

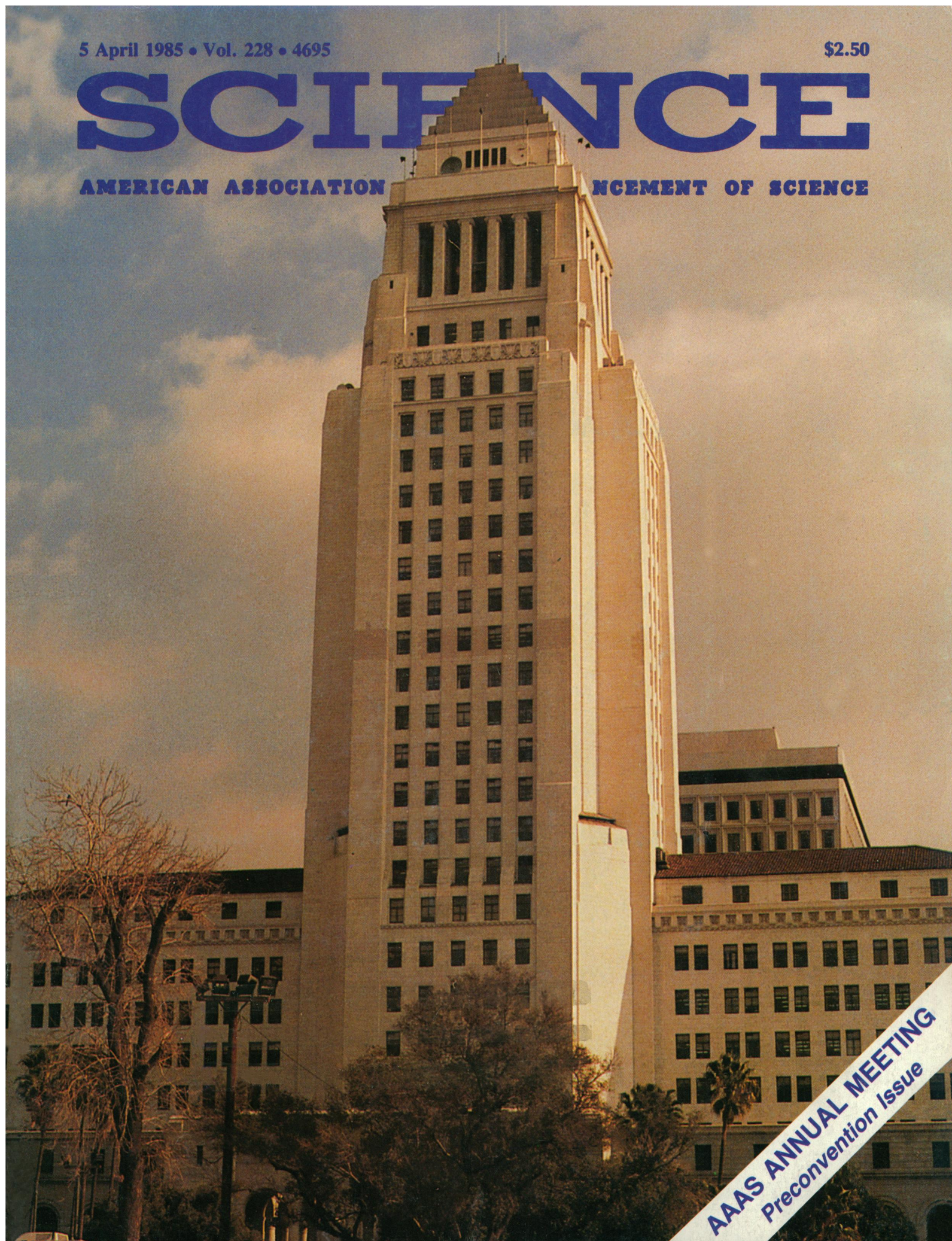
5 April 1985 • Vol. 228 • 4695

\$2.50

SCIENCE

AMERICAN ASSOCIATION

ANCEMENT OF SCIENCE



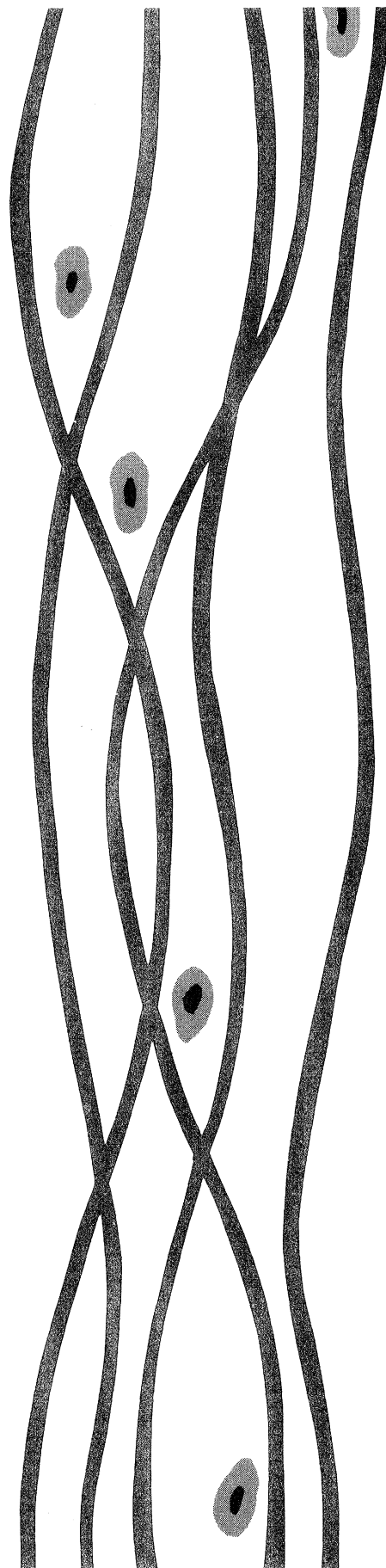
AAAS ANNUAL MEETING
Preconvention Issue

One Good Response Deserves Another...

Our continuous flow Mass Culturing Technique (MCT*) is cell driven—custom designed in each instance to fit the needs of a particular cell.

Critical factors such as the culture chamber and the growth medium are custom designed. The removal of metabolic wastes, the removal of cells when cell density becomes too high, the continuous harvesting of product and purification techniques are on line and controllable. All are combined and adapted to fit your cell's lifestyle.

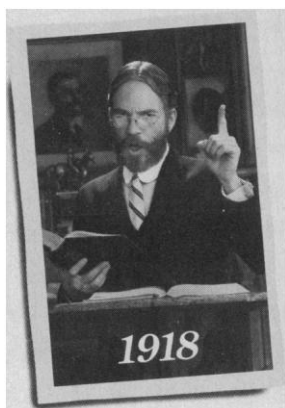
When you think of it, that's very special response.



BIO-RESPONSE, INC.

1978 West Winton Ave., Hayward, CA 94545
Telephone: 415 786 9744
Telex: 643476

*Trademark of Bio-Response, Inc.



