

Science: Our Common Heritage

On 3 July 1880 a new "Weekly Record of Scientific Progress" called *Science* appeared, dedicated as an organ "for the interchange of views and diffusion of information" in science. This coming year we celebrate the 100th anniversary of that publication, the official journal of AAAS since 1900, and the journal whose 4412th issue you are now reading. This Association takes great pride in its heritage, *Science*, recognizing our part in promoting that dream of supplying the record of scientific progress and promoting the interchange of views and diffusion of information which strongly contributed to the growth of science over the past century, a growth which has made science the heritage of us all.

The AAAS national meeting, now held annually, is another heritage of the Association dedicated to the interchange of views and the diffusion of information. The forthcoming Annual Meeting in San Francisco, details of which are given in

the following pages, will be the 146th national meeting of the Association. It will not only celebrate the centennial of *Science* but will also provide a forum for the discussion of the latest information in all of the physical, biological, and social sciences, and their technologies, as well as the public policy and interest aspects they entail.

The program for the Annual Meeting features nine distinguished public lecturers and 139 symposia covering such areas as the physical and earth sciences; engineering, energy, and environment; the biological and medical sciences; health care; the social and behavioral sciences; technology, development, and society; philosophy, education, and responsibility in science; and the relationship of science with government. The specific symposium topics, as you can see from the material which follows, cover many of the most important topics in science and technology at issue today.

In addition to this more formal program, we will have papers contributed by the membership (presented in the "poster" format), an exhibit of relevant scientific publications and instrumentation, the Science Film Festival, and tours of sites of scientific and cultural interest in the Bay Area, as well as convivial hospitality arranged by the San Francisco Advisory Committee under the able chairmanship of David S. Saxon (President of the University of California) and Edward L. Ginzton (Chairman of the Board of Varian Associates).

We urge you to explore your heritage and contribute to our discussions. Come to America's favorite city in January and enjoy its ambience, as well as the ambience of the collegiate interactions during America's unique science convention. Make your reservations early to ensure your place, for the Meeting is just after a long holiday weekend.

—ARTHUR HERSCHMAN



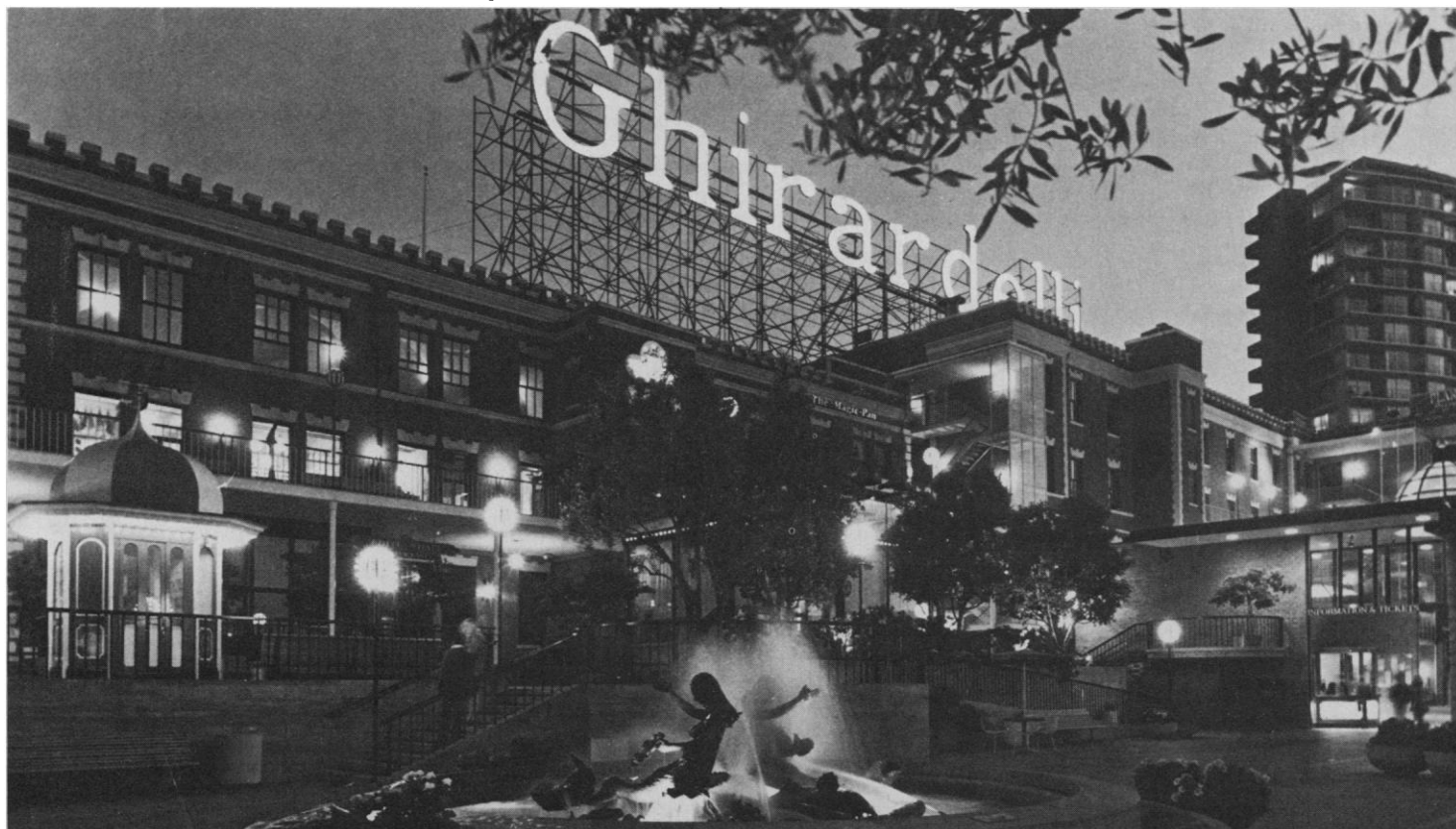
**Annual Meeting
San Francisco**

3-8 January 1980

For further details and for housing and registration forms, see the following pages in this issue.

Please remember that the Annual Meeting begins 2 days after the New Year's holiday. **Make your travel arrangements now** to avoid the holiday rush.

Ghirardelli Square [San Francisco Convention and Visitors Bureau].





