

# Science and Technology: New Tools, New Dimensions

The Nation's Capital, the center of government (and the headquarters of our Association) is the site for our 1978 Annual Meeting. The 144th national meeting, scheduled for this coming February, is the tenth such meeting to be held in Washington in our 130-year history.

Beginning with an evening lecture on Sunday, 12 February, and continuing for the next 5 days, there will be 10 public lectures and 138 symposia. These symposia, averaging 18 simultaneous sessions, will deal with the various aspects of science and technology and the public issues upon which they impact.

Several groupings of symposia are worthy of special notice. The group entitled the *Tools of Science* parallel a new departure for SCIENCE INTERNATIONAL, our exhibit at which major manufacturers and government agencies display the high-technology instruments which are a unique aspect of American creativity. Also a part of the exhibit theme are workshops on instruments, tours of local scientific facilities, and a walking tour of the extensive instrument collection at the Smithsonian Institution.

The social and political questions raised by scientific and technological considerations are, of course, always an important part of the AAAS Meeting Program. This year, *Energy* will again be featured in a special set of symposia, including several sponsored by the AAAS Board of Directors on the theme, "the societal impacts of the energy problem." Of particular concern to individual scientists is the category *Scientific Freedom and Responsibility* in part concerned with the question of the proper social limits to scientific and technological development. The obverse question of the intrinsic limits to science is dealt with in some symposia in the *Methodology of Science* group.

Under the *General Interest* heading, issues of high current

interest are raised in symposia on recombinant DNA and sociobiology. Other *General Interest* symposia deal with the frontiers of science and with the problem of stress. This latter topic recurs in other contexts in the *Behavioral Sciences* and the *Human Development and Habitation* groupings, where the leadership process and the problems of the middle years are discussed.

There are many other symposia on a wide range of interesting and important subjects in the Program listed on the following pages. In addition there will be sessions of contributed papers, a *Science Film Festival* augmented to include research films, and many cultural events arranged by the Washington Advisory Committee under the joint chairmanship of Gilbert M. Grosvenor (Editor, *National Geographic Magazine*) and Robert R. Nathan (President, Robert R. Nathan Associates).

We urge you to make your plans now to attend this truly outstanding scientific and cultural event. The registration and housing forms are on pages 496 and 497; send them in now.

—ARTHUR HERSCHMAN

Annual Meeting  
Washington

12-17 February 1978



For further details see the following pages  
in this issue.

U.S. Capitol. [Washington Area Convention and Visitors Bureau]



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## Meeting Information

Listed below are the Washington hotels which are used by the AAAS for housing and program activities during the Annual Meeting. The two-letter codes in parentheses identify session locations in the preliminary program.

**Sheraton-Park (SP):** Symposia and public lectures; contributed-paper (poster and slide) sessions; business meetings; registration, information, and ticket desks; message center; welcome center (hospitality); resource center for the disabled; SCIENCE INTERNATIONAL (featuring the *Tools of Science* exhibits); headquarters office; newsroom; employment information center.

**Shoreham Americana (SA):** Symposia, contributed-paper (slide) sessions; business meetings; registration and information desks; *Science Film Festival*.

The two hotels are located within easy walking distance of each other. For precise locations see map on page 495.

### Registration

Meeting attendants are encouraged to register in advance to obtain a detailed preview of the symposia, lectures, special events, and other activities scheduled during the Meeting. Registration fees are listed on the registration form on page 496 in this issue. Please note that special 1-day attendance registration is available on site at the meeting registration desks at \$12 (regular) and \$6 (student). Also available on site is the volume of abstracts of symposium papers and contributed papers presented at the Washington Meeting, for the purchase price of \$5.

The meeting program (*not including abstracts*), badge, and condensed program (foldout) will be mailed to advance registrants on or about 13 January 1978.

On-site registration desks will be located at the Sheraton-Park (Upper Concourse) and at the Shoreham Americana (West Lobby). Registration hours at both locations are as follows:

Sunday, 12 February . . . . .	2:00 p.m. to 6:00 p.m.
Monday through Thursday, . . . . .	
13-16 February . . . . .	8:00 a.m. to 6:00 p.m.
Friday, 17 February . . . . .	8:00 a.m. to 12 noon

### Registration Refunds

The AAAS will refund advance registration fees for all cancellations received in writing or by telegram prior to 6 February 1978. NO REFUNDS WILL BE MADE ON CANCELLATION NOTICES RECEIVED AFTER THIS DATE. Refunds will be mailed from the AAAS Offices in Washington, following the Annual Meeting.

### Tax Deduction for Educational Expenses

Please note that U.S. Treasury Regulation §1.162-5 permits an income tax deduction for educational expenses (registration fees, and cost of travel, meals, and lodging) undertaken to: (1) maintain or improve skills required in one's employment or other trade or business, or (2) meet express requirements of an employer or a law imposed as a condition to retention of employment, job status, or rate of compensation. This is true even for education which leads to a degree.

### Housing

In cooperation with the AAAS, the two Washington hotels used for housing and meetings have set aside—at guaranteed reduced rates—blocks of guest rooms for attendants of the Annual Meeting. The reservation form on page 497 of this issue lists the hotels and their rates. **These rates are guaranteed only when reservations are made through the AAAS Housing Bureau on the official reservation form prior to 20 January 1978.**

Hotel rooms are assigned on a first-come, first-served basis. Per-

sons submitting their housing requests late cannot be assured of room assignments at the hotel of their choice or at the requested rates. If the room rate specified is no longer available, the next available higher rate will be assigned. If the first choice hotel specified is no longer available, the Housing Bureau will assign the second choice requested. Confirmation will come to you directly from the hotel. It is, however, requested that all reservation changes and cancellations be made through the Housing Bureau *in writing*. Room assignments will be delayed if any information is omitted from the form.

For the Washington Meeting, the AAAS has obtained special hotel rates for students. *Students planning to take advantage of these special rates must make their reservations in prearranged groups of 3 or 4 which arrive and depart on the same date.* Neither AAAS nor the Housing Bureau can act as roommate coordinators.

On request, the hotels will accommodate additional persons in guest rooms (for example, three in a double room) for \$10 per additional person. The charge for rollaway beds or cots is also \$10. The Sheraton-Park accommodates children aged 18 and under free of charge in same room with parents; the Shoreham's age limit is 14 and under.

