

# AAAS Annual Meeting : Washington, D.C.

## Registration

26-31 December 1972

(C)

### ADVANCE REGISTRATION FORM

- ☐ Enclosed is \$15 Registration Fee (Program and Convention Badge)  
☐ Enclosed is \$20 Registration Fee (including spouse) (Program and Convention Badges)  
☐ Enclosed is \$5 Young People and Student Registration Fee (Program and Convention Badge)  
☐ Enclosed is \$5 for the Program only

(Mailing date of program and badge will be 1 December)

Registrations received after 15 December will be held at the Sheraton Park AAAS Information Booth

Miss Ms. Mrs.

Dr.

Mr.

(Last Name)

(First)

(Middle Initial)

#### MULTIPLE REGISTRATION:

(List full name for spouse and other registrants)

#### MAILING ADDRESS:

(For receipt of Program)

(Street)

(City/State)

(Zip Code)

#### INSTITUTION OR COMPANY:

(City)

(State)

(Zip Code)

#### CONVENTION ADDRESS:

Arrival  
date:

Departure  
date:

### PLEASE CHECK THE APPROPRIATE BOXES BELOW

#### Registrant 1

1. Please check your occupational category.

- ☐ Physical Science    ☐ Biological & Biomedical Science    ☐ Social & Behavioral Science    ☐ Engineering    ☐ Other—Indicate

2. Please check the activity at which you spend the most time.

- ☐ Medical Practice    ☐ Research or Development    ☐ Administration    ☐ Teaching or Education    ☐ Other—Indicate

3. Please check the primary reason you are attending the AAAS meeting.

- ☐ To participate in the program    ☐ To attend certain general sessions    ☐ To attend certain specialized sessions    ☐ Organizational Business    ☐ Other—Indicate

4. Are you a AAAS member?    ☐ Yes    ☐ No

#### Registrant 2 (spouse or other, if applicable)

1. Please check your occupational category.

- ☐ Physical Science    ☐ Biological & Biomedical Science    ☐ Social & Behavioral Science    ☐ Engineering    ☐ Other—Indicate

2. Please check the activity at which you spend the most time.

- ☐ Medical Practice    ☐ Research or Development    ☐ Administration    ☐ Teaching or Education    ☐ Other—Indicate

3. Please check the primary reason you are attending the AAAS meeting.

- ☐ To participate in the program    ☐ To attend certain general sessions    ☐ To attend certain specialized sessions    ☐ Organizational Business    ☐ Other—Indicate

4. Are you a AAAS member?    ☐ Yes    ☐ No

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

### OFFICE AND SESSION LOCATIONS

**Sheraton Park:** AAAS Headquarters Office; AAAS Registration; AAAS Information Desk; AAAS Ticket Sales Desk; AAAS Membership Recruitment; AAAS Lecture Aides; AAAS Press Headquarters; AAAS Television; National Public Radio; AAAS Council Meeting; AAAS Committee on Council Affairs (Open Hearing); Arden House Hearing; AAAS Invited Lectures and Illustrated Presentations; Science Film Theater; AAAS Youth Council Office.

**Symposia Topic Areas\*:** Health and Biology; Environmental Sciences; and Weather.

**Shoreham:** AAAS Registration; AAAS Information Desk; AAAS Membership Recruitment; AAAS Lecture Aides; Phi Beta Kappa Lecture; American Society of Zoologists Office; History of Science Society/Society for the History of Technology Desk.

**Symposia Topic Areas\*:** History of Science; Science, Technology and Society; Psychological Processes; Science and Cultural Trends; and Education.

**Washington Hilton:** AAAS Registration; AAAS Information Desk; AAAS Membership Recruitment; AAAS Lecture Aides; AAAS Popular Exposition; Graduate Women in Science (Sigma Delta Epsilon) Office; Society for General Systems Research Office.

**Symposia Topic Areas\*:** Learning and Human Sciences; Social Policy; Technology and Government; Growth and the Environment; International Science and Technology; and Space Science and Modern Physics.

\* See Preliminary Program in the 15 September issue for the precise hotel locations of individual symposia.

# Reservations

## HOTEL RATES\* (Per Day)

The American Association for the Advancement of Science will hold its 1972 Annual Meeting in Washington, D.C., 26-31 December. The AAAS registration desks will be located at the Sheraton Park, Shoreham, and Washington Hilton hotels. The following hotels will be used for housing:

	Hotel	Single	Double	Twin	Suites†	Parking
1)	SHERATON PARK 2660 Woodley Road, NW	\$19 \$21	\$27 \$29	\$27 \$29	\$40 and up	\$2.50 24-hour
2)	SHOREHAM 2500 Calvert Street, NW	\$19 \$21	\$27 \$29	\$27 \$29	\$40 and up	\$2.00 24-hour
3)	WASHINGTON HILTON 1919 Connecticut Avenue, NW	\$20 \$22	\$28 \$30	\$28 \$30	\$80 and up	\$2.50 24-hour

**STUDENT RATES** A limited number of rooms are available to students at special rates:

1)	SHERATON PARK and	\$12 per person (two persons per room) \$10 per person (three persons per room)
2)	SHOREHAM	\$ 8 per person (four persons per room)
3)	WASHINGTON HILTON	\$12 per person (two persons per room) \$10 per person (three persons per room)

\* D.C. Room Tax, 5 percent; \$4 to \$9 additional charge for cots and rollaway beds. If rate specified is not available, the next highest rate will be assigned.

† One-bedroom parlor suites; rates for larger suites available upon request.

## HOTEL RESERVATIONS FORM

Mail to: AAAS Housing Bureau  
1129 20th Street, NW  
Washington, D.C. 20036

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

ROOM: ☐ Single ☐ Double ☐ Twin ☐ Suite ☐ Student Preferred Rate \$ \_\_\_\_\_

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

Be sure to list definite arrival and departure date and time. Hotel reservations will be held only until 6 p.m. unless otherwise specified.

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

## NAMES AND ADDRESSES OF ALL OCCUPANTS OF ROOMS

(Reservations received after 11 December 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 \_\_\_\_\_

# THE CENTRAL PROGRAM OF THE 1972 AAAS ANNUAL MEETING

## EDUCATION AND THE HUMAN SCIENCES

### Anthropological Perspectives of Educational Phenomena

Arranged by Howard F. Hjelm  
(*Bureau of Occupational and Adult Education,  
U.S. Office of Education*)  
and  
Lloyd K. Johnson  
(*Education Program Specialist,  
Bureau of Higher Education, U.S. Office of Education*)

Washington Hilton,  
Georgetown-West

**Tuesday, December 26**

**2:00 p.m.** Chairman: Ralph Tyler (*Dir. Emer., Center for Advanced Study in the Behavioral Sciences, Stanford, Calif.*)

Theoretical Frameworks for the Anthropological Investigation of Formal Learning

Michael Cole (*Assoc. Prof. of Ethnographic Psychology, Rockefeller Univ.*) and Sylvia Scribner (*Research Assoc., Mathematical Psychology Lab., Rockefeller Univ.*)

Emerging Methodological Developments for Research Design, Data Collection, and Data Analysis

Peggy R. Sanday (*Assoc. Prof., Dept. of Anthropology, Univ. of Pennsylvania*)

Social Organization, Socialization, and Cultural Mediation in Formal Learning Situations

Francis A. J. Ianni (*Prof. and Dir.*) and Patricia L. Caesar (*Research Assoc., Horace Mann-Lincoln Inst., Teachers College, Columbia Univ.*)

The Federal Interest in Research on the Anthropology of Education

Howard F. Hjelm

### Science Education in Traditional Cultures

Arranged by D. Park Teter  
(*Ph.D. Candidate, Princeton University*)

**Thursday, December 28** **Shoreham, Board**

**9:00 a.m.** Chairman: D. Park Teter

Scientific Revolution in Traditional Cultures—Some Questions

D. Park Teter

The African Primary Science Program

Robert Carlisle (*Former Dir., African Primary Science Program, Educ. Development Center, Newton, Mass.*)

Science Education in Southeast Asian Cultures

Arthur H. Livermore (*Deputy Dir. of Educ., AAAS*)

Science Education in Latin American Cultures

Henry H. Walbesser, Jr. (*Dir., Bureau of Educational Research and Field Services, Univ. of Maryland*)

Science Education in U.S. Minority Cultures

Mary Budd Rowe (*Prof., College of Educ., Univ. of Florida, Gainesville*)

**Thursday, December 28** **Shoreham, Cabinet**

**2:00 p.m.** Workshop on Strategies for Science Education in Developing Countries  
Chairman: D. Park Teter

### Discovering and Nurturing Precocious Talent in Mathematics and Physical Science

Arranged by Julian C. Stanley  
(*Professor, Dept. of Psychology  
Johns Hopkins University*)

**Thursday, December 28** **Shoreham, Forum**

**9:00 a.m.** Chairman: Charles Leo Thomas (*Asst. Prof. of Educ. Psychology, Indiana Univ., Bloomington*)

What Do We Know about Intellectual Brightness and Precocity?

Julian C. Stanley

The Study of Mathematically Precocious Youth

Daniel P. Keating (*Project Assoc., Dept. of Psychology, Johns Hopkins Univ.*)

Facilitating the Educational Development of Mathematically Precocious Youth

Lynn H. Fox (*Project Assoc., Dept. of Psychology, Johns Hopkins Univ.*)

**2:00 p.m.** Chairman: Charles Leo Thomas

Sex Differences in Mathematical and Scientific Precocity

Helen S. Astin (*Dir. of Research and Educ., Univ. Research Corp., Wash., D.C.*)

Discussion of the Preceding Four Papers

Anne Anastasi (*Prof. of Psychology, Fordham Univ.*)

### Sex-Role Learning in Childhood and Adolescence

Arranged by Dale B. Harris  
(*Professor, Dept. of Psychology,  
Pennsylvania State University*)

**Thursday, December 28** **Shoreham, Ambassador**

**9:00 a.m.** Chairperson: F. R. Wake (*St. Patrick's College, Ottawa, Ontario*)

Nativism and Culturalism in Gender Identity Differentiation

John Money (*Prof. of Medical Psychology & Assoc. Prof. of Pediatrics, Johns Hopkins Univ. School of Medicine and Hosp.*)

Sex, Sex Role, and Sex-Role Identity—The Built-In Paradoxes

Benjamin Rosenberg (*Prof. of Psychology, Bowling Green State Univ.*)

Continuity and Change in Sex-Role Development—Some Methodological Considerations

Walter Emmerich (*Senior Research Psychologist, Educational Testing Service*)

**2:00 p.m.** Chairperson: Carolyn Sherif (*Pennsylvania State Univ.*)

## EDUCATION AND THE HUMAN SCIENCES

Comments on the Etiology of Behavioral Sex Differences

Eleanor Maccoby (*Prof. of Psychology and Dir., Lab. of Human Development, Stanford*)

Determinants of Sex Differences in Intellectual Development

David Lynn (*Prof. of Child Development, Univ. of California, Davis*)

The Socialization of Achievement Motivation in Females

Aletha H. Stein (*Assoc. Prof. of Human Development, Pennsylvania State Univ.*) and Margaret Bailey (*Graduate Student, Psychology, Pennsylvania State Univ.*)

Friday, December 29 Shoreham, Ambassador

9:00 a.m. Chairperson: Georgene Seward (*Univ. of Southern California, Los Angeles*)

Socializing for Maximal Female Competence

Julia Sherman (*Lecturer, Psychology, Univ. of Wisconsin Extension, Madison*)

Sex-Role Learning—A Multidimensional Perspective

Henry B. Biller (*Assoc. Prof. Psychology, Univ. of Rhode Island*)

The Significance of Sex-Role Learning—An Issue Re-examined

Jessie Bernard (*Research Scholar Honoris Causa, Sociology, Pennsylvania State Univ.*)

### Chairman's Symposium: Human Learning Capacities in Neurobiological Perspective

Arranged by S. Dillon Ripley  
(*Secretary, Smithsonian Institution*)  
and  
Philip C. Ritterbush  
(*Associate Meeting Editor, AAAS*)

Tuesday, December 26 Washington Hilton,  
Internat. Ballroom-East

4:30 p.m. Chairman: S. Dillon Ripley

Cross Cultural Perspectives on Early Development

Jerome Kagan (*Prof. of Human Development, Harvard Univ.*)

Thursday, December 28 Washington Hilton,  
Internat. Ballroom-East

9:00 a.m. Physiological Substrates for Learning  
Chairman: Walter G. Berl (*Meeting Editor, AAAS*)

How Is It That Sensing So Much We Can Do So Little?  
Karl H. Pribram (*Prof. of Psychology and Psychiatry, Stanford Univ.*)

Environmental Enrichment, Brain Plasticity, and Behavior

Mark R. Rosenzweig (*Prof. of Psychology, Univ. of California, Berkeley*)

Physiological Substrates for Learning—Problems and Mechanisms

Richard F. Thompson (*Prof. of Psychobiology, Univ. of California, Irvine*)

2:00 p.m. Comparative Neuro-Ethology

Chairman: Wolfgang M. Schleidt (*Prof. of Zoology, Univ. of Maryland*)

Behavior and Learning

Peter Klopfer (*Prof. of Zoology, Duke Univ.*)

The Genomic Repertoire as a Concept of Behavioral Ethology

Benson Ginzberg (*Prof. and Chm., Biobehavioral Sciences, Univ. of Connecticut*)

Learning and Communication

Peter Marler (*Prof. of Zoology, Rockefeller Univ.*)

Friday, December 29 Washington Hilton,  
Internat. Ballroom-East

9:00 a.m. Biological Capacity for Communicative Behavior

Chairman: Wilton S. Dillon (*Dir., Office of Seminars, Smithsonian Institution*)

On the Evolution of Knowledge

David Premack (*Prof. of Psychology, Univ. of California, Santa Barbara*)

Language and Learning

Ursula Bellugi (*Dir., Lab. for Language Studies, Salk Inst. for Biological Studies, San Diego*)

Play and Hominization

Peter Reynolds (*Postdoctoral Fellow, Veterans Admin. Hosp., Palo Alto, Calif.*)

2:00 p.m. What Can the Neurosciences Say About the Design of the Human Environment?

Chairman: Philip C. Ritterbush

Brain Mechanisms and Behavior

Robert B. Livingston (*Prof. of Neurosciences, Univ. of California, San Diego*)

Human Behavior and Environmental Design: The Design of Learning Environments

Richard Chase (*Assoc. Prof., Psychiatry and Behavioral Sciences, Johns Hopkins Hospital, Baltimore, Md.*)

An Emergent Theory of Mind and Some Implications for the Social Role of Science

Roger Sperry (*Hixon Prof. of Psychobiology, California Inst. of Technology*)

### Education in the Developing World— Middle East

Arranged by Frank X. Sutman  
(*Professor, Science and Education and Chairman, Dept. of Secondary Education, Temple University*)

Friday, December 29 Washington Hilton,  
Georgetown-West

9:00 a.m. Chairman: Frank X. Sutman

AID Activities in Turkey and Other Areas of the Middle East

Kenneth Martin (*Educ. Officer, AID/Asia Educ.*)

Research and Fellowship Activities in Egypt

Lily Brown (*Dir., American Research Center in Egypt, Princeton*)

Science Education Activities in Arab-Middle East Countries

Milton O. Pella (*Prof., Science Educ., Univ. of Wisconsin, Madison*)

Middle East Activities and Their Effect on U.S. Citizens

Joseph Belmonte (*Chief, Overseas Project Section, Inst. of Internat. Studies*)

Exchange Programs in the Middle East

Robert Macdonald (*Senior Program Officer for Near East Asia, U.S. Dept. of State*)

### Turning on with Science: Educational Programs for Minorities

Arranged by Rhoda Baruch  
(Consulting Psychologist, Newton Centre, Mass.)  
and  
Walter D. Knight  
(Professor of Physics, University of California,  
Berkeley)

Friday, December 29 Shoreham, Empire

9:00 a.m. Chairman: Rhoda Baruch

Voluntary Programs Fostering Mathematics Interest:  
Engaging Peer Group Support

Arnold E. Ross (Prof. of Mathematics, Ohio State  
Univ., Columbus)

Relating Science to a Cultural Life-Style: Teaching  
Aquaculture among the Lummi

Mary Ellen Hillaire (Contemporary Minority Pro-  
gram, Evergreen State College, Olympia, Wash.)

A Hands-On Approach to Science Education: The  
COPES Program

Janice Cutler (Asst. Dir., COPES, Research Sci-  
entist, Dept. of Physics, New York Univ.)

Concept Formation with Relation to Bilingual Educa-  
tion

Miguel A. Nevarez (Dir. of Bilingual Educ.,  
School of Educ., Pan American Univ., Edinburg,  
Tex.)

2:00 p.m. Chairman: Adolph Y. Wilburn (Staff  
Officer, Nat. Acad. of Sciences)

Motivating Urban Students Toward Science and En-  
gineering: Problems and Successes at College and Col-  
lege Prep Levels

Harry L. Morrison (Assoc. Dir., Lawrence Hall of  
Science, Prof. of Physics, Univ. of Calif., Berke-  
ley)

Preparing High-School Science Teachers: High-School  
University Cooperative Approach

Walter Massey (Prof. of Physics, Brown Univ.)

Approaches to Evaluating Programs for Motivating  
Disadvantaged Students to the Study of Science

Rita Peterson (Asst. Prof. of Teacher Educ.,  
Calif. State Univ. at Hayward)

Panel Discussion: Summary—What Works and What  
Does Not Work; Are There Any  
General Principles Operating?

Harry L. Morrison, Mary Lela Sherburne (Pres.,  
Associates for Renewal in Education, Wash.,  
D.C.), Rueben Pierce (Dir. of Science Educ.,  
Washington, D.C. Schools), Evelyn Wormley  
(Teacher, Backus Jr. High School, Wash., D.C.),  
Lindwood Newbold (Shaw Jr. High School, Wash.,  
D.C.), and Herbert Thier (Asst. Dir. Science  
Curriculum Improvement Study, Berkeley, Calif.)

### Assessing Achievement in School Science

Arranged by J. David Lockard  
(Professor of Biology and Science Education and  
Director, Science Teaching Center,  
University of Maryland, College Park)

Friday, December 29 Washington Hilton,  
Georgetown-West

2:00 p.m. Chairman: Robert H. Carleton (Exec.  
Sec., Natl. Science Teacher Assn.)

Assessment of Science Achievement in the United  
States

J. Stanley Ahmann (Staff Dir., Natl. Assessment  
of Educational Progress, Educ. Commission of the  
States, Denver, Colo.)

NAEP Findings in Science: Some Interpretations

James D. Rath (Chm., Dept. of Elementary  
Educ., Univ. of Illinois, Urbana)

The International Study of Educational Achievement  
in Science

Leopold E. Klopfer (Prof. of Educ. and Research  
Assoc., Learning Research and Development Cen-  
ter, Univ. of Pittsburgh)

### Educational Achievement and Social Indicators

Arranged by Boyd Ladd and Iris Garfield  
(National Center for Educational Statistics,  
USOE, HEW)

Saturday, December 30 Shoreham, Heritage

9:00 a.m. Chairman: Wilbur J. Cohen (Dean, School  
of Educ., Univ. of Michigan, Ann Arbor)

National Assessment and Social Indicators

Selma J. Mushkin (Dir., Public Services Lab.,  
Georgetown Univ.)

National Assessment Design; Implications

Edward C. Bryant and Morris H. Hansen (Pres.  
and Senior Vice Pres., Westat, Inc., Bethesda,  
Md.)

Discussants:

Dorothy M. Gilford (Asst. Comm. for Statistics  
USOE, HEW), J. Stanley Ahmann (Staff Dir.,  
Natl. Assessment of Educational Progress, Denver,  
Colo.), C. Philip Kearney (Assoc. Supt. for Re-  
search and School Admin., Michigan Dept. of  
Educ.) and Henry David (Exec. Sec., Behavioral  
Sciences Div., NAS, NRC, Wash., D.C.)

## HISTORY, PHILOSOPHY, AND SOCIOLOGY OF SCIENCE

### Genetics Since Mendel

Arranged by Garland E. Allen  
(Dept. of Biology, Washington University)

Wednesday, December 27 Shoreham, Diplomat

9:00 a.m. Chairman: William Coleman (Prof. of  
History, Northwestern Univ., Chicago)

Recent Research on the Significance of Mendel's Dis-  
covery

V. Orel (Dir., The Mendel Museum, Brno, Czecho-  
slovakia)

Cytology and Mendelism: The Preparation for and  
Convergence of Two Fields

Frederick Churchill (Assoc. Prof., Dept. of the  
History and Philosophy of Science, Indiana Univ.)

The Transition from the Mendelian Unit to the Indi-  
vidual Gene

Elof A. Carlson (Prof. of Biology, SUNY, Stony  
Brook)

Opposition to the Theory of the Gene: Richard Goldschmidt and the Functional View of Heredity  
Garland E. Allen

Mendelism, Racism, and the Biology of Race Crossing  
William Provine (*Asst. Prof., Dept. of History, Cornell Univ.*)

2:00 p.m. Chairman: Bentley Glass (*Prof. of Biology, SUNY, Stony Brook*)

Biochemical Genetics and Its Relations to Classical Mendelism  
Bentley Glass

Lysenko and the Development of Molecular Genetics in the Soviet Union

Mark Adams (*Asst. Prof. of the History of Science, Univ. of Pennsylvania*)

The Origins of Molecular Genetics

Robert Olby (*Prof. of Philosophy, Univ. of Leeds, U.K.*)

The Peripherality of Reductionism in the Development of Molecular Genetics

Kenneth Schaffner (*Prof. of the History and Philosophy of Science, Univ. of Pittsburgh*)

### Commemorative Program: 500th Anniversary of the Birth of Copernicus

Arranged by Raymond J. Seeger  
(*Secretary, AAAS Section L; Dean, Human Service College, Natl. Graduate Univ.*)

Auditorium, History and  
Technology Museum  
Smithsonian Institution

Wednesday, December 27

8:30 p.m. Chairman: Walter E. Boek (*Pres., Natl. Graduate Univ., Wash., D.C.*)

Introductory Remarks

Raymond J. Seeger

The Humanistic Significance of Our Copernican Heritage

Jerome R. Ravetz (*Head, Div. of History and Philosophy of Science, Leeds Univ., U. K.*)

Thursday, December 28

Shoreham, Palladian

9:00 a.m. Chairman: K. Aa. Strand (*Scientific Dir., U.S. Naval Observatory; Chm., Organizing Committee, Copernicus Commemorative Conference*)

Introductory Remarks

His Excellency, Professor Witold Trampeczynski, Ambassador of Poland

On the Quest of Direct Proofs of the Earth's Measurements

Alexander A. Mikhailov (*Pulkovo Observatory, Leningrad, U.S.S.R.*)

Copernicus and the Impact of Printing

Owen Gingerich (*Dept. of Astronomy and History of Science, Harvard Univ.; Astrophysicist, Smithsonian Astrophysical Observatory*)

Copernicanism in Bruno, Kepler, and Galileo

Stillman Drake (*Inst. for the History of Philosophy of Science and Technology, Univ. of Toronto*)

Copernicus as a Man and Contributor to the Advancement of Science

Edward Rosen (*Dept. of History, CUNY*)

### Mid-19th Century American Geology

Arranged by George W. White  
(*Dept. of Geology, University of Illinois*)

Thursday, December 28

Shoreham, Heritage

9:00 a.m. Co-Chairmen: Ellis L. Yochelson and George V. Cohee (*U.S. Geological Survey, Wash., D.C.*)

Pure versus Applied Research in the New Jersey Geological Survey

Jean Sidar (*Basking Ridge, New Jersey*)

Scientific Results of the New York Survey

Michele Aldrich (*Wright Hall, Univ. of Texas*)

The Great Taconic Controversy

Cecil J. Schneer (*Prof. of Geology, Univ. of N.H.*)

The State Survey Geologists and the Formation of the Association of American Geologists

Philip J. Lawrence (*Dept. of History of Sci., Harvard Univ.*)

Henry Stephens Randall, an Amateur Geologist in Central New York, 1842-1872

John W. Wells (*Prof. of Geology, Cornell Univ.*)

George Gibbs IV: The Professional Explorer in the Far West

Stephen D. Beckham (*Prof. of History, Linfield College, Oregon*)

### Relations of American and European Geology before 1800

Arranged by John C. Greene  
(*Professor, Dept. of History, University of Connecticut*)

Thursday, December 28

Shoreham, Heritage

2:00 p.m. Chairman: John C. Greene

Johann David Schoepf, the True Pioneer of American Geology

Edmund M. Spieker (*Prof. of Geology, Ohio State Univ.*)

American Geological Investigations and the French, 1750-1850

Kenneth L. Taylor (*Prof. of History of Science, Univ. of Oklahoma*)

William Maclure's Theory of Geology

George W. White (*Prof. of Geology, Univ. of Illinois, Urbana*)

Joseph N. Nicollet, His Geological Observations and Associations

Martha Bray (*St. Paul, Minnesota*)

European Attitudes toward American Geologists, 1830-1845, with Special Reference to Henry Darwin Rogers

Patsy Gerstner (*Librarian, Howard Dittrick Museum of Historical Medicine of the Cleveland Medical Library*)

Charles Lyell's Contribution to the Tertiary Geology of the United States

Leonard G. Wilson (*Prof., Dept. of the History of Medicine, Univ. of Minnesota, Minneapolis*)

Agassiz's Influence on Geological Thinking in the Americas

Albert V. Carozzi (*Prof. of Geology, Univ. of Illinois, Urbana*)

### Joseph Henry Symposium I: Physical Thought in the Early 19th Century

Arranged by Nathan Reingold  
(Editor, *Joseph Henry Papers*,  
Smithsonian Institution, Washington, D.C.)

Friday, December 29 Shoreham, Palladian

9:00 a.m. Chairman: Nathan Reingold

Sir David Brewster Confronts the Undulatory Theory of Light

Edgar W. Morse (*Hutchins School, California State College, Sonoma*)

Opposition to Aethereal and Imponderable Media in the Early 19th Century

Richard Olson (*Dept. of History, Univ. of California, Santa Cruz*)

Natural Philosophy, Nature Philosophy, and Science in the Early 19th Century

Robert E. Schofield (*Div. of Special Interdisciplinary Studies, Case Western Reserve Univ.*)

### Case Studies on the Relationship between Experiment and Theory in Science

Arranged by Stanley Goldberg  
(Associate Professor, School of Natural Sciences,  
Hampshire College, Amherst, Mass.)

Saturday, December 30 Shoreham, Executive

9:00 a.m. Chairman: Stanley Goldberg

Examples from the Field of Psychology

Sigmund Koch (*Academic Vice Pres., Boston Univ.*)

Case Studies in the History of Recent Physics

Gerald Holton (*Prof. of Physics and History of Science, Harvard Univ.*)

G. N. Lewis' Theory of Chemical Bonding: A Case Study in Scientific Innovation

Robert Kohlers (*Asst. Dir., Burndy Library, Norwalk, Conn.*)

The Justification of Transmutation: Hypothesis of Ramsey and Experiments of Rutherford

Thaddeus J. Trenn (*Research Assoc., Max Planck Inst. für Erforschung der Lebensbedingungen der Wissenschaftlich-Technischen Welt, Steinberg, Germany*)

Discussant:

Marx Wartofsky (*Prof., Philosophy, Boston Univ.*)

### Scientists Face the Social Implications of Their Work: Above the Sound and Fury?

Arranged by Barbara G. Rosenkrantz  
(Lecturer, Department of the History of Science,  
Harvard University)

Saturday, December 30 Shoreham, Club Room B

9:00 a.m. Chairman: Barbara G. Rosenkrantz

Venereal Disease Quackery and the Victorian Medical Profession: The Conflict between Status and Social Responsibility

M. Jeanne Peterson (*Asst. Prof. of History, Univ. of Indiana*)

The Function of Pesticides in High-Technology Agriculture: An Unresolved Problem in an Environmental Controversy

John H. Perkins (*Staff Officer, Environmental Studies Board, NAS*)

Scientists and Postwar Politics: A Re-Examination

Alice Kimball Smith (*Dean, Radcliffe Inst., Cambridge*)

Discussants:

Eric Cassell (*Clin. Prof. of Public Health, Cornell Medical College*) and Alexander Zucker (*Dir. of Heavy Ion Programs, Oak Ridge Natl. Lab.*)

### Historical Sociology of Science

Arranged by Harriet A. Zuckerman  
(Dept. of Sociology, Columbia University)

Saturday, December 30 Shoreham, Club Room B

2:00 p.m. Chairman: Harriet A. Zuckerman

Nature and Nurture: The Social Contexts of Nuclear Physics before the Bomb

Charles Weiner (*Center for History of Physics, Amer. Inst. of Physics*)

The Sociology of the Scientific Method: Early 20th Century Chinese and American Images of Science

Peter Buck (*Dept. of History of Science, Harvard Univ.*)

The Social Construction of Science (Vice Presidential Address of AAAS Section L)

Everett Mendelsohn (*Dept. of History of Science, Harvard Univ.*)

Introduced by Ernest Nagel (*Dept. of Philosophy, Columbia Univ.*)

Discussant:

Lewis Coser (*Dept. of Sociology, SUNY, Stony Brook*)

## MATHEMATICS AND SYSTEMS

### An Evaluation of Forrester-Type Growth Models

Arranged by Otomar J. Bartos  
(Professor, Dept. of Sociology,  
University of Colorado, Boulder)

Tuesday, December 26 Washington Hilton,  
Jefferson-West

2:00 p.m. Chairman: Joseph L. Fisher (*Resources for the Future, Wash., D.C.*)

Forrester's Model and Four U.S. Cities: A Comparison  
Otomar J. Bartos and Yung-Mei Tsai (*Instr., Dept. of Sociology, Univ. of Colorado, Boulder*)

Panel:

Ken Chen (*Goebel Prof. of Advanced Technology, Inst. for Environmental Quality, Univ. of Michigan, Ann Arbor*), Leo P. Kadanoff (*Prof. and Dir. of Urban Analysis Group, Dept. of Physics, Brown Univ.*), Dennis Meadows (*Prof., Thayer School of Engineering, Dartmouth College*), Marlin H. Mickle (*Assoc. Prof. of Electrical Engineering,*

*Univ. of Pittsburgh) and William G. Vogt (Prof. of Electrical Engineering, Univ. of Pittsburgh)*

### Methods of Social Indicator Analysis

Arranged by Kenneth C. Land  
(*Mathematical Sociologist, Russell Sage Foundation, New York City*)

**Tuesday, December 26** Shoreham, Executive

2:00 p.m. Chairman: Murray Aborn (*Dir., Special Projects, NSF*)

Social Indicators and Their Analysis  
Kenneth C. Land

Discussants:

Albert D. Biderman (*Bureau of Social Science Research, Inc., Wash., D.C.*), Zahava Blum (*Dept. of Social Relations, Johns Hopkins Univ.*) and Daniel Tunstall (*Office of Statistical Policy, Wash., D.C.*)

### Exploratory Data Analysis

Arranged by John W. Tukey  
(*Professor of Statistics, Princeton University, and Associate Executive Director, Research-Communications Principles Div., Bell Labs., Murray Hill, N.J.*)

**Wednesday, December 27** Shoreham, Executive

8:30 a.m. Chairman: Burton H. Colvin (*Chief of Applied Mathematics Labs., NBS*)

Some Graphical Techniques as Illustrations  
John W. Tukey

A Robust Analysis of Professional Football Scores  
Frederick Mosteller (*Prof. of Mathematical Statistics, Harvard Univ.*)

Form and Ritual in Statistics  
Leonard M. Steinberg (*Senior Computer Systems Specialist, Internat. Bank for Reconstruction and Development, Wash., D.C.*)

Discussion  
Howard Wainer (*Prof. of Psychology, Univ. of Chicago*)

10:15 a.m. Chairman: Burton H. Colvin

Exploring the Goldbach Counts (numbers of representations of even numbers as sums of two primes)  
Frederick C. Mosteller

Examples of Exploratory Questions about Mass Social Behavior  
Burton H. Singer (*Assoc. Prof. of Mathematical Statistics, Columbia Univ. [on leave at Princeton Univ.]*)

Exploration in Economic Data  
Edwin Kuh (*Prof. of Economics, MIT, and Exec. Dir. NBER Computer Research Center, Cambridge*) and David C. Hoaglin (*Lecturer on Statistics, Harvard Univ. and Senior Research Assoc., NBER Computer Research Center*)

Techniques for Exploring Counted Data as Further Illustrations  
John W. Tukey

Discussion  
John L. McCarthy (*Asst. Prof. of History, Yale Univ.*)

### Statistical Methods and Problems in Ecological and Environmental Studies

Arranged by Stephen E. Fienberg  
(*Associate Professor and Chairman, Dept. of Applied Statistics, University of Minnesota, St. Paul*)

**Wednesday, December 27**

Washington Hilton,  
Jefferson-West

8:30 a.m. Chairman: Ellison S. Burton (*Dir., Standards and Regulations Evaluation Div., Office of Planning and Evaluation, Environmental Protection Agency*)

Evaluation of Sensory Response to Diesel Exhaust Odors: A Critique

Janet T. Wittes (*Research Assoc., Dept. of Statistics, George Washington Univ.*)

Measuring the Effects of Air Pollution Versus the Effects of Smoking

Theodor D. Sterling (*Prof., Dept. of Computer Science, Simon Fraser Univ., Burnaby, B.C., Canada*)

Group Test Methods and Screening Experiments to Assess Toxicity in Food Chains

Milton Sobel (*Prof., Dept. of Theoretical Statistics, Univ. of Minnesota, Minneapolis*)

Discussants:

Donald R. McNeil (*Assoc. Prof. of Statistics, Princeton Univ.*) and Max A. Woodbury (*Prof. of Biomathematics and Computer Science, Duke Medical Center and Duke Univ.*)

10:45 a.m. Chairman: Ellison S. Burton

A Study of the Health and Environment of Workers in the Rubber Industry

Michael J. Symons (*Asst. Prof., Dept. of Biostatistics, Univ. of North Carolina*)

Mathematical Models in the Maryland Power Plant Monitoring Program

Werner F. Furth (*Chief, Modeling Staff, Power Plant Monitoring Program, Martin Marietta Corp., RIAS, Baltimore*)

Discussants:

Richard B. McCammon (*Prof. of Geological Sciences, Univ. of Illinois at Chicago Circle*) and Craig C. Sherbrooke (*Senior Analyst, MATHEMATICA, Inc., Bethesda, Md.*)

### Advances towards Better Computing for Researchers

Arranged by Gordon R. Sherman  
(*Dir. of Computing Center, Head of Computer Science Dept., University of Tennessee, Knoxville*)

**Wednesday, December 27**

Shoreham, Executive

2:00 p.m. Chairman: Gordon R. Sherman

Expanded Research Program Relative to a National Science Computer Network

D. Don Aufenkamp (*Head, Computer Applications in Research, NSF, Office of Computing Activities*)

Quality Control: A "Must" for Software Production

Ruth Davis (*Dir., Center for Computer Sciences and Technology, NBS*)

Interactive Three-Dimensional Computer Graphics in Molecular Biology

Robert Langridge (*Prof., Bio-Chemical Sciences, Princeton Univ.*)

New Machine Configurations for Scientific Computing  
Cecil E. Leith (*Visiting Prof., Dept. of Meteorology, MIT*)

## PHYSICAL UNIVERSE

### Recent Advances in Space Physics and Astrophysics

Arranged by Herbert Friedman  
(*Superintendent, Space Science Division, Naval Research Laboratory*)  
and George B. Field  
(*Professor, Dept. of Astronomy, Harvard University*)

Wednesday, December 27 Washington Hilton,  
Jefferson-West

2:00 p.m. Chairman: Herbert Friedman

#### Solar Physics

Leo Goldberg (*Dir., Kitt Peak Natl. Observatory, Tucson, Ariz.*)

#### High Energy Astronomy

Herbert Friedman

#### Infrared Astronomy

Edward Ney (*Prof., School of Physics, Univ. of Minnesota, Minneapolis*)

Thursday, December 28 Washington Hilton,  
Jefferson-West

9:00 a.m. Chairman: George B. Field

#### Cosmic Ray Astronomy

Peter Meyer (*Prof., Enrico Fermi Inst. and Dept. of Physics, Univ. of Chicago*)

#### Solar-Terrestrial Physics

Francis S. Johnson (*Dir., Center for Advanced Studies, Univ. of Texas, Dallas*)

#### Magnetospheric Physics

Juan G. Roederer (*Prof., Dept. of Physics, Univ. of Denver*)

### Physics: Its Future, and Its Role throughout Science

Arranged by Rolf M. Sinclair  
(*Program Director, Physics Section, National Science Foundation*)

Thursday, December 28 Washington Hilton,  
Jefferson-West

2:00 p.m. Chairman: Rolf M. Sinclair

#### Physics—1982

D. Allen Bromley (*Chm., Dept. of Physics, Yale Univ.*)

#### Physics—The Keystone of Science

Edward C. Creutz (*Asst. Dir. for Research, NSF*)

### Copernicus . . . and Modern Dynamical Astronomy

Arranged by P. Kenneth Seidelmann  
(*Nautical Almanac Office, U.S. Naval Observatory*)

Thursday, December 28 Washington Hilton, Military

1:30 p.m. Chairman: R. L. Duncombe (*Dir., Nautical Almanac Office, U.S. Naval Observatory*)

#### Planetary Theories

J. M. Anthony Danby (*Prof., Mathematics Dept., North Carolina State Univ.*)

#### Lunar Theories

André Deprit (*Prof., Cincinnati Observatory, Univ. of Cincinnati*)

#### Cometary Motions

Brian Marsden (*Smithsonian Astrophysical Observatory, Cambridge, Mass.*)

#### Minor Planet Motions

Paul Herget (*Prof., Cincinnati Observatory, Univ. of Cincinnati*)

#### Planetary Probes

John Anderson (*Jet Propulsion Lab., Pasadena*)

Friday, December 29 U.S. Naval Observatory  
Room 300, Building 52

9:00 a.m. Chairman: K. Aa. Strand (*Scientific Dir., U.S. Naval Observatory*)

#### The Origin of the Solar System

Gerard Kuiper (*Dir., Lunar and Planetary Lab., Univ. of Arizona*)

#### The Problem of Three Bodies

Victor Szebehely (*Prof., Aerospace Engineering and Engineering Mechanics, Univ. of Texas, Austin*)

#### Stellar Dynamics

Ivan King (*Prof., Astronomy Dept., Univ. of Calif., Berkeley*)

#### Galactic Dynamics

Alar Toomre (*Prof., Mathematics Dept., MIT*)

#### Computerized Analytical Manipulation

Morris Davis (*Prof. of Astronomy, Univ. of North Carolina, Chapel Hill*)

### From Abstraction to Reality: Two Revelations—The Laser and Superconductivity

Arranged by Rolf M. Sinclair  
(*Program Director, Physics Section, National Science Foundation*)

Friday, December 29 Washington Hilton,  
Jefferson-West

9:00 a.m. Chairman: Rolf M. Sinclair

#### The Laser

Benjamin Bederson (*Prof. of Physics, New York Univ.*)

#### Superconductivity

John K. Hulm (*Dir., Div. of Systems Research, Westinghouse Research Labs., Pittsburgh, Pa.*)

### NASA's Planetary Research

Arranged by S. I. Rasool  
(*Deputy Director, Planetary Programs, Office of Space Science, NASA Headquarters, Washington, D.C.*)

Friday, December 29 Washington Hilton,  
Monroe

9:00 a.m. Chairman: Charles H. Townes (*Prof., Dept. of Physics, Univ. of Calif., Berkeley*)

#### NASA Planetary Program—Past-Present-Future (Space Probes and Ground Based)

John E. Naugle (*Assoc. Administrator for Space Science, NASA Headquarters, Wash., D.C.*)

## Mars—After Mariner 9

## Surface

H. Masursky (*Chief Scientist, U.S. Geological Survey, Flagstaff, Ariz.*)

## Atmosphere

C. Leovy (*Assoc. Prof., Dept. of Atmospheric Sciences, Univ. of Washington*)

## The Mysteries of Venus

R. Goody (*Prof., Dept. of Engineering and Applied Physics, Harvard Univ.*)

2:00 p.m. Chairman: Charles H. Townes

## Planetary Shapes and Magnetic Fields—A Clue to the Interiors

N. Ness (*Chief, Lab. for Extraterrestrial Physics, Goddard Space Flight Center*)

## Atmospheres of Mars, Venus and Earth—A Problem in Atmospheric Evolution

S. I. Rasool

## Planetary Exploration and the Future of Man

R. Jastrow (*Dir., Goddard Inst. of Space Studies, New York*)

## Redshifts of Galaxies and Quasars

Arranged by George B. Field  
(*Professor, Dept. of Astronomy, Harvard University*)

Saturday, December 30

Washington Hilton,  
Monroe

9:00 a.m. Chairman: George B. Field

## Evidence for Discordant Redshifts

Halton C. Arp (*Astronomer, Hale Observatories, Pasadena, Calif.*)

## Redshifts as Distance Indicators

John E. Bahcall (*Prof. of Astrophysics, School of Natural Sciences, Inst. for Advanced Study, Princeton, N.J.*)

## LIVING WORLD

## Genetic-Physiological Approaches to Animal Improvement

Arranged by Ralph E. Hodgson  
(*Acting Staff Specialist, National Program Staff, U.S. Department of Agriculture*)

Wednesday, December 27

Sheraton-Park,  
Frederick

9:00 a.m. Chairman: Ralph E. Hodgson

## Welcome

R. L. Lovvorn (*Admin., Cooperative State Research Service, USDA*)

## Using Genetic Diversity to Improve Animal Performance

Gordon E. Dickerson (*Investigations Leader, Quantitative Genetics, U.S. Meat Animal Research Center, Univ. of Nebraska*)

## Opportunities for Using New Biological Parameters as Predictors of Performance Traits

Edward G. Buss (*Prof. of Poultry Science, Pennsylvania State Univ.*)

## Preservation, Manipulation, and Use of Animal Gametes and Zygotes

H. D. Hafs (*Prof. of Physiology, Michigan State Univ.*)

## Regulation of the Female Reproductive Cycle to Increase Performance

B. N. Day (*Prof., Animal Science Research Center, Univ. of Missouri*)

## Ecology and Evolution of Social Organization

Arranged by Edwin M. Banks and Mary F. Willson  
(*Professor and Associate Professor, Dept. of Zoology, University of Illinois, Urbana*)

Wednesday, December 27

Sheraton-Park,  
North Cotillion

9:00 a.m. Chairman: Edwin M. Banks

## Polyandrous Social Organization in Shorebirds

Donald A. Jenni (*Prof., Dept. of Zoology, Univ. of Montana, Missoula*)

## Territory Quality and Mating Success in Field Sparrows

Louis B. Best (*Dept. of Zoology, Univ. of Illinois, Urbana*)

## Behavioral and Physiological Responses in Polygynous Passerines

Stephen G. Martin (*Asst. Prof., Dept. of Zoology, Colorado State Univ., Fort Collins*)

## Population Structure and Social Organization in Southwestern Riparian Birds

Steven Carothers (*Dept. of Zoology, Univ. of Illinois, Urbana*) and R. Roy Johnson (*Dept. of Biology, Prescott College, Ariz.*)

## Discussion

2:00 p.m. Chairman: Mary F. Willson

## Lek Organization and Reproductive Success in the Greater Prairie Chicken

Robert J. Robel and Warren B. Ballard, Jr. (*Div. of Biology, Kansas State Univ.*)

## Lek System in Uganda Kob Antelope

Helmut K. Buechner (*Senior Ecologist, Smithsonian Institution*)

## Alternate Routes to Sociality in Jays

Jerram L. Brown (*Prof., Dept. of Biology, Univ. of Rochester, N.Y.*)

## Male-Male Competition and Reproductive Success in Northern Elephant Seals

Burney J. LeBoeuf (*Assoc. Prof., Dept. of Biology and Psychology, Univ. of California, Santa Cruz*)

## Spacing and Possible Mechanisms of Population Regulation in Wolves

L. David Mech (*Fish and Wildlife Service, Twin Cities, Minn.*)

## Discussion

Thursday, December 28

Sheraton-Park,  
North Cotillion

9:00 a.m. Chairman: John F. Eisenberg (*National Zoological Park, Smithsonian Institution*)

## Contrasts in Social Behavior between Central American Cichlid Fishes and Coral Reef Surgeon Fishes

George W. Barlow (*Prof., Dept. of Zoology, Univ. of California, Berkeley*)

## On the Relationship of Social Evolution and Ecology in Ungulates

Valerius Geist (*Prof., Faculty of Environmental Design, Univ. of Calgary, Alberta, Canada*)

## Evolution of Reptilian Social Behavior

Bayard H. Brattstrom (*Prof., Dept. of Biology, California State Univ., Fullerton*)

## Ecology of Baboon Social Systems

Stuart Altmann (*Prof., Dept. of Biology, Univ. of Chicago*)

## LIVING WORLD

### Interspecific Studies of Rain-Forest Monkeys in Uganda: The Red Colobus

Thomas T. Struhsaker (*Research Assoc., New York Zoological Society and Rockefeller Univ.*)

#### Discussion

2:00 p.m. Chairman: George B. Rabb (*Assoc. Dir., Chicago Zoological Society, Brookfield, Ill.*)

### Relationships between Social Behavior, Social Organization and Habitat in the Arctic Ground Squirrel

Herbert R. Melchior (*Assoc. Prof., Dept. of Biology, San Diego State College*)

### Interspecific Aggression and Its Relevance to the Concept of Territoriality in Reef Fishes

Arthur A. Myrberg, Jr. and Ronald E. Thresher (*Rosentiel School of Marine and Atmospheric Sciences, Univ. of Miami, Fla.*)

### Mother-Offspring Conflict

Robert L. Trivers (*Asst. Prof., Biological Labs., Harvard Univ.*)

### Reproductive Competition and the Evolution of Sociality

Richard D. Alexander (*Prof., Museum of Zoology, Univ. of Michigan, Ann Arbor*)

#### Discussion

### Genetic Vulnerability of Crops

Arranged by James G. Horsfall  
(*Samuel W. Johnson Scientist, The Connecticut Agricultural Experiment Station, New Haven*)

Wednesday, December 27

Sheraton-Park,  
Frederick

2:00 p.m. Chairman: James G. Horsfall

### Catastrophic Crop Epidemics

James G. Horsfall

### Hazards of Introducing New Varieties

Warren H. Gabelman (*Prof. and Chm., Dept. of Horticulture, Univ. of Wisconsin, Madison*)

### Gene Pools: The Conservatories of Heritable Resources

David H. Timothy (*Prof. of Crop Science, Botany, and Genetics, North Carolina State Univ.*)

### Genetic Improvement and Genetic Vulnerability

George F. Sprague (*Research Agronomist, Agricultural Research Service, USDA*)

### Mechanisms of Dormancy and Developmental Arrest

Arranged by Mary E. Clutter  
(*Research Associate and Lecturer, Dept. of Biology, Yale University*)

Thursday, December 28

Shoreham,  
Regency Ballroom

9:00 a.m. Chairwoman: M. E. Clutter

### Regulation of Dormancy in Mammals

Craig Heller (*Asst. Prof. of Biology, Stanford Univ.*)

### Regulation of Dormancy in Apical Buds

Larry Noodén (*Assoc. Prof. of Botany, Univ. of Michigan, Ann Arbor*)

### Insect Diapause

Karen Sprague (*Postdoctoral Fellow in Molecular Biophysics and Biochemistry, Yale Univ.*)

### Control Mechanisms in Plant Embryogeny

Virginia Walbot (*Postdoctoral Fellow in Biochemistry, Univ. of Georgia*)

2:00 p.m. Chairman: G. M. Simpson (*Assoc. Prof. of Botany, Univ. of Saskatchewan, Saskatoon*)

### Translational Control of Bacterial Spore Development

William Steinberg (*Asst. Prof. of Microbiology, Univ. of Virginia Medical School, Charlottesville*)

### Mechanisms of Germination of Bacterial Spores

James C. Vary (*Asst. Prof. of Biochemistry, Univ. of Illinois at the Medical Center, Chicago*)

### Metabolic Regulation of Dormancy in Seeds

G. M. Simpson

#### Discussion

### Models for Transport in Biological Systems

Arranged by Walter E. Brown  
(*Director, American Dental Association Research Unit at the National Bureau of Standards*)

Thursday, December 28

Sheraton-Park,  
Assembly

9:00 a.m. Chairman: Clifford S. Patlak (*Theoretical Statistics & Mathematics Section, NIMH*)

### Transport through Thick Films

Robert A. Spangler (*Acting Chm., Dept. Biophysical Science, SUNY, Buffalo*)

### Transport through Biomolecular Lipid Membranes

Robert I. Macey (*Prof. of Physiology, Physiology-Anatomy Dept., Univ. of California, Berkeley*)

### Effects of Various Physical and Chemical Factors

Richard P. Wendt (*Dept. of Chemistry, Loyola Univ., New Orleans*)

2:00 p.m. Chairman: Clifford S. Patlak

### Relationship between Metabolism and Active Transport in Living Cells

Stanley I. Rapoport (*Lab. of Neurophysiology, NIMH*)

### Physiological Considerations in Models for Cellular Transport

Richard M. Hays (*Assoc. Prof. of Medicine, Albert Einstein College of Medicine, Bronx*)

### Iodine Kinetics: Compartmental Modeling

Mones Berman (*Theoretical Biology Lab., Natl. Cancer Inst.*)

Friday, December 29

Sheraton-Park,  
Assembly

9:00 a.m. Chairman: Edgard C. Moreno (*Forsyth Dental Center, Boston*)

### A New Model for Alkaline Earth Metabolism

John H. Marshall (*Senior Biophysicist, Radiological Physics Div., Argonne Natl. Lab.*)

### Models Relating to the Uptake and Dissolution of Drugs

William I. Higuchi (*Prof. Pharmacy & Dentistry, Univ. of Michigan, Ann Arbor*)

### Role of Transport in Dental Caries

Walter E. Brown

2:00 p.m. Chairman: Edgard C. Moreno

### Transport in Excitable Tissues

Harold Lecar (*Lab. Biophysics, Natl. Inst. of Neurological Disease & Stroke*)

### Models of Transport of Nonelectrolytes

John A. Jacquez (*Prof. of Physiology, Dept. of Physiology, Univ. of Michigan, Ann Arbor*)

### Models of Epithelial Transport Systems

Peter F. Curran (*Dept. of Physiology, Yale Univ.*)

## Survival in Aquatic Habitats

Arranged by Willis King  
(Assistant Director for Cooperative Services, U.S. Fish  
and Wildlife Service, Dept. of the Interior,  
Washington, D.C.)

Friday, December 29

Sheraton-Park,  
North Cotillion

9:00 a.m. Survival in Fresh Water Habitats  
Chairman: Raymond E. Johnson (U.S.  
Fish and Wildlife Service)

Status of Stream Habitats  
Edward C. Kinney (U.S. Fish and Wildlife Ser-  
vice)

Status of Fish Populations in Streams  
William M. Clay (Tom Wallace Prof. of Conserva-  
tion, Univ. of Louisville)

Natural Lakes of Florida—Limnology and Fishes  
Dennis E. Holcomb (Fisheries Biologist, Fla. Game  
and Fresh Water Fish Commission, Eustis, Fla.)

The Great Lakes—Limnology and Fishes  
Stanford H. Smith (Adjunct Prof., School of Natu-  
ral Resources, Univ. of Mich., Ann Arbor)

Desert Fishes and Their Habitats  
Edwin P. Pister (Fishery Biologist, Calif. Dept. of  
Fish and Game, Bishop)

2:00 p.m. Survival in Coastal and Marine Habitats  
Chairman: John S. Gottschalk (Natl.  
Marine Fisheries Service)

Coastal Zone Habitats  
James T. McBroom (U.S. Fish and Wildlife Ser-  
vice)

Degradation of the Environment in Delaware Bay and  
Its Effects on Marine Fisheries  
Kent S. Price (Asst. Dean, College of Marine Stud-  
ies, Univ. of Delaware, Lewes)

Ocean Environments  
Robert Edwards (Dir., North Atlantic Fisheries  
Research Center, Woods Hole, Mass.)

Recent Changes in Fish Populations of the Northwest  
Atlantic  
Marvin D. Grosslein (North Atlantic Fisheries Re-  
search Center, Woods Hole, Mass.)

Status of Marine Mammals and Associated Problems  
G. Carleton Ray (Assoc. Prof. of Pathobiology and  
Biology, Johns Hopkins Univ.)

## HEALTH, BEHAVIOR, AND SOCIAL PROCESSES

### Ethical, Legal, and Social Issues of Behavior Control

Arranged by Daniel Callahan  
(Director, Institute of Society, Ethics and  
the Life Sciences)

Wednesday, December 27

Shoreham, Ambassador

9:00 a.m. Chairman: Willard Gaylin (Pres., Inst. of  
Society, Ethics and the Life Sciences)

Ethical Issues of Psychosurgery and Electrical Stimu-  
lation of the Brain  
Herbert G. Vaughan, Jr. (Assoc. Prof. of Neurol-  
ogy, Einstein Medical School, Bronx, N.Y.)

## HEALTH, BEHAVIOR, AND SOCIAL PROCESSES

Ethical Issues of Behavior Control by Drugs  
Gerald Klerman (Prof. of Psychiatry, Harvard  
Medical School, Boston)

Ethical Issues of Psychological and Psychotherapeutic  
Means of Behavior Control  
Robert Michels (Dir. of Training, Psychiatric Inst.,  
New York)

2:00 p.m. Chairman: Willard Gaylin

Legal and Public Policy Issues of Behavior Control  
Harold Edgar (Assoc. Prof. of Law, Columbia  
Univ.)

Ethical and Philosophical Issues of Behavior Control  
Robert C. Neville (Assoc. for the Behavioral Sci-  
ences, Inst. of Society, Ethics and the Life Sciences)

Social Issues of Behavior Control: Present and Pro-  
spective  
Perry London (Dept. of Psychology Research and  
Service Center, Univ. of Southern California, Los  
Angeles)

### Pragmatic Aspects of Plastic and Graphic Modalities of Semioses: Multiple System Processes of Communication Viewed in Context

Arranged by William P. McLean  
(Visiting Assistant Research Professor, Institute of  
Communications Research, University of Illinois  
at Urbana-Champaign)

Wednesday, December 27

Sheraton-Park,  
Annapolis

9:00 a.m. Chairman: William P. McLean

Introductory Remarks  
William P. McLean

The Need for a Unified Semiotic in Film Study  
James Linton (Asst. Prof. of Communication Arts,  
Univ. of Windsor, Ontario)

The Code of Deillusioning and Its Relations to Mystify-  
ing Texts  
Marshall Blonsky (Prof. of Cinema, Inst. of Film  
Studies, Columbia Univ.)

Title to be Announced  
Anthony Leeds (Prof. of Anthropology, Boston  
Univ.)

2:00 p.m. Chairman: Anthony Leeds.

The Semiotics of End-Game Art  
Jack Burnham (Prof., Dept. of Art, Northwestern  
Univ.)

The Pragmatics of the Printed Word  
Sr. M. Claire Kolbenschlager (Instructor, Dept. of  
English and Amer. Studies, Univ. of Notre Dame)

Photographs of the Earth and the Whole Earth Catalog  
John Wheeler (Doctoral Candidate, Inst. of Com-  
munications Research, Univ. of Illinois, Urbana-  
Champaign)

The Referential Generality of Film Imagery  
Jeffrey Bacal (Instructor, Dept. of Speech, Univ.  
of Mass., Amherst)

Wednesday, December 27

Sheraton-Park,  
Alexandria

8:00 p.m. Chairman: William P. McLean

Samuel Fullers' *Verboten*: Objectivity and Ideology  
Brian Henderson (Doctoral Candidate, History of  
Consciousness Program, Univ. of California, Santa  
Cruz)

## HEALTH, BEHAVIOR, AND SOCIAL PROCESSES

Propositions for a Semiotical Definition of the Photograph

William P. McLean

Discussant

To be announced

### Parameters Influencing Drug Interactions

Arranged by Linwood F. Tice  
(Dean, Philadelphia College of Pharmacy and Science)

Thursday, December 28

Sheraton-Park,  
Continental

9:00 a.m. Chairman: Linwood F. Tice

Introductory Remarks  
Linwood F. Tice

An Overview of Drug Interaction

Daniel A. Hussar (*Dir., Dept. of Pharmacy, Philadelphia College of Pharmacy and Science*)

Evaluating Drug Interaction Literature

James A. Visconti (*Dir., Drug Information Center, Ohio State Univ. Hosps.*)

Interactions Involving Non-Prescription Drugs

Richard P. Penna (*Exec. Sec., Academy of General Practice, Amer. Pharmaceutical Assoc.*)

2:00 p.m. Chairman: Linwood F. Tice

Interaction of Drugs with Foods

Peter P. Lamy (*Dir., Institutional Pharmacy Programs, Univ. of Maryland*)

Selected Studies of Drug Interaction

Philip P. Gerbino (*Asst. Prof. of Clinical Pharmacy, Philadelphia College of Pharmacy and Science*)

Utilizing and Communicating Drug Interaction Information

J. Edward Bell (*Dir., Drug Information Services, Mercy Hosp., Pittsburgh*)

### Genetics and Human Disease

Arranged by Victor A. McKusick  
(Professor, Depts. of Medicine, Epidemiology and Biology, Johns Hopkins University)

Thursday, December 28

Sheraton-Park,  
Delaware Suite

9:00 a.m. Chairman: Victor A. McKusick

Biochemical Genetics

H. Neil Kirkman (*Prof. of Pediatrics, Univ. of North Carolina, Chapel Hill*)

Cytogenetics

Margery W. Shaw (*Genetics Section, M.D. Anderson Hosp., Houston*)

Somatic Cell Genetics

Barbara R. Migeon (*Assoc. Prof. of Pediatrics, Johns Hopkins Univ.*)

Immunogenetics

Wilma B. Bias (*Asst. Prof. of Medicine, Johns Hopkins Univ.*)

Mapping the Chromosomes of Man

Gary A. Chase (*Asst. Prof. of Med. and Biostatistics, Johns Hopkins Univ.*)

Discussion

2:00 p.m. Chairman: Victor A. McKusick

Prenatal Diagnosis

Cecil B. Jacobson (*Dept. of Obstetrics and Gynecology, George Washington Univ.*)

Neonatal Screening and Treatment of Genetic Disease  
Neil A. Holtzman (*Assoc. Prof. of Pediatrics, Johns Hopkins Univ.*)

Sickle Cell Anemia

Robert F. Murray (*Assoc. Prof. of Pediatrics and Medicine, Howard Univ.*)

Genetic Counseling

Edmond A. Murphy (*Assoc. Prof. of Medicine and Biostatistics, Johns Hopkins Univ.*)

New Possibilities for the Treatment of Genetic Disease

H. Vasken Aposhian (*Prof. and Chm., Depts. of Cell Biology and Pharmacology, Univ. of Maryland, Baltimore*)

Discussion

### Conceptions and Alleviations of Aggression and Violence

Arranged by John E. Exner, Jr.  
(Professor of Psychology and Director of Clinical Training, Long Island University, Brooklyn)

Friday, December 29

Shoreham, Forum

9:00 a.m. Civilized Man: The Roots of Violence

Chairman: Jerome Singer (*Prof. of Psychology, Yale Univ.*)

Introductory Remarks

Arron Brown (*Vice Pres., Internat. Organization for the Study of Group Tensions*)

The Socio-Theology of Group Violence: Is Civilization Possible?

James Laue (*Vice Chancellor, Washington Univ.*)

Biology and the Control of Violence

J. P. Scott (*Prof. of Psychology and Dir. of the Center for Studies in the Behavioral Sciences, Bowling Green State Univ.*)

Public Policy and Curbing Violence

Amitai Etzioni (*Prof. of Sociology and Dir. of the Center for Policy Research, Columbia Univ.*)

Environmental Variables as Factors in Aggression and Psychopathology

Monroe Lefkowitz (*Principal Research Scientist, N.Y. State Dept. of Mental Hygiene, Albany*),  
Leonard Eron (*Prof. of Psychology, Univ. of Illinois, Chicago Circle*), Leopold Walder (*Pres., Behavioral Services Consultants, Greenbelt, Md.*) and  
L. Rowell Huesmann (*Prof. of Psychology, Yale Univ.*)

1:30 p.m. Coping with Violence: New Professional Roles

Chairman: Timothy Costello (*Pres., Adelphi Univ., New York*)

The Social Role of Antagonists and Third Party Interveners in Violent Confrontations

John Speigel (*Dir., Lemberg Center for Studies of Violence, Brandeis Univ.*)

The Unique Potential of the Police in Interpersonal Conflict Management

Morton Bard (*Prof. of Psychology, Graduate School, City Univ. of New York*)

The Relationship between Violence as an Institution of Social Policy and Violence as an Expression of an Individual

Robert Reiff (*Prof. of Psychiatry [Psychology], Albert Einstein College of Medicine, New York*)

How to Deal with Aggression

Irving Salan (*Program Dir., Amer. Soc. of Psychoanalysis, N.Y.*)

**4:15 p.m. Presidential Address**

Chairman: Harold Proshansky (*Pres., Center for Grad. Studies, City Univ. of New York*)

**Must We Be Helpless Onlookers**

Benjamin Wolman (*Prof. of Psychology, Long Island Univ., Brooklyn*)

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**Chlorpromazine: The Use of Drugs in Mental Illness, 1952-1972**

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Arranged by Judith P. Swazey  
(*Consultant, Committee on Brain Sciences, National Research Council*)

**Friday, December 29**

**Sheraton-Park,  
Frederick**

**9:00 a.m. Chairman: Judith P. Swazey**

**Chlorpromazine's Origins and Entrance into Psychiatry**  
Judith P. Swazey

**Chlorpromazine and the Development of Psychopharmacology**

Roger T. Kelleher (*Assoc. Prof. of Psychobiology, Harvard Medical School, Boston*)

**Thorazine: More than a Pharmaceutical Product**

Charles L. Bolling (*Vice-Pres., Smith Kline and French Labs., Philadelphia*)

**2:00 p.m. Chairman: Judith P. Swazey**

**The Use of Psychotropic Drugs in the Hospital Setting**  
Jonathan O. Cole (*Supt., Boston State Hosp., Boston*)

**Impact of Psychotropic Drugs on the Mental Health Profession and Lay Public**

Gerald L. Klerman (*Prof. of Psychiatry, Harvard Medical School, Boston*)

**Prospective Developments in Clinical Psychopharmacology**

John A. Davis (*Prof. of Psychiatry and Assoc. Prof. of Pharmacology, Vanderbilt School of Medicine, Nashville*)

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**National and Regional Communication Networks in Health Care Delivery and the Biomedical Sciences**

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Arranged by N. Henry Moss  
(*Assoc. Clinical Prof. of Surgery, Temple Univ. Health Sciences Center and Albert Einstein Medical Center; Pres., Amer. Medical Writers Association*)

**Friday, December 29**

**Sheraton-Park,  
Baltimore-Annapolis**

**9:00 a.m. Moderator: N. Henry Moss**

**A National Network of Medical Library Services**  
Martin Cummings (*Dir., Natl. Library of Medicine*)

**Operational Programs and Plans for the Lister Hill Center for Biomedical Communications**

Albert Feiner (*Dir. of the Lister Hill Center, Natl. Library of Medicine*)

**A Technological Assessment of the Present Utility of Computer Networks to Their Customers**

Ruth Davis (*Dir., Center for Computer Sciences and Technology, Natl. Bureau of Standards*)

**Role of Computer Utility Networks in Health Care**

Julius Aronofsky (*Southern Methodist Univ.*), Thomas Paterson (*Pres., Marcom Applied Systems, Inc.*), and Douglas Parnell (*Vice Pres., University Computing Corp.*)

**HEALTH, BEHAVIOR, AND SOCIAL PROCESSES**

**10:30 a.m. Intermission**

**Planning a Regional Biomedical Communications Center**  
Randall Whaley (*Pres., Univ. City Science Center*) and N. Henry Moss (*Consulting Vice Pres., Univ. City Science Center*)

**The Role of the Major Common Carrier in the Development of Biomedical Communication Networks**

Theodore L. Simis (*Asst. Vice Pres., Computer Communications Data Services, AT&T*)

**National Policy for Communications Related to Health Care and Medical Education**

Charles C. Joyce, Jr. (*Asst. Dir., Office of Telecommunications Policy, Exec. Office of the President, Wash., D.C.*)

**Discussion**

**2:00 p.m. Communications Demonstrations**  
Presented by Davis McCarn and William Caldwell (*National Library of Medicine*)

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**Genetics, Man, and Society**

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Arranged by Mack Lipkin, Jr.  
(*Fellow in Medicine and Psychiatry, University of Rochester School of Medicine and Dentistry*)  
and David C. Duncombe  
(*Chaplain, Yale University School of Medicine; Coordinator, Task Force on Genetics and Reproduction, Yale University*)

**Friday, December 29**

**Shoreham,  
Regency Ballroom**

**8:45 a.m. Welcome and Overview of the Day's Symposium**

Co-Chairmen: Mack Lipkin, Jr. and David C. Duncombe

**9:00 a.m. Panel I: Progress and Problems in Medical Genetics**

Arranger and Moderator: Maurice J. Mahoney (*Asst. Prof., Depts. of Human Genetics and Reproduction, Yale Univ.*)

**Panel Keynoter:**

Leon E. Rosenberg (*Chm., Dept. of Human Genetics, Yale Univ.*)

**Panel:**

Michael M. Kaback (*Assoc. Prof. of Pediatrics, UCLA*), Benjamin G. Brackett (*Research Assoc. Prof. of Obstetrics and Gynecology, Univ. of Pennsylvania School of Medicine*) and Irving Ladimer (*Adjunct Assoc. Prof., Dept. of Community Medicine, Mt. Sinai School of Medicine*)

**10:30 a.m. Panel II: Counseling and Screening: Choosing Your Children's Genes**

Arranger: Ruth L. Silverberg (*Case Worker, Genetics Clinic, Task Force on Genetics and Reproduction, Yale Univ.*)

Moderator: Julian B. Ferholt (*Psychiatric Consultant, Genetics Clinic, Yale Univ.*)

**Panel Keynoter:**

Y. Edward Hsia (*Assoc. Prof. of Human Genetics, Pediatrics, and Medicine, Yale Univ.*)

**Panel:**

James R. Sorenson (*Assoc. Prof. of Sociology, Princeton Univ.*), Harvey A. Bender (*Prof. of Biology, Notre Dame Univ.*) and Muriel F. Humphrey (*Wash., D.C.*)

**1:00 p.m. Panel III: Choosing Your Children's Genes: Impact on Society**

Arranger and Moderator: Rev. Richard F. Van Wely (*Rector, Zion Episcopal Church, North Branford, Conn.; Task Force on Genetics and Reproduction, Yale Univ.*)

## Panel:

Roger L. Shinn (*Reinhold Niebuhr Prof. of Social Ethics, Union Theological Seminary, New York*), Garrett Hardin (*Prof. of Human Ecology, Univ. of California, Santa Barbara*), John C. Fletcher (*Dir., Interfaith Metropolitan Theological Education, Inc., Wash., D.C.*) and Thomas C. Schelling (*Prof. of Economics, Harvard Univ.*)

**2:45 p.m. Panel IV: How Can Society's Decision-making Institutions Be Made to Face the Long-term Consequences of Individual Genetics Choices?**

Arranger and Moderator: Richard A. Tropp (*Teaching Fellow and Asst. Instr. in Political Science; Task Force on Genetics and Reproduction, Yale Univ.*)

## Panel:

Daniel Singer (*Vice Pres., Inst. of Society, Ethics and Life Sciences*), Robert E. Cooke (*Pediatrician-in-Chief, Johns Hopkins Hosp.*), Stephen G. Breyer (*Prof. of Law, Harvard Law School*), and Richard J. Zeckhauser (*Prof. of Political Economics, Kennedy School of Government, Harvard Univ.*)

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**Knowledge and Value Requirements for Peace**


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Arranged by Berenice A. Carroll  
(*Assoc. Prof. of Political Science, University of Illinois, Urbana-Champaign*)  
and Davis B. Bobrow  
(*Director, Center of International Studies, University of Minnesota, Minneapolis*)

**Saturday, December 30      Shoreham, Ambassador**

**9:00 a.m. Peace Research that Makes A Difference**  
Chairman: Vincent P. Rock (*Div. of Behavioral Sciences, Natl. Research Council, Natl. Acad. of Sciences*)

Forecasting in International Relations: Problems and Prospects

Nazli Choucri (*Prof. of Pol. Science, MIT*)

Seeing into the Future: On Using Several Methods of Technological Forecasting in International Relations  
Thomas W. Robinson (*Research Fellow, Council on Foreign Relations, New York*)

Political-Military Forecasts with Action Implications  
Davis B. Bobrow

Social Science Contributions to Nonviolent Conflict Resolution

A. Paul Hare (*Research Dir.*), Charles C. Walker (*Dir. of Field Studies*) and Julie Latané (*Research Assoc., Center for Nonviolent Conflict Resolution, Haverford College*)

**2:00 p.m. Radical Perspectives in Peace Research**  
Chairwoman: Berenice A. Carroll

Peace Research, Peace Action, and Action-Research  
Herman Schmid (*Dept. of Sociology, Univ. of Lund, Sweden*)

Stalking the Electronic Battlefield

Marilyn McNabb (*Project Researcher, NARMIC—Natl. Action-Research on the Military-Industrial Complex, Phila.*)

Radical Content and Radical Process in Projecting the Future

Arthur I. Waskow (*Resident Fellow, Inst. for Policy Studies, Wash., D.C.*)

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**ENVIRONMENTAL SCIENCES**


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**Advances in Integrated Research—  
Experimentation and Modeling in the  
Eastern Deciduous Forest Biome, IBP**

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Arranged by Robert L. Burgess  
(*Deputy Director, Eastern Deciduous Forest Biome, Environmental Sciences Div., Oak Ridge National Laboratory*)

**Wednesday, December 27      Sheraton-Park, Dover**

**9:00 a.m. Chairman: Robert L. Burgess**

**Energy Transfers in Forested Ecosystems**

Kenneth R. Knoerr (*Prof., School of Forestry, Duke Univ.*), Thomas Sinclair (*Research Assoc., School of Forestry, Duke Univ.*), C. W. Murphy, Jr. (*Research Assoc., School of Forestry, Duke Univ.*), R. A. Goldstein (*Research Scientist, Environmental Sciences Div., Oak Ridge Natl. Lab.*), J. B. Mankin, Jr. (*Research Scientist, Mathematics Div., Oak Ridge Natl. Lab.*), H. H. Shugart, Jr. (*Research Ecologist, Environmental Sciences Div., Oak Ridge Natl. Lab.*), and Boyd A. Hutchinson (*Research Meteorologist, Atmospheric Turbulence and Diffusion Lab., NOAA, Oak Ridge, Tenn.*)

**Analysis of Primary Production for Natural and Managed Forest Ecosystems**

Russell E. Kinerson (*Research Assoc., Dept. of Botany, Duke Univ.*), Blaine E. Dinger (*Research Ecologist, Environmental Sciences Div., Oak Ridge Natl. Lab.*), and W. F. Harris (*Research Ecologist, Environmental Sciences Div., Oak Ridge Natl. Lab.*)

**Nutrient Cycling Experimentation in the Eastern Deciduous Forest Biome**

Gray S. Henderson (*Research Ecologist, Environmental Sciences Div., Oak Ridge Natl. Lab.*), J. R. Boyle (*Asst. Prof., Dept. of Soil Science, Univ. of Wisconsin, Madison*), Dale D. Huff (*Assoc. Prof., Dept. of Civil Engineering, Univ. of Wisconsin, Madison*), C. G. Wells (*Research Scientist, Southeastern Forest Experiment Station, USFS, Research Triangle Park, N.C.*), and Clayton Gist (*Research Assoc., Inst. of Ecology, Univ. of Ga.*)

**2:00 p.m. Chairman: Robert L. Burgess**

**Algal and Macrophyte Production Models in Aquatic Ecosystems**

J. Koonce (*Project Assoc., Lab. of Limnology, Univ. of Wisconsin, Madison*), M. S. Adams (*Assoc. Prof., Dept. of Botany, Univ. of Wisconsin*), R. G. Stross (*Assoc. Prof., Dept. of Biological Sciences, SUNY, Albany*), and R. V. O'Neill (*Research Ecologist, Environmental Sciences Div., Oak Ridge Natl. Lab.*)

**Models of Predator-Prey Interaction in Aquatic Systems**

J. Kitchell (*Project Assoc., Lab. of Limnology, Univ. of Wisconsin*), D. C. McNaught (*Assoc. Prof., Dept. of Biological Sciences, SUNY, Albany*), R. A. Park (*Assoc. Prof., Dept. of Geology, Rensselaer Polytechnic Inst., Troy, N.Y.*), and J. Peterson (*Project Assoc., Lab. of Limnology, Univ. of Wisconsin*)

**Microbial Decomposition and Nutrient Dynamics in Aquatic Ecosystems**

L. Clesceri (*Asst. Prof., Dept. of Biology, Rensselaer Polytechnic Inst., Troy, N.Y.*), D. B. Aulenchbach (*Assoc. Prof., Div. of Bio-Environmental Engineering, Rensselaer Polytechnic Inst., Troy, N.Y.*), J. C. Ensign (*Prof., Dept. of Bacteriology,*

*Univ. of Wisconsin*), D. R. Keeney (*Assoc. Prof., Dept. of Soil Science, Univ. of Wisconsin*), and D. E. Armstrong (*Assoc. Prof., Dept. of Water Chemistry, Univ. of Wisconsin*)

### Temperate Climate Forestry and the Forest Ecosystem: An Environmental Issue?

Arranged by Michael W. Corr  
(*Executive Secretary, AAAS Committee on Environmental Alterations*)

Thursday, December 28

Sheraton-Park,  
South Cotillion

9:00 a.m. Chairman: Theodore C. Byerly (*Asst. Dir., Science and Education, USDA*)

The Forest Landscape—Its Ecosystem and Biogeochemistry

Gene E. Likens (*Prof. of Ecology, Cornell Univ.*)

The Forest Ecosystem—Perturbations and Recovery

F. Herbert Bormann (*Prof. of Forestry, School of Forestry, Yale Univ.*)

Air Pollution—Effects on the Quality and Resilience of the Forest Ecosystem

William H. Smith (*Asst. Dean and Asst. Prof. of Forestry Pathology, School of Forestry, Yale Univ.*)

2:00 p.m. Chairman: F. Herbert Bormann

Current Logging Practices and the Sustained Yield Policy

T. C. Nelson (*Deputy Chief, Forest Service, USDA*)

Forest Management—Farming or Mining?

Arnold Bolle (*Prof. of Forestry, School of Forestry, Univ. of Montana, Missoula*)

Genetics as a Forest Management Tool

George Staebler (*Dir. of Forestry Research, Weyerhaeuser Corp., Centralia, Wash.*)

Forest Management and the Protection of Forest Resources—A Critique

Donald Dahlston (*Assoc. Prof. of Entomology, Div. of Biological Control, Univ. of California, Berkeley*)

### Changing the Weather

Arranged by Earl G. Droessler  
(*Administrative Dean for Research, North Carolina State University, Raleigh*)

Thursday, December 28

Sheraton-Park,  
Baltimore-Annapolis

9:00 a.m. Chairman: Earl G. Droessler

Purposeful Weather Change

Charles L. Hosler (*Dean, College of Earth and Mineral Sciences, Pennsylvania State Univ.*)

Inadvertent Weather Change

Steven H. Schneider (*Natl. Center for Atmospheric Research, Boulder, Colo.*)

A New Perspective from the National Academies of Sciences and Engineering

Thomas Malone (*Dean, Graduate School, Univ. of Connecticut*)

Legislation for Weather Modification

John F. Hussey (*Staff Dir., U.S. Senate Subcommittee on Oceans and Atmosphere*)

2:00 p.m. Chairman: Earl G. Droessler

Changing the Climate

Reid Bryson (*Prof., Dept. of Meteorology, Univ. of Wisconsin, Madison*)

Social Aspects of Weather Modification

J. Eugene Haas (*Prof., Sociology Dept., Univ. of Colorado, Boulder*)

Legal and International Aspects of Weather Modification

Howard J. Taubenfeld (*Prof., School of Law, Southern Methodist Univ.*)

Economic Aspects of Weather Modification

James A. Crutchfield (*Prof., Economics Dept., Univ. of Washington*)

### Must We Limit Economic Growth?

Arranged by S. Fred Singer  
(*Professor of Environmental Sciences, University of Virginia*)

Thursday, December 28

Washington Hilton,  
Internat. Ballroom-Center

9:00 a.m. The Consequences of Growth

Chairman: Edward F. Denison (*Brookings Institution*)

The Limits to Growth

Dennis L. Meadows (*Dartmouth College*)

Resource and Environmental Consequences of Growth

Ronald G. Ridker (*Resources for the Future, Inc.*)

Discussants:

Ronald E. Kutscher (*Bureau of Labor Statistics*), Vincent McKelvey (*U.S. Geological Survey*), and S. Fred Singer

2:00 p.m. Chairman: Herman E. Daley (*Louisiana State Univ.*)

Ecology and Economic Growth

Kenneth E. F. Watt (*Univ. of California, Davis*)

When Does Growth Become Too Expensive

S. Fred Singer

Discussants:

Allan Hirsch (*NOAA*), Leonard L. Lederman (*NSF*) and Dennis L. Meadows

Friday, December 29

Washington Hilton,  
Internat. Ballroom-Center

9:00 a.m. Energy: A Key Factor in Economic Growth

Chairman: Charles A. Zraket (*Mitre Corp., McLean, Va.*)

The Role of Energy in Our Society

Earl Cook (*Texas A & M Univ.*)

Environmental Impact of Energy

John Holdren (*California Inst. of Technology*)

Economic Consequences of Energy Costs

Marc Roberts (*Harvard Univ.*)

Energy Rationing: Methods and Consequences

Samuel Z. Klausner (*The Wharton School, Univ. of Pennsylvania*)

2:00 p.m. Panel Discussion

Chairman: S. Fred Singer

Discussants:

Richard Carpenter (*Environmental Studies Board, National Acad. of Sciences*), Herman Kahn (*Hudson Inst.*), Lawrence Moss (*Sierra Club and Natl. Acad. of Engineering*), and Chauncey Starr (*Univ. of California, Los Angeles*)

### Commonalities of Significance to both Geologists and Biologists

Arranged by Lawrence B. Slobodkin  
(Professor, Dept. of Ecology and Evolution,  
SUNY at Stony Brook)

Thursday, December 28

Sheraton-Park,  
Frederick

2:00 p.m. Chairman: Lawrence B. Slobodkin

#### Patterns in Extinction

Peter W. Bretsky (Assoc. Prof. of Earth and Space  
Sciences, SUNY, Stony Brook)

#### Ecological Parameters Common to Modern and Fossil Populations

Martin A. Buzas (Curator, Dept. of Paleobiology,  
Smithsonian Institution)

#### Is the Arctic Fragile?

Max Dunbar (Prof. of Marine Sciences, McGill  
Univ.)

#### Ice Age Vertebrates in Canada and Their Paleoenvironmental Implications

C. Richard Harington (Curator, National Museum  
of Canada, Ottawa)

### New Approaches to Global Weather: GARP (The Global Atmospheric Research Program)

Arranged by Walter O. Roberts  
(President, University Corp. for Atmospheric  
Research (UCAR), Boulder, Colorado)  
and Philip E. Merilees  
(Executive Secretary, UCAR GARP Council,  
Boulder, Colorado)

Friday, December 29

Sheraton-Park,  
Wilmington

9:00 a.m. Chairman: Walter O. Roberts

#### In the Beginning There Was GARP

Robert W. Stewart (Dir., Marine Sciences Direc-  
torate, Pacific Region, Environment Canada, Vic-  
toria, B.C.)

#### Satellites + Balloons + Mathematical Models + Work = Global Weather Observations

Verner E. Suomi (Dir., Space Science and Engi-  
neering Center, Univ. of Wisconsin, Madison)

#### Predictability; Does the Flap of a Butterfly's Wings in Brazil Set Off a Tornado in Texas?

Edward N. Lorenz (Prof., Meteorology, MIT)

#### 11:00 a.m. Panel Discussion: Should We Control the Weather?

Walter O. Roberts, Moderator  
Eugene W. Bierly (GARP Coordinator,  
Atmos. Sci. Sec., NSF, Wash., D. C.), Robert  
W. Stewart, Edward N. Lorenz, and  
Verner E. Suomi

### Man-Environment Relations and Health

Arranged by Aristide H. Esser  
(President, Assn. for the Study of Man-Environment  
Relations, Orangeburg, N.Y.)  
and Virginia R. Hannon  
(Research Center, Rockland State Hospital,  
Orangeburg, N.Y.)

Friday, December 29

Sheraton-Park,  
South Cotillion

#### 9:00 a.m. Planning for the Future: How Can We Modify Health?

Chairman: A. H. Esser

#### Behavioral Modification as Therapy

Charles Ferster (American Univ.)

#### Health, Rehabilitation, and the Wholeness of Man

Howard Rusk (New York Univ.)

#### Discussant:

Charlotte Muller (City Univ. of New York)

#### 2:00 p.m. Ecology of Behavior and Epidemiology of Illness

Chairman: V. R. Hannon

#### Ecological Psychology

Edwin Willems (Univ. of Houston)

#### Disease and Dysfunctional Environments

Bob Hoke (Natl. Naval Medical Center)

#### Discussants:

Demitri Shimkin (Univ. of Illinois, Urbana), Wil-  
liam Hausman (Univ. of Minnesota), and Samuel  
Klausner (Univ. of Pennsylvania)

Saturday, December 30

Sheraton-Park,  
South Cotillion

#### 9:00 a.m. Transactional Dynamics and Emotional Distress

Chairman: Robert A. Smith, III (NASA)

#### Environmental Psychology

William Ittelson (City Univ. of New York)

#### Emotions and Environmental Imagery

Sylvan Tomkins (Rutgers Univ.)

#### Discussants:

Paul Tibbetts (Purdue Univ.), Mardi Horowitz  
(Mt. Zion Medical Center, San Francisco), and  
Mathew Lee (Goldwater Memorial Hosp., N.Y.)

#### 2:00 p.m. Cultural Codes and Sociocultural Illness

Chairman: Lloyd H. Slomanson (Arch-  
itect, Hanby, Kennerly, Slomanson &  
Smith)

#### The Environment as Code

Alton De Long (Univ. of Texas, Austin)

#### Sociocultural Factors in Physical and Mental Break-down

Dorothea Leighton (Univ. of North Carolina)

#### Discussants:

Aristide Esser, Viola Bernard (Columbia Univ.,  
and Vera Rubin (Research Inst. for the Study of  
Man)

### Human Impact on the Atlantic Coastal Zone

Arranged by Bruce W. Nelson  
(Vice Provost and Professor of Geology, University  
of South Carolina, Columbia)

Friday, December 29

Sheraton-Park, Dover

9:00 a.m. Chairman: Bruce W. Nelson

#### Quantitative Methods of Analysis of Ground-Water Budgets in the Atlantic Coastal Zone

Zane Spiegel (Hydrologist, Santa Fee, N.M.)

#### Long Island, New York—A Case Study

John D. Winslow (US Geological Survey, Mineola,  
N.Y.)

#### South Florida—A Case Study

Arthur R. Marshall (Div. of Applied Ecology,  
Center for Urban Studies, Univ. of Miami, Fla.)

#### Discussant:

William J. Sneider (US Geological Survey, Wash.,  
D.C.)

2:00 p.m. Chairman: Bruce W. Nelson

#### Role of Rivers in the Coastal Zone

Robert H. Meade, Jr. (US Geological Survey,  
Woods Hole, Mass.)

### Man's Impact on New York Harbor and Its Sedimentary Processes

M. Grant Gross (*Oceanographic Services Div., NOAA, Rockville, Md.*)

### Man, Nature, and the Chesapeake Bay

J. R. Schubel (*Chesapeake Bay Inst., Johns Hopkins Univ.*)

### Discussant:

Donald W. Pritchard (*Dept. of Oceanography, Johns Hopkins Univ.*)

### Man's Impact on Marshlands

Sherwood H. Gagliano (*Coastal Studies Inst., Louisiana State Univ.*)

Saturday, December 30

Sheraton-Park, Dover

9:00 a.m. Chairman: Jack N. Pierce (*Div. of Sedimentology, Smithsonian Institution*)

### Effects of Human Intrusion on Recent Coastal Changes in the Delaware Cape Area

John C. Kraft (*Prof. of Geology, Univ. of Delaware*)

### Human Stratigraphic Record in Charleston Harbor, S.C.

Donald J. Colquhoun (*Dept. of Geology, Univ. of South Carolina*)

### Extratropical Storm Climatology of the Mid-Atlantic Coast

Bruce P. Hayden (*Dept. of Environmental Sciences, Univ. of Virginia*)

### Coupling between Atmospheric and Surf Zone Processes

William