**Annual Meeting
San Francisco**
3-8 January 1980

Preliminary Program

Science: Our Common Heritage

Public Lectures

(Topics to be announced)

- **AAAS Keynote Lecture (3 Jan., 8:30 p.m., SFH).**
Simon Ramo (Director, TRW, Inc., Redondo Beach, California).
- **George Sarton Memorial Public Lecture (4 Jan., 1:30 p.m., SFH).**
Charles C. Gillispie (Dayton-Stockton Professor of the History of Science, Princeton University).
- **AAAS Public Lecture (4 Jan., 8:30 p.m., SFH).**
Rosalyn S. Yalow (Senior Medical Investigator, Veterans Administration Hospital, Bronx, New York).
- **AAAS Public Lecture (5 Jan., 1:30 p.m., SFH).**
John M. Ziman (Professor of Physics, University of Bristol, England).
- **AAAS Public Lecture (5 Jan., 8:30 p.m., SFH).**
Abraham Pais (Professor of Physics, Rockefeller University).
- **AAAS Public Lecture (6 Jan., 1:30 p.m., SFH).**
John R. Pierce (Professor of Electrical Engineering, California Institute of Technology).
- **AAAS Retiring President's Public Lecture (6 Jan., 8:30 p.m., SFH).**
Kenneth E. Boulding (President, American Association for the Advancement of Science, and Professor of Economics, University of Colorado, Boulder).
- **Phi Beta Kappa Public Lecture (7 Jan., 1:30 p.m., SFH).**
William A. Nierenberg (Director, Scripps Institution of Oceanography, and Vice Chancellor of Marine Sciences, University of California at San Diego).
- **AAAS Public Lecture (7 Jan., 8:30 p.m., SFH).**
Victor F. Weisskopf (Institute Professor of Physics, Massachusetts Institute of Technology).

1. General Interest

- **Frontiers in the Social Sciences (4 Jan., SFH).**
Arranged by Priscilla Reining (American Association for the Advancement of Science), Meredith Crawford (American Psychological Association, Washington, D.C.), and David Sills (Social Science Research Council, New York, N.Y.).
- **The Impact of Very Large Scale Integration (4 Jan., SFH).**
Arranged by David S. Saxon (University of California) and Edward L. Ginzton (Varian Associates, Palo Alto, Calif.).
- **Frontiers of Science (5 Jan., SFH).**
Arranged by David S. Saxon and Edward L. Ginzton.
- **The Frontiers of the Natural Sciences (6 Jan., SFH).**
Arranged by Rolf M. Sinclair (National Science Foundation).

2. Science Centennial

- **The Centennial of Science (6 Jan., SFH).**
Arranged by Philip H. Abelson (American Association for the Advancement of Science).
- **Communicating Science (6 Jan., SFH).**
Arranged by Mary E. Corning (National Library of Medicine).
- **Science and Science: The Next Decade (7 Jan., SFH).**
Arranged by Norman Metzger (National Academy of Sciences).
- **Images of the Future (8 Jan., SFH).**
Arranged by Jerry E. Pournelle (Writer, Studio City, Calif.).

3. Physics, Chemistry, and Astronomy

- **Nonfuel Uses of Petroleum, Petrochemicals (4 Jan., SFH).**
Arranged by Fred Basolo (Northwestern University).

HOTEL CODES: San Francisco Hilton . . . (SFH); St. Francis . . . (STF)

- **A Star is Born (4 Jan., SFH).**
Arranged by Frank H. Shu (University of California, Berkeley).
- **The First Billion Years of the Earth's Existence (4 Jan., SFH).**
Arranged by Cyril Ponnampertuma (University of Maryland, College Park) and Lynn Margulis (Boston University).
- **Discoveries Made by Recent Planetary Spaceprobes (5 Jan., SFH).**
Arranged by Donat G. Wentzel (University of Maryland, College Park) and Bradford Smith (University of Arizona).
- **Archeoastronomy and the Roots of Science (6 Jan., SFH).**
Arranged by Edward C. Krupp (Griffith Observatory, Los Angeles, Calif.).
- **Science for the Naked Eye: Or the Physics of Everyday Experience, VII (7 Jan., SFH).**
Arranged by Rolf M. Sinclair (National Science Foundation).
- **Frontiers of Physics and Their Industrial Applications (8 Jan., SFH).**
Arranged by D. Allan Bromley (Yale University).
- **Human Reliability in Complex Man-Machine Systems (5 Jan., SFH).**
Arranged by John W. Senders (University of California, Santa Barbara).
- **Macroengineering: The Rich Potential (6 Jan., SFH).**
Arranged by Robert Salkeld (Consultant, Bear Valley, Calif.) and Frank P. Davidson (Massachusetts Institute of Technology).
- **International Comparisons of the Impact of Government Policies on Industrial Innovation (7 Jan., SFH).**
Arranged by Arthur Gerstenfeld (Worcester Polytechnic Institute).
- **Soft and Hard Technology—Coexistence or Divergence? (7 Jan., SFH).**
Arranged by Peter E. Glaser (Arthur D. Little, Inc., Cambridge, Mass.) and T. Stephen Cheston (Georgetown University).
- **Issues Affecting the Future of Personal Transportation (8 Jan., SFH).**
Arranged by S. William Gouse (The MITRE Corporation, McLean, Va.).

4. Geology and Climate

- **Focus on the San Andreas Fault: Frontiers in Earthquake Research (4 Jan., SFH).**
Arranged by Raymond Sullivan (San Francisco State University).
- **Environmental Setting of Early Man Sites (5 Jan., SFH).**
Arranged by George Rapp, Jr. (University of Minnesota) and Carl Vondra (Iowa State University).
- **Environmental and Societal Consequences of a Possible CO₂-Induced Climate Change (5 Jan., SFH).**
Arranged by David M. Burns (American Association for the Advancement of Science) and Roger Revelle (University of California, San Diego).
- **The Impact of Climate on Food Supplies (6 Jan., SFH).**
Arranged by Lloyd E. Slater (Aspen Institute, Boulder, Colo.).
- **Oceans from Space: Environmental Management from on High (7 Jan., SFH).**
Arranged by Michael J. Herz (Oceanic Society, San Francisco, Calif.).
- **New Horizons for Marine Geosciences (8 Jan., SFH).**
Arranged by Keith A. Kvenvolden and H. Edward Clifton (U.S. Geological Survey, Menlo Park, Calif.).

5. Engineering and Technology

- **The Factory of the Future (4 Jan., SFH).**
Arranged by Joel D. Goldhar (National Research Council) and Richard E. Thomas (Texas A&M University).
- **Space Policy for the 1980's: A New Era of Space Utilization (5 Jan., SFH).**
Arranged by John M. Logsdon (George Washington University).