### Resources for Disabled Attendants

The AAAS, in cooperation with the Washington Advisory Committee, is again making every effort to make the Annual Meeting fully accessible to disabled individuals. In addition to hotel rooms which can accommodate wheelchairs, and accessible meeting areas, the following resources will be available:

- A Resource Center staffed with volunteers to offer assistance on request as part of the hospitality and registration center.
- Assistance in movement within and between meeting hotels, as needed.
- Transportation service to and from airports, and train and bus stations.
- Interpreters (sign language and oral) at all public lectures, and for other sessions on request.
- Repair service for wheelchairs.
- Round-the-clock telephone service responding to emergency needs.
- Special tour and sightseeing information for disabled persons.
- Audiotaped highlights of the meeting program for persons with visual impairments.

The Washington Advisory Committee is making a special effort to ensure that every aspect of the Meeting is barrier-free. Persons needing special hotel accommodations, interpreting services, or other assistance are strongly urged to so indicate on the advance registration and hotel reservation forms. Early response will help us to plan and serve you better. For additional information or suggestions, *contact Martha Redden, Cheryl Davis, or Wayne Fortunato-Schwandt, AAAS Project on the Handicapped in Science, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036 (phone: 202-467-4497).*

### Employment Information Center

Adjacent to the exhibit area there will be bulletin boards for posting "positions wanted" and "positions open" notices. Also available will be small separated tables for conducting interviews. AAAS will not coordinate interactions between prospective employers and employees.

### Child Care Services

For meeting attendants who require baby-sitters for infants and small children, or companion care for children 8 years and up, we have obtained the services of the **Child Care Agency (phone: 202-783-8573)**. The agency is open Monday through Friday, 9:00 a.m. to 5:00 p.m.; 24 hours' notice is requested. All sitters are over age 21. **Rates:** The basic rate is \$2.50 per hour (4 hours minimum) plus sitter's transportation cost.



## Science and Technology: New Tools, New Dimensions

### Public Lectures

- **Co-Chairmen's Public Lecture (12 Feb., 8:30 p.m., SP).**  
Gilbert M. Grosvenor (Editor, National Geographic Magazine, Washington, D.C.)  
*Topic to be announced.*
- **AAAS Public Lecture (13 Feb., 1:45 p.m., SP).**  
Dixy Lee Ray (Governor, State of Washington).  
*Topic to be announced.*
- **AAAS Public Lecture (13 Feb., 8:30 p.m., SP).**  
*Speaker invited.*
- **Phi Beta Kappa Lecture (14 Feb., 1:45 p.m., SP).**  
Robert Jastrow (Director, Institute for Space Studies, NASA, New York, N.Y.)  
*Topic to be announced.*
- **AAAS Public Lecture (14 Feb., 8:30 p.m., SP).**  
Philip Handler (President, National Academy of Sciences).  
*Topic to be announced.*
- **AAAS Public Lecture (15 Feb., 1:45 p.m., SP).**  
Robert C. Weaver (Distinguished Professor of Urban Affairs, Hunter College, City University of New York).  
*The Impact of the New Deal and Participation in World War II Production upon Black Americans.*
- **AAAS Retiring President's Public Lecture (15 Feb., 8:30 p.m., SP).**  
Emilio Q. Daddario (President, American Association for the Advancement of Science).  
*Science and Its Place in Society.*
- **AAAS Public Lecture (16 Feb., 1:45 p.m., SP).**  
Robert E. Marshak (President, The City College of the City University of New York).  
*The Urban and Global Missions of American Higher Education.*
- **AAAS Public Lecture (16 Feb., 8:30 p.m., SP).**  
Jearl Walker (Associate Professor of Physics, Cleveland State University).  
*Night Flashes: A Multiple-Image, Multimedia Show for Science.*

- **George Sarton Memorial Public Lecture (17 Feb., 1:45 p.m., SP).**  
I. Bernard Cohen (Professor of History of Science, Harvard University).  
*The Concept of Revolution in Science.*

### 1. General Interest

- **The Frontiers of the Natural Sciences (13 Feb., SP).** Arranged by Rolf M. Sinclair (National Science Foundation).
- **Advancement in Knowledge Using Recombinant DNA Techniques (13 Feb., SP).** Arranged by Clifford Grobstein (University of California, San Diego).
- **Blacks in Science, Medicine, and Invention (14 Feb., SA).** Arranged by Ronald E. Mickens (Fisk University, Nashville, Tenn.).
- **Sociobiology: Beyond Nature-Nurture (14 and 15 Feb., SP).** Arranged by George W. Barlow (University of California, Berkeley) and James Silverberg (University of Wisconsin, Milwaukee).
- **Science and the Science-Fiction Writer (15 Feb., SA).** Arranged by Rolf M. Sinclair.
- **Participation of Women and Men in Scientific Research (15 Feb., SP).** Arranged by Michele L. Aldrich (American Association for the Advancement of Science).
- **AAAS Awards Session [Newcomb-Cleveland Prize, Rosenstiel Award in Oceanographic Science, Socio-Psychological Prize] (15 Feb., SP).**
- **Genes and Gender (16 Feb., SP).** Arranged by Ruth Hubbard (Harvard University) and Marian Lowe (Boston University).
- **Regulatory Issues in Recombinant DNA Research (16 Feb., SP).** Arranged by Clifford Grobstein.
- **Stress (17 Feb., SP).** Arranged by Jerome E. Singer (Uniformed Services University of the Health Sciences, Bethesda, Md.).

