is to develop and focus the resources of AAAS for exploring and fostering effective approaches to conflict resolution, control of nuclear weapons, and improvement of national security assets.

Public Understanding of Science

Measured in financial terms, the major AAAS initiative in this important area is represented by *Science 81*. In addition, the Committee on Public Understanding of Science has developed other initiatives, one of the most significant being an enlargement of AAAS's working relationships with five additional science and technology centers—the Cranbrook Institute of Science in Detroit, the Chicago Museum of Science and Industry, the New York Hall of Science, the Capital Children's Museum in Washington, D.C., and the North Carolina Museum of Life and Science.

The Committee also looked closely into the risks and benefits of a larger role for the AAAS in television and recommended to the Board of Directors that exploratory steps be pursued in view of the strategic importance of the television medium to communication and public information of high quality.

Four regional energy seminars were held in 1981, funded mainly by a grant from the Department of Energy. Since its inception in 1973 by the AAAS, the regional seminar program has included 33 seminars in 22 states. The 1981 seminars dealt with special energy concerns of Native Americans, the consequences of energy independence for human health, issues affecting Georgia's energy future, and benefits and risks associated with the development of western oil shale. The regional seminars are significant contributions to public discussion and understanding. Financial resources to continue them are problematical.

One of the most effective initiatives for increasing public understanding is the Mass Media Science Fellows Program. In 1981, 20 Fellows selected from an applicant pool of over 300 took part in the program. Most were graduate students and came from such fields as anthropology, biochemistry, physics, and civil engineering. Eleven print organizations and nine broadcast organizations participated as hosts, and again they reported high satisfaction with the contributions of the Fellows. Funds were partially provided by NSF, with the balance coming from contributions by the Atlantic Richfield Foundation, Dow Chemical Company, Exxon Corporation, General Electric Foundation, and IBM Corporation.

The AAAS–American Bar Association National Conference of Lawyers and Scientists has sponsored a series of articles on law-science relations with the expectation that a number of them will be published by both the *American Bar*

Journal and *Science*. Eleven articles are in the pipeline, and several have either been published or are scheduled for publication. Both the AAAS and the ABA view this initiative as a promising step toward illuminating the interactions and institutional differences that have emerged as the courts attempt to cope with litigation involving scientific and technical facts and uncertainties.

The Budget

The mix of the Association's finances clearly shows the dominance of our publishing activities. Together, *Science* and *Science 81* account for 91 percent of income and 73 percent of outgo. The Association's expenditure budget has grown, reflecting both general inflation and the launch of *Science 81*. In all likelihood, expenditures will not stop at the expected 1982 level of $31.2 million, but will grow moderately. The "good news" is that after 2 years of large budget deficits resulting from the launching of *Science 81*, we plan a narrowly balanced budget in 1982, barring adverse consequences to AAAS from the economic recession that materialized in the closing quarter of 1981.

AAAS Council Meeting, 1982

Catherine Borras

The AAAS Council held its 1982 meeting on 7 January in Washington, D.C., in the Monroe Room of the Washington Hilton Hotel, with 62 of its 86 members in attendance at the morning session and 50 at the afternoon session. President D. Allan Bromley presided.

AAAS Activities, 1981

William D. Carey, executive officer, gave a few highlights from his report of 1981 activities, which appears on pages 1063 to 1069 of this issue, and presented the operating budget for 1982 (page 1066).

Carol L. Rogers, head of communications and membership, announced that AAAS membership had reached an all-time high in 1981, with average membership of almost 137,000 for the year—7500 above the 1980 average. A central element in this growth is the generous support offered by AAAS members who nominate colleagues and by the heads of university science departments who place student posters on their bulletin boards twice a year. Another strong membership year is projected for 1982, but the final results will depend to some extent on what happens to the economy.

Allen L. Hammond, editor of *Science 82*, reported that paid, domestic circulation of that magazine had reached 700,000 (including an average of 40,000 newsstand sales) and that overseas circulation—principally in the Italian language edition—is about 100,000. Preliminary negotiations for Japanese and German editions are under way. Renewals are remarkably high, and this year the magazine is expected to operate in the black, despite postage increases and a depressed market. In 1981, the magazine won three national awards for science writing and 11 for design and illustration, and began to move into areas of controversy. Through an arrangement with the National Association of Science Teachers, more than 100,000 reprints of the special section on "The Creationists" in the December issue were sent to high school science teachers throughout the country.

Elections

Election of the following Section secretaries, who took office on 9 January, was announced.

Section A (Mathematics): Lynn Arthur Steen

Section J (Psychology): Bert F. Green

Section K (Social, Economic, and Political Sciences): David L. Sills

Section L (History and Philosophy of Science): David L. Hull

Section M (Engineering): W. Edward Lear

Section N (Medical Sciences): Leah M. Lowenstein (reelected)

Results of the 1981 general and electorate elections were published in the 4 December 1981 issue of *Science*, pages 1115 and 1116.

Affiliated Organizations

As new affiliates, the Council elected the American Association of Blacks in Energy, the National Institute of Science, and the Society for Advancement of Chicanos and Native Americans in Science.

The American Association of Blacks in Energy, which was founded in 1978, represents over 400 professionals in policy and technical areas directly related to the energy industry. It has eight active regions, holds yearly conventions, publishes a bimonthly newsletter, and develops policy positions on a cross section of energy-related issues. Its goal is to ensure "that Black Americans and other minorities gain their fair share of representation and participation in the present and future development and implementation of this Nation's activities involving energy."

The National Institute of Science, founded in 1943, has 405 members. It holds an annual meeting at which 75 to 100 research papers are presented, makes several annual awards to students for outstanding research papers, and publishes the *NIS Newsletter* three times a year and *Transactions* annually. Its objectives are "to promote scholarly activities in the sciences, including research and science education, to sponsor meetings and conferences for the scientific community, to provide opportunity for student participation on regional and national levels, to provide opportunity for interchange and dissemination of scientific information."

The Society for Advancement of Chicanos and Native Americans in Science, which has some 150 members, was incorporated in 1974. It publishes *SACNAS News*, a quarterly, and symposium and conference proceedings as conditions permit. Its purpose is "to increase the participation of Native Americans

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