



Annual Meeting San Francisco

3-8 January 1980

Meeting Program—Part I

Register in advance and receive a *free* 1980 AAAS Calendar with your Program; housing and registration forms can be found on pages 324 and 325. For further details, see the Preliminary Program, *Science*, 21 September, pages 1243 to 1252, and Tours, *Science*, 5 October, pages 43 to 47.

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



The Conservatory, in San Francisco's Golden Gate Park, is patterned after the royal greenhouses in London's Kew Gardens. [San Francisco Convention and Visitors Bureau]

We celebrate our 146th national meeting in the Golden Gate City this January with symposia on many of the most important topics in science, technology, and science policy issues. The first part of these is given below (the second part will appear in the 2 November issue); read them through, you will find much of direct interest to you. In addition to the symposia, we have scheduled nine distinguished Public Lecturers (see the Preliminary Program in the 21 September issue), a Film Festival, exciting tours (see the 5 October issue), special science-related activities for young people, an exhibit, and much hospitality. Taken together with the many fascinating things to do and see in San Francisco, we modestly believe that the AAAS Annual Meeting in San Francisco will be the most important scientific and cultural event of the year; you cannot afford *not* to come. Make your reservations early (see the forms on pages 324 and 325) and avoid the holiday rush.

ARTHUR HERSCHMAN

1. General Interest

Frontiers in the Social Sciences (4 Jan., 9:00 a.m., SFH): Culture after sociobiology, aging from birth to death, psychology in public policy.

Priscilla Reining, David L. Sills, Paul Bohannon, Matilda White Riley, Charles A. Kiesler.

Co-Chairmen's Symposium: Very Large Scale Integrated Circuits—Implications for Our Society (4 Jan., 2:30 p.m., SFH): Technology, implications for science, economic implications, implications for society.

David S. Saxon, Edward L. Ginzton, C. Lester Hogan, Gordon E. Moore, John S. Mayo, Nathan Rosenberg, W. Edward Steinmuller, John R. Pierce.

Youth Symposium: Frontiers of Science (5 Jan., 9:00 a.m., 2:30 p.m., SFH): Accidents, discoveries, and the prepared mind; Jupiter fly-by; observing galaxies; meaning of porpoise sounds.

David S. Saxon, Edward L. Ginzton, W. M. Laetsch, Jaime Oaxaca, Hubert Alyea, Arthur Lane, Sandra Faber, Kenneth S. Norris.

The Frontiers of the Natural Sciences (6 Jan., 9:00 a.m., 2:30 p.m., SFH): Voices of whales, terrestrial planets, black holes, chemistry, statistics and ESP, x-ray astronomy.

Rolf M. Sinclair, D. Allan Bromley, Roger S. Payne, Laurence A. Soderblom, Remo Ruffini, Fred Basolo, Persi Diaconis, Stephen S. Murray.

2. Science Centennial

Judgment, Ritual, and Technology in Scientific Communication: The Role of the Editor (5 Jan., 9:00 a.m., 2:30 p.m., SFH): Human element, scientific element, editions of scientists' writings, quality, judgment, standards, primary-secondary interface.

Miriam Balaban, Philip Handler, Philip H. Abelson, Derek de Solla Price, John Stachel, Bernard Forscher, Edward Huth, Robert Beck, Cyril Belshaw, Eugene Garfield, H. Edward Kennedy.

The Centennial of Science (6 Jan., 9:00 a.m., SFH): Scientific enterprise 1880, survival 1880-1895, Cattell 1894-1944, past and future.

Philip H. Abelson, Daniel J. Kevles, Jeff Sturchio, P. Thomas Carroll, Sally Gregory Kohlstedt, Michael M. Sokal.

Communicating Science (6 Jan., 2:30 p.m., SFH): Perspective; life, physical, and social sciences, and the public; future needs and opportunities.

Mary E. Corning, Derek de Solla Price, Philip H. Abelson, Arnold S. Relman, Bryce L. Crawford, Jr., Renée C. Fox, Walter S. Sullivan, Edward E. David, Jr.

Science and Science: The Next Decade (7 Jan., 9:00 a.m., 2:30 p.m. SFH): Biochemistry, neuroscience, immunology, genetic intervention, quarks, chemistry, plate tectonics, cosmology.

Norman Metzger, David Perlman, Daniel E. Koshland, Jr., Richard F. Thompson, Joseph M. Davie, Clifford Grobstein, Arthur Fisher, Sidney D. Drell, George C. Pimentel, Preston Cloud, Geoffrey Burbidge.