HOTEL CODES: Sheraton-Park . . . . . SP; Shoreham Americana . . . . . SA

## 2. Energy

- **The Impact of the Geosciences on Critical Energy Resources (13 Feb., SA).** Arranged by Creighton A. Burk (University of Texas, Austin) and Charles L. Drake (Dartmouth College).
- **Efficient Comfort Conditioning (Heating and Cooling) of Buildings (13 Feb., SP).** Arranged by Walter G. Berl and W. Richard Powell (Applied Physics Laboratory, Johns Hopkins University, Laurel, Md.).
- **The Socioeconomic Impacts of Energy Development (13 Feb., SP).** Arranged by Frank Clemente (Pennsylvania State University).
- **New Batteries in Energy Use of the Future (14 Feb., SP).** Arranged by Reuben S. Title (IBM Research Center, Yorktown Heights, N.Y.).
- **Economic Growth With/Without Energy Conservation (14 Feb., SP).** Arranged by Charles J. Hitch (Resources for the Future, Washington, D.C.).
- **Renewable Energy Resources: Modeling of Complex Realities (14 Feb., SP).** Arranged by Maxine L. Rockoff (National Center for Health Services Research, Hyattsville, Md.).
- **A Report of the National Academy of Sciences' Committee on Nuclear and Alternative Energy Systems (15 Feb., SP).** Arranged by Harvey Brooks (Harvard University).
- **Exploring Rationale for Long-Term R&D Investments in Inexhaustible Energy Resource Technologies (16 Feb., SP).** Arranged by Robert Nathans (State University of New York, Stony Brook).
- **Life-Cycle Costing in Energy Conservation (16 Feb., SP).** Arranged by S. S. Penner (University of California, San Diego).
- **Federal Energy Policies: Future Directions (17 Feb., SP).** Arranged by John C. Sawhill (New York University).

## 3. Tools of Science

- **Photography and Imaging as Tools of Science (13 Feb., SP).** Arranged by W. E. Garrett (National Geographic Magazine).
- **Computers as Tools in Science (14 Feb., SP).** Arranged by Raymond E. Dessy (Virginia Polytechnic Institute and State University).
- **New Tools for Viewing the Universe (15 Feb., SP).** Arranged by Beverly T. Lynds (Kitt Peak National Observatory) and Morton Roberts (National Radio Astronomy Observatory).
- **Patterns of Invention (16 Feb., SP).** Arranged by Rolf M. Sinclair (National Science Foundation).
- **The New Ion Microscopies: Progress and Prospects (16 Feb., SP).** Arranged by Walter L. Brown (Bell Laboratories, Murray Hill, N.J.).

- **Mathematics: Tool of Science (17 Feb., SP).** Arranged by Alfred B. Willcox (Mathematical Association of America, Washington, D.C.).
- **Research Reporting with Tomorrow's TV and Computer Graphics (17 Feb., SP).** Arranged by David Triantos (Naval Research Laboratory, Washington, D.C.).

## 4. Engineering and Technology

- **Macroengineering Projects: The Infrastructure of Tomorrow (13 Feb., SP).** Arranged by Frank P. Davidson (Massachusetts Institute of Technology), Lawrence J. Giacometto (Michigan State University), and Robert Salkeld (System Development Corporation, Malibu, Cal.).
- **Hypergraphics: Visualizing Complex Relationships in Art, Science, and Technology (14 Feb., SP).** Arranged by David W. Brisson (Rhode Island School of Design).
- **Corrosion: The Silent Scourge (14 Feb., SP).** Arranged by William R. Prindle (National Academy of Sciences).
- **Appropriate Technology: Panacea for Developing Nations? (15 Feb., SP).** Arranged by Katrina L. Eadie and David G. Cartano (University of Miami).
- **Effects of Changing Social Priorities on Engineering and Technology in the United States and Abroad (16 Feb., SP).** Arranged by George Bugliarello and A. George Schillinger (Polytechnic Institute of New York).
- **The Role of Technology in Changing the International Economic Order (17 Feb., SP).** Arranged by Jack Baranson (Developing World Industry and Technology, Washington, D.C.).
- **Appropriate Technology in the Developed Countries: The Macro and Micro Sides of It (17 Feb., SP).** Arranged by Robert M. Pierson (Goodyear Tire and Rubber Company, Akron, Ohio) and Allen Jedlicka (University of Northern Iowa).

## 5. Physical Sciences

- **Gravitational Physics—A New Window for Exploration (13 Feb., SP).** Arranged by William O. Hamilton (University of Rochester).
- **Progress in X-ray Astronomy—First Results from HEAO-1 (13 Feb., SP).** Arranged by Herbert Gursky (Smithsonian Astrophysical Observatory, Cambridge, Mass.).
- **The Search for Extraterrestrial Intelligence: Priority or Pandora's Box? (14 Feb., SP).** Arranged by Alan Ladwig and Leonard W. David (Forum for the Advancement of Students in Science and Technology, Washington, D.C.).
- **Humans in the Cosmos (15 Feb., SA).** Arranged by Gerrit L. Verschuur (Fiske Planetarium, University of Colorado, Boulder).
- **Prospects for Life in the Universe: The Ultimate Limits to**

**Growth (15 Feb., SA).** Arranged by William A. Gale (Bell Telephone Laboratories, Murray Hill, N.J.).

- **Picosecond Lasers in Chemistry (16 Feb., SP).** Arranged by William Spindel and Norman Metzger (National Research Council, National Academy of Sciences) and Kenneth B. Eisenthal (Columbia University).

- **Science for the Naked Eye: Or the Physics of Everyday Experience, V (17 Feb., SP).** Arranged by Rolf M. Sinclair (National Science Foundation).

## **6. Climate and Land Use**

- **Impacts of Recent Weather Extremes in the United States (13 Feb., SA).** Arranged by J. Murray Mitchell, Jr. (National Oceanic and Atmospheric Administration).
- **The Scientific Basis of Modern Weather Forecasting (13 Feb., SA).** Arranged by Frederick G. Shuman (National Meteorological Center).
- **Hail Suppression, Impacts and Issues: A Technology Assessment (14 Feb., SA).** Arranged by Barbara C. Farhar (Human Ecology Research Services, Inc., Boulder, Colo.).
- **Remote Sensing Applied to Meteorology and Hydrology (14 Feb., SA).** Arranged by David S. Johnson (National Oceanic and Atmospheric Administration).
- **Whither LANDSAT? Future Directions for Earth Observation Data Management Systems (15 Feb., SA).** Arranged by Lester F. Eastwood, Jr. (Washington University) and Christopher T. Hill (Office of Technology Assessment).
- **Desertification: Issues in Measuring and Monitoring the Process with Indicators (15 Feb., SA).** Arranged by Priscilla Reining (American Association for the Advancement of Science).
- **Assessing Natural Resources: Science, Land Use, and Public Policy (16 Feb., SA).** Arranged by James R. Balsley and Harold L. Burstyn (U.S. Geological Survey, Reston, Va.).
- **Climatic Futures (17 Feb., SA).** Arranged by Robert M. White (National Academy of Sciences).