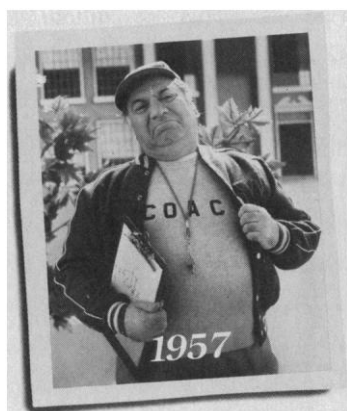
Basic Retirement



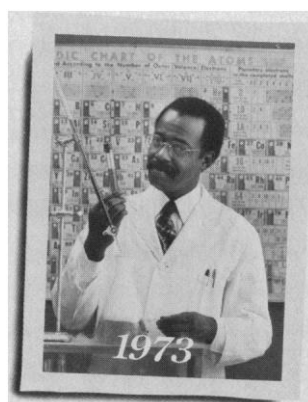
Group Life



Group Major Medical



**Comprehensive
Total Disability**



**Supplemental
Retirement Annuities**



QVECs

*Take a fresh look at TIAA-CREF.
We've been offering the academic community a lot more
than just a retirement plan for years.*

If you're like most business officers, you probably think of TIAA-CREF as the largest and oldest retirement system in the educational world. You're right. We introduced a fully funded, fully vested and portable retirement annuity plan to educators in 1918. But we didn't stop there.

Because educators change with the times, so has TIAA-CREF. To accommodate—even anticipate—academic community needs, TIAA introduced a low-cost form of Group Life Insurance in the 1930's. In 1952, we established CREF, the first variable annuity company. A few years later, we pioneered a comprehensive plan of Total Disability Benefits Insurance.

Today, TIAA-CREF also offers Group Major Medical Insurance coverage, Supplemental Retirement Annuities for tax-deferred retirement savings over and above a basic pension plan, and QVECs, the "educated alternative" to an IRA.

Supporting these plans are TIAA-CREF's Institutional Counselors, available to assist you without cost or obligation in the revision or updating of your staff benefits program, to analyze an existing plan, or to design a new plan based on your needs.

Simply ask. The simplest way is to call collect, (212) 490-9000. Or mail the coupon below.

TIAA-CREF. You can count on us today... and for tomorrow.



Teachers Insurance and Annuity Association
College Retirement Equities Fund
730 Third Avenue, New York, NY 10017
Offices in Atlanta, Boston, Dallas & San Francisco

Yes, I want some FREE help.

- ☐ Please have an Institutional Counselor call.
☐ Send complete Products & Services information booklet.

Name

Title

Institution

Address

City

State

Zip

Phone Number

SCI 4-5-85

SCIENCE

LETTERS	The Shuttle and Space Science: <i>J. P. Loftus, Jr.</i> ; Space-Based Astronomy: <i>G. G. Fazio et al.</i> ; Alcoholism Research: <i>B. Tabakoff</i> ; Photovoltaic Energy: <i>J. O'M. Bockris</i>	6
EDITORIAL	Science: Matters of Scale and Purpose	7
ARTICLES	The Sun and Nearby Stars: Microwave Observations at High Resolution: <i>M. R. Kundu and K. R. Lang</i>	9
	Emotion and Facial Efference: A Theory Reclaimed: <i>R. B. Zajonc</i>	15
	Expression, Glycosylation, and Secretion of an <i>Aspergillus</i> Glucoamylase by <i>Saccharomyces cerevisiae</i> : <i>M. A. Innis et al.</i>	21
	Reversal of Oncogenesis by the Expression of a Major Histocompatibility Complex Class I Gene: <i>K. Tanaka et al.</i>	26
NEWS AND COMMENT	Assessing the Effects of a Nuclear Accident	31
	Anatomy of an Accident	32
	Possible Acid Rain Woes in the West	34
	NIH Gaining in Grants Battle	35
	<i>Briefing</i> : Sacramento Peak Observatory to Close? Britain Moves to Increase Technology Incentives; Reagan Endorses NAE's "Decade III" Program; Europe to Start Removing Lead from Gas in 1989; Charges Against Refusenik Lifted	36
	Princeton to Give Up Its Fossils	38
RESEARCH NEWS	Synchrotron Light for X-ray Lithography	39
	Forecasting the Weather a Bit Better	40
	Surprise Findings in the Taung Child's Face	42
	How Old Is the Taung Child?	43

BOARD OF DIRECTORS

ANNA J. HARRISON
Retiring President, Chairman

DAVID A. HAMBURG
President

GERARD PIEL
President-Elect

ROBERT W. BERLINER
LAWRENCE BOGORAD

WALTER E. MASSEY
DOROTHY NELKIN

CHAIRMEN AND SECRETARIES OF AAAS SECTIONS

MATHEMATICS (A)
Gail S. Young
Lynn Arthur Steen

PHYSICS (B)
Chen Ning Yang
Rolf M. Sinclair

CHEMISTRY (C)
Fred W. McLafferty
Jean'ne M. Shreeve

ASTRONOMY (D)
Patrick Palmer
Donat G. Wentzel

PSYCHOLOGY (J)
Gregory A. Kimble
William N. Dember

SOCIAL, ECONOMIC, AND POLITICAL SCIENCES (K)
Robin M. Williams, Jr.
David L. Sills

HISTORY AND PHILOSOPHY OF SCIENCE (L)
Wesley C. Salmon
David L. Hull

ENGINEERING (M)
Raymond L. Bisplinghof
W. Edward Lear

EDUCATION (Q)
Marvin Druger
Joseph D. Novak

DENTISTRY (R)
Robert J. Fitzgerald
Harold M. Fullmer

PHARMACEUTICAL SCIENCES (S)
Stuart Feldman
David A. Knapp

INFORMATION, COMPUTING, AND COMMUNICATION
Joseph Becker
Madeline M. Henderson

DIVISIONS

ARCTIC DIVISION

Robert White
President

Gunter E. Weller
Executive Secretary

CARIBBEAN DIVISION

Juan A. Bonnet, Jr.
President

Lucy Gaspar
Secretary-Treasurer

PACIFIC DIVISION

Walter Gardner
President

Alan E. Leviton
Executive Director

SCIENCE is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005. Second-class postage (publication No. 484460) paid at Washington, D.C., and at an additional entry. Now combined with *The Scientific Monthly*. Copyright © 1985 by the American Association for the Advancement of Science. Domestic individual membership and subscription (51 issues): \$56. Domestic institutional subscription (51 issues): \$93. Foreign postage extra: Canada \$24, other (surface mail) \$27, air-surface via Amsterdam \$65. First class, airmail, school-year, and student rates on request. Single copies \$2.50 (\$3 by mail); back issues \$3 (\$3.50 by mail); Biotechnology issue, \$5 (\$5.50 by mail); classroom rates on request. **Change of address:** allow 6 weeks, giving old and new addresses and seven-digit account number. Authorization to photocopy material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by AAAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of \$1 per copy plus \$0.10 per page is paid directly to CCC, 21 Congress Street, Salem, Massachusetts 01970. The identification code for *Science* is 0036-8075/85 \$1 + .10. **Postmaster:** Send Form 3579 to *Science*, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005. *Science* is indexed in the *Reader's Guide to Periodical Literature* and in several specialized indexes.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