The World of Tomorrow (8 Jan., 9:00 a.m., SFH): Scientists and science-fiction writers, views of the future.

Jerry E. Pournelle, Rolf M. Sinclair, Robert W. Bussard, Ray Bradbury, Poul Anderson, Robert A. Heinlein, Fred Hoyle, Stefan T. Possony, Charles Sheffield.

3. Physics, Chemistry, and Astronomy

Nonfuel Uses of Petroleum, Petrochemicals (4 Jan., 9:00 a.m., SFH): Polymers, heterogeneous catalysis and homogeneous catalysis, food and feed.

Fred Basolo, J. Paul Hogan, Robert K. Grasselli, Denis Forster, John H. Litchfield.

A Star Is Born (4 Jan., 9:00 a.m., SFH): Where do stars form, molecular clouds, earliest stages, stellar evolution.

Frank H. Shu, Leo Blitz, Peter H. Bodenheimer, Leonard V. Kuhi.

The First Billion Years of the Earth's Existence (4 Jan., 2:30 p.m., SFH): Solar system, the Earth, life, evolution.

Cyril Ponnamperna, Lynn Margulis, John A. Wood, Preston Cloud.

Discoveries Made by Recent Planetary Spaceprobes (5 Jan., 2:30 p.m., SFH): The surfaces, geological evolutions, Jupiter, Venus.

Bradford A. Smith, Donat G. Wentzel, Tobias C. Owen, David Morrison, Laurence Soderblom, Andrew P. Ingersoll, Lawrence Colin.

Archaeoastronomy and the Roots of Science (6 Jan., 9:00 a.m., 2:30 p.m., SFH): Megalithic astronomy; observatories; mesoamerican astronomy; Maya, Aztec, and Inca; medicine wheels; California; Egyptian.

E. C. Krupp, Ronald E. Hicks, Archibald S. Thom, John B. Carlson, Anthony F. Aveni, John A. Eddy, Travis Hudson.



The sixth annual *SCIENCE INTERNATIONAL* exposition of scientific instruments and publications will again be held in conjunction with the AAAS Annual Meeting. The exposition will be in the Hilton Plaza of the San Francisco Hilton Hotel, Friday, 4 January through Monday, 7 January. If your company or organization wishes to participate in *SCIENCE INTERNATIONAL*, please contact Edward B. Ruffing, SCHERAGO ASSOCIATES, 1515 Broadway, New York, N.Y. 10036; (212) 730-1050.

Science for the Naked Eye, Or the Physics of Everyday Experience, VII (7 Jan., 9:00 a.m., 2:30 p.m., SFH): Shroud of Turin, music from bottles and tubes, bicycle riding, art discovery and restoration, computer-generated films.

Rolf M. Sinclair, R. N. Rogers, John G. Backus, Susan Rawcliffe, John Breakwell, John F. Asmus, Nelson L. Max.

Frontiers of Physics and Their Industrial Applications (8 Jan., 9:00 a.m., SFH): Surface physics, silicon technology, beam technologies.

D. Allan Bromley, Stig B. Hagstrom, Gerhard H. Parker, Donald Hammond.

4. Geology and Climate

Focus on the San Andreas Fault: Research Frontiers and Social Impacts (4 Jan., 9:00 a.m., 2:30 p.m.; 5 Jan., 8:30 a.m., SFH): Earthquakes, geological studies, mitigating hazards, seismic zonation, public response, engineering misconceptions, critical structures, earthquake predictions, ethnicity and credibility, trauma and children, field trip.

Raymond Sullivan, Raymond Pestrong, Bruce A. Bolt, Kerry E. Sieh, James F. Davis, Earl E. Brabb, Thomas F. Saarinen, Harold J. McPherson, Karl V. Steinbrugge, Lloyd Cluff, C. Barry Raleigh, Robert A. Stallings, Stephen J. Howard, Jon S. Galehouse.

Environmental Setting of Early Man Sites (5 Jan., 9:00 a.m., SFH): Laetoli beds, rift valley setting, lower Omo Valley, Hadar site, Siwalik group, Cagayan Valley.

George R. Rapp, Jr., Carl F. Vondra, Richard L. Hay, Daniel R. Burggraf, Jr., Howard J. White, Hal J. Frank, Francis H. Brown, James Aronson, M. Taieb, Gary D. Johnson, Mark E. Mathisen, Erik P. Kvale.

Environmental and Societal Consequences of a Possible CO₂-Induced Climate Change (5 Jan., 2:30 p.m., SFH): Ocean biota and cryosphere, biosphere, agriculture, social and institutional responses, quantifying benefits and costs.