## **7. Biological Sciences**

- **The Physiology of Ions in Muscle and Other Cells (13 Feb., SP).** Arranged by Mary E. Clark and Paul Paolini (San Diego State University) and Giuseppe Inesi (University of the Pacific Medical Center, San Francisco).
- **Some Mathematical Questions in Biology (14 Feb., SA).** Arranged by Simon A. Levin (Cornell University).
- **Recombinant DNA, Public Health, and Biomedical Research Policy (15 Feb., SP).** Arranged by Jonathan A. King (Massachusetts Institute of Technology).
- **A Cold Look at the Warm-blooded Dinosaurs (16 Feb., SP).** Arranged by Roger D. K. Thomas (Franklin and Marshall College, Lancaster, Pa.).

- **Type Locations in Nature Study (16 Feb., SP).** Arranged by Millard C. Davis (American Nature Study Society).

- **Biological Transformations of Inorganic Nitrogen (17 Feb., SP).** Arranged by Wilbur H. Campbell (State University of New York College of Environmental Science and Forestry, Syracuse).

- **Threatened and Endangered Species (17 Feb., SP).** Arranged by Donald J. Zinn (National Wildlife Federation).

## **8. Agriculture and Food**

- **Nutrition and Agriculture: Strategies for Latin America (13 and 14 Feb., SP).** Arranged by Teresa Salazar de Buckle (Instituto de Investigaciones Tecnológica, Bogotá, Colombia) and Joel Bernstein (National Academy of Sciences).
- **Food Production and Energy: Present Status and Future Alternatives (14 Feb., SP).** Arranged by Bill A. Stout (Michigan State University).
- **Future Production and Consumption of Meat (15 Feb., SP).** Arranged by Clair E. Terrill (U.S. Department of Agriculture, Beltsville, Md.).
- **The Question of Meat (15 Feb., SP).** Arranged by Alex Hershaft (Interstate Electronics Corporation, Arlington, Va.).



Washington Monument, silhouetted in the sunset. [Washington Area Convention and Visitors Bureau]



The fourth *SCIENCE INTERNATIONAL* exposition of scientific instruments and publications will be held in conjunction with the forthcoming AAAS Annual Meeting in Washington in the exhibit area of the Sheraton-Park Hotel in Washington, D.C., Tuesday, 14 February to Thursday, 16 February 1978.

This exposition will be organized around the theme of the "Tools of Science" and is being undertaken by AAAS with the cooperation of several federal agencies with interest in scientific research and applications. In parallel with the exhibit itself, there will be workshops in several areas of instrumentation and several symposia related to the tools of science (see Program on preceding pages).

If your company wishes to participate in this celebration of "Tools of Science" in Washington, please contact:

Edward B. Ruffing  
SCHERAGO ASSOCIATES  
Room 1740, 11 West 42d Street  
New York, N.Y. 10036  
(212) 736-1858

- **New Agricultural Crops (16 Feb., SP).** Arranged by Gary A. Ritchie (Weyerhaeuser Company, Centralia, Wash.).
- **Public Support for Agricultural Research and Extension Education: Evaluation of Benefits from Public Investments (16 Feb., SP).** Arranged by B. R. Eddleman (Mississippi State University).
- **Pesticides: Role in Agriculture and the Environment (17 Feb., SP).** Arranged by T. J. Sheets (North Carolina State University, Raleigh) and David Pimentel (Cornell University).

### 9. Medicine and Health

- **Prevention of Genetic Disease and Developmental Disabilities (13 Feb., SA).** Arranged by Tamah L. Sadick and Siegfried M. Pueschel (Rhode Island Hospital, Providence).
- **Social Acceptance of Preventive Dentistry Programs (14 Feb., SA).** Arranged by Donald B. Giddon and Richard D. Muma, Jr. (New York University).
- **Pharmacology on the Firing Line (14 Feb., SA).** Arranged by Lowell M. Greenbaum (Columbia University).
- **Assessing the Contributions of the Social Sciences to Health (15 Feb., SA).** Arranged by M. Harvey Brenner (Johns Hopkins University).

- **Solving the Riddle of Cancer: Role of the Physician (16 Feb., SA).** Arranged by Albert B. Lowenfels (New York Medical College, New York City and Westchester County Medical Center, Valhalla, N.Y.).
- **Statistics and Environmental Factors in Health (16 Feb., SA).** Arranged by Alice S. Whittemore (Hunter College, City University of New York).

### 10. Behavioral Science

- **The Relationship Between the Health Care Environment and Human Behavior (13 Feb., SA).** Arranged by Devra Lee Davis (Environmental Protection Agency, Washington, D.C.).
- **Language Rehabilitation in Aphasia: An Examination of the Process and Its Effects (13 Feb., SA).** Arranged by Christy L. Ludlow (National Institutes of Health).
- **Brain and Behavior: Mechanisms of Perception, Learning, Memory, and Attention (14 Feb., SA).** Arranged by Donald B. Lindsley (University of California, Los Angeles).
- **New Light on Leadership Processes (15 Feb., SA).** Arranged by Edwin P. Hollander (State University of New York, Buffalo).
- **Executive Development and Stress from the Psychoanalytic Point of View (15 Feb., SA).** Arranged by Louis A. Gottschalk (University of California, Irvine).
- **Humanization of Assessment: A Cybernetic Approach to Mental Health (16 Feb., SA).** Arranged by Mark N. Ozer (George Washington University School of Medicine) and Frank Baker (State University of New York, Buffalo).

- **Culture and Science: Comparative Receptions of Psychoanalysis in Western Countries (17 Feb., SA).** Arranged by John C. Burnham (Ohio State University, Columbus).
- **Cocaine (17 Feb., SA).** Arranged by Lester Grinspoon (Massachusetts Mental Health Center, Harvard Medical School).