6. Energy Development

- **Energy in the 1980's: The Shape of Things to Come (4 Jan., SFH).**
Arranged by Lewis J. Perelman (Jet Propulsion Laboratory, Pasadena, Calif.).
- **Chemical Solar Energy Conversion (4 Jan., SFH).**
Arranged by Arthur W. Adamson (University of Southern California).
- **Solar Energy Development: Prospects and Implications (5 Jan., SFH).**
Arranged by Daniel Rich (University of Delaware), Wallace C. Judd, Jr. (Institute of Energy Conversion, Wilmington, Del.), and Jon Veigel (Solar Energy Research Institute, Golden, Colo.).
- **Uranium Resources—Impact on the Nuclear Energy Option (6 Jan., SFH).**
Arranged by Daniel Berg (Carnegie-Mellon University).
- **Direct Applications of Geothermal Energy (6 Jan., SFH).**
Arranged by Ivar A. Engen (EG&G Idaho, Inc., Idaho Falls), and Richard W. James and Samuel R. Jewell (Rocky Mountain Institute of Energy and the Environment, Laramie, Wyo.).
- **Nuclear Reactor Safety: A Current Perspective (7 Jan., SFH).**
Arranged by Anthony V. Nero, Jr. (Lawrence Berkeley Laboratory).
- **The Prospects of Fusion Energy as a Commercial Power Source (8 Jan., SFH).**
Arranged by Andrew M. Sessler (Lawrence Berkeley Laboratory) and David Paul (Electric Power Research Institute, Palo Alto, Calif.).

7. Energy and Environment

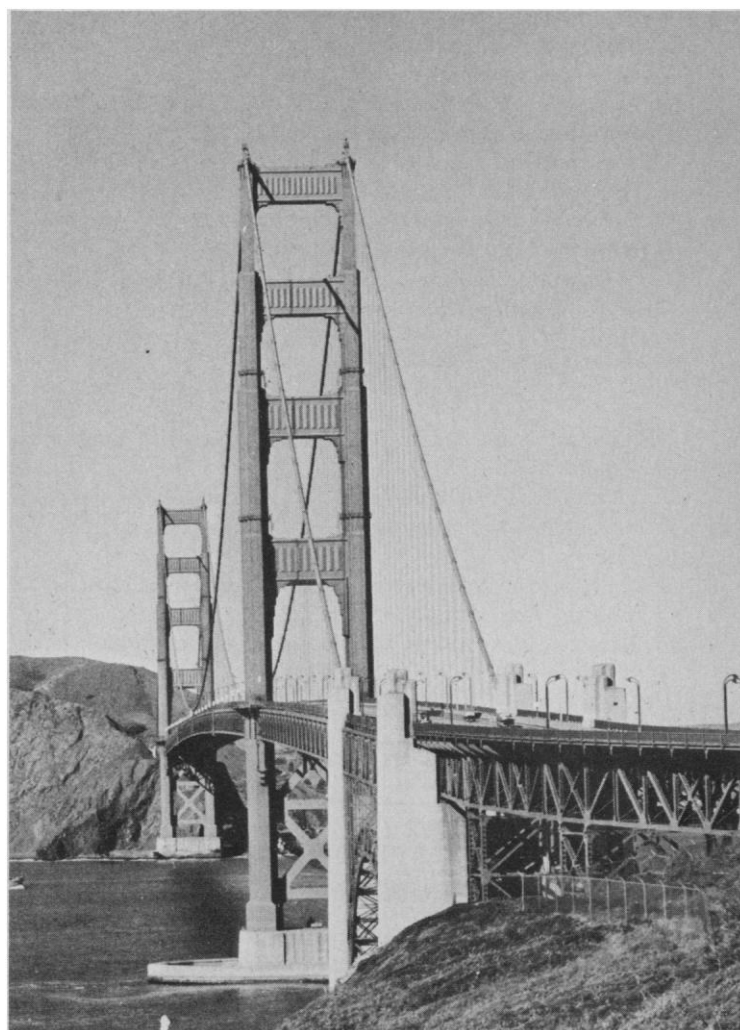
- **Energy, Economics, and the Environment (4 Jan., SFH).**
Arranged by Gregory A. Daneke (University of Michigan).
- **Energetic and Ecological Economics (5 Jan., SFH).**
Arranged by Alvaro F. Umaña (Stanford University) and Herman Daly (Louisiana State University).
- **Public Attitudes Toward Resource Conservation and Energy (6 Jan., SFH).**
Arranged by W. David Conn (University of California, Los Angeles).
- **Tragedy of the Commons (7 Jan., SFH).**
Arranged by Carl Jay Bajema (Grand Valley State Colleges, Allendale, Mich.) and Garrett Hardin (University of California, Santa Barbara).
- **Potential Role and Impacts of Decentralized Renewable Energy Systems (8 Jan., SFH).**
Arranged by Mark D. Levine and Jerome Weingart (Lawrence Berkeley Laboratory), and Paul Craig (University of California, Davis).

8. Environmental and Ecological Science

- **Costs of Pesticide Usage (4 Jan., STF).**
Arranged by T. J. Sheets (North Carolina State University).
- **Environmental Toxicology: A Discipline of Growing Importance (4 Jan., STF).**
Arranged by Samuel Elkin (Temple University).
- **The Impact of Regulations on the Introduction of New Chemicals (5 Jan., STF).**
Arranged by Curtis W. Smith (Shell Oil Company, Houston, Tex.) and Virginia L. Zaratzian (U.S. Department of Agriculture).
- **Resolving Conflicts Between Development and Wildlife Management on the West Coast (6 Jan., STF).**
Arranged by Edward O. Keith (University of California, Santa Cruz) and George Hagevik (Association of Bay Area Governments, Berkeley, Calif.).
- **UNESCO's Man and the Biosphere Program: Interdisciplinary and International Collaboration on Environmental Research (7 Jan., STF).**
Arranged by Russell M. Burns (U.S. Forest Service, Washington, D.C.) and John W. Bennett (Washington University).
- **Ecology of the Namib Desert (7 Jan., STF).**
Arranged by Mary K. Seely (Desert Ecological Research Unit, Walvis Bay, South West Africa) and Gordon L. Bender (Arizona State University).
- **Social and Political Implications of Human Impacts on the Desert (8 Jan., STF).**
Arranged by Howard G. Wilshire (U.S. Geological Survey, Menlo Park, Calif.), Kent Downing and Richard Schreyer (Utah State University), and Robert H. Webb (Stanford University).