ANNUAL MEETING	Preconvention Program; Science Film Festival; Tours; AAAS Exhibit; Meeting Information; Advance Registration Form; Hotel Reservations Form; Discounted Air Fares.....	45
BOOK REVIEWS	Biogeographical Relationships between Temperate Eastern Asia and Temperate Eastern North America, <i>reviewed by A. Graham</i> ; Boussingault, <i>J. J. Beer</i> ; The Periodic Table, <i>S. E. Luria</i> ; Development of Visual Pathways in Mammals, <i>C. J. Shatz</i> ; Method and Tactics in Cognitive Science, <i>E. Wanner</i> ; Books Received	65
REPORTS	Around-the-World Relativistic Sagnac Experiment: <i>D. W. Allan, M. A. Weiss, N. Ashby</i>	69
	Catastrophic Anoxia in the Chesapeake Bay in 1984: <i>H. H. Seliger, J. A. Boggs, W. H. Biggley</i>	70
	Circadian Timing of Cancer Chemotherapy: <i>W. J. M. Hrushesky</i>	73
	Evidence for a Malarial Parasite Interaction Site on the Major Transmembrane Protein of the Human Erythrocyte: <i>M. J. Friedman, M. Fukuda, R. A. Laine</i>	75
	Gene Transfer and Expression of Human Phenylalanine Hydroxylase: <i>F. D. Ledley et al.</i>	77
	Human Dioxin-Inducible Cytochrome P ₁ -450: Complementary DNA and Amino Acid Sequence: <i>A. K. Jaiswal, F. J. Gonzalez, D. W. Nebert</i>	80
	Human T-Cell Receptor α -Chain Genes: Location on Chromosome 14: <i>C. Jones et al.</i>	83
	Human T-Cell Clones from Autoimmune Thyroid Glands: Specific Recognition of Autologous Thyroid Cells: <i>M. Londei, G. F. Bottazzo, M. Feldmann</i>	85
	Genotoxicity of Formaldehyde in Cultured Human Bronchial Fibroblasts: <i>R. C. Grafstrom et al.</i>	89
	Thermosensitivity of a DNA Recognition Site: Activity of a Truncated <i>nutL</i> Antiterminator of Coliphage Lambda: <i>S. W. Peltz et al.</i>	91
	Expression in <i>Escherichia coli</i> of Open Reading Frame Gene Segments of HTLV-III: <i>N. T. Chang et al.</i>	93
	Sequence of the Alpha Subunit of Photoreceptor G Protein: Homologies Between Transducin, <i>ras</i> , and Elongation Factors: <i>M. A. Lochrie, J. B. Hurley, M. I. Simon</i>	96

3. SLAUGHTER E. SAWYER	SHEILA E. WIDNALL LINDA S. WILSON	WILLIAM T. GOLDEN Treasurer	WILLIAM D. CAREY Executive Officer
---------------------------	--------------------------------------	--------------------------------	---------------------------------------

OGY AND GEOGRAPHY (E) W. Hay nas Dutro, Jr.	BIOLOGICAL SCIENCES (G) Dorothy M. Skinner Walter Chavin	ANTHROPOLOGY (H) James Silverberg Priscilla Reining
AL SCIENCES (N) A. Good in E. Rhoads	AGRICULTURE (O) John Pesek Ralph J. McCracken	INDUSTRIAL SCIENCE (P) J. Kenneth Craver Robert L. Stern
ITICS (U) A. Bailar J. Wegman	ATMOSPHERIC AND HYDROSPHERIC (W) William W. Kellogg Bernice Ackerman	GENERAL (X) George C. Sponsler Rodney W. Nichols

THWESTERN AND ROCKY MOUNTAIN DIVISION

Charles E. Holley, Jr. resident	M. Michelle Balcomb Executive Director
------------------------------------	---

American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects further the work of scientists, to facilitate cooperation among them, to foster scientific freedom and responsibility, to promote the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.

COVER

City Hall, Los Angeles. See page 45 for details about the program. [Frederick G. Finger, National Oceanic and Atmospheric Administration, Washington, D.C.]

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Science serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in *Science*—including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by the AAAS or the institutions with which the authors are affiliated.

Publisher: WILLIAM D. CAREY
Editor: DANIEL E. KOSHLAND, JR.
Deputy Editors

PHILIP H. ABELSON (*Engineering and Applied Sciences*), JOHN I. BRAUMAN (*Physical Sciences*), GARDNER LINDZEY (*Social Sciences*)

Board of Reviewing Editors

JAMES P. ALLISON, LUIS W. ALVAREZ, DON L. ANDERSON, KENNETH J. ARROW, C. PAUL BIANCHI, ELIZABETH H. BLACKBURN, FLOYD E. BLOOM, MICHAEL S. BROWN, NINA V. FEDEROFF, GARY FELSENFELD, DOUGLAS J. FUTUYMA, THEODORE H. GEBALLE, STEPHEN P. GOFF, PATRICIA S. GOLDMAN-RAKIC, RICHARD M. HELD, GLORIA HEPPNER, ERIC F. JOHNSON, KONRAD B. KRAUSKOPF, PAUL E. LACY, JOSEPH B. MARTIN, JOHN C. MCGIFF, MORTIMER MISHKIN, JOHN S. PEARSE, YESHAYAU POCKER, FREDERIC M. RICHARDS, JAMES E. ROTHMAN, RONALD H. SCHWARTZ, OTTO T. SOLBRIG, ROBERT T. N. TJIAN, VIRGINIA TRIMBLE, GEERAT J. VERMEIJ, MARTIN G. WEIGERT, GEORGE M. WHITESIDES, WILLIAM B. WOOD, HARRIET ZUCKERMAN

Editorial Staff

Managing Editor: PATRICIA A. MORGAN
Assistant Managing Editors: NANCY J. HARTNAGEL, JOHN E. RINGLE

Production Editor: ELLEN E. MURPHY

News Editor: BARBARA J. CULLITON

News and Comment: COLIN NORMAN (deputy editor), CONSTANCE HOLDEN, ELIOT MARSHALL, R. JEFFREY SMITH, MARJORIE SUN, JOHN WALSH

European Correspondent: DAVID DICKSON

Research News: ROGER LEWIN (deputy editor), RICHARD A. KERR, GINA KOLATA, JEAN L. MARX, THOMAS H. MAUGH II, ARTHUR L. ROBINSON, M. MITCHELL WALDROP

Administrative Assistant, News: SCHERRAINE MACK;
Editorial Assistant, News: FANNIE GROOM

Senior Editors: ELEANORE BUTZ, RUTH KULSTAD

Associate Editors: MARTHA COLLINS, SYLVIA EBERHART, CAITILIN GORDON, WILLIAM GREAVES, BARBARA JASNY, STEPHEN KEPPEL, EDITH MEYERS, LOIS SCHMITT. **Assistant Editor:** LISA MCCULLOUGH

Book Reviews: KATHERINE LIVINGSTON, **Editor:** LINDA HEISERMAN, JANET KEGG

Letters Editor: CHRISTINE GILBERT

Production: JOHN BAKER, HOLLY BISHOP, KATHLEEN COSIMANO, ELEANOR WARNER, ISABELLA BOULDIN, JEAN ROCKWOOD, SHARON RYAN, BEVERLY SHIELDS

Covers, Reprints, and Permissions: GRAYCE FINGER, **Editor:** GERALDINE CRUMP, CORRINE HARRIS

Guide to Scientific Instruments: RICHARD G. SOMMER

Administrative Assistant: WILLIAM CARTER

EDITORIAL CORRESPONDENCE: 1515 Massachusetts Avenue, NW, Washington, D.C. 20005. Telephone: 202-467-4400. For "Information for Contributors" see page xi, *Science*, 29 March 1985.

