educational programs for youth. The academies administer small research grants from the AAAS to encourage student research in the sciences. Some 25 students from across the United States present their research papers each year at the AAAS annual meeting. Back home, several academies have ongoing visiting scientist programs for schools.

Forty-four of the academies of science are principally related to the AAAS through the National Association of Academies of Science (NAAS). The NAAS is a 50-year-old alliance of affiliated academies with a new name as of 1979, changed from the Association of Academies of Science (AAS). Its aim is to promote common aims of the various academies and the AAAS. The NAAS arranges academy-related symposia, workshops, meetings, and junior academy activities at the AAAS annual meetings and each year publishes a directory and proceedings. The staff of the AAAS Office of Science Education serves as liaison for the NAAS.

For further information write to Joseph M. Dasbach, AAAS Office of Science Education, at the AAAS address.

JOSEPH M. DASBACH
Office of Science Education

Handicapped Research Agenda Completed

A 2-day workshop to develop an agenda of research on science and technology for the physically handicapped was conducted in November 1978 by the Office of Opportunities in Science. The workshop was organized under a contract from the Directorate for Applied Sciences and Research Applications (ASRA) of the National Science Foundation (NSF), and was designed to provide ASRA staff with background for planning a congressionally mandated program of research on science and technology.

The workshop was the only such agenda-planning exercise to involve large numbers of handicapped scientists and engineers and representatives of handicapped consumer organizations, as well as individuals working on research and development (R & D) for the disabled. Further input to the study was provided by members of the AAAS Resource Group of Handicapped Scientists and by manufacturers of devices for disabled consumers.

Workshop participants sent numerous recommendations to the NSF. Overall, the emphasis is on the utility and appropriateness of research (and resulting devices) to fit the needs of the consumer. Specific recommendations were categorized by disability in the areas of mobility, aural, visual, and vocal impairment with the interface between social science research and technological innovation given highest priority. Devices and their impact on people and policy cannot be logically separated, according to workshop participants, and they encourage consideration of both factors in research design.

Participants based their views on experience with the research and development process, and recommended principles for agencies operating programs of R & D for the physically handicapped. They ranked as most important funding research which has clear potential for improving the functioning of handicapped individuals and for increasing their independence and employability. This philosophical principle should guide the program even where it is not possible to determine the exact contribution of research in advance.

Workshop participants also stressed that members of the handicapped community must be involved in every stage of the research process from planning to testing. Their inclusion on research teams could eliminate situations where resources are appropriated for R & D efforts which are neither needed by nor suitable for the handicapped population.

Copies of the research agenda are available through the National Technical Information Service. For more information, write the Office of Opportunities in Science at the AAAS address, or call 202-467-5438 (voice or TTY).

KAREN L. EHRLICH
Opportunities in Science

Association for Appropriate Technology Formed

The Association for the Advancement of Appropriate Technology for Developing Countries (AAATDC) recently announced its formation. The association's objective is the scientific and technological advancement of developing countries through directed action programs.

Based at the University of Michigan, AAATDC publishes a quarterly journal, *Approtech*, and will direct research, field projects, conferences, and workshops.

The AAAS has been closely involved with the formation of the association. Through a grant from the Institute of International Education, the AAAS invited a group of 10 foreign students to attend the annual meeting in Denver in 1977 and again in Washington in 1978. This group of students, working with the AAAS Office of International Science, took the lead in organizing AAATDC.

For background and membership information, write: AAATDC, 613 Haven Hall, University of Michigan, Ann Arbor, Michigan 48109.

Report of First International Rangeland Congress

The first International Rangeland Congress was held in Denver, 14–18 August 1978. The aim of the meeting was to open to international debate the problems of providing animal products for a rapidly increasing population and increasing the productivity of the world's rangelands. The congress was arranged by the Society for Range Management in the United States.

The subject matter of the congress was pastoralism as a whole and both basic and applied interests in the physical, biological, and social sciences were well represented. As a result, many differences of orientation were rendered explicit and received valuable discussion. Perhaps the most sensational difference highlighted by the congress was the contrast between the socioeconomic contexts of pastoral production in the United States on the one hand and the developing world on the other. In the United States, wild rangeland is becoming too expensive to use for grazing because the competing interests of tourism and leisure activities are forcing up land values. In the developing countries rangeland is losing value not only through desertification, but through the failure to integrate its productive systems into national economies.

Most of the world's rangelands are in semiarid zones and attention has recently been focused on their vulnerability by the United Nations Conference on Desertification. Attendance at this congress was in part the result of professional contacts facilitated by U.N. connections.

Thirty-nine countries were represented but there were some conspicuous absences, including the U.S.S.R., China, Iran, Afghanistan, Pakistan, India, and a number of African countries. Some of the latter apparently stayed away because of South African participation.

Despite excellent papers on both sides, at the end the social and natural sciences seemed at best to be talking at, rather than to, each other. The critical questions of yield *versus* conservation and the nature of rationality—which ultimately separate the two—were scarcely broached. But the full range of approaches was represented and the congress served as an important stage in the internationalizing trend of a young discipline.