9. Biological Science

- **Surfaces in Biology and Medicine (4 Jan., STF).**
Arranged by Allan S. Hoffman (University of Washington).
- **Genetic Control of Organelle Assembly at the Molecular Level (4 Jan., STF).**
Arranged by Jonathan King (Massachusetts Institute of Technology).
- **Application of Molecular Biology to Agricultural Research (4 Jan., STF).**
Arranged by David H. Gelfand (Cetus Corporation, Berkeley, Calif.).
- **Thermoregulation in Poikilothermic Animals (4 Jan., STF).**
Arranged by Bernd Heinrich (University of California, Berkeley).
- **Animal, Plant, and Microbial Gene Resource Conservation: Does the United States Need a National Program? (5 Jan., STF).**
Arranged by David Kafton (Inquiring Systems, Inc., Berkeley, Calif.).
- **Communication and Behavior of Whales (5 Jan., STF).**
Arranged by Roger S. Payne (New York Zoological Society).



Golden Gate Bridge looking toward Marin County.

- **Biological Time (6 Jan., STF).**
Arranged by Michael Menaker (University of Oregon).
- **Chemistry of Vision (7 Jan., STF).**
Arranged by Wayne L. Hubbell (University of California, Berkeley).
- **Biological Significance of Bioelectricity (7 Jan., STF).**
Arranged by Boguslaw Lipinski (St. Elizabeth's Hospital, Boston, Mass.).
- **Parasite-Host Ecology: Modern Perspectives (8 Jan., STF).**
Arranged by Joseph J. Schall (University of California, Berkeley).

10. Mathematical Methods in Biomedicine

- **The Role of Computing Sciences in Plant Disease Epidemiology and Integrated Pest Management (5 Jan., STF).**
Arranged by Samuel H. Smith (Pennsylvania State University) and Robert C. Riley (U.S. Department of Agriculture, Washington, D.C.)
- **Some Mathematical Questions in Biology (6 Jan., STF).**
Arranged by George F. Oster (University of California, Berkeley).
- **Biological Geometry (7 Jan., STF).**
Arranged by Judith M. S. Prewitt (National Institutes of Health, Bethesda, Md.) and Fred Bookstein (University of Michigan, Ann Arbor).
- **Stereology: A Mathematical Tool to Explore Three-Dimensional Space from Flat Images (7 Jan., STF).**
Arranged by Hans Elias (University of California, San Francisco).
- **Computers and Drug Design (8 Jan., STF).**
Arranged by Irwin D. Kuntz and Robert Langridge (University of California, San Francisco).

11. Medical Science

- **Endorphins and Other Endogenous Opiate-like Substances (4 Jan., STF).**
Arranged by William L. Dewey (Medical College of Virginia, Richmond) and Martin Adler (Temple University).
- **Regression of Atherosclerosis in Monkeys: Implications for Human Atherogenesis (4 Jan., STF).**
Arranged by M. René Malinow (Oregon Regional Primate Research Center, Beaverton).
- **The Measurement of Hypnotic Responsiveness: Its Relevance for Psychological Research and for Clinical Practice (5 Jan., STF).**
Arranged by Marion Kenn (Society for Clinical and Experimental Hypnosis, Liverpool, N.Y.) and Ernest R. Hilgard (Stanford University).
- **Self-regulation of Physiological Response Systems Through Biofeedback: Basic Research and Clinical Applications (5 Jan., STF).**
Arranged by Edward Taub (Institute for Behavioral Research, Silver Spring, Md.).

- **Psychoanalytic Self-psychology: A New Bridge to the Other Behavioral Sciences (6 Jan., STF).**
Arranged by Louis A. Gottschalk (University of California, Irvine).
- **Psychotherapy: From Practice to Research to Policy (6 Jan., STF).**
Arranged by Gary R. VandenBos (American Psychological Association, Washington, D.C.).
- **Immune Regulation and Oral Disease (7 Jan., STF).**
Arranged by George R. Riviere (University of California, Los Angeles).
- **Behavioral Medicine: The Biopsychosocial Interface (7 Jan., STF).**
Arranged by Ronald W. Manderscheid (National Institute of Mental Health, Adelphi, Md.) and J. John Cohen (University of Colorado Medical Center, Denver).
- **Vistas in Congenital Craniofacial Biology (7 Jan., STF).**
Arranged by Harold C. Slavkin and Michael Melnick (University of Southern California).
- **Recent Advances in Embryology: Impact for Human Affairs (8 Jan., STF).**
Arranged by Arnold I. Caplan (Case Western Reserve University) and Roger A. Pedersen (University of California, San Francisco).

12. Public Health and Health Care

- **The International Year of the Child (4 Jan., SFH).**
Arranged by Lewis P. Lipsitt (Brown University) and Tamah L. Sadick (Women and Infants Hospital of Rhode Island, Providence).
- **Measuring Impact on Health Status: An Examination of Issues and Problems (5 Jan., SFH).**
Arranged by Martin K. Chen (National Center for Health Services Research, Hyattsville, Md.) and Grace L. Yang (University of Maryland, College Park).
- **Setting Health Policies for the 1980's (5 Jan., SFH).**
Arranged by Leah M. Lowenstein (Boston University School of Medicine).
- **Ethical Issues in Human Reproduction Technologies: Analysis by Women (6 Jan., SFH).**
Arranged by Helen B. Holmes (Federation of Organizations for Professional Women, Amherst, Mass.) and Janice G. Raymond (Hampshire College and University of Massachusetts at Amherst).
- **Physiological Consideration in Radiation Biology (6 Jan., SFH).**
Arranged by Fred W. Hetzel (Henry Ford Hospital, Detroit, Mich.).
- **Microwaves in Biology and Medicine (7 Jan., SFH).**
Arranged by Don R. Justesen (V.A. Medical Center, Kansas City, Mo.).
- **Ethno-Epidemiology: The Marshall Islanders Twenty-five Years After Exposure to Radiation (7 Jan., SFH).**
Arranged by Glenn H. Alcalay (Rutgers University).

- **The Theory and Practice of Preventive Dentistry (8 Jan., STF).**
Arranged by Samuel J. Wycoff (University of California, San Francisco).