Roger Revelle, David M. Burns, Francis P. Bretherton, Frederick E. Smith, Sylvan Wittwer, Elise Boulding, Stephen H. Schneider, Lester B. Lave.

The Impact of Climate on Food Supplies (6 Jan., 9:00 a.m., 2:30 p.m., SFH): Food supplies, societal factors, anticipating im-

pack, information systems, applied technology, weatherproofing crops.

Lloyd E. Slater, Walter Orr Roberts, F. Kenneth Hare, Stanley Ruttenberg, John G. Corbett, Roger Revelle, James D. McQuigg, Carl N. Hodges, Norman J. Rosenberg.

Oceans from Space: Environmental Management from on High (7 Jan., 9:00 a.m., SFH): Coastal zone color-scanning, satellite oceanography, West Coast fisheries, shipping surveillance, marine environmental management.

Michael J. Herz, William A. Nierenberg, Robert C. Wrigley, Robert L. Bernstein, Laurence C. Breaker, Donn C. Walklet, John R. Apel.

New Horizons for Marine Geosciences (8 Jan., 9:00 a.m., 1:30 p.m., SFH): Continental margins, Antarctica, climate change, sedimentation and dynamics, man's structures, man-in-the-sea, deep-sea drilling, mineral resources, hydrocarbon resources, waste space, radioactive disposal.

H. Edward Clifton, Keith A. Kvenvolden, Joseph R. Curray, Dennis E. Hayes, Ted C. Moore, Paul D. Komar, David A. Cacchione, Robert G. Bea, James W. Miller, William W. Hay, Vincent E. McKelvey, Hollis D. Hedberg, Edward D. Goldberg, Charles D. Hollister.

5. Engineering and Technology

The Factory of the Future (4 Jan., 9:00 a.m., 2:30 p.m., SFH): State of the technology, economic and social implications.

Joel D. Goldhar, Richard E. Thomas, Joji Arai, Norman R. Berlat, J. F. Engelberger, Don T. Phillips, Thomas H. Spencer, Delbert Tesar, Dennis Wisnosky, Adlai E. Stevenson III, Jordan Baruch, Dennis Chamot, Frank R. L. Daley, Robert Lund, M. Eugene Merchant, Merton J. Peck, Wickham Skinner.

Space Policy for the 1980s: A New Era of Space Utilization (5 Jan., 9:00 a.m., SFH): Future policies and programs, science and exploration, military uses, commercial potentials.

John M. Logsdon, Ronald M. Konkel, Thomas Burke, Louis Friedman, Robert Davis, Gilbert Keyes.

Human Reliability in Complex Man-Machine Systems (5 Jan., 2:30 p.m., SFH): System-induced human error, reliability prediction, error rate.

John W. Senders, David Meister, Alan D. Swain, Donald Norman.

Macroengineering: The Rich Potential (6 Jan., 9:00 a.m., 2:30 p.m., SFH): Arranged by:

Robert Salkeld, Frank P. Davidson.