Business Staff

Chief Business Officer: WILLIAM M. MILLER III

Business Manager: HANS NUSSBAUM

Assistant to Chief Business Officer: ROSE LOWERY

Business Staff Supervisor: DEBORAH JEAN RIVERA

Membership Recruitment: GWENDOLYN HUDDLE

Member and Subscription Records: ANN RAGLAND

Advertising Representatives

Director: EARL J. SCHERAGO

Production Manager: DONNA RIVERA

Advertising Sales Manager: RICHARD L. CHARLES

Marketing Manager: HERBERT L. BURKLUND

Sales: NEW YORK, N.Y. 10036: J. Kevin Henebry, 1515 Broadway (212-730-1050); SCOTCH PLAINS, N.J. 07076: C. Richard Callis, 12 Unami Lane (201-889-4873); CHICAGO, ILL. 60611: Jack Ryan, Room 2107, 919 N. Michigan Ave. (312-337-4973); BEVERLY HILLS, CALIF. 90211: Winn Nance, 111 N. La Cienega Blvd. (213-657-2772); SAN JOSE, CALIF. 95112: Bob Brindley, 310 S. 16 St. (408-998-4690); DORSET, VT. 05251: Fred W. Diefenbach, Kent Hill Rd. (802-867-5581).

ADVERTISING CORRESPONDENCE: Tenth floor, 1515 Broadway, New York 10036 (212-730-1050).

Science: Matters of Scale and Purpose

At a recent symposium honoring the late Allen Astin, remembered for his integrity under political fire as head of the National Bureau of Standards, a speaker observed that Astin knew something about the "advancement of science" that tends to be obscured now. He knew that science advances not always by leaps and hurdles but more often on its hands and knees. The texture of his science was a texture of wonder, not of the imperium.

What shapes the public understanding of science under present conditions is science's new centrality in the fast lanes of competitive national security and economic advantage. Resources—human, financial, and organizational—are massed to advance political and economic goals through science and engineering. It is not easy for the layman to disaggregate the mass and recognize the creative elements that keep science going. This could partially explain the stuttering response to serious infirmities in science and mathematics education. With the floodlights beamed on weapons systems, prophecies of technological salvation in the nuclear age, orbiting stations in space, smart tools for the information era, and a banquet of benefits through biotechnology, science's image as a laborious process of search, disappointment, surprise, and discovery is in some peril of becoming an image of thaumatology. This we do not need.

Before much time passes, a deep and pensive look must be taken at the emerging formation of our scientific and engineering directions. The gratifying upward spiral of federal funds for research and development is bound to slow or level off soon because consensus politics demands that deficits be dealt with. If the defense budget alone proposes to consume 72 percent of federal research and development funds in 1986, with built-in commitments that promise to drive the share ever onward and upward, downstream displacement impacts on other sectors of research are predictable. As resources are taken for preferred scientific and technical goals while the spectrum of general science recedes for want of support, scientific and technical manpower distributions are certain to respond to the pull of the tides. Where such outcomes might leave this country's claims to excellence in many areas of science is no idle question.

Straightforward answers to these problems of choice are hard to come by. Trade-offs among strategic requirements and general science are judgmental rather than explicit. The process for arriving at them is shaky at best. Yet, to allow policies for science to edge toward deadlock is to store up trouble. If the superpowers were to come to terms that might abate the mutual surge in weapons research and development, or if the United States and its international partners would agree to pool investments in such expensive areas as space, high energy physics, and long-range investigations of energy alternatives, the approaching crunch might ease. None of this relief will come easily or soon, and some of it may not come at all.

The realization that science and engineering are increasingly embodied in the pursuit of imperatives of national security and national interest puts a new coloration on the scale and the purposes of the research enterprise. Science, it appears, has transited its long postwar stage of lively and eclectic growth into the stage of instrumentalism for mega-objectives. That this evolution is setting the long-term pattern seems, on the evidence, clear. That it will define public and legislative expectations for science and engineering, in the absence of balancing policies, is no less likely. What it signifies for a world with unmet human needs and an increasingly fragile environment bears sober thinking.—WILLIAM D. CAREY

FOURTH SUMMER SYMPOSIUM IN MOLECULAR BIOLOGY

THE PENNSYLVANIA STATE UNIVERSITY

JULY 31–AUGUST 2, 1985

Keynote: Charles Yanofsky

Protein/Nucleic Acid Interactions:

A. Klug, G. Felsenfeld, A. Worcel, J. Wang

Gene Arrangements/Rearrangements:

L. Hood, N. Federoff, J. Donelson, D. J. Kemp

Viral/Oncogenic Transformation:

R. Erickson, E. Scolnick, C. Stiles, D. Frisque

Transgenic Expression:

F. Ruddle, S. Tilghman, U. Storb, E. Lacy

*Supported by Industrial Affiliates of the Penn State
Cooperative Program in Recombinant DNA Technology:*

Bethlehem Steel, IBM, Procter and Gamble

*and by the Ben Franklin Partnership Challenge Grant Program
for Technological Innovation, Commonwealth of Pennsylvania*

**For information on poster presentations and registration,
contact:**

Dr. Robert A. Schlegel, Chairman
Fourth Summer Symposium in Molecular Biology
208 South Frear Laboratory
The Pennsylvania State University
University Park, PA 16802

MECHANISMS OF HOST RESISTANCE TO INFECTIOUS AGENTS, TUMORS AND ALLOGRAFTS

July 27–30, 1985
Saranac Lake, NY

**Sponsored by Trudeau Institute, Inc.
In recognition of the Trudeau Institute Centennial**

An international conference will be held to commemorate the centennial of Trudeau Institute. In keeping with the institute's research mission, the conference will provide for interaction among established researchers engaged in the study of immunology at physiological, cellular and molecular levels.

Program topics will include: anatomy and cell types, soluble mediators, leukocyte production, circulation and emigration, recognition and repertoire, resistance to infection, response to allografts, response to tumors, and immunotherapy.

Invited speakers include:

D. Adams	M. Horwitz	S. Silverstein
M. Bevan	F. Liew	K. Smith
C. Bianco	H. Murray	J. Sprent
T. Braciale	C. Nathan	R. Steinman
Z. Cohn	R. North	R. van Furth
E. Dye	M. Oldstone	H. von Boehmer
S. Gordon	E. Palmer	I. Weissman
P. Gray	S. Rosenberg	A. Williams
H. Hahn	H. Schreiber	D. Wilson
P. Henkart	R. Schreiber	H. Winn

A limited number of shorter communications will be accepted for poster presentations.

Attendance is limited.

