The Scientific Climate in San Francisco

Hans Mark

San Francisco is world renowned as a cosmopolitan and intellectually stimulating metropolis. This is remarkable indeed for a city that is barely 125 years old. Strange as it seems, San Francisco Bay was missed by all of the early explorers of the western coast of the continent of North America. The Bay was actually discovered by a Spanish scouting party traveling north by land from San Diego during the summer of 1769.

The first ship to explore the Bay, the *San Carlos*, passed through the Golden Gate in 1775. Early the following year Captain Juan Batista De-Anza selected the site for a permanent colony. The Presidio of San Francisco was established on 17 September 1776, and the Mission San Francisco de Asis, from which the city takes its name, was founded 9 October 1776. The mission is now named the Mission Dolores and the city was renamed San Francisco on 30 January 1847, 3 years before it was formally incorporated in 1850.

In this remarkably short period of time, San Francisco and the surrounding Bay Area have developed into a major world cultural center. Since science and technology are both important factors in our culture, it is not surprising that San Francisco also has taken its place as one of the world's major scientific centers. What is remarkable is that many of the people participating in the San Francisco meeting of the American Association for the Advancement of Science (AAAS) are either themselves the scientific pioneers of the San Francisco Bay Area or worked closely with people who were. It is this fact that has, at least to me, made scientific work in this region of the country so exciting.

Hans Mark is director of the Ames Research Center, National Aeronautics and Space Administration, Mountain View, California.

Not surprisingly, the scientific growth of the San Francisco Bay Area centered around the two major educational institutions located here, the University of California in Berkeley and Stanford University in Palo Alto.

The University of California in Berkeley has a long and honored scientific tradition. In the period prior to World War I, the astronomer William Wallace Campbell was probably the most important scientific figure at the university. Campbell served as director of the Lick Observatory starting in 1901 and became president of the University of California from 1923 to 1930. His influence was crucial in shaping the university's scientific life. He was also president of AAAS in 1915, at which time the Association had its first, and only, San Francisco annual meeting.

In the period immediately following World War I, Gilbert Newton Lewis, professor of chemistry at Berkeley, dominated the intellectual scene in science at the university. Following Campbell and Lewis in the 1930's was the towering figure of Ernest Orlando Lawrence. Lawrence was not only a scientist and an inventor of great genius, he was also a builder of human institutions. He founded the great laboratory in Berkeley that today bears his name, as well as the laboratory in Livermore, 40 miles to the east of Berkeley, which has made vital contributions to our national security. Lawrence's invention of the cyclotron in the early 1930's brought the first Nobel Prize in science to the Bay Area. The galaxy of Nobel laureates that currently reside in Berkeley is a living tribute to Lawrence's pioneering leadership.

The period following World War II has been equally exciting in the university's intellectual growth. Many new laboratories and many new disciplines have been established and developed on the Berkeley campus in the last 30 years.

At Stanford University, the development of science and technology took a somewhat different form. Perhaps the first important personality in science and technology at Stanford was the remarkable William F. Durand, who came to Stanford in 1904 at the age of 45 after an already distinguished career in marine engineering at Cornell University and in the U.S. Navy. During his years at Stanford, Durand made important contributions in a field new to him, that of aeronautical technology, and became a very influential figure in the organization of American science and technology. The tradition of applied science, in part established by Durand at Stanford, flourished under the leadership of such personalities as W. W. Hansen, the Varian brothers, and Frederick E. Terman. The technology centered around electrical engineering and electronics. A vast industrial complex that was developed in this field on the San Francisco peninsula is a direct result of the work initiated at Stanford.

The Stanford Linear Accelerator, one of the U.S. Atomic Energy Commission's primary research facilities, was located at Stanford because of the pioneering work done there in high powered microwave electronics. The institution that is now NASA's Ames Research Center was located at Moffett Field because of the proximity of a large university. Indeed, the National Advisory Committee for Aeronautics, in reaching the decision to locate the laboratory in 1940, stipulated that the laboratory must be in the neighborhood of a major university. And it was none other than Durand, then 80 years of age, who made the dedication speech at the center's inaugural ceremony.

Since World War II, numerous advanced technology corporations have been founded in the industrial park adjacent to Stanford University. Starting with the Hewlett-Packard Company and Varian Associates, other organizations such as Watkins-Johnson, Syntex, and the Xerox Corporation's Palo Alto Research Center have located there. That this trend is still continuing is illustrated by the recent decision of the newly formed Electric Power Research Institute to locate in the Stanford Industrial Park near Palo Alto.