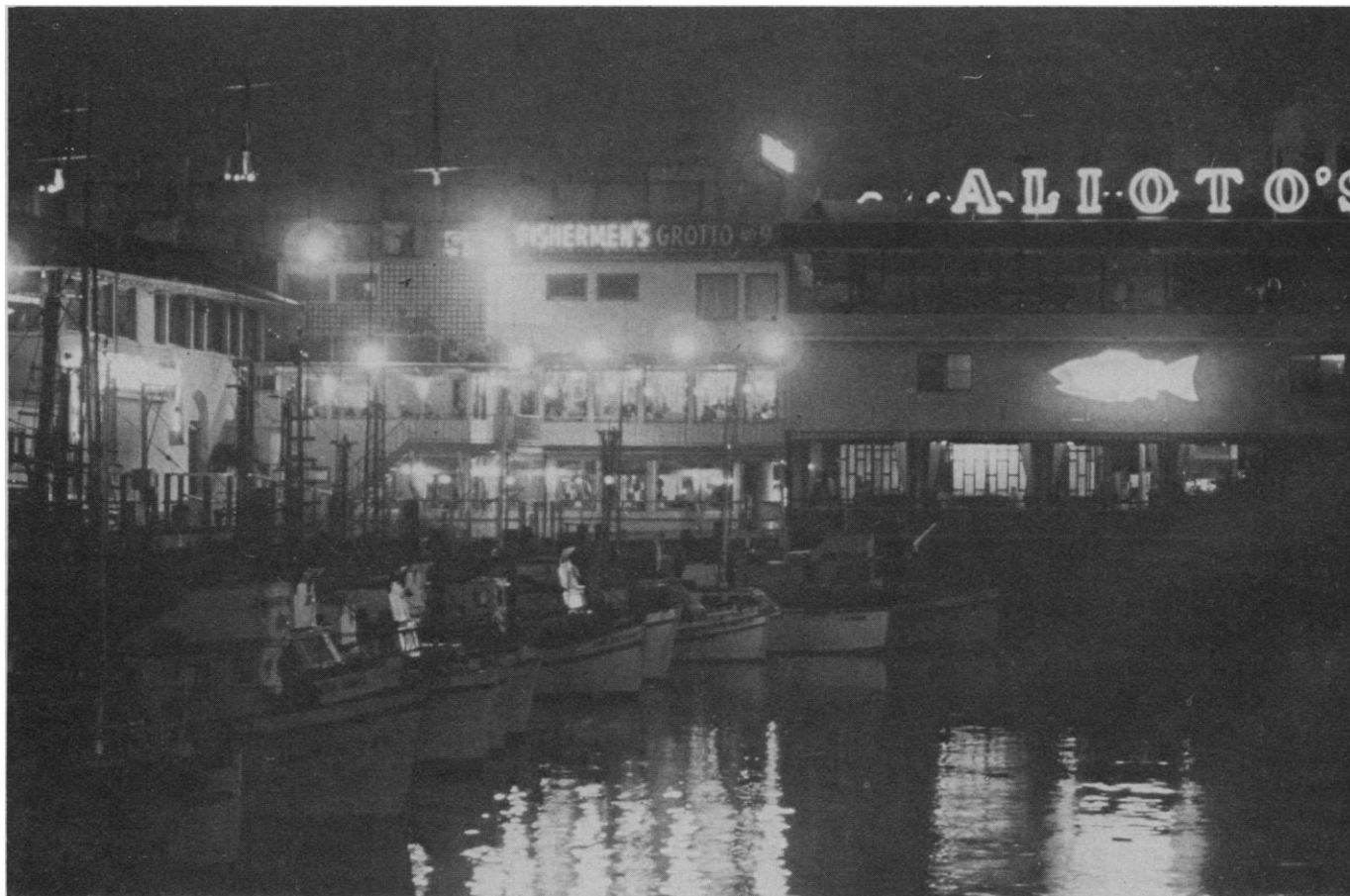
International Comparisons of the Impact of Government Policies on Industrial Innovation (7 Jan., 9:00 a.m., SFH): Recent developments, West Germany, international trends, industrial performance, innovation gap.

Arthur Gerstenfeld, Helmar Krupp, Carole Ganz Brown, Robert Wright, Richard Franke.

Soft and Hard Technology—Coexistence or Divergence? (7 Jan., 2:30 p.m., SFH): Emerging social and political trends, energy problems, tough technology, space industrialization, value choices.

Peter E. Glaser, T. Stephen Cheston, John Naisbitt, David Sternlight, Arthur Kantrowitz, Peter Vajk, Victor Ferkiss.

Issues Affecting the Future of Personal Transportation (8 Jan., 9:00 a.m., SFH): Conflicting social goals, passenger car, pub-



Fisherman's Wharf, San Francisco. [United Air Lines]



The Central Library, University of California at San Diego. [Wayne Thom, photographer]

lic transportation, post-1985 motor vehicle, mileage standards, socially acceptable vehicle.

S. William Gouse, Lester B. Lave, Sven A. Norland, Richard R. John, Larry R. Gsellman, R. Rhoads Stephenson.

Technology, International Economics, and Public Policy (8 Jan., 9:00 a.m., SFH): Industrial competence, innovation, U.S. technology, economic change, OECD.

Hugh H. Miller, Rolf P. Piekarz, Gunnar A. Hambræus, Richard A. Meserve, Thomas A. Vanderslice, Mary Ellen Mogee, Walter A. Hahn, David Z. Beckler, Bela Gold, N. Bruce Hannay, Nathan Rosenberg.

6. Energy Development

Energy in the 1980s: The Shape of Things to Come (4 Jan., 9:00 a.m., SFH): Energy crisis, energy trend, problem, development, policy.

Lewis J. Perelman, Barry Commoner, Dennis L. Meadows, Chauncey Starr, Daniel Yergin.

Chemical Solar Energy Conversion (4 Jan., 2:30 p.m., SFH): Petroleum plantations, solarchemical storage, nitrogen fixation, heat energy.