13. Economic and Political Science

- **The Long-Term Roots of Short-Term Decision-Making (4 Jan., SFH).**
Arranged by Charles J. Ryan (Stanford University).
- **Outlook for Large-Scale Energy Models (4 and 5 Jan., SFH).**
Arranged by Robert M. Thrall (Rice University), Russell G. Thompson (University of Houston), and Milton L. Holloway (Texas Energy Advisory Council, Austin)
- **Ending the Nuclear Arms Race (5 Jan., SFH).**
Arranged by Joseph Weizenbaum, Jonathan King, and Philip Morrison (Massachusetts Institute of Technology), and Everett Mendelsohn (Harvard University).
- **Agrarian Systems and the Politics of Land Use (6 Jan., SFH).**
Arranged by Paul R. Brass (University of Washington) and Robert S. Anderson (Simon Fraser University, Burnaby, British Columbia).
- **The Interplay of Science, Technology, and Values in Agricultural Transfers (6 Jan., SFH).**
Arranged by Edwin Levy (University of British Columbia) and Robert S. Anderson.
- **Alternate Paths to Agrarian Change and the Responsibility of Research Institutions (7 Jan., SFH).**
Arranged by Barrie M. Morrison (University of British Columbia) and Robert S. Anderson.
- **Inflation—Passion, Economics, and Statistics (7 Jan., SFH).**
Arranged by William A. Gale (Bell Laboratories, Murray Hill, N.J.).
- **The Contemporary Renaissance of Graphics in Statistics and the Social Sciences (8 Jan., SFH).**
Arranged by Albert D. Biderman and Howard Wainer (Bureau of Social Science Research, Inc., Washington, D.C.).

14. Sociology and Anthropology

- **New Approaches to Explaining Cultural Complexity (4 Jan., SFH).**
Arranged by Robert C. Dunnell and Robert J. Wenke (University of Washington).
- **The Interplay of Basic Research and Applied Projects in Anthropology (4 Jan., SFH).**
Arranged by David G. Mandelbaum (University of California, Berkeley) and Priscilla Reining (American Association for the Advancement of Science).
- **Violence in American Society: Prevalence, Prediction, and Control (5 Jan., SFH).**
Arranged by Edith E. Flynn (Northeastern University, Boston, Mass.).
- **The Anthropology of Medicine: From Culture Toward Method (5 Jan., SFH).**

Arranged by Lola Romanucci-Ross (University of California, San Diego).

- **Traditional Medicine and Science: Antagonism or Cooperation? (5 Jan., SFH).**
Arranged by Diana Ida Martinez (Michigan State University) and Bernardo Ortiz de Montellano (Wayne State University).
- **The 1980 Census: Plans, Procedures, Uses, and Evaluation (6 Jan., SFH).**
Arranged by Paul C. Glick (U.S. Bureau of the Census).
- **California as an Advanced Technological Society: Interpretations from the Social Sciences and Humanities (7 Jan., SFH).**
Arranged by Todd La Porte and Eugene Lee (University of California, Berkeley).
- **The Regulation of Environmental Resources in Food-Collecting Societies: Cognitive, Ecological, and Political-Legal Perspectives on Australia and North America (8 Jan., SFH).**
Arranged by Nancy M. Williams and Eugene S. Hunn (University of Washington).

15. Technology and Development

- **Internal and External Constraints on Technological Choice in Developing Countries (4 Jan., SFH).**
Arranged by Barbara G. Lucas (National Science Foundation), S. M. Freedman (Loyola University), and Dilmus James (University of Texas, El Paso).
- **The Influence of Bureaucratic Organization on Development Policy (5 Jan., SFH).**
Arranged by Barbara Lenkerd (Harvard Project on Technology, Work, and Character).
- **Technology, Ideology, and Religion in the Third World (5 Jan., SFH).**
Arranged by Ali A. Mazrui and Niara Sudarkasa (University of Michigan, Ann Arbor).
- **Environmental Problems of Development in Latin America (6 Jan., SFH).**
Arranged by Juan Valera-Lema (Office of Environmental Resource Management, City of Austin, Texas).
- **Assessing the U.N. Conference on Science and Technology for Development (7 Jan., SFH).**
Arranged by R. S. Ganapathy (University of Michigan, Ann Arbor), Victor Rabinowitch (National Academy of Sciences), and Jurg Mahner (United Nations, New York, N.Y.).
- **Technology, International Economics, and Public Policy (8 Jan., SFH).**
Arranged by Hugh H. Miller (National Academy of Engineering) and Rolf Piekarz (National Science Foundation).

16. Information, Technology, and Society

- **Machine Intelligence and Perception: The Past, Present, and Future (4 Jan., SFH).**
Arranged by Judith M. S. Prewitt (National Institutes of

Health, Bethesda, Md.) and Eamon Barrett (National Science Foundation).

- **Can Software Replace Technical Know-how? (5 Jan., SFH).**
Arranged by John R. Rice (Purdue University).
- **Information Communication in the 80's and Beyond (5 Jan., SFH).**
Arranged by Jack Belzer (University of Pittsburgh).
- **Secure Communications and Asymmetric Cryptosystems (5 Jan., SFH).**
Arranged by Gustavus J. Simmons (Sandia Laboratories, Albuquerque, N.M.).
- **Integrated Impact Assessment: State of the Art and Future Prospects (6 Jan., SFH).**
Arranged by Frederick A. Rossini and Alan L. Porter (Georgia Institute of Technology), and C. P. Wolf (City University of New York).
- **Risk in the Technological Society (7 Jan., SFH).**
Arranged by Joseph F. Coates (Office of Technology Assessment, U.S. Congress).
- **Computers and Telecommunications: Impacts on Science and Society (8 Jan., SFH).**
Arranged by Starr Roxanne Hiltz (Uppsala College) and Murray Turoff (New Jersey Institute of Technology).

17. History and Philosophy of Science

- **The Natural History and Evolution of Pseudosciences (4 Jan., SFH).**
Arranged by Rolf M. Sinclair (National Science Foundation).
- **Is Ethics a Science? (4 Jan., SFH).**
Arranged by Carl Wellman (Washington University) and Elizabeth Flower (University of Pennsylvania).
- **Political Economy of Science: Modes of Social Assessment (5 Jan., SFH).**
Arranged by Daryl E. Chubin (Georgia Institute of Technology).
- **The Evolutionary Vision: Is There a Pattern Connecting Physical, Biological, and Sociocultural Evolution? (5 Jan., SFH).**
Arranged by Erich Jantsch (University of California, Berkeley).
- **Technology: The Laws of Nature and the Needs of Man (6 Jan., SFH).**
Arranged by Neal FitzSimons (Engineering Counsel, Kensington, Md.) and Paul T. Durbin (University of Delaware).
- **The Ecological Perspective in the Social Sciences: An Emerging Paradigm (7 Jan., SFH).**
Arranged by Riley E. Dunlap (Washington State University).
- **History as a Source of Alternative Technologies (7 Jan., SFH).**
Arranged by Carroll W. Pursell, Jr. (University of California, Santa Barbara).

- **History of Radio Astronomy (8 Jan., SFH).**
Arranged by Woodruff T. Sullivan, III (University of Washington).
- **Systems Science and Science (8 Jan., SFH).**
Arranged by George J. Klir (State University of New York, Binghamton).
- **Issues in Agriculture: Historians' Perspectives (8 Jan., SFH).**
Arranged by G. Terry Sharrer (Smithsonian Institution).