For registration, information and forms, contact:

Drs. Robert J. North and Ralph M. Steinman
Trudeau Institute, Inc.
P.O. Box 59
Saranac Lake, NY 12983

Head of Department for Air Pollutant Toxicology

The GSF is a national research centre with 1500 employees, funded by the Federal Republic of Germany and the State of Bavaria. As a centre for environmental sciences we intend to intensify our activities in the field of "ecological and health effects of air pollutants". A new Department of Air Pollutant Toxicology is being established within the Institute of Toxicology and Biochemistry.

The head of department will have a position and salary equivalent to that of a full professor.

Applications are invited from **suitably qualified scientists** experienced in **inhalation toxicology**, familiar with modern biochemical and biophysical methods and especially interested in studying the **mechanisms of action of inhaled air pollutants**.

A personal and institutional association with the Faculty of Medicine within the field of "Environmental Hygiene" of the Technische Universität München is being considered.

Candidates should submit a letter of application not later than April 30, 1985 to the Scientific Director Prof. Dr. H.W. Levi.



**Gesellschaft für
Strahlen- und Umweltforschung
München**

Ingolstädter Landstraße 1
D-8042 Neuherberg
Federal Republic of Germany

SCIENCE

News Department Reprint Series

Artificial Intelligence

This collection of articles from *Science* by M. Mitchell Waldrop explores the newly emerging field of artificial intelligence, AI. What AI has really accomplished, where might it plausibly be expected to go, and what are its limits? In particular, the articles focus on the foundations of AI—the effort to understand the phenomenon of intelligence. Included are such topics as expert systems, natural language understanding, computer vision, and parallel processing. This series is available now.

Single copies \$2.00; twenty or more \$1.00 each.
Orders must be prepaid.

Write to AAAS, Dept. AI, 1515 Massachusetts Ave., N.W., Washington, D.C. 20005.

Tours

General Information. Tours are limited to meeting registrants only. To order tickets, please complete the form on page 59 and mail it to the address indicated on the form. Since Tours 7 and 11 take place partly in nonpublic areas, it is requested that all participants in these tours indicate their citizenship, in addition to name and address, in the space provided on the order form. Ticket orders received after 17 May 1985 will be held at the AAAS Ticket Desk at the Westin Bonaventure Hotel.

Handicapped persons needing advance information or assistance should so indicate on the order form, or contact Virginia Stern, AAAS Project on the Handicapped in Science, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036 (telephone: 202-467-4497). Registrants who are mobility-impaired and who have an interest in the tours which are not fully accessible should contact Virginia Stern for alternative programs.

Tour ticket prices include transportation and, where applicable, admission fees. Tickets will be mailed before the Annual Meeting; they may be refunded for full value up to 24 hours before tour departure, but no refunds will be made after that time. However, participants in Tour 8b cannot receive refunds after 25 May.

All tours depart from and return to the Westin Bonaventure Hotel at the times indicated. Comfortable walking attire is recommended.

1. J. Paul Getty Museum. Sunday, 26 May, 12 noon–5:00 p.m. (Limit: 40 persons)

The J. Paul Getty Museum, located in Malibu, is a detailed replica of a Roman seaside villa that faces a spectacular ocean view. Oil billionaire J. Paul Getty had the museum built after the plan of the Villa dei Papyri in Herculaneum, once reputedly the home of Julius Caesar's father-in-law. The original villa, buried in the eruption of Vesuvius in 79 A.D., was remodeled and reoccupied over several centuries. The design of the Getty Museum is an amalgam of plans from a 300-year period from 200 B.C. to 79 A.D. Colonnaded walkways, mosaics, frescoes, and Roman-style landscaping have been used to recreate the Mediterranean setting. The crisp and idyllic period piece is home to a collection of superb Greek and Roman antiquities on the ground floor. Small galleries face an atrium courtyard, creating viewing areas appropriately scaled for the pieces on display. Upstairs are European paintings from the Renaissance through Baroque periods and collections of French decorative art housed in period rooms.

2. Marineland. Sunday, 26 May, 12 noon–6:00 p.m. (Limit: 45 persons)

Located on the Palos Verdes Peninsula, Marineland is a combination aquarium and marine circus situated on dramatic cliffs overlooking the Pacific Ocean. The Sky Tower rises to 344 feet above sea level for a panoramic view. Inside the park are several open-air amphitheatres where sea lions, dolphins, and killer whales perform amazing stunts and charming charades in large pools. *Passages Beneath the Sea*, a series of exhibits designed by Encyclopaedia Britannica, consists of 30



Jet Propulsion Laboratory

aquariums full of an amazing assortment of marine creatures in settings that reproduce their native habitats. The park also features walrus, large koi, and various fish in viewing tanks. The Marine Animal Care Center is a hospital behind glass, where visitors can question lab technicians about their patients via a two-way microphone. In addition, a discussion with members of the marine mammal staff has been arranged especially for AAAS participants.

3. Descanso Gardens. Monday, 27 May, 10:30 a.m.–1:00 p.m. (Limit: 45 persons)

At the 165-acre Descanso Gardens, visitors will enjoy extensive displays of roses, flowering plants, deciduous trees, and shrubs, all located in a mature California live-oak grove. The gardens are famous for their collection of camellias (100,000 plants representing 600 varieties), but these will not bloom at the time of the AAAS Annual Meeting. However, the variety of plants ensures that something is always blooming throughout the year. A serene teahouse is nestled in a Japanese-style garden that features a flowing stream forming waterfalls and pools. This visit includes a special docent-conducted tram tour of the gardens, which is not accessible to mobility-impaired registrants.

4. Griffith Observatory and Planetarium. Monday, 27 May, 6:30 p.m.–10:30 p.m. (Limit: 200 persons)

The striking green copper-domed moderne structure was designed in 1935 by John C. Austin and F. M. Ashley; the obelisk and bas-reliefs are by Archibald Garner, and the interior murals by Hugo Ballin. Displays in the Hall of Science explain astronomy and the physical sciences in participatory exhibits. The Foucault pendulum in the center of the rotunda hypnotizes visitors with its constant gentle swing. A fascinating show in the Planetarium Theatre recreates eclipses, northern lights, and cycles of the stars through the use of a huge Zeiss projector.



The J. Paul Getty Museum

Arrangements have been made for a special tour of the Observatory including the Foucault pendulum, the Tesla coil, and a special presentation on California's role in astronomy from the American Indians to the Space Age. There will also be an opportunity to look through one of California's largest public telescopes (not accessible to registrants in wheelchairs).

5. Lawry's California Center. Tuesday, 28 May, 9:30 a.m.–1:00 p.m. (Limit: 40 persons)

Lawry's California Center is the corporate headquarters and the western manufacturing facility of Lawry's Foods, Inc. This specially arranged behind-the-scenes tour will show how the company's more than 110 products are made. Your visit will take you to the test kitchens, production facilities, and laboratories. (Please note that this part of the tour involves two flights of stairs and is not accessible to mobility-impaired registrants.) The manufacturing facility is surrounded by one of Los Angeles' most beautiful gardens where, as an optional lunch, you may want to sample the Mexican-style dishes or barbecued meat specialties featured in the outdoor dining areas. There is also a gift shop and a gourmet shop.

6. NBC Television Studios. Tuesday, 28 May, 12 noon–3:00 p.m. (Limit: 40 persons)

Famous as the home of the "Tonight Show," the NBC Television Studios are the largest color facilities in the United States. A special tour has been arranged for AAAS participants which will allow a behind-the-scenes look at how television shows are produced and transmitted to NBC affiliates throughout the country. Following the tour, the Commis-

sary will be open for an optional late lunch or snack, or a little "celebrity gazing."