Arthur W. Adamson, William L. Jolly, Melvin Calvin, Harry B. Gray, Gerhard N. Schrauzer.

Solar Energy Development: Implementation and Implications (5 Jan., 9:00 a.m., 2:30 p.m., SFH): Solar alternatives and initiatives, industrialist's view, solar transition, political ramifications, environmental benefits.

Wallace C. Judd, Daniel Rich, Jon M. Veigel, Wilson Clark, Francis P. Koster, J. Robert Maxwell, Donald W. Aitken, Joseph L. Barrow, Jr., Allen M. Barnett, James J. MacKenzie, Richard T. Sylves, Denis Hayes.

Uranium Resources—Impact on the Nuclear Energy Option (6 Jan., 9:00 a.m., SFH): Supply outlook, mining viewpoint,

security without the breeder, nuclear industry, international implications.

Daniel Berg, John A. Patterson, James F. Davis, Frank von Hippel, Karl Cohen, Philip J. Farley.

Direct Applications of Geothermal Energy (6 Jan., 2:30 p.m., SFH): Resource utilization, geology, environmental considerations, legislative process, land-use aspects, energy companies.

Ivar A. Engen, Richard W. James, Samuel R. Jewell, Paul J. Lineau, Duncan Foley, Susan G. Spencer, Douglas M. Sucarto, John Tuteur, Paul Rodzianko.

Nuclear Reactor Safety: A Current Perspective (7 Jan., 9:00 a.m., 2:30 p.m., SFH): President's Commission; Three Mile Island; reactor safety, design, operation and regulation; critical view; BEIR-III Report; low-level radiation; risk assessment; consequences.

Anthony V. Nero, Jr., Theodore B. Taylor, Roger J. Mattson, Ed L. Zebroski, Gregory C. Minor, Jacob I. Fabrikant, Robert C. Erdmann, Frank von Hippel.

The Prospects of Fusion Energy as a Commercial Power Source (8 Jan., 9:00 a.m., 1:30 p.m., SFH): Magnetic confinement, inertial confinement, advanced fuels, environmental considerations, utility requirements, engineering issues, hybrid fusion/fission.

Andrew M. Sessler, David J. Paul, Wulf B. Kunkel, Keith A. Brueckner, Robert W. Conn, John P. Holdren, Clinton P. Ashworth, Weston M. Stacey, Jr., Ronald P. Rose, John S. Foster, Jr.

7. Energy and Environment

Energy, Economics, and the Environment (4 Jan., 9:00 a.m., 2:30 p.m., SFH): Ecology, the poor, employment, strategic planning, state government, critical interactions, human set-

tlement, regional growth, natural and man-built systems, economics, solar transition, nuclear future.

Gregory A. Daneke, Charles F. Cooper, Lenneal Henderson, L. John Hoover, Eric Stenehjelm, John Neubold, Thomas J. Wilbanks, Mark Christiansen, Lawrence M. Sommers, T. R. Lakshmanan, Ian L. McHarg, Milton Russell, Barry Commoner, Edward Teller.

Energetic and Ecological Economics (5 Jan., 9:00 a.m., 2:30 p.m., SFH): Economic valuation, energy cost of energy, demand control, biophysical foundation, politics.

Herman E. Daly, Alvaro F. Umaña, Nicholas Georgescu-Roegen, Bruce M. Hannon, Kenneth Arrow, Kenneth Boulding, Garrett Hardin, Barry Commoner.

Public Attitudes Toward Resource Conservation and Energy (6 Jan., 9:00 a.m., 2:30 p.m., SFH): Attitudes, values, and public policy; supply versus demand; nuclear energy; risk-benefit attitudes; problems of measurement; energy shortage beliefs; the future; conservation policies.

W. David Conn, John H. Baldwin, Barbara D. Melber, Donald A. Clelland, Michael D. Bremseth, Harry J. Otway, Jon D. Miller, Baruch Fischhoff, William L. Rankin, Seymour Warkov, Frederick W. Allen, Jeffrey S. Milstein.

Tragedy of the Commons (7 Jan., 2:30 p.m., SFH): Health-care commons, immigration policy and practice, our genes, limits of sharing.

Carl J. Bajema, Garrett Hardin, Robert Connor.

Potential Role and Impacts of Decentralized Renewable Energy Systems (8 Jan., 9:00 a.m., 1:30 p.m., SFH): Small-scale systems, political realities, comparative analysis, social necessity or choice, solar prospect, complexity and scale, renewable and nuclear strategies, environmental dimension.