### 11. Human Development and Habitation

- **Aging from Birth to Death (13 Feb., SA).** Arranged by Matilda White Riley (Bowdoin College).
- **Emotional Development in Infants (14 Feb., SA).** Arranged by David Pearl (National Institute of Mental Health, Rockville, Md.).
- **The Life Cycle: Development in the Middle Years (14 Feb., SA).** Arranged by Daniel J. Levinson (Yale University).
- **The Extended Household in a Post-Industrial Society (16 Feb., SA).** Arranged by David P. Snyder (U.S. Internal Revenue Service, Washington, D.C.).
- **Families in the Metropolis: Emerging Concerns in Urban Housing (16 Feb., SA).** Arranged by Harvey M. Choldin (University of Illinois, Urbana).

- **The Aged in Families (17 Feb., SA).** Arranged by Norman Metzger (National Research Council, National Academy of Sciences).

## **12. Anthropology**

- **The Viability of the Village in Contemporary Society (13 Feb., SA).** Arranged by Priscilla Reining and Barbara Lenkerd (American Association for the Advancement of Science).
- **Fertility Decline in the Less-Developed Countries: The Emerging Pattern (14 Feb., SA).** Arranged by Nick Eberstadt (Rockefeller Foundation, New York, N.Y.).
- **Keystones of Culture: The Discovery of Culturally Specific Behavior Patterns Through Research Film Analysis (15 Feb., SA).** Arranged by E. Richard Sorenson (Smithsonian Institution).
- **Emergence of Language: Continuities and Discontinuities (16 Feb., SA).** Arranged by Stewart H. Hulse (Johns Hopkins University).
- **An Account of the Auditory Mode: Man versus Ape (16 Feb., SA).** Arranged by Frank E. X. Dance (University of Denver).
- **Public Anthropology (17 Feb., SA).** Arranged by Bela C. Maday (American University) and Laura Nader (University of California, Berkeley).
- **Indians of the Eastern United States (17 Feb., SA).** Arranged by Sam Stanley (Smithsonian Institution).

## **13. Methodology of Science**

- **The Role of Models in Scientific Inquiry (13 Feb., SA).** Arranged by Ernan McMullin (University of Notre Dame).
- **Can Mathematics Be Applied to the Social Sciences? (14 Feb., SA).** Arranged by Héctor J. Sussmann (Rutgers University) and Sanjoy K. Mitter (Massachusetts Institute of Technology).

- **Mathematical Models of Information Systems (15 Feb., SA).** Arranged by Andrew Vazsonyi (University of Rochester).

- **Limits on Scientific Progress (16 Feb., SA).** Arranged by Nicholas Rescher (University of Pittsburgh).

- **The Reception of Unconventional Science by the Scientific Community (16 Feb., SA).** Arranged by Seymour H. Mauskopf (Duke University).

- **Replicability and Experimenter Influence (17 Feb., SA)** Arranged by Charles Honorton (Maimonides Medical Center, Brooklyn, N.Y.).

- **The Rhetoric and Language of Science (17 Feb., SA).** Arranged by Berel Lang (University of Colorado, Boulder).

## **14. Scientific Freedom and Responsibility**

- **Appraising Peer Review (13 Feb., SA).** Arranged by Harriet Zuckerman (Columbia University).

- **Participation and Expertise in a Democratic Society (13 Feb., SA).** Arranged by Dorothy W. Nelkin (Cornell University).

- **Science and the "Isms" of the 20th Century (14 Feb., SA).** Arranged by Robert E. Filner (San Diego State University).

- **Whistle-Blowing and Scientific Responsibility: The Management of Technical Dissent (15 Feb., SA).** Arranged by Frank von Hippel (Princeton University) and Rosemary A. Chalk (American Association for the Advancement of Science).

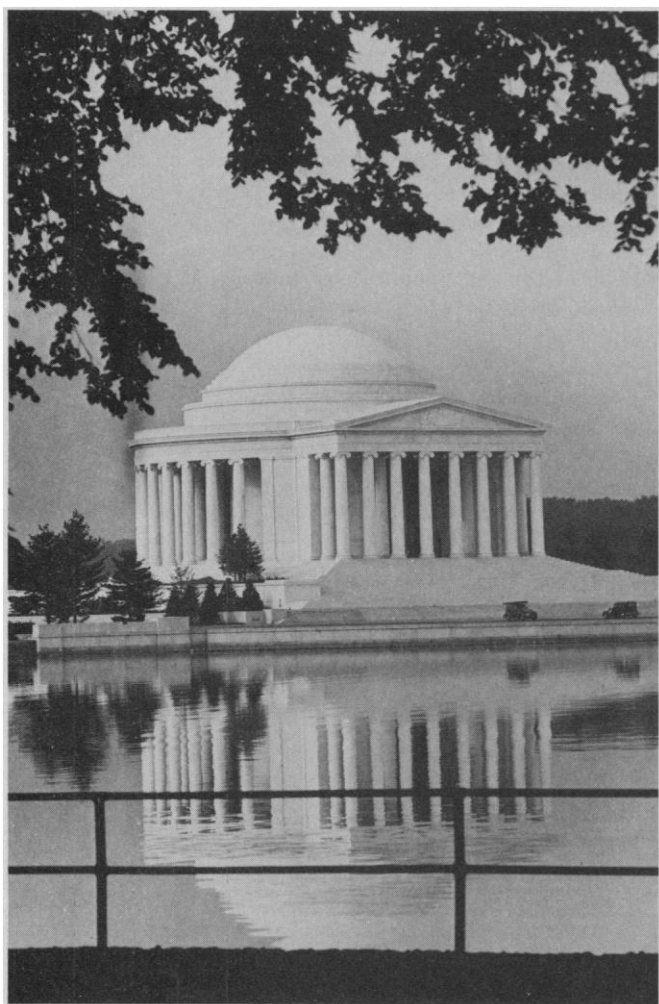
- **Regulation of Scientific Inquiry: Society Concerns with Research (16 Feb., SA).** Arranged by Hans O. Mauksch (University of Missouri, Columbia), Rosemary A. Chalk (American Association for the Advancement of Science), and Keith M. Wulff (Concordia College, Moorhead, Minn.).

- **Human Rights and Scientific Freedom: Are Scientists Special? (17 Feb., SA).** Arranged by John T. Edsall (Harvard University) and Joel R. Primack (University of California, Santa Cruz).

The White House.  
[Washington Area Convention and Visitors Bureau]







Jefferson Memorial.