Even with the limited sample I have chosen to describe here, it is obvious that both the University of California

(Berkeley) and Stanford University have had an enormous influence on the scientific growth of the Bay Area. In recent years, there has been great cultural growth and ferment here. Other educational institutions, specifically the state universities in San Francisco, San Jose, and Hayward, as well as the University of Santa Clara and the University of San Francisco, are developing an intellectual character of their own which has and will continue to enhance the cultural climate of the region. In addition, I should mention the University of California's great medical school in San Francisco which has been at the forefront of many pioneering efforts in the fields of medical research, medical care, and human welfare.

It is remarkable indeed that all of these great institutions have come into existence in less than a century. I think that is perhaps the best evidence of the very favorable intellectual climate for scientific and cultural activity that exists in this area. That the creation of this climate was uppermost in the minds of the Bay Area's scientific pioneers is best illustrated by a statement made by Durand in an address to a meeting of the American Association for the Advancement of Science held in the summer of 1926 at Mills College in Oakland. Durand said: "If then, we ask of the relation between science and civilization, the question answers itself. If civilization is a result of our gradually improving utilization of nature's products and energies through a more and more effective partnership with her, and if science is the organized body of our understandings and agreements with nature, the two are seen as inseparable parts of one whole. There could be no civilization without science and, given a body of science with rational beings, a civilization must result."

Science: Challenges of Today —Outlook for the Future is the theme of the AAAS Annual Meeting, to be held in San Francisco, 24 February to 1 March 1974. The following pages indicate the tentative program. Additional information will appear in subsequent issues of *Science.*

AAAS Annual Meeting — San Francisco

24 February–1 March 1974

PRELIMINARY PROGRAM

Co-Chairmen:
William R. Hewlett
(President and Chief Executive Officer, Hewlett-Packard Company)
and
Glenn T. Seaborg
(University Professor of Chemistry, University of California; Associate Director, Lawrence Berkeley Laboratory)

HOTELS: San Francisco Hilton ..... SFH
St. Francis ..... St.F.
Sheraton-Palace ..... SP

AAAS INVITED LECTURES

- National Geographic Society Lecture (24 Feb., SFH).
  Richard E. Leakey (Administrative Director, National Museums of Kenya, Nairobi).
  Earliest Man: A New Perspective from Kenya.

- Co-Chairmen's Lecture (25 Feb., SFH).
  Speaker and topic to be announced.

- Illustrated Lecture I (25 Feb., SFH).
  Jerome Weingart (Environmental Quality Laboratory, California Institute of Technology).
  Imitating the Sun.

- Invited Lecture I (26 Feb., SFH).
  Ray Bradbury (Author, Los Angeles).
  Ray Bradbury on Science; or, What It's All About.

- Illustrated Lecture II (26 Feb., SFH).
  Roger Shephard (Professor of Psychology, Stanford University).
  Adventure in Perceptual Experience.

- Invited Lecture II (27 Feb., SFH).
  H. Guyford Stever (Director, National Science Foundation).
  Topic to be announced.

- Address of the Retiring AAAS President (27 Feb., SFH).
  Leonard M. Rieser (Dean of Faculty, Dartmouth College).
  Topic to be announced.

- W. O. Atwater Memorial Lecture (28 Feb., SFH).
  Speaker and topic to be announced.

- Phi Beta Kappa Lecture (28 Feb., SFH).
  Joshua Lederberg (Professor of Genetics, Stanford University).
  Do Scientists Understand Science?

- Invited Lecture III (1 Mar., SFH).
  Marina Whitman (Distinguished Public Service Professor [Economics], University of Pittsburgh).
  Topic to be announced.

THE MATHEMATICAL AND PHYSICAL UNIVERSE

- World-Views in Collision: Velikovsky's Description of Our Planetary System (25 Feb., St.F.).
  Arranged by Owen Gingerich (Harvard University), Donald Goldsmith (State University of New York, Stony Brook), and Ivan King (University of California, Berkeley).

- Some Mathematical Questions in Biology (25–26 Feb., St.F.).
  Arranged by Simon A. Levin (Cornell University).

- Category Theory Applied to Computation and Control (25–26 Feb., St.F.).
  Arranged by E. G. Manes (University of Massachusetts, Amherst).

- Particle Physics (25 Feb., St.F.).
  Arranged by Edward J. Lofgren (Lawrence Berkeley Laboratory) and Eugene D. Commins (University of California).

- Cosmic Evolution (26 Feb., St.F.).
  Arranged by George B. Field (Harvard College Observatory).