Mark D. Levine, Paul P. Craig, Jerome M. Weingart, Emilio E. Varanini III, Barry Hyman, Charles J. Ryan, Luther P. Gerlach, Denis Hayes, Måns Lönnroth, John P. Holdren.

8. Environmental and Ecological Science

Costs of Pesticide Usage (4 Jan., 9:00 a.m., STF): Development, registration, and maintenance; agricultural production; regulations; environmental and social costs.

T. J. Sheets, R. E. Hamman, W. Gail Willette, E. L. Johnson, V. H. Freed.

Environmental Toxicology: A Discipline of Growing Importance (4 Jan., 2:30 p.m., STF): Industry's input, the workplace, national toxicology program.

Samuel Elkin, Leon Golberg, Trent R. Lewis, David P. Rall.

The Impact of Regulations on the Introduction of New Chemicals (5 Jan., 9:00 a.m., 2:30 p.m., STF): Toxic Substances Control Act, venture capital, environmental testing, risk assessment, toxic substances, workplace, drug evaluation, occupational health.

Curtis W. Smith, Virginia L. Zaratzian, Keith McKennon, Thomas W. Mooney, William J. McCarville, Steven D. Jellinek, Eula Bingham, Mark Novitch, Anthony Mazzocchi.

Resolving Conflicts Between Development and Wildlife Management on the West Coast (6 Jan., 9:00 a.m., 2:30 p.m., STF): Water and other limiting resources, marine mammals, sources of water, urban and rural areas, air quality, San Francisco Bay area, policies and priorities.

Edward O. Keith, Donald J. Zinn, Frank Gregg, George H. Hag-evik, Milton Feldstein, Eugene Y. Leong, B. J. Miller, Terry Bursztynsky, M. Rupert Cutler, Ariel Parkinson, Phillip W. Schneider.

UNESCO's Man and the Biosphere Program (MAB): Interdisciplinary and International Collaboration on Environmental Research (7 Jan., 9:00 a.m., STF): Natural and social sciences, temperate forests, biosphere reserves, arid lands plants, MAB as a coordinator, accomplishments.

Russell M. Burns, John W. Bennett, Peter F. Ffolliott, Vernon C. Gilbert, Napier Shelton, Jack D. Johnson, Donald R. King, Fred-eric H. Wagner.

Ecology of the Namib Desert (7 Jan., 2:30 p.m., STF): Strange creatures, the biota, dune ecosystem, demography of small mammals, eco-anatomy.

Mary K. Seely, Gordon L. Bender, David A. Hughes, G. N. Louw, Philip C. Withers, Chris H. Bornman.

Social and Political Implications of Human Impacts on the Desert (8 Jan., 9:00 a.m., 1:30 p.m., STF): American desert, wildlife habitats, human uses, images and perceptions, recreation, naturally functioning processes, desertification, public arid lands, California desert, the future.

Howard G. Wilshire, Kent Downing, Richard Schreyer, Robert H. Webb, John F. McCauley, Kristin H. Berry, Leonard Arrington, Thomas F. Saarinen, Walter Westman, Elenora Sabadell, David Sheridan, Isaac C. Eastvold, Robert Badaracco.

9. Biological Science

Surfaces in Biology and Medicine (4 Jan., 9:00 a.m., STF): Gas-liquid surfaces, dust, analytical techniques, cell labeling, adhesion.

Allan S. Hoffman, Richard G. Buckles, Larry L. Hench, Margaret S. Burns, Alan Rembaum, Robert Baier.

Genetic Control of Organelle Assembly at the Molecular Level (4 Jan., 9:00 a.m., STF): Transfer RNA, bacteriophage, virus shell assembly, bacterial flagella, eukaryotic flagella, genes and chromosomes.

Jonathan King, R. S. Edgar, Christine Guthrie, William B. Wood, Michael Silverman, Ursula Goodenough, Barbara Hamkalo.

Application of Molecular Biology to Agricultural Research (4 Jan., 2:30 p.m., STF). Arranged by:

David H. Gelfand.

Thermoregulation in Poikilothermic Animals (4 Jan., 2:30 p.m., STF): Reptiles, terrestrial beetles, fishes, bees.

Bernd Heinrich, Albert F. Bennett, George A. Bartholomew, Jeffrey B. Graham.

Animal, Plant, and Microbial Gene Resource Conservation: Does the United States Need a National Program? (5 Jan., 9:00 a.m., STF): Perspective of an evolutionist, U.S. programs, research, goals, collaborative approach.

David Kafton, G. Ledyard Stebbins, William L. Brown, Subodh Jain, Raymond F. Dasmann, S. Loren Cole.