18. Education

- **Recent Developments in Research on Stuttering (4 Jan., SFH).**
Arranged by Christy L. Ludlow (National Institute of Neurological and Communicative Disorders and Stroke, Bethesda, Md.).
- **Frontiers of Research on Theory and Practice in Education (4 Jan., STF).**
Arranged by Joseph D. Novak (Cornell University), Fletcher Watson (New York University), and Ruth B. Pitt (University of Minnesota).
- **Social Science Education: A Problem of Intellectual Abandonment (5 Jan., STF).**
Arranged by Lawrence Senesh (University of Colorado).
- **Liberal Education and the Natural Sciences (5 Jan., STF).**
Arranged by James H. Werntz and Ruth B. Pitt (University of Minnesota).
- **Precollege Science Education—Status, Needs, and Policy Implications (6 Jan., STF).**
Arranged by Norris Harms (University of Colorado).
- **Policy Implications of a National Needs Assessment in Precollege Science, Mathematics, and Social Science Education (6 Jan., STF).**
Arranged by Alphonse Buccino (National Science Foundation).
- **Selected Issues in Education—New Insights from the Longitudinal Postsecondary Study (7 Jan., SFH).**
Arranged by Ezra Glaser (Falls Church, Va.).
- **Science Learning Outside the Classroom (7 Jan., SFH).**
Arranged by Michael Templeton (Association of Science-Technology Centers, Washington, D.C.), Robert J. Semper (The Exploratorium, San Francisco, Calif.), and Joseph Lipson (National Science Foundation).

19. Opportunities and Responsibility in Science

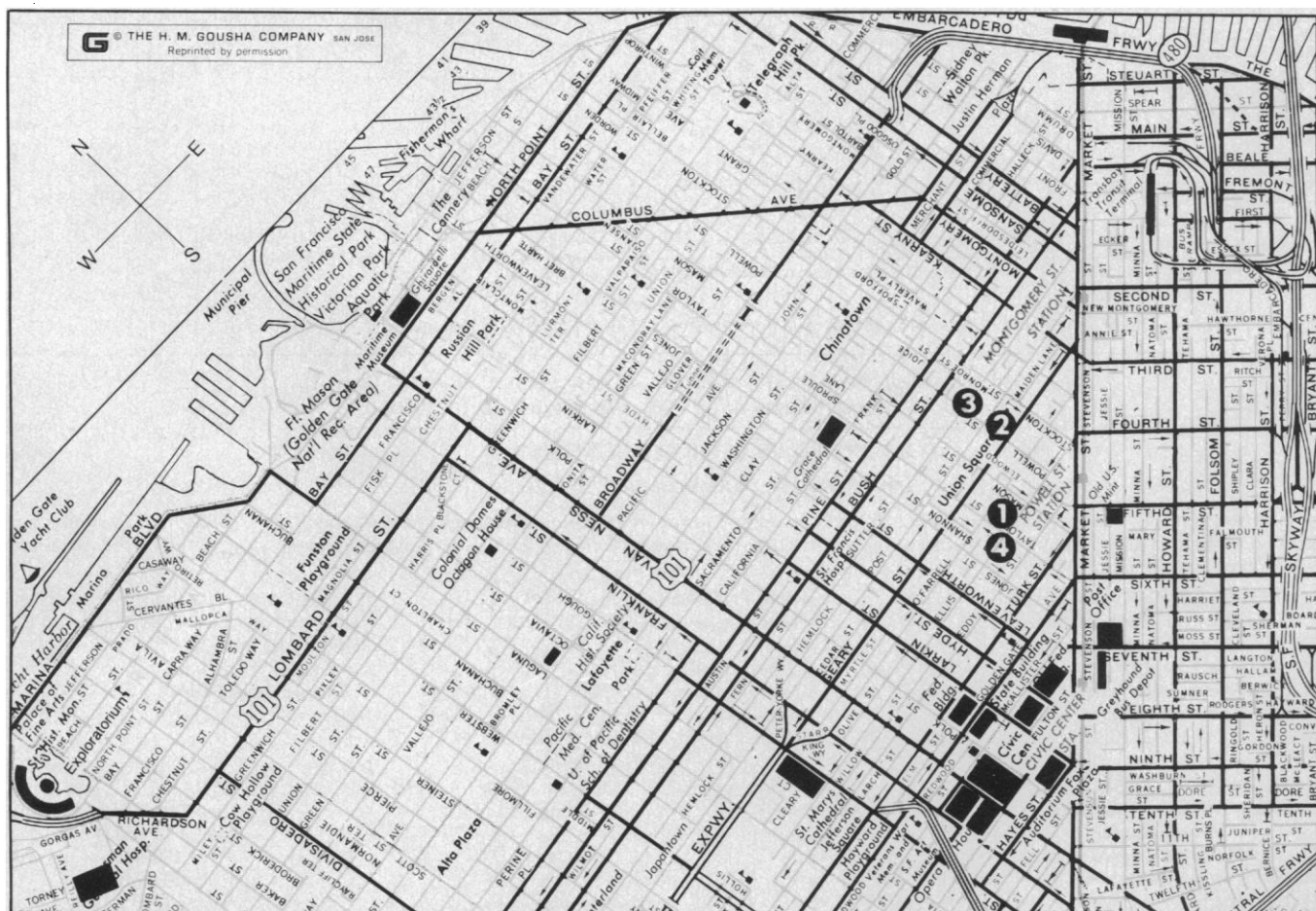
- **Scientists as Whistle-Blowers: Eight Years of Experience Since the BART Engineers (4 Jan., SFH).**
Arranged by Rosemary A. Chalk (American Association for the Advancement of Science) and William A. Thomas (American Bar Foundation, Chicago, Ill.).
- **What Special Rights and Responsibilities Do Scientists and Engineers Have? (4 Jan., SFH).**
Arranged by Joel Primack (University of California, Santa Cruz) and Robert Baum (Rensselaer Polytechnic Institute).

- **Effective Strategies for Promoting Participation of Women and Minorities in Science (6 Jan., SFH).**
Arranged by Sheila M. Humphreys (University of California, Berkeley).
- **The Handicapped in Science (7 Jan., SFH).**
Arranged by Nansie S. Sharpless (Albert Einstein College of Medicine), Stuart M. Hirsch (New York University Dental Center), and Herbert D. Thier (University of California, Berkeley).
- **Employment and Advancement Opportunities for Recent Doctorates in Science and Engineering (8 Jan., SFH).**
Arranged by Betty M. Vetter and Eleanor L. Babco (Scientific Manpower Commission, Washington, D.C.).