- Science for the Naked Eye; or, The Physics of Everyday Experience (26 Feb., St.F.).
  Arranged by Rolf M. Sinclair (National Science Foundation).

- New Applications of Mathematics to the Behavioral Sciences (26 Feb., St.F.).
  Arranged by Paul J. Knopp (University of Houston).

- Search for Extraterrestrial Life (26 Feb., St.F.).
  Arranged by H. P. Klein and K. A. Kvenvolden (NASA-Ames Research Center).

- Recent Developments in Atomic Physics (26 Feb., St.F.).
  Arranged by Hans Mark (NASA-Ames Research Center).

- Fusion Power (27 Feb., SFH).
  Arranged by Rolf M. Sinclair (National Science Foundation).

- The Emerging Portrait of the Planets (27 Feb., St.F.).
  Arranged by Carl Sagan (Cornell University) and S. I. Rasool (NASA Headquarters, Washington, D.C.).

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- The Superheavy Elements (28 Feb., St.F.).
  Arranged by Glenn T. Seaborg (Lawrence Berkeley Laboratory).

- Neutron Stars and Black Holes in the Universe (28 Feb., St.F.).
  Arranged by Remo Ruffini (Princeton University) and Herbert Gursky (Smithsonian Institution, Cambridge, Mass.).

- Recent Progress in Foundations of Mathematics (1 Mar., St.F.).
  Arranged by Lipman Bers and Ernest Nagel (Columbia University).

LIVING WORLD

- The Food Supply and the Organic Food Myth (25 Feb., SP).
  Arranged by Thomas H. Jukes (University of California, Berkeley).

- Liquid Crystals and Living Systems (25 Feb., SFH).
  Arranged by Glenn H. Brown (Kent State University).

- Annual Biological Clocks (25 Feb., St.F.).
  Arranged by Eric T. Pengelley (University of California, Riverside).

- Pest Management, Predators, and People (25 Feb., SP).
  Arranged by Thaddis W. Box (Utah State University).

- The Species Problem in the Light of Modern Research (25 Feb., SFH).
  Arranged by Theodosius Dobzhansky (University of California, Davis).

- The Structure and Functioning of Western United States Coniferous Forest Ecosystems (26 Feb., SFH).
  Arranged by Joan M. Hett (Oregon State University).

- The Use of Zoos in Animal Behavior Research (26–27 Feb., St.F.).
  Arranged by Gary Greenberg (Wichita State University).

- Biological Control of Populations (27 Feb., SFH).
  Arranged by R. W. Allard and M. M. Green (University of California, Davis).

- Endangered Species: Causation and Remedies (27–28 Feb., SFH).
  Arranged by Maxine E. McCloskey (Merritt College, Oakland, Calif.).

- Pest Management: An Interdisciplinary Approach to Crop Protection (28 Feb., SP).
  Arranged by J. Lawrence Apple (North Carolina State University) and Ray F. Smith (University of California, Berkeley).

- **Invertebrate Transplantation (28 Feb., St.F.).**
  Arranged by Edwin L. Cooper (University of California, Los Angeles).

- **Energy and Agriculture (28 Feb., SFH).**
  Arranged by Clarence F. Kelly (U.S. Department of Agriculture, Washington, D.C.).

- **New Developments in Brain Function for Speech Perception and Production (28 Feb., SFH).**
  Arranged by Charles I. Berlin (Louisiana State University Medical Center).

- **Galápagos Symposium (1 Mar., St.F.).**
  Arranged by Robert T. Orr (California Academy of Sciences, San Francisco) and Robert I. Bowman (California State University, San Francisco).

HISTORY, PHILOSOPHY, AND SOCIOLOGY OF SCIENCE

- **The Marconi Centenary (25 Feb., SP).**
  Arranged by Wilmot N. Hess (NOAA Environmental Research Laboratories, Boulder, Colo.), Walter Orr Roberts (University Corporation for Atmospheric Research, Boulder, Colo.), and H. W. Leverenz (RCA, New York, N.Y.).

- **The Nation's Heritage: What Should be Saved? (25 Feb., SP).**
  Arranged by Hester A. Davis (University of Arkansas).

- **Systems Thinking and Science Policy: A Critique of Contemporary Science and Science Studies (26 Feb., SP).**
  Arranged by Ian I. Mitroff (University of Pittsburgh).

- **The Role of Controversy in Science (27 Feb., SP).**
  Arranged by William V. Mayer (University of Colorado).