Communication and Behavior of Whales (5 Jan., 2:30 p.m., STF): Feeding behavior; vocalizations; migration; songs; gray, killer, humpback, and southern right whales.

Roger S. Payne, August Pivorunas, Kenneth S. Norris, John K. B. Ford, James D. Darling, Katharine B. Payne, Peter L. Tyack.

Biological Time (6 Jan., 9:00 a.m., 2:30 p.m., STF): Sidereal time, circadian clocks, brain mechanisms, growth hormone, motor patterns, developmental timers, insects, human clocks.

Michael Menaker, Colin S. Pittendrigh, Joseph B. Martin, Walter F. Heiligenberg, David Soll, James W. Truman, Martin C. Moore-Ede, Charles A. Czeisler, Elliott D. Weitzman.

Chemistry of Vision (7 Jan., 9:00 a.m., STF): Molecular anatomy, electrical aspects, photoreceptors, rhodopsin, rod cell, visual excitation.

Wayne L. Hubbell, Edward A. Dratz, Denis A. Baylor, Richard A. Mathies, Paul A. Liebman.

Biological Significance of Bioelectricity (7 Jan., 2:30 p.m., STF): Living state and cancer, conduction in proteins, environmental electromagnetic energy, cell surfaces, regeneration.

Boguslaw Lipinski, Albert Szent-Györgyi, Ronald Pethig, Andrew A. Marino, Arthur A. Pilla, Stephen D. Smith.

Parasite-Host Ecology: Modern Perspectives (8 Jan., 9:00 a.m., 1:30 p.m., STF): Symbiotic associations, infectious diseases, population biology, lizard malaria, trypanosomiasis, ants and parasitic phorid flies.

Joseph J. Schall, Armand M. Kuris, Robert M. May, Gerald W. Esch, Terry C. Hazen, Douglas E. Gill, Beverly A. Mock, Donald H. Feener, Jr., John C. Holmes, Albert O. Bush.

10. Mathematical Methods in Biomedicine

The Role of Computing Sciences in Plant Disease Epidemiology and Integrated Pest Management (5 Jan., 9:00 a.m., 2:30 p.m., STF): Agro-ecosystems, crop protection, the next decade, insect population models, yield-loss modeling, communications systems, physical data, computer simulators, root disease, multiple component, models.

Samuel H. Smith, Robert C. Riley, Herman E. Koenig, James E. Bath, David R. MacKenzie, Alan J. Sawyer, Douglas I. Rouse,

Stephen M. Welch, Stanley P. Pennypacker, Robert D. Shrum, Mary Ann E. Sall, Dean L. Haynes.

Some Mathematical Questions in Biology (6 Jan., 9:00 a.m., 2:30 p.m., STF): Blood flow, physiological time, morphogenesis, lichens and tendrils, harvests from the sea, population time-series data.

George F. Oster, Marjorie McCracken, Thomas A. McMahon, Joseph B. Keller, Robert M. May, David R. Brillinger.

Biological Geometry (7 Jan., 9:00 a.m., STF): Growth and form, plant growth, organ deformation, endocardial surface, fractals.