20. Science, Government, and Research

- **Science Advice and Federal Policy (4 and 5 Jan., SFH).**
Arranged by Joseph F. Coates (Office of Technology Assessment, U.S. Congress), Joe V. Martinez (U.S. Department of Energy), and James E. Katz (Kennedy School of Government, Harvard University).
- **Government/Industry/University Relations: The Influence of Federal Policies on R&D (5 Jan., SFH).**
Arranged by Mary R. Hamilton and Osmund T. Fundingsland (U.S. General Accounting Office).

- **Intergovernmental Science Communication and Cooperation (5 Jan., SFH).**
Arranged by Phyllis Kahn (Minnesota House of Representatives) and Harry Stevens (Participation Systems, Inc., Winchester, Mass.).
- **Research in the Age of the Steady-State University (6 Jan., SFH).**
Arranged by Don I. Phillips (American Association for the Advancement of Science) and Benjamin S. P. Shen (University of Pennsylvania).
- **Federal Funding Philosophies, Policies, and Procedures: Impact on Research in the Food and Agricultural Sciences (7 Jan., SFH).**
Arranged by Mark T. Buchanan (Western Association of Agricultural Experiment Station Directors, Washington, D.C.).
- **Legal Aspects in the Administration of Scholarly Nonprofit Organizations (8 Jan., SFH).**
Arranged by James R. Batt (Wisconsin Academy of Sciences, Arts, and Letters).
- **How Much Does the Defense Department Advance Science? (8 Jan., SFH).**
Arranged by David Triantos (Naval Research Laboratory, Washington, D.C.).



Locations on this map are (1) San Francisco Hilton, (2) St. Francis, (3) Sir Francis Drake, (4) Airport Bus Terminal.



Annual Meeting
San Francisco
3-8 January 1980

ADVANCE REGISTRATION FORM
(A)

- Please check appropriate boxes, complete remainder of form (type or print), and **enclose payment**.
- Preconvention Program, badge, and voucher for full Program and Abstracts will be mailed to registrants in early December.
- Full Program and Abstract Volume will be held at *Advance Registrants' Desk* at the San Francisco Hilton.
- **Registrations received after 14 December will be held at the AAAS Information Booth at the San Francisco Hilton.**
- Special one-day attendance registration will be available at on-site Registration Desk only.

Registration Category	Regular		Student† or Retired	
	Single	Double*	Single	Double*
<input type="checkbox"/> AAAS Member	<input type="checkbox"/> \$27	<input type="checkbox"/> \$40	<input type="checkbox"/> \$14	<input type="checkbox"/> \$21
<input type="checkbox"/> Non-Member:				
<input type="checkbox"/> Meeting registration only	<input type="checkbox"/> \$34	<input type="checkbox"/> \$47	<input type="checkbox"/> \$17	<input type="checkbox"/> \$24
<input type="checkbox"/> Register and join: Single membership**	<input type="checkbox"/> \$61	<input type="checkbox"/> \$74	<input type="checkbox"/> \$37†	<input type="checkbox"/> \$44†
<input type="checkbox"/> Register and join: Double membership		<input type="checkbox"/> \$86*		<input type="checkbox"/> \$56†*

†Full-time undergraduate or graduate students only.

*Registrant and spouse (if newly joined, membership includes single subscription to *Science*, 52 issues per year).

**Specify name of new member _____

NOTE: 1979 Membership Dues: Regular Member, \$34; Student or Emeritus, \$23; Spouse (or Emeritus without *Science*), \$12. (These are domestic membership rates; inquire for Canadian and other foreign rates.)

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), badges(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, and/or Phone No.)
Check days attending: Thu ☐ Fri ☐ Sat ☐ Sun ☐ Mon ☐ Tue ☐

☐ 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, San Francisco, 3-8 January 1980

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).

Principal Professional Interest			Principal Professional Activity			Institutional Affiliation Type		
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)		
Highest Educational Level			Age			Number of Past AAAS Meetings Attended		
41 <input type="checkbox"/> Doctoral Degree		51 <input type="checkbox"/> Under 26 years				61 <input type="checkbox"/> None		Distance Traveled to Meeting
42 <input type="checkbox"/> Master's Degree		52 <input type="checkbox"/> 26 to 35 years				62 <input type="checkbox"/> One		71 <input type="checkbox"/> Under 51 miles
43 <input type="checkbox"/> Other professional		53 <input type="checkbox"/> 36 to 45 years				63 <input type="checkbox"/> Two		72 <input type="checkbox"/> 51 to 150 miles
44 <input type="checkbox"/> Bachelor's Degree		54 <input type="checkbox"/> 46 to 55 years				64 <input type="checkbox"/> Three		73 <input type="checkbox"/> 151 to 400 miles
45 <input type="checkbox"/> (other)		55 <input type="checkbox"/> 56 to 65 years				65 <input type="checkbox"/> Four		74 <input type="checkbox"/> 401 to 1000 miles
		56 <input type="checkbox"/> Over 65 years				66 <input type="checkbox"/> Five or more		75 <input type="checkbox"/> 1001 to 3000 miles
								76 <input type="checkbox"/> Over 3000 miles

ROOM RATES* AND HOUSING FORM

Reservations received after 13 December cannot be assured.
The Housing Bureau will not accept any reservations by telephone.

Annual Meeting San Francisco

3-8 January 1980



Hotels		Single	Double & Twin	Parlor + 1 Bedrm.	Parlor + 2 Bedrms.	Parking**
SAN FRANCISCO HILTON <i>Headquarters Hotel</i> Mason & O'Farrell Streets (No. of rooms held: 1100)	<i>Main</i>	\$38	\$53	\$161	\$260	Main Bldg., 5th-11th Floor only: Free parking next to your room (subj. to availability).
	<i>Bldg.</i>	42	57	and up	and up	
		46	61			
	<i>Tower</i>	\$58	\$73	\$174	\$287	Valet parking @ \$6.75 per day for reg. and non-reg. guests with in-and-out privileges.
		62	77	and up	and up	
HOTEL ST. FRANCIS Union Square (No. of rooms held: 600)	<i>Main</i>	\$38	\$53	\$110	\$171	\$7.00 per day valet parking with in-and-out privileges for registered guests only
	<i>Bldg.</i>	42	57	and up	and up	
		46	61			
	<i>Tower</i>	\$62	\$77	\$180	—	
				and up	and up	
SIR FRANCIS DRAKE Powell & Sutter Streets (No. of rooms held: 200)		\$36	\$51			\$6.75 per day limited parking with in-and-out privileges for registered guests only
		40	55	\$165	\$205	
		44	59			

*Room rates per day; add 8% San Francisco room tax. Extra person in a room: Hilton and St. Francis, \$15; Sir Francis Drake, \$12.