- **Paradigmatology (27 Feb., SP).**
  Arranged by Magoroh Maruyama (Portland State University).

- **The Danger of "Relevance" in Scientific Research (27 Feb., SP).**
  Arranged by Bernard M. Oliver (Hewlett-Packard Company, Palo Alto, Calif.) and Hans Mark (NASA-Ames Research Center).

- **Problem Dimensions of Intercultural Communication (28 Feb., SP).**
  Arranged by Robert S. Goyer (Ohio University).

- **Science and the People's Republic of China (28 Feb., SP).**
  Arranged by Anne Keatley (National Academy of Sciences).

- **The Social Context of Research—The Problem of Forbidden Knowledge (28 Feb.–1 Mar., SP).**
  Arranged by John Bunzel (California State University, San Francisco).

- **The Development of American Science in the Nineteenth and Twentieth Centuries (1 Mar., SP).**
  Arranged by Robert H. Kargon (The Johns Hopkins University).

HEALTH, BEHAVIOR, AND SOCIAL PROCESSES

- **Neurobiological Mechanisms of Adaptation and Behavior (25–26 Feb., SFH).**
  Arranged by Arnold J. Mandell (University of California, San Diego).

- **The Control of Pain (25–26 Feb., SFH).**
  Arranged by Matisyohu Weisenberg (University of Connecticut Health Center).

- **Food Additives: Beneficial or Deleterious? (25 Feb., SP).**
  Arranged by W. Ann Reynolds (University of Illinois) and L. J. Filer (University of Iowa).

- **The Application of Science and Technology to the Problem of Drug Abuse in the United States (25 Feb., SFH).**
  Arranged by Calvin W. Fenton (National Institute for Drug Programs, Washington, D.C.) and T. Bryant (Drug Abuse Council, Washington, D.C.).

- **The Science of Consciousness (26 Feb., SP).**
  Arranged by Robert E. Ornstein and Phillip Lee (University of California Medical Center, San Francisco).

- **Energy and Society (26 Feb., SFH).**
  Arranged by Richard N. Adams (University of Texas, Austin) and Samuel Z. Klausner (University of Pennsylvania).

- **Hospital and Clinical Pharmacy (26 Feb., SFH).**
  Arranged by Joseph A. Oddis (American Society of Hospital Pharmacists, Bethesda, Md.).
  [Also Section S Vice-Presidential Address, and Distinguished Lecture.]

- **The Outlook for Psychiatry, Psychoanalysis, and Mental Health (26 Feb., SP).**
  Arranged by Alfred H. Rifkin (American Academy of Psychoanalysis, New York, N.Y.).

- **Possible Cellular Regulatory Roles for Polyamines (26 Feb., SFH).**
  Arranged by Diane H. Russell (University of Arizona).

- **Systems Approach to Strokes and Heart Disease (27 Feb., SP).**
  Arranged by Harry E. Emlet, Jr. (Analytic Services Inc., Fall Church, Va.) and George K. Chacko (University of California).

- **Recent Scientific Inquiries in Immunobiology (27 Feb., SP).**
  Arranged by R. E. Billingham (University of Texas, Southwestern Medical School, Dallas).

- Two Aspects of Drug Selection: Medical Efficacy and Pharmaceutical Quality (27 Feb., SFH).
  Arranged by Donald E. Francke (*Drug Intelligence and Clinical Pharmacy*, Washington, D.C.) and William M. Heller (U.S. Pharmacopeial Convention, Inc., Rockville, Md.).

- Implications of Recent Studies of Biological Changes in Depression (27 Feb., SFH).
  Arranged by J. Mendels (University of Pennsylvania and Veterans Administration Hospital, Philadelphia).

- Cognitive Views of Human Motivation (27 Feb., SP).
  Arranged by Bernard Weiner (University of California, Los Angeles).

- Biochemical Lesions of Periodontal Diseases (27 Feb., SFH).
  Arranged by Howard M. Myers (University of the Pacific, San Francisco) and I. Zipkin (University of California School of Dentistry, San Francisco).

- The Pharmaceutical Sciences (28 Feb., SFH).
  Arranged by John Autian (University of Tennessee).

- Behavioral Sociobiology (28 Feb., SP).
  Arranged by Martin W. Schein (West Virginia University) and Edwin M. Banks (University of Illinois).

- Biomedical Aspects of Aging (28 Feb.–1 Mar., SFH).
  Arranged by Lester Smith (National Institutes of Health) and F. Douglas Lawrason (Schering-Plough Corp., Bloomfield, N.J.).