7. Jet Propulsion Laboratory. Wednesday, 29 May, 9:00 a.m.–12 noon (Limit: 75 persons)

The Jet Propulsion Laboratory (JPL) is affiliated with the California Institute of Technology, although it is not an educational facility. The American Space Age began 31 January 1958, with the launch of JPL's Explorer I, the first U.S. satellite and the discoverer of the Van Allen radiation belts that surround the earth. This visit will cover JPL's activities from the early days to the present, including a general overview of the Laboratory's planetary and earth science activities, as well as a tour of the Space Flight Operations Facility and the Spacecraft Assembly Facility in which the Galileo spacecraft is currently undergoing tests. This tour is not accessible to mobility-impaired registrants.

8. Mini Walking Tour of Downtown Los Angeles: a. **Tour only;** b. **Tour and Lunch.** Wednesday, 29 May, 12 noon–2:00 p.m. (Limit: 50 persons)

A guided walking tour of historic architecture in downtown Los Angeles takes you to the great buildings around Pershing Square, including the Biltmore Hotel and the Bradbury Building. Discover the stately and elegant architecture of the former "Wall Street of the West" and see the sumptuous movie palaces in Broadway's Historic Theater District. Participants in the second part of this tour will have lunch in the Boardroom Restaurant located in the historic Design Center of Los Angeles. Since the restaurant requires final reservations 3 days in advance, no refunds can be made after 25 May.

9. California State Museum of Science and Industry. Thursday, 30 May, 10:00 a.m.–1:00 p.m. (Limit: 90 persons)

The California State Museum of Science and Industry has undergone a magnificent renaissance and today stands as one of the premiere museums in the country. During the past three years of planning and rebuilding, the museum has grown threefold. The new Aerospace Museum tells the story of flight and space and beyond, with fascinating displays. In the IMAX theatre, "passengers" will enjoy a thrilling trip above the United States via the most modern film and sound technology. Our special docent tour will also include the Hall of Health, the Science Wing, and the Afro-American Museum.

10. Huntington Library, Art Galleries, and Botanical Gardens. Thursday, 30 May, 1:00–4:30 p.m. (Limit: 90 persons)

Located in San Marino, the 207-acre estate and former home of Henry E. Huntington (1850–1927)—a pioneer railroad tycoon and philanthropist—is now one of the greatest attractions in Southern California. The Huntington residence houses the art gallery with a collection that emphasizes English and French painting of the 18th century. Among the famous works displayed are Gainsborough's *Blue Boy*, Lawrence's *Pinkie*, Reynolds' *Sarah Siddons as the Tragic Muse*, and Romney's *Lady Hamilton*. The gallery also exhibits an

impressive collection of English and French porcelains, tapestries, graphics, drawings, and furniture. The Library houses extensive holdings of English and American first editions, manuscripts, maps, letters, and incunabula such as a Gutenberg Bible, a first folio of Shakespeare plays, and Benjamin Franklin's autobiography in manuscript. The gardens, begun in 1904, were designed and developed by William Hertreich. They contain, among others, a Shakespearean garden of plants mentioned by the Bard, a Japanese garden with specimens of bonsai, and a 12-acre desert garden with a large and unique variety of cacti and succulents. Our group will be greeted by Robert Middlekauf, Director of the Huntington.

11. Rockwell International Space Transportation Systems. Friday, 31 May, 1:00–4:00 p.m. (Limit: 90 persons)

This visit to the Rockwell International Space Transportation Systems Division in Downey will include a tour of full-size mock-ups of a Space Shuttle Orbiter and a Space Station habitable module. A briefing will be conducted on the accomplishments, benefits, and future applications of the Space Shuttle. Special audiovisual shows will also be presented. The Orbiter mock-up is not accessible to mobility-impaired participants. Otherwise, the tour is accessible.

Order Form for Tour Tickets

Name _____ Tel. No.: (____) _____

Institution or Company _____
(If part of mailing address)

Street Address _____

City _____ State _____ Zip Code _____

For Tours 7 and 11 indicate citizenship: _____

Indicate any special requirements due to a handicap: _____

Tour No.	Ticket Price	No. of Tickets	Tour No.	Ticket Price	No. of Tickets
1. J. Paul Getty Museum (26 May)	\$ 7.00	_____	7. Jet Propulsion Laboratory (29 May)	\$ 7.00	_____
2. Marineland (26 May)	17.50	_____	8. Walking Tour (29 May):		
3. Descanso Gardens (27 May)	10.00	_____	a. Tour only	3.00	_____
4. Griffith Observatory and Planetarium (27 May)	10.00	_____	b. Tour and lunch	13.00	_____
5. Lawry's California Center (28 May)	7.00	_____	9. California State Museum of Science and Industry (30 May)	5.50	_____
6. NBC TV Studios (28 May)	7.00	_____	10. Huntington Library, Galleries, and Gardens (30 May)	7.00	_____
			11. Rockwell International (31 May)	7.00	_____

Charge to my ☐ VISA or ☐ MASTERCARD. ☐ Enclosed is my check Total amount enclosed or charged: \$ _____

Total number of tickets ordered: _____

Account No. _____ Cardholder's Name _____

Expiration Date _____ Signature _____

MAIL TO: Tours, AAAS—Dept. R, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005

While at the Annual Meeting, don't miss the

AAAS Exhibit

Westin Bonaventure Hotel
Exhibit Hall (one level below lobby)

Hours

Monday, 27 May 6:00 pm-8:00 pm

Tuesday, 28 May & Wednesday, 29 May 10:30 am-6:30 pm

Thursday, 30 May 10:00 am-2:00 pm

Featured exhibitors include

American Institute of Physics
American Mathematical Society
American University Press Services
Atomic Industrial Forum
BioSciences Information Service
Birkhauser Boston, Inc.
CIBA-GEIGY Corporation
DIALOG Information Services, Inc.
Elsevier Science Publishing Co., Inc.
Encyclopaedia Britannica USA
Imported Publications, Inc.
Institute for Scientific Information
Macmillan Publishing Company/The Free Press
National Geographic Society
National Science Foundation

National Science Teachers Association
National Technical Information Service
New Scientist Magazine
OMNI Publications International Ltd.
Paragon House Publishers
Phillips Petroleum Company
The Planetary Society
The Publishers Book Exhibit, Inc.
Sigma Xi, The Scientific Research Society
Springer-Verlag New York, Inc.
U.S. Geological Survey
University of Chicago Press
University Science Books
W.H. Freeman & Company
The World Future Society

Plus the AAAS Affiliates Exhibit, a cooperative display of materials from our affiliated societies; and the AAAS Poster Sessions, a lively presentation of individual contributed papers.

Meeting Information

The 1985 Annual Meeting will be held in two downtown Los Angeles hotels, located within three blocks of each other:

The Westin Bonaventure (B), 404 South Figueroa Street: Public lectures (evening) and symposia; workshops (Sunday, 26 May only); the Annual Meeting Exhibit; poster sessions (contributed papers); Science Film Festival; business meetings and social functions; registration, information, and ticket desks; member resource center; resource rooms for disabled and minority registrants; speakers' room; employment information; message center; and AAAS headquarters office.