## 15. Education and Opportunities

- **Issues in Science Education (13, 14, and 15 Feb., SP).** Arranged by James T. Robinson (Biological Sciences Curriculum Study, Boulder, Colo.) and Arthur H. Livermore (American Association for the Advancement of Science).
- **New Trends in Interpreting Science to the Public (14 Feb., SP).** Arranged by Eugene H. Kone (Rockefeller University).
- **Meeting Educational Needs Through Broadcasting Satellites (14 Feb., SP).** Arranged by Frank W. Norwood (Joint Council on Educational Telecommunications, Washington, D.C.).
- **Communication with Science's Publics: Prerequisite to Public Support (14 Feb., SP).** Arranged by Harold F. Osborne (U.S. Veterans Administration, Bethesda, Md.).
- **Early Intervention: Matching Programs to Children (15 Feb., SP).** Arranged by Bernard Brown (Office of Child Development, Washington, D.C.).
- **Culturally Based Science Education: Needs and Strategies for Science Literacy (15 Feb., SP).** Arranged by Rayna D. Green (American Association for the Advancement of Science).

- **Civil Rights of the Handicapped: Access to Higher Education (16 Feb., SP).** Arranged by Jack Martin (University of Washington) and Wayne Fortunato-Schwandt (American Association for the Advancement of Science).
- **Post High School American Youth—Results from Analyses of the National Longitudinal Survey of the High School Class of 1972 (16 Feb., SP).** Arranged by George J. Nolfi (University Consultants, Inc., Cambridge, Mass.).
- **Problems and Solutions: Science Education for the Deaf (16 Feb., SP).** Arranged by Edward Cain (National Technical Institute for the Deaf, Rochester, N.Y.) and Robert Menchel (Xerox Corporation, Webster, N.Y.).
- **Science and the Needs of the Handicapped (17 Feb., SP).** Arranged by E. C. Keller, Jr. (West Virginia University).
- **Models of Learning and Their Implications for Science Education (17 Feb., SP).** Arranged by Joseph I. Lipson (University of Mid-America, Lincoln, Neb.).

## 16. Policy Development

- **Assessment of Technological Risk (13 Feb., SP).** Arranged by Richard A. Scribner (American Association for the Advancement of Science) and William A. Thomas (American Bar Foundation, Chicago, Ill.).
- **The Technical Base for Regulatory Decision-Making (13 Feb., SP).** Arranged by John M. Logsdon (George Washington University).
- **Bureaucratic Maladies and Remedies (14 Feb., SP).** Arranged by Carol H. Weiss and Allen H. Barton (Columbia University).
- **The State of Academic Science (14 Feb., SP).** Arranged by Harvey M. Sapolsky (Massachusetts Institute of Technology).
- **Methodological Issues in Technology Assessment (15 Feb., SP).** Arranged by Joshua Menkes and G. Patrick Johnson (National Science Foundation).
- **The Influence of Product and Process Regulation on Technological Change (15 Feb., SP).** Arranged by David L. Bodde (TRW Incorporated, McLean, Va.).
- **The Modeling of Social Systems: Its Uses and Limitations in Societal Problem Solving (15 Feb., SA).** Arranged by A. George Schillinger (Polytechnic Institute of New York).
- **Energy Sources, Technological Options, and Environmental Repercussions: Spatial and Temporal Assessment (16 Feb., SA).** Arranged by Manoucher Parvin (Fordham and Columbia Universities).
- **Avoiding Social Catastrophes and Maximizing Social Opportunities: The General Systems Challenge (16 Feb., SA).** Arranged by Richard F. Ericson (George Washington University).
- **Advising the Congress on R & D: The OTA Role (16 Feb.,**



SP). Arranged by Carolee McBee (Office of Technology Assessment, U.S. Congress).

- **Investing in Integrated Systems in Communications, Health, and Energy (17 Feb., SA).** Arranged by George K. Chacko (University of Southern California).
- **Federal Regulations: Ethical Issues and Social Research (17 Feb., SP).** Arranged by Murray L. Wax (Washington University).

## 17. Policy Issues

- **Population, Resources, Energy, and the Environment: Reports on the Debate (13 Feb., SP).** Arranged by David L. Sills (Social Science Research Council, New York, N.Y.).
- **Drug Crops, Public Policy, and International Control (13 Feb., SA).** Arranged by Joel M. Jutkowitz and Karen Kerner (Institute for the Study of Human Issues, Philadelphia, Pa.).
- **US-USSR Exchanges in Science and Technology: Working with Soviet Scientists (13 Feb., SP).** Arranged by Egon E. Loebner (Hewlett-Packard Laboratories, Palo Alto, Calif.).
- **Solar System Exploration: Should It Be a National Commitment? (14 Feb., SP).** Arranged by Daniel H. Herman (National Aeronautics and Space Administration, Washington, D.C.).

- **International Trends in Applying Science and Technology: Problems, Opportunities, and Policies (14 Feb., SP).** Arranged by Rodney W. Nichols (Rockefeller University).