**Parking rates subject to change. Persons not registered in these hotels may park at same rates, but do not have in-and-out privileges. Commercial parking is also available in garages located on Mason & O'Farrell across from the Hilton, beneath Union Square, and on Sutter & Stockton.

NOTE: If room rate specified is not available, the next available higher rate will be assigned. Confirmation will come to you from the Housing Bureau, which must be notified of any room cancellation up to 18 December 1979. All other changes, and all cancellations after 18 December, must be made directly with the hotel.

Please type or print!

AAAS HOUSING FORM

Please type or print!

CHOICE OF HOTEL: First _____ Second _____ Third _____

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

Please indicate any special housing needs due to a handicap: _____

ARRIVAL DATE: _____ TIME: _____ ☐ a.m. ☐ p.m.

DEPARTURE DATE: _____ TIME: _____ ☐ a.m. ☐ p.m.

Be sure to list definite arrival and departure date and time. Reservations will be held only until 6 p.m. unless accompanied by 1 night's deposit.)

NAMES AND ADDRESSES OF ALL OCCUPANTS OF ROOM

Name _____

Name _____

Street _____

Street _____

City _____ State _____ Zip _____

City _____ State _____ Zip _____

Name _____

Name _____

Street _____

Street _____

City _____ State _____ Zip _____

City _____ State _____ Zip _____

If more than one occupant per room,
confirmation to be sent to (state name): _____

Mail to: AAAS Housing Bureau
1390 Market Street, Suite 260, San Francisco, CA 94102

Meeting Information

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

San Francisco Hilton (SFH): Symposia and public lectures; contributed papers (poster sessions only); business meetings; social functions; advance and on-site registration desks; welcome center (hospitality); resource center for disabled attendants; headquarters office; newsroom; employment information center; SCIENCE INTERNATIONAL (exhibits).

St. Francis (STF): Symposia; business meetings; social functions; AAAS office; *Science Film Festival*.

Sir Francis Drake: Housing only.

Since the hotels are located within easy walking distance of each other, there will be only one Meeting registration area located in the East Lounge of the San Francisco Hilton. For precise hotel locations, see map on page 1249.

Meeting Registration

Registration categories and fees are listed on the advance registration form (page 1250). The fee includes the full program book and the abstract volume.

Advance registrants, please note: We will *not* mail the full program prior to the Meeting. Instead, we will send you in early December an expanded preconvention program, your badge, registration receipt, and a voucher redeemable on site for the program book, condensed program (foldout), abstract volume and, as a bonus for early registration, your free copy of the 1980 AAAS Calendar. Present your voucher at the advance registrants' desk in the San Francisco Hilton.

Advance and on-site registration desks will be located in the East Lounge at the San Francisco Hilton. (There will be no registration area in the St. Francis.) Registration hours are as follows:

Thursday, 3 January 2:00 p.m. to 6:00 p.m.
Friday through Monday,
4-7 January 8:00 a.m. to 6:00 p.m.
Tuesday, 8 January 8:00 a.m. to 12 noon

Registration Refunds

The AAAS will refund advance registration fees for all cancellations received by letter or telegram prior to 27 December 1979. NO REFUNDS WILL BE MADE ON CANCELLATION NOTICES RECEIVED AFTER THIS DATE. Refunds will be mailed from the AAAS Offices in Washington after 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 three San Francisco hotels used for housing and meetings have set aside—at guaranteed reduced rates—blocks of guest rooms for the attendants of the Annual Meeting. **These rates are guaranteed only when reservations are made through the AAAS Housing Bureau on the official housing form prior to 13 December 1979.** Room assignments will be delayed if any information is omitted from the forms.

Hotel rooms are assigned on a first-come, first-served basis. If the room rate you requested is no longer available, the next available highest rate will be assigned. If the first choice hotel cannot accommodate you, the Housing Bureau will assign the second choice you requested. Confirmation will come to you from the Housing Bureau,

which must be notified *in writing* of any room cancellations up to 18 December 1979. All other changes, and all cancellations after 18 December, must be made directly with the hotel.

Do not be a "no-show." If you have made a hotel reservation and find that you cannot attend the meeting, write to the Housing Bureau (or call the hotel) to cancel.

On request, the hotels will accommodate additional persons in guestrooms (for example, three in a double room) at the following extra cost: San Francisco Hilton and St. Francis, \$15; Sir Francis Drake, \$12. Children are accommodated free of charge in same room with parents; age limits are as follows: San Francisco Hilton, 18 and under; St. Francis, 17 and under; Sir Francis Drake, 12 and under.

Airport-to-Hotel Transportation

Buses operate between the San Francisco International Airport and the downtown bus terminal (located on Taylor and Ellis Streets diagonally across from the Hilton) at frequent intervals; the fare is \$1.75 and travel time is about 1/2 hour. Service is also available between the Oakland Airport and the same terminal. The taxi fare between San Francisco International Airport and the hotels is approximately \$14 and subject to change.

Resources for Disabled Attendants

The AAAS, in cooperation with the San Francisco 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.
- Assistance in movement within and between meeting hotels as needed.
- Transportation service to and from airports and train and bus stations, as needed.
- Interpreters for the hearing-impaired at all public lectures and for other sessions on request.
- Emergency repair service for wheelchairs.
- Special tour and sight-seeing information for disabled persons.
- Audiotaped highlights of the meeting program for persons with visual impairments.

Persons needing special hotel accommodations, interpreting services, and other assistance are strongly urged to so indicate on the advance registration and housing forms. Your early response will help us to plan and serve you better. Of the three participating hotels, one—the Sir Francis Drake—is not wheelchair-accessible. For additional information, contact Virginia Stern, AAAS Project on the Handicapped in Science, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036 (phone: 202/467-4496).

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. **Hours:** 4-6 January, 10 a.m. to 5 p.m.; 7 January, 10 a.m. to 3 p.m.

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 **Bristol Agency (Phone: 415/776-9100)**. The agency is open daily from 8:30 a.m. to 8:30 p.m.; 24-hour notice is requested. All sitters are bonded and over 20 years of age. **Rates:** Day and evening, \$2.50 per hour (4-hour minimum) plus 50 cents for sitter's public transportation cost; after midnight, \$3.00 per hour (4-hour minimum) plus \$3.00 if the sitter has car, or \$3.75 if sitter uses public transportation.