Los Angeles Hilton (H), 930 Wilshire Boulevard: Public lectures (midday) and symposia; workshops (Sunday, 26 May only); business meetings and social functions; registration and information desks; AAAS newsroom; and AAAS headquarters office.

Hotel Reservations. The AAAS has reserved a block of hotel rooms at special reduced rates at both the Westin Bonaventure and the Los Angeles Hilton hotels. **These special rates are guaranteed only when reservations are made through the AAAS Housing Bureau before 3 May 1985.** Please read and fill out carefully the housing form on page 63 in this issue. Room assignment will be delayed if any information is omitted from the form.

Do not be a "No-Show!" If you have made a reservation and find that you cannot keep your commitment, write to or call the Housing Bureau or hotel and cancel.

Advance Registration. Registration categories and fees are listed on the advance registration form on page 62 in this issue. **You may charge your registration fee to your VISA or MasterCard.**

Advance registrants, please note: In mid April we will mail to you an expanded preconvention program, your badge and registration receipt together with a voucher for your registration packet. Present the voucher at the Advance Registrants' desk at either the Westin Bonaventure or the Los Angeles Hilton to receive the program book, condensed program (foldout), and abstracts volume. The registration areas will be open during the following hours:

Sunday, 26 May	12 noon-6:00 p.m.
Monday through Thursday,	
27-30 May	8:00 a.m.-6:00 p.m.
Friday, 31 May	8:00 a.m.-12 noon

Registration Refunds. The AAAS will refund advance registration fees for all cancellations received by letter or telegram before 17 May 1985. **No refunds will be made on cancellation notices received after that date.** Refunds will be mailed from the AAAS offices in Washington after the Annual Meeting.

Tax Deductions for Educational Expenses. U.S. Treasury regulation §1.162-5 allows an income tax deduction for educational expenses (registration fees, cost of travel, meals, and lodging) incurred to (i) maintain or improve skills required in one's employment or other trade or business or (ii) 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 that leads to a degree.

Resources for Disabled Registrants. The AAAS, in cooperation with the Los Angeles Advisory Committee, is 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 services will be provided through the Resource Room located in the Westin Bonaventure: transportation to and from airports, train stations, and bus terminals; interpreters for the hearing-impaired at all public lectures, and for other sessions on request; special tour and sight-seeing information; audiotaped program highlights for the visually impaired; assistance in movement within and between hotels; and emergency repair for wheelchairs.

Persons needing special accommodations and services are strongly urged to so indicate on the registration and housing forms. *Your early response will help us to plan and serve you better. For*

additional information, contact Virginia Stern, AAAS Project on the Handicapped in Science, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036 (telephone, 202/467-4497).

Air Travel to Los Angeles. United Airlines and Delta Airlines are offering special discount air fares to AAAS Annual Meeting attendants. For details, see page 64 in this issue.

Airport Buses. Airport buses stop at both the L.A. Hilton and Westin Bonaventure hotels. Buses depart from airport and hotels at intervals of approximately 30 minutes. Travel time is about 45 minutes; one-way ticket price is \$6.

Car Rental Discount. Dollar Rent A Car offers Annual Meeting attendants the following special convention rates:

Economy Car	\$19.95/day (\$125/week)
Compact Car	20.95/day (135/week)
Intermediate Car	21.95/day (140/week)
Standard Car	22.95/day (145/week)
Premium Car	23.95/day (150/week)

These special rates are valid from 22 May through 2 June 1985; they include unlimited free mileage. Call **800-421-6868** toll free and identify yourself as attending the AAAS Annual Meeting.

Parking. The two meeting hotels have limited parking space available, for registered guests, at the following rates: Westin Bonaventure, \$11/24 hrs.; L.A. Hilton, \$12/24 hrs.

Commercial parking garages are also in the World Trade Center, the Arco Plaza, and the Wells Fargo Building, all located near the two hotels. Current rates are \$10/day; all rates are subject to change.

Child Care. Meeting attendants who require baby-sitters for infants and small children, or companion care for older children may wish to contact **Community Service Agency, Inc. (818/345-2950)**. The agency charges the rates listed below, at 4 hours minimum, plus \$3.75 for sitter's transportation cost plus parking fees:

Infant to 2 years	\$24 for 4 hrs.
3 years and up	\$20 for 4 hrs.
2 children	\$21 for 4 hrs.
3 children	\$22 for 4 hrs.

Charges for additional hours and special services vary; please inquire at the agency directly. The agency can be called 7 days a week: Mon.-Fri., 7:30 a.m.-9:00 p.m.; Sat. & Sun., 9:00 a.m.-9:00 p.m.

Message Center. The AAAS Message Center will be open during official registration hours. Messages for meeting attendants may be left by calling the Westin Bonaventure hotel, **213/624-1000**, and asking for the AAAS Message Center. The messages will be posted on a board in the registration area.

Bed and Breakfast Accommodations. B&B accommodations are a low-cost alternative to hotel housing, available in private homes and small inns. The reservation and referral service listed below coordinates appropriate B&B housing in accordance with individuals' needs both in the downtown and greater Los Angeles area. Current rates are \$35-45 (standard), \$46-55 (preferred), and \$56-65+ (deluxe) for double occupancy; for singles, deduct \$5. Cash, checks, traveler's checks, or money orders only; no credit cards accepted. For further information, current rate card, and housing application, call or write to:

California Houseguests International, Inc.
18533 Burbank Boulevard, No. 190
Tarzana, CA 91356
(818) 344-7878

Note: The Better Business Bureau of Los Angeles lists the company as a member in good standing. However, individuals who make housing arrangements through California Houseguests International do so on their own; the AAAS can not assume any responsibility.



Annual Meeting
Los Angeles
26-31 May 1985

**ADVANCE
REGISTRATION
(B)**

MAIL TO:
AAAS—DEPT. R
1515 Massachusetts Ave., N.W.
Washington, D. C. 20005

Name of Registrant:

(Last)

(First and Initial)

Name of Spouse Registrant:

(Last)

(First and Initial)

Institution/Company Name:

(To be printed on badge)

(Registrant)

(Spouse Registrant)

Mailing Address:

(For receipt of program(s), badge(s); and
Science [for new applicants])

(Street)

(City)

(State)

(Zip Code)

Convention Address:

(Where you can be reached)

(Hotel and/or Phone No.)

Check days
attending:

Sun Mon Tue Wed Thu Fri
☐ ☐ ☐ ☐ ☐ ☐

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

- Please check appropriate boxes, complete remainder of form (type or print), and **enclose payment or charge to credit card below.**
- Use separate form (photocopy) if you wish to submit additional registrations other than spouse's.
- Preconvention program, badge, and voucher for full program and abstracts will be mailed to registrants in mid April.
- **Registrations received after 10 May** will be held at the *Advance Registrants' Desk* at the Bonaventure Hotel.
- **Refund requests** for registration fees must be made by letter or telegram before 17 May 1985 and will be honored **after** the Annual Meeting.
No refunds are made on cancellation requests received after this date.
- Special one-day attendance registration will be available at on-site registration desks only.