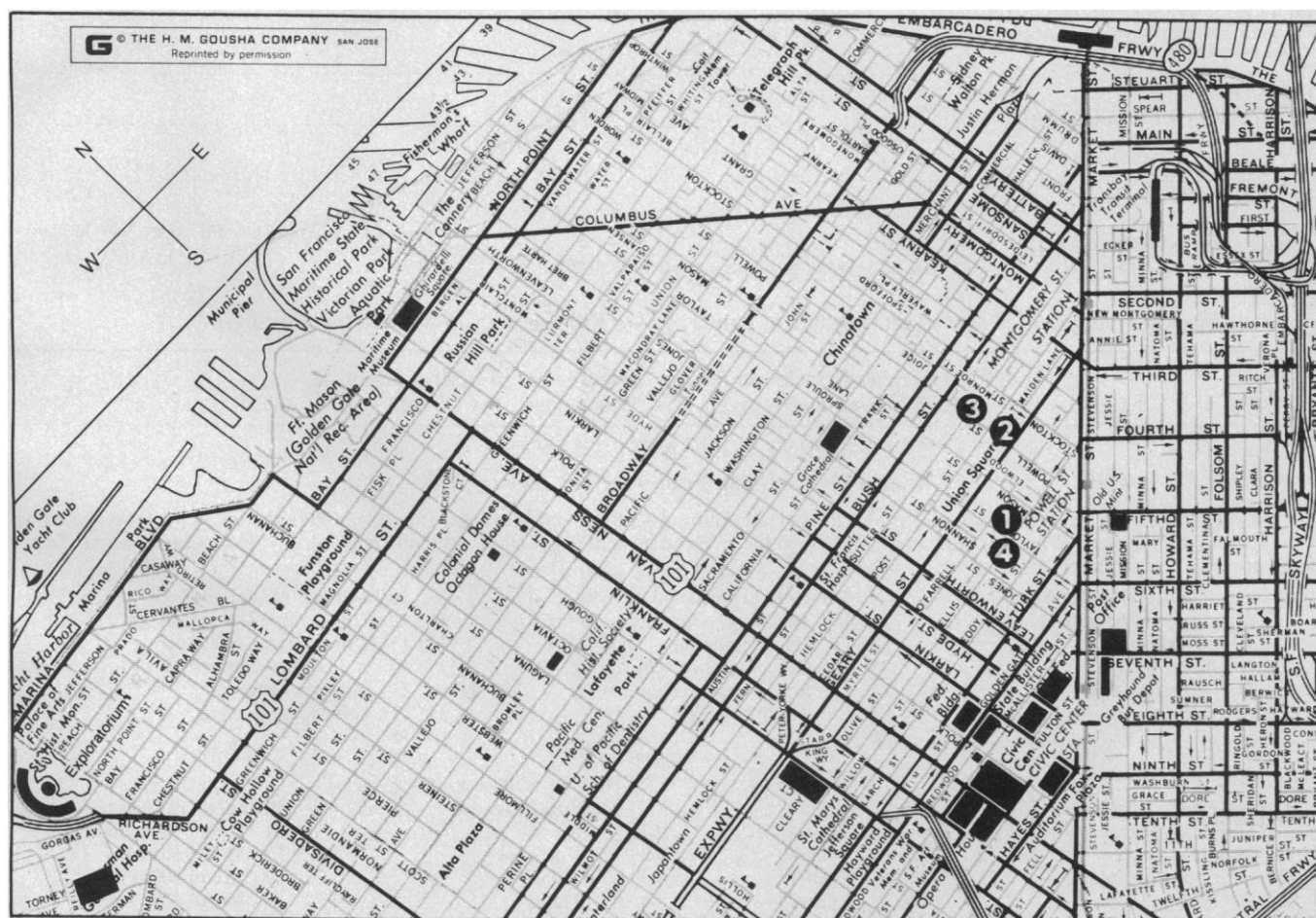
Judith M. S. Prewitt, Fred Bookstein, Ralph O. Erickson, Wendy Kuhn Silk, Larry T. Cook, Robert B. Schudy, Benoit B. Mandelbrot.

Stereology: A Mathematical Tool to Explore Three-Dimensional Space from Flat Images (7 Jan., 2:30 p.m., STF): Morphometry, point dispersions, critical mass, normal physiology, the nervous system, neuronal cell specificity, curvature and topology, morphology.

Hans Elias, Hanspeter Rohr, John E. Hilliard, Anna-Mary Carpenter, Herbert Haug, Gustav Bernroider, Robert T. de Hoff.

Computers in Drug Design (8 Jan., 9:00 a.m., 1:30 p.m., STF): Structure activity relations, pattern searching, geometry method, graphics, conformational parameters, nucleic acid, three-dimensional structure.

Irwin D. Kuntz, Robert Langridge, Corwin Hansch, Peter Gund, Peter C. Jurs, Gordon C. Crippen, Garland Marshall, Peter A. Kollman, Joseph Kraut.



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
(C)

- 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
42	<input type="checkbox"/>	Master's Degree	52	<input type="checkbox"/>	26 to 35 years	62	<input type="checkbox"/>	One
43	<input type="checkbox"/>	Other professional	53	<input type="checkbox"/>	36 to 45 years	63	<input type="checkbox"/>	Two
44	<input type="checkbox"/>	Bachelor's Degree	54	<input type="checkbox"/>	46 to 55 years	64	<input type="checkbox"/>	Three
45	<input type="checkbox"/> (other)	55	<input type="checkbox"/>	56 to 65 years	65	<input type="checkbox"/>	Four
			56	<input type="checkbox"/>	Over 65 years	66	<input type="checkbox"/>	Five or more
						Distance Traveled to Meeting		
						71	<input type="checkbox"/>	Under 51 miles
						72	<input type="checkbox"/>	51 to 150 miles
						73	<input type="checkbox"/>	151 to 400 miles
						74	<input type="checkbox"/>	401 to 1000 miles
						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	67	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