- Developmental Psychobiology: The Significance of Infancy (28 Feb., SP).
  Arranged by Lewis P. Lipsitt (Brown University).

- Life's Input-Output: Are Non-Intrusive Multicomponent Low Cost Time-Profiles Needed? (28 Feb., SP).
  Arranged by Norman Milleron (University of California, Berkeley).

- Policies and Procedures in the Use of Grants and Contracts by the NIH in the Support and Conduct of Biomedical Research (1 Mar., SP).
  Arranged by Leon Jacobs (National Institutes of Health).

- Ethics, Moral Values, and Psychological Interventions (1 Mar., SP).
  Arranged by Herman M. Serota (University of Chicago).

TECHNOLOGY

- Applications of Artificial Intelligence Research (25 Feb., St.F.).
  Arranged by Jerome A. Feldman (Stanford University).

- Controlling the Energy "Delta"-(Demand-Supply) (25–27 Feb., SFH).
  Arranged by George W. Morgenthaler and R. Gervais (Martin Marietta Corp., Denver, Colo.).

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- Printing Technology (25 Feb., St.F.).
  Arranged by Gerry B. Andeen (Stanford Research Institute, Menlo Park, Calif.).

- Organizing Computer Resources for Science (25–26 Feb., St.F.).
  Arranged by Kenneth L. Bowles (University of California, San Diego).

- Remote Sensing Applications for Water Resources Monitoring (27 Feb., SFH).
  Arranged by Morris Tepper (NASA Headquarters, Washington, D.C.) and Vincent V. Salomonson (Goddard Space Flight Center, Greenbelt, Md.).

- High Voltage Electron Microscopy (27 Feb., SP).
  Arranged by I. Warshaw (National Science Foundation).

- The Transition from Science to Engineering (27 Feb.–1 Mar., St.F.).
  Arranged by C. Towner French (P. R. Mallory Company, Washington, D.C.).

- Major Features of the World of 1994 (27 Feb., SP).
  Arranged by Edward S. Cornish (World Future Society, Washington, D.C.).

- Materials Achievements in the Enhancement of Our Health, Safety, and Environment: Looking Ahead (28 Feb., St.F.).
  Arranged by Arthur H. Purcell (AAAS).

- Skylab Science Experiments: A First Report (28 Feb., SFH).
  Arranged by William Schneider (NASA Headquarters, Washington, D.C.) and George W. Morgenthaler.

EDUCATION

- European Perspectives on Educational Research and Development (25 Feb., SP).
  Arranged by J. Myron Atkin (University of Illinois).

- The Relationship of the Natural Sciences, Social Sciences, and the Humanities to Environmental Education (25 Feb., St.F.).
  Arranged by John R. Mayor and Arthur H. Livermore (AAAS).

- Research Papers (American Junior Academy of Science) (25 Feb., St.F.).
  Arranged by Frank W. Starr (Waterloo Community Schools, Waterloo, Iowa).

- Governmental Policy for Educational Change (25 Feb., SP).
  Arranged by J. Myron Atkin.

- The Psychology of Thinking (25 Feb., SP).
  Arranged by Carl P. Duncan (Northwestern University).

- New Trends in Higher Education (26 Feb., SP).
  Arranged by David Barry (Evergreen State College, Olympia, Wash.), John R. Mayor, and Arthur H. Livermore.

- Administrative Problems Facing the Academies of Science (26 Feb., St.F.).
  Arranged by Charles M. Vaughn (Miami University).

- Involvement—The Key to Effective Environmental Education (26 Feb., St.F.).
  Arranged by Ruth W. Melvin (Ohio Academy of Science, Columbus).

- Research on Decision-Making—Potential for Education (26 Feb., SP).
  Arranged by Wayne W. Welch (University of Minnesota).

- Communications Technology and Educational Prospects (27 Feb., St.F.).
  Arranged by Robert Bridgham (Stanford University).

- Motivating and Training Chicano and Native American Students in Science (27 Feb., SP).
  Arranged by Ciriaco Gonzales (National Institutes of Health) and Vijaya Melnick (Federal City College, Washington, D.C.).

- Graduate Programs and Policies for Minority Students (28 Feb., SP).
  Arranged by Lloyd K. Johnson and Donald K. Sharpes (U.S. Office of Education).

- Equality of Educational Opportunity (1 Mar., SP).
  Arranged by Marshall S. Smith (National Institute of Education, Washington, D.C.).

- The Social Science of Science: A Strategy for Science Education in the 1970's (1 Mar., SP).
  Arranged by Dorothy Zinberg (Harvard University).

- Scientific and Technical Literacy: How Can We Achieve It? (1 Mar., SP).
  Arranged by Janet Brown (AAAS).

- The Longitudinal Study of Educational Effects (1 Mar., SP).
  Arranged by Ezra Glaser (AAAS).

- Lake Powell and Lake Tahoe in Environmental Transition: Two Major Regional Multidisciplinary Environmental Research Programs (25 Feb., SFH).
  Arranged by Orson L. Anderson (University of California, Los Angeles) and Charles R. Goldman (University of California, Davis).

- Experiments in Regional Environmental Management (25 Feb., St.F.).
  Arranged by William E. Felling (The Ford Foundation).

- Environmental Assessment: Science or Chicanery? (26 Feb., St.F.).
  Arranged by James H. Stone (Louisiana State University).

- Science and Technology in Environmental Impact Assessment (27 Feb., St.F.).
  Arranged by Charles F. Cooper (California State University, San Diego).

- To Feed the World: What to Do with Changing Climate? (27 Feb., SP).
  Arranged by George J. Kukla (Columbia University).

- Earthquakes, Earthquake Prediction, and Earthquake Control (27–28 Feb., SFH).
  Arranged by Louis C. Pakiser (U.S. Geological Survey, Denver, Colo.) and J. H. Healey (U.S. Geological Survey, Menlo Park, Calif.).

- Environment: A New Focus for Land-Use Planning (28 Feb., St.F.).
  Arranged by Larry W. Tombough (National Science Foundation).

- Water Policy Recommendations of the National Water Commission (28 Feb., St.F.).
  Arranged by Victor A. Koelzer (Colorado State University).

- Values and Choices in the Development of an Arid Land River Basin (28 Feb.–1 Mar., SFH).
  Arranged by D. F. Peterson and A. B. Crawford (Utah State University).

- Elements of Land-Use Planning (28 Feb.–1 Mar., St.F.).
  Arranged by Walter E. Jeske (U.S. Department of Agriculture).

- Ecology of the Pacific Coastal Zone (1 Mar., St.F.).
  Arranged by Kenneth Norris (University of California, Santa Cruz).

SCIENCE AND SOCIAL NEEDS

- Crime and Social Control in the 1990's (25 Feb., SFH).
  Arranged by Margaret A. Zahn (Temple University).

- Mechanisms and Consequences to Transition to Limited Growth (25 Feb., St.F.).
  Arranged by Edward L. Bennet (University of California, Berkeley).

- The 1990's and Beyond: A Gerontocracy? (25 Feb., SFH).
  Arranged by Lissy F. Jarvik (University of California, Los Angeles).

- Co-Chairmen's Symposium: The San Francisco Bay Area—Looking Toward the 1990's (25–26 Feb., SFH).
  Arranged by William R. Hewlett (Hewlett-Packard Company, Palo Alto, Calif.) and Glenn T. Seaborg (University of California, Berkeley).

- Ethnography of Power (25–28 Feb., SP).
  Arranged by Richard N. Adams (University of Texas, Austin) and Raymond D. Fogelson (University of Chicago).

- Science Manpower in the Seventies—Will Supply Match Demand? (25 Feb., SP).
  Arranged by Betty M. Vetter (Scientific Manpower Commission, Washington, D.C.).

- Architecture for the Future—A Proposal and a Critique (26–27 Feb., SFH).
  Arranged by Nathaniel A. Owings (Skidmore, Owings and Merrill, San Francisco).

- Population Change with Issues for Local Policy (26 Feb., SFH).
  Arranged by George S. Masnick (University of Pennsylvania).

- Where Should the World's People Live?—International Migration and United States Immigration Policy (27 Feb., SFH).
  Arranged by Rodney Shaw and William N. Ryerson (The Population Institute, Washington, D.C.).

- Anthropology in the 1990's: Conditions, Needs and Prospects (28 Feb.–1 Mar., SP).
  Arranged by Thomas Weaver (University of Arizona).

- Mathematics and the Social Sciences (28 Feb., St.F.).
  Arranged by David Berlinski (Newark Colleges of Rutgers University).

- The Barefoot Technologist (1 Mar., SP).
  Arranged by Edith Coliver (The Asia Foundation) and Michael J. Moravcsik (University of Oregon).

- Intersociety Communications and Public Understanding of Technology (1 Mar., SP).
  Arranged by John M. Sullivan (U.S. Atomic Energy Commission, Washington, D.C.).

- Who Pays for Medical Education; Who Benefits? (1 Mar., SF).
  Arranged by Richard H. Kessler (Northwestern University).

SCIENCE AND PUBLIC POLICY

- Social Policy Affecting Women's Roles (25 Feb., SP).
  Arranged by Jean Lipman-Blumen (National Institute of Education).

- Ethical and Public Policy Issues in Biomedical Innovation (25 Feb., SP).
  Arranged by Amitai Etzioni (Columbia University) and Albert R. Jonsen (University of California, San Francisco).

- What Are the Effects of Changes of Government Budgetary Support of Scientific Institutions? (25 Feb., SFH).
  Arranged by Ezra Glaser (AAAS).

- Technological Innovation: What We Know, Don't Know, and Should Know (25 Feb., SFH).
  Arranged by Melvin Kranzberg and Patrick Kelly (Georgia Institute of Technology).

- Institutions for the Application of Science to Society's Problems (25 Feb., SP).
  Arranged by John C. McKinney (Duke University).

- National Administration of Science (26 Feb., SFH).
  Arranged by Minoru Tsutsui (Texas A&M University).

- Interactions of Government Policies with Technological Development (26 Feb., SFH).
  Arranged by Joel D. Goldhar (National Science Foundation) and Robert L. Stern (Xerox Corporation).

- Is Behavioral Science a Policy Science? (26 Feb., SP).
  Arranged by Gordon Swanson (University of Minnesota).

- Science Advisors in State Government (26 Feb., SFH).
  Arranged by William A. Thomas (American Bar Foundation, Chicago, Ill.).

- Scientists and Political Office (27 Feb., SFH).
  Arranged by Ed Reinecke (Lieutenant Governor of California).

- Scientists and Congress: The Emerging New Relationships (27 Feb., SFH).
  Arranged by Anne H. Cahn (Massachusetts Institute of Technology).

- Reorganizing Information Resources to Improve Decision-Making (27 Feb., SP).
  Arranged by Manfred Kochen (University of Michigan).

- General Systems Theory and Its Application (27 Feb., St.F.).
  Arranged by Bela Banathy (Far West Laboratory for Educational R & D, San Francisco)

- Problems of Society—New Roles and Changing Parameters for Scientists (27 Feb., SFH).
  Arranged by Milton Harris (Washington, D.C.).

- Science and International Politics (27 Feb., SFH).
  Arranged by Harold Brown (California Institute of Technology) and Hans Mark (NASA-Ames Research Center).

- Technology Assessment: A Report and Comparison of Several Recently Completed Studies (28 Feb., SFH).
  Arranged by Irvin L. White (University of Oklahoma).

- Implied New Directions for Science and Technology (28 Feb., SFH).
  Arranged by Howard J. Lewis (Editor, *Public Science*).

- How Can Technology in the United States Be Directed toward Helping Underdeveloped Countries? (1 Mar., SFH).
  Arranged by Norman L. Brown, Jay Davenport, and Hugh H. Miller (National Academy of Sciences).

- Role of Professional Societies in Meeting Environmental Problems (1 Mar., St.F.).
  Arranged by Nels H. Granholm (South Dakota State University) and Joel Primack (University of California, Santa Cruz).

AAAS Annual Meeting : San Francisco — Registration

24 February–1 March 1974 **(A)**

ADVANCE REGISTRATION FORM

☐ Enclosed is $17 Registration Fee (Program and Convention Badge)

☐ Enclosed is $22 Registration Fee (including spouse) (One Program and two Convention Badges)

☐ Enclosed is $8 Young People and Student Registration Fee (Program and Convention Badge)

Are you a AAAS member? ☐ Yes ☐ No

Please check your primary reason for attending the AAAS meeting.
☐ To participate in the program ☐ To attend certain general sessions ☐ Other

NOTE: PROGRAMS AND BADGES WILL NOT BE MAILED IN ADVANCE.

On or about 1 February, a program summary and a receipt will be mailed to each registrant. Please present your receipt at the ADVANCE REGISTRATION DESK at the San Francisco Hilton Hotel to pick up your program and badge.

Miss Ms. Mrs.
Dr. Mr. _____
(Last Name) (First) (Middle Initial)

MULTIPLE REGISTRATION: _____
(List full name for spouse and other registrants)

MAILING ADDRESS: _____
(For receipt and program summary) (Street) (City/State) (Zip Code)

INSTITUTION OR COMPANY: _____

_____
(City) (State) (Zip Code)

CONVENTION ADDRESS: _____ Arrival date: _____ Departure date: _____

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

OFFICE AND SESSION LOCATIONS

San Francisco Hilton: AAAS Headquarters Office; On-Site Registration Desk; Advance Registration Desk; Information Desk; Ticket Sales Desk; Message Center; Session Aides; Press Headquarters; AAAS Sciencephere (Exhibits); Science Film Festival; Invited Lectures.
*Symposia Topic Areas**: Energy and Society; Space Technology; Health and Behavior (Neurological Systems; Function; Drug Use and Drug Abuse); Population Trends; Environmental Evolution; Species Organization; Scientists and Government; Techology Assessment.

St. Francis: AAAS Office; Session Aides.
*Symposia Topic Areas**: Mathematics; Physical Universe; Engineering; Computer Technology; Environmental Education and Assessment; Animal Behavior; Land Use and Planning.

Sheraton-Palace: On-Site Registration Desk; Information Desk; AAAS Office; Session Aides.
*Symposia Topic Areas**: History; Philosophy of Science; Health Systems and Policy; Food; Control Mechanisms; Educational Policies and Trends; Minorities.

**See Preliminary Program for the precise locations of individual symposia.*

Child Care Services: Two agencies have been recommended for attendees requiring baby-sitting services. For further information contact:

Bristol Agency
540 O'Farrell Street
San Francisco, CA 94102
TEL: (415) 776-9100

The French-American Agency
133 Geary
San Francisco, CA 94108
TEL: (415) 781-3889

Travel: AAAS does **not** provide group travel arrangements for the San Francisco meeting. Please check with your travel agent or airline for the most economic air fares.

East Coast members are reminded that some airlines make available substantial reductions in air fares when reservations are made 90 days in advance for flights from New York City, Boston, Philadelphia, Baltimore, and Washington to San Francisco.

Reservations

HOTEL RATES* (Per Day)

The American Association for the Advancement of Science will hold its 1974 Annual Meeting in San Francisco, California, 24 February–1 March. The AAAS registration desks will be located at the San Francisco Hilton and Sheraton-Palace hotels. The following hotels will be used for housing:

Hotel	Single	Double	Twin	Suites†	Parking
1) SAN FRANCISCO HILTON ✠	$22	$30	$30	$74	Free parking for registered guests on 5th through 11th floors in Main Building (subject to availability).
(Headquarters Hotel)	25	33	33	and up	
Mason and O'Farrell Streets	29	37	37		
(a) Main Building Rates	32	40	40		
	34	42	42		$3.25 maximum charge for 12 hours; up to 24 hours add $0.75.
					$4.25 24 hours with in and out privileges for registered guests.
(b) Tower Rates	$37	$45	$45	$95 and up	
2) HOTEL ST. FRANCIS ✠	$22	$28	$28	$65	$4.50 24 hours with in and out privileges for registered guests.
Union Square	26	32	32	and up	
	30	36	36		
	34	40	40		
3) SHERATON-PALACE HOTEL ✠	$23	$27	$27	$43.50	Commercial parking adjacent to hotel: $3.75 & $2.25 24 hours.
639 Market Street				and up	
4) SIR FRANCIS DRAKE HOTEL ★	$24	$29	$29	$66	$4.50 24 hours with in and out privileges for registered guests.
Powell and Sutter Streets				and up	

* San Francisco Room Tax, 6%; $4 to $8 additional charge for cots and rollaway beds. If rate specified is not available, the next available higher rate will be assigned.
† One bedroom parlor suites; rates for larger suites available upon request.
✠ Up to two children accommodated at no extra charge if they occupy same room as parent(s).
★ Children under age 12 accommodated at no extra charge in same room with parents; three persons per room maximum.

HOTEL RESERVATIONS FORM
(No reservations by telephone)

Mail to: AAAS Housing Bureau
260 Fox Plaza
San Francisco, CA 94102

CHOICE OF HOTEL: First_____ Second_____ Third_____

ROOM: ☐ Single ☐ Double ☐ Twin ☐ Suite Preferred Rate $_____

ARRIVAL: Date_____; ____a.m.____p.m.

DEPARTURE: 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.

NAMES AND ADDRESSES OF ALL OCCUPANTS OF ROOMS
(Reservations received after 25 January 1974 cannot be assured)

Name_____ Name_____

Address_____ Address_____

City_____ State_____ Zip_____ City_____ State_____ Zip_____

Name_____ Name_____

Address_____ Address_____

City_____ State_____ Zip_____ City_____ State_____ Zip_____

Individual Requesting Reservations_____