Registration Category	Regular		Student or Retired	
	Single	Double	Single	Double
<input type="checkbox"/> AAAS Member	<input type="checkbox"/> \$ 60	<input type="checkbox"/> \$ 80	<input type="checkbox"/> \$ 30	<input type="checkbox"/> \$ 50
<input type="checkbox"/> Non-Member:				
<input type="checkbox"/> Meeting registration only	<input type="checkbox"/> \$ 75	<input type="checkbox"/> \$ 95	<input type="checkbox"/> \$ 30	<input type="checkbox"/> \$ 50
<input type="checkbox"/> Register and join: Single membership	<input type="checkbox"/> \$120	<input type="checkbox"/> \$140	<input type="checkbox"/> \$ 70	<input type="checkbox"/> \$ 90
<input type="checkbox"/> Register and join: Double membership		<input type="checkbox"/> \$157		<input type="checkbox"/> \$107

Students: Fulltime undergraduate or graduate students only.

Double Membership (registrant and spouse) includes single subscription to *Science* (51 issues per year).

1985 Membership Dues: Regular Member, \$60; Student or Emeritus, \$40; Spouse or Emeritus without *Science*, \$17.

Inquire for Canadian and other foreign rates.

Specify name(s) of new member(s):

Charge to my ☐ VISA or ☐ MASTERCARD

Account No. _____ Expiration Date _____

Cardholder's Name _____ Signature _____
(Please print)

SURVEY OF ATTENDANTS

Annual Meeting, Los Angeles, 26-31 May 1985

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

Principal Professional Interest

- 11 ☐ Physical, mathematical
12 ☐ Biological, medical
13 ☐ Engineering
14 ☐ Social, behavioral
15 ☐ Science policy
16 ☐ _____
(other)

Principal Professional Activity

- 21 ☐ Teaching, education
22 ☐ Health practice
23 ☐ Other practice, consulting
24 ☐ Research, development
25 ☐ Administration
26 ☐ _____
(other)

Institutional Affiliation Type

- 31 ☐ University, 4-year college
32 ☐ Other educational
33 ☐ Industrial, commercial
34 ☐ Other Private
35 ☐ Government
36 ☐ _____
(other)

Highest Educational Level

- 41 ☐ Doctoral Degree
42 ☐ Master's Degree
43 ☐ Other professional
44 ☐ Bachelor's Degree
45 ☐ _____
(other)

Age

- 51 ☐ Under 26 years
52 ☐ 26 to 35 years
53 ☐ 36 to 45 years
54 ☐ 46 to 55 years
55 ☐ 56 to 65 years
56 ☐ Over 65 years

**Number of Past AAAS
Meetings Attended**

- 61 ☐ None
62 ☐ One
63 ☐ Two
64 ☐ Three
65 ☐ Four
66 ☐ Five or more

Distance Traveled to Meeting

- 71 ☐ Under 51 miles
72 ☐ 51 to 150 miles
73 ☐ 151 to 400 miles
74 ☐ 401 to 1000 miles
75 ☐ 1001 to 3000 miles
76 ☐ Over 3000 miles

MAIL TO:
AAAS HOUSING BUREAU
P.O. BOX 71608
LOS ANGELES, CA 90071

HOTEL
RESERVATIONS

Annual Meeting
Los Angeles
26-31 May 1985



Send confirmation to:

Name _____ Street _____

City _____ State _____ Zip _____ Phone No. _____

Other occupants of room:

Name _____ Name _____

Choice of hotel: 1. _____ 2. _____

Room: ☐ Single ☐ Double ☐ Twin Suite: ☐ 1 Bedroom ☐ 2 Bedrooms Preferred Rate: \$ _____

Please indicate special housing needs due to a handicap: ☐ Wheelchair accessible room.

Other _____

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 or guaranteed by a major credit card.

Credit Card _____ Number _____ Exp. Date _____

Cardholder's Name (print) _____ Signature _____

-
- All hotel reservations must be submitted to the AAAS Housing Bureau in writing (use form above; type or print).
 - Reservations must be received by the Housing Bureau **not later than 3 May 1985**; reservations received after that date are conditional upon space availability at the hotels.
 - Rooms are assigned on a first come, first served basis. If room rate requested is no longer available, the next available higher rate will be assigned.
 - Confirmation will come directly from the hotel. All changes and cancellations must be made through the AAAS Housing Bureau until 3 May; thereafter contact the hotel directly. After 13 May you may call the Housing Bureau (213/488-0211) for referral to available hotels.

HOTEL RATES*

Hotel	Single	Double & Twin	Parlor + 1 Bedrm.	Parlor + 2 Bedrms.
The Westin Bonaventure 404 S. Figueroa Street Los Angeles, CA 90071	\$65, 70	\$75, 80	\$230 & up	\$330 & up
Los Angeles Hilton 930 Wilshire Blvd. Los Angeles, CA 90017	\$62, 67	\$72, 77	\$185 & up	\$235 & up

*Add 10% occupancy tax per night.

- Roll-away beds or extra person in room: Bonaventure, \$20/night; L.A. Hilton, \$16/night.
- Children are accommodated free of charge in same room with parents: L.A. Hilton, no age limit; Bonaventure, age 18 and under.



**Annual Meeting
Los Angeles**
26-31 May 1985

Discounted Air Fares



AAAS Convention Code: R0030

Call Toll Free: 1-800-241-6760

(Georgia residents:

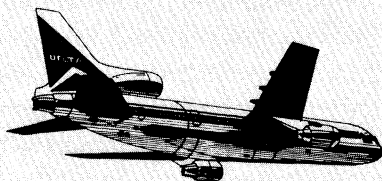
1-800-282-8536), seven days a week, 8:30 a.m. to 8:00 p.m. Eastern time.

Delta Air Lines offers you:

- 35% off regular roundtrip coach fare.
- No minimum stay requirement
- No black-out days (days on which discounts do not apply).

Conditions:

- Departure for Los Angeles between 24 and 28 May 1985.
- Return within 15 days of departure date.
- Reservations and ticketing must be completed 7 days before departure.



UNITED AIRLINES

Fly to the AAAS Los Angeles Meeting and Travel on to Honolulu

AAAS Convention Code: 513-E

Call Toll Free: 800-521-4041, Monday through Friday, 8:30 a.m. to 8:00 p.m. Eastern time.

United Airlines offers you a choice of:

- 5% off Hawaiian Excursion fare to Honolulu with stopover fee for Los Angeles convention.*
- 20% off Easy Saver fare (a Saturday night stay required).*
- 40% off regular roundtrip coach fare (no minimum stay required).*

*These special tariffs are not valid for travel on two specific days: 24 May and 27 May.

Conditions:

- Travel dates (including Hawaii trip) must be between 20 May and 9 June 1985.
- Reservations and ticketing must be completed by the day before departure.

Call the airline's toll free number and give the AAAS convention code. Specialists will provide information and make reservations. Tickets will be mailed to your home or office.

If you use a travel agent, ask the agent to use the toll free number and AAAS convention code to obtain the above discount fares.

Note: The special convention fares do not apply to other discounted rates. There may be other promotional air fares; however, they are limited and have restrictions. Check with the United or Delta convention desk for the greatest discount applicable to your itinerary.