BRIAN SPOONER
Representative to Rangeland Congress, Associate Professor of Anthropology, University of Pennsylvania

CSFR Prepares Annual Report

The Committee on Scientific Freedom and Responsibility has completed its 1978 annual report describing current projects and interests of the Committee. It includes the group's working procedures for reviewing individual claims involving ethical issues submitted by U.S. scientists, as well as a summary of the year's activities of the clearinghouse on science and human rights. The report details various issues of scientific responsibility received in response to an inquiry letter from Committee Chairman Bentley Glass and describes the range of topics suggested for the Committee's attention.

A letter from Committee members Bentley Glass, John Edsall, and Joel Primack replying to earlier statements by Sir Andrew Huxley, of the British Association for the Advancement of Science, on the appropriate role for scientific societies in the area of human rights concerns also is included in the report. Finally, the topics of Committee letters and reports of 1978 are listed as an appendix, along with the titles of papers available from symposia sponsored by the Committee at the 1978 AAAS annual meeting in Washington, D.C.

In early 1979, John T. Edsall of Harvard University was appointed by the AAAS Board of Directors as the new chairman of the Committee on Scientific Freedom and Responsibility. Edsall, author of the 1975 AAAS report *Scientific Freedom and Responsibility* (summarized in *Science*, 16 May 1975), succeeds Bentley Glass of the State University of New York at Stony Brook, who will continue as a member of the Committee. New members of the Committee are Herman Feshbach of the Massachusetts Institute of Technology, Leonard Rieser of Dartmouth College, and Fletcher Watson of New York University. Rosemary A. Chalk is the Committee's staff officer.

Copies of the 1978 annual report may be ordered at a cost of $2 each (individual orders should be prepaid) from: AAAS SFR-7, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005. Further details and a copy of the current Committee roster are available from the Committee office.

Scientists and Lawyers Meet in Washington

In an effort to get a better understanding of each other's viewpoint, legislators, lawyers, judges, administrators, ethicists, and scientists met recently to discuss how public policy decisions are made.

The conference, jointly arranged by the AAAS and the American Law Institute–American Bar Association (ALI-ABA) was held in Washington, D.C., 25–27 January 1979.

The theme, "Law/Science Perspectives on Public Policy Decision-Making," was presented through four lecture and discussion topics: (i) the environment for public decision-making, (ii) how should the decision be made?, (iii) the case of artificial sweeteners, and (iv) the case of recombinant DNA.

The exchange concerning the environment for public decision-making was led by Richard H. Bolt of Bolt Beranek and Newman, Inc.—scientist, and Louis B. Mayo of George Washington University—lawyer. Basic concepts such as "risks," "dangers," and "hazards" were discussed and analyzed in the context of decision-making. Unique contributions of science to the decision-making process include scientific knowledge, encompassing both basic and applied science; use of the scientific method to determine facts; and development of scientific models to study the future.

During the discussion of how decisions should be made, Congressman James G. Martin (R-N.C.) pointed to the difficulties inherent in these kinds of decisions. The Congress and regulatory agencies, for instance, must pass and implement legislation addressing carcinogens, yet the perception of risk may change substantially as more is learned about the substance in question.

Commissioner Richard T. Kennedy of the Nuclear Regulatory Commission stressed that while Congress will decide the extent to which nuclear energy will be used, that decision will be made in part on intuitive recognition of its risks and benefits.

The case of artificial sweeteners was described by Arnold Brown, dean, University of Wisconsin School of Medicine, and Richard A. Merrill, professor of law, University of Virginia. Here is an example of what might prove to be premature regulation being enacted in response to use of a questionable substance before complete testing and evaluation. Ray Thornton, former chairman of the Subcommittee on Science, Research, and Technology of the U.S. House of Representatives, said that the "spectacular and witty" often attracted the most public attention during Congressional action on artificial sweeteners The results are that some artificial sweeteners were banned, even when no carcinogenicity was proven, while for others, only a warning label was required, although some carcinogenicity was demonstrated.

The exchange concerning recombinant DNA centered around the 1976 and 1978 National Institutes of Health guidelines. One view put forth was that experimentation is such an integral part of the scientific method that one could not proceed very far without it and that basic research would generally be protected under the First Amendment.

While expressing the hope that in the future all regulations concerning recombinant DNA research will be dropped, Peter B. Hutt, former chief legal counsel for the Food and Drug Administration, said that it is up to the scientists who propose research to show that the risk is reasonably small and that benefits exist.

Conference participants were able to see the chasm between the perceptions and priorities of research scientists and regulators. The former stressed present scientific evaluation and questioned the need for bureaucratic controls. At least some of the latter felt that any risk warrants regulation and were mainly interested in due procedures for establishing the regulations and enforcing them.

Such free exchange between scientists and representatives of government, ethics, and law should lead to a better mutual understanding of both the benefits and the dangers of regulation and result in future benefits to society.

For more information about the activities and publications described in AAAS News, write to the appropriate office, AAAS, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036, unless otherwise indicated.