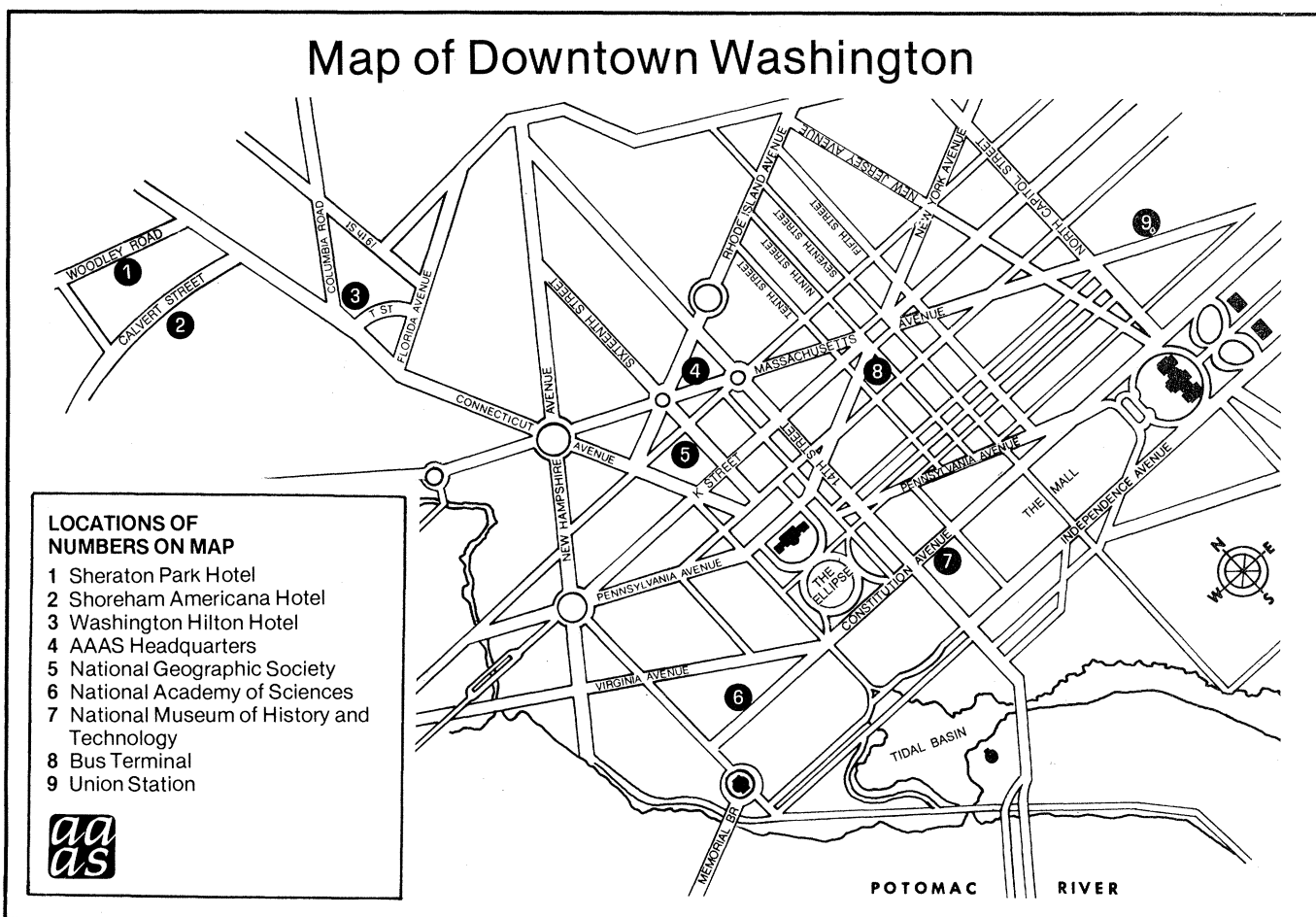
- **Neighborhoods, Cities, and Regions: The Future Governing of Urban Spaces (15 Feb., SA).** Arranged by Michael N. Albanes (American Institute of Architecture Research Corporation, Washington, D.C.) and Robert Warren (University of Delaware).

- **Domestic and International Scientific Aspects of Extended Marine Jurisdiction (15 Feb., SP).** Arranged by Brian J. Rothschild (National Oceanic and Atmospheric Administration).

- **Creative Tensions: Federal Energy Policies versus State Energy Policies (16 Feb., SP).** Arranged by Frank M. Graves (Institute of Public Administration, Washington, D.C.) and Jon M. Veigel (California State Energy Commission, Sacramento, Calif.).

- **Problems and Progress in Scientific and Technical Advising for Policy Formulation at the State Level (17 Feb., SP).** Arranged by Robert W. Hanson (University of Northern Iowa, Cedar Falls).

- **Some Views from Inside Congress on Water, Pollution, Biohazards, and Nutrition (17 Feb., SP).** Arranged by Richard A. Scribner (American Association for the Advancement of Science).





Annual Meeting  
Washington  
12-17 February 1978

# Advance Registration Form (A)

## ENCLOSED IS:

- AAAS Member:** ☐ \$24 Single Registration Fee ☐ \$36 Double Registration Fee (attendant and spouse)  
**Non-Member:** ☐ \$30 Single Registration Fee ☐ \$42 Double Registration Fee (attendant and spouse)  
**Student:** ☐ \$12 Single Student Registration Fee ☐ \$18 Double Registration Fee (student attendant and spouse)

Non-Member applying for AAAS membership\* and meeting registration: (Annual membership dues include 52 issues of SCIENCE. Double membership—individual and spouse—includes one subscription to SCIENCE.)

- ☐ \$52 Single Registration and Membership (24 registration and \$28 dues)  
☐ \$64 Double Registration and Single Membership (name of applicant \_\_\_\_\_)  
(\$36 registration and \$28 dues)  
☐ \$76 Double Registration and Membership (\$36 registration and \$40 dues)

\*These rates apply to USA membership only. Inquire for Canadian or Foreign rates.

**Program and badge will be mailed to each registrant in mid-January.  
Registrations received after 20 January will be held at the AAAS Information Booth.**

NAME OF REGISTRANT: \_\_\_\_\_  
(Last Name) (First and Initial)

NAME OF SPOUSE REGISTRANT: \_\_\_\_\_  
(Last Name) (First and Initial)

REGISTRANT'S MAILING ADDRESS: \_\_\_\_\_  
[For receipt of program(s), badge(s), and SCIENCE (for new applicants)]  
(Street)  
(City/State) (Zip Code)

ADDITIONAL REGISTRANTS: \_\_\_\_\_  
(With same mailing address. Use new form if address differs)

REGISTRANT'S  
INSTITUTION OR COMPANY: \_\_\_\_\_  
(City) (State) (Zip Code)

CONVENTION ADDRESS: \_\_\_\_\_  
(Where you can be reached) (Hotel or Street Address)  
Check days attending: Sun ☐ Mon ☐ Tue ☐ Wed ☐ Thu ☐ Fri ☐

**Note:** Special one-day attendance registration is available at the Meeting Registration Desks (\$12 regular, \$6 student).  
A book containing the abstracts of the Meeting papers will also be available at the Registration Desks at an additional charge of \$5.

☐ Please check here if you need special services due to handicap. We will contact you prior to the meeting.

**Mail to: American Association for the Advancement of Science, Dept. R,  
1515 Massachusetts Ave., NW, Washington, D.C. 20005**

## SURVEY OF ATTENDANTS

**Annual Meeting, Washington, 12-17 February 1978**

Your answers to the following questions will help us in planning future AAAS Annual Meetings. Please complete the following form and either return it with your registration form or send in separately (to the same address) if you wish to respond anonymously (in any case, the two forms will be processed separately).

<b>Principal Professional Interest</b>		<b>Principal Professional Activity</b>		<b>Institutional Affiliation Type</b>	
11 <input type="checkbox"/> Physical, mathematical	21 <input type="checkbox"/> Teaching, education	31 <input type="checkbox"/> University, 4-year college			
12 <input type="checkbox"/> Biological, medical	22 <input type="checkbox"/> Health practice	32 <input type="checkbox"/> Other educational			
13 <input type="checkbox"/> Engineering	23 <input type="checkbox"/> Other practice, consulting	33 <input type="checkbox"/> Industrial, commercial			
14 <input type="checkbox"/> Social, behavioral	24 <input type="checkbox"/> Research, development	34 <input type="checkbox"/> Other private			
15 <input type="checkbox"/> Science policy	25 <input type="checkbox"/> Administration	35 <input type="checkbox"/> Government			
16 <input type="checkbox"/> (other)	26 <input type="checkbox"/> (other)	36 <input type="checkbox"/> (other)			
<b>Highest Educational Level</b>		<b>Age</b>		<b>Distance Traveled to Meeting</b>	
41 <input type="checkbox"/> Doctoral Degree	51 <input type="checkbox"/> Under 26 years	61 <input type="checkbox"/> Under 51 miles			
42 <input type="checkbox"/> Master's Degree	52 <input type="checkbox"/> 26 to 35 years	62 <input type="checkbox"/> 52 to 150 miles			
43 <input type="checkbox"/> Other professional	53 <input type="checkbox"/> 36 to 45 years	63 <input type="checkbox"/> 151 to 400 miles			
44 <input type="checkbox"/> Bachelor's Degree	54 <input type="checkbox"/> 46 to 55 years	64 <input type="checkbox"/> 401 to 1000 miles			
45 <input type="checkbox"/> (other)	55 <input type="checkbox"/> 56 to 55 years	65 <input type="checkbox"/> 1001 to 3000 miles			
	56 <input type="checkbox"/> Over 65 years	66 <input type="checkbox"/> Over 3000 miles			
				<b>Last AAAS Meeting Attended</b>	
				71 <input type="checkbox"/> 1972 in Washington	
				72 <input type="checkbox"/> 1973 in Mexico City	
				73 <input type="checkbox"/> 1974 in San Francisco	
				74 <input type="checkbox"/> 1975 in New York	
				75 <input type="checkbox"/> 1976 in Boston	
				76 <input type="checkbox"/> 1977 in Denver	

# Hotel Reservations

## Room Rates\*

## Annual Meeting Washington

12-17 February 1978



The 144th National Meeting of the American Association for the Advancement of Science will be held in Washington, DC, 12-17 February 1978. Symposia, contributed paper sessions, and all other Meeting activities are scheduled in the Sheraton-Park (headquarters) and Shoreham Americana hotels. Both hotels will have AAAS registration and information desks and provide housing at the following convention rates:

Hotel	Single	Double	Twin	Suites**	Parking
<b>SHERATON-PARK</b> ( <i>Headquarters</i> ) 2660 Woodley Road, N.W. (No. of rooms held: 1000)	\$32 35 38 40	\$42 45 48 50	\$42 45 48 50	\$85 and up	\$2.60 for daytime parking. \$3.60 per 24 hrs. ( <i>inquire at the Front Desk about in and out privileges</i> ).
<b>SHOREHAM AMERICANA</b> 2500 Calvert Street, N.W. (No. of rooms held: 600)	\$30	\$40	\$40	\$70 and up	\$3.00 per 24 hrs. ( <i>with in and out privileges</i> ).

**STUDENT RATES:** Both the SHERATON-PARK and SHOREHAM AMERICANA hotels have provided these special room rates for students:

**Triple occupancy:** \$15 per person; **Quadruple occupancy:** \$12 per person

Only prearranged groups of 3 or 4 students with the same arrival and departure dates qualify for these special rates. All names must appear on the Hotel Reservation Form.

\*Per day; add 8% D.C. sales tax. Charge for additional person in room, \$10; rollaway beds or cots, \$10 (both hotels.) Children accommodated free in same room with parents: Sheraton-Park, age 18 and under; Shoreham-Americana, age 14 and under.

\*\*Lowest available rate for one-bedroom/parlor suites; rates for larger suites available on request.

NOTE: If room rate specified is not available, the next available higher rate will be assigned. Confirmation will come to you directly from the hotel. Please make all reservation changes and cancellations through the Housing Bureau in writing. Room assignment will be delayed if any information is omitted from the Hotel Reservation Form.

### HOTEL RESERVATION FORM

Please type or print

Reservations received after 20 January cannot be assured.  
The Housing Bureau will not accept any reservations by telephone.

CHOICE OF HOTEL: First \_\_\_\_\_ Second \_\_\_\_\_

ROOM: ☐ Single ☐ Double ☐ Twin SUITE: ☐ 1 Bedroom ☐ 2 Bedrooms PREFERRED RATE \$ \_\_\_\_\_

STUDENTS: ☐ 3 persons per room ☐ 4 persons per room

Please indicate any special housing needs due to a handicap: \_\_\_\_\_

ARRIVAL: Date \_\_\_\_\_ ; \_\_\_\_\_ a.m. \_\_\_\_\_ p.m. Be sure to list definite arrival and departure date and time. Hotel reservations will be held only until 6 p.m. unless otherwise specified. Check out-time is 1:00 p.m. at both hotels.

DEPARTURE: Date \_\_\_\_\_ ; \_\_\_\_\_ a.m. \_\_\_\_\_ p.m.

### NAMES AND ADDRESSES OF ALL OCCUPANTS OF ROOM

Name \_\_\_\_\_ Name \_\_\_\_\_

Address \_\_\_\_\_ Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Name \_\_\_\_\_ Name \_\_\_\_\_

Address \_\_\_\_\_ Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Hotel, confirm reservation to: \_\_\_\_\_

Mail to: AAAS Housing Bureau  
1129 Twentieth Street, N.W., Washington, D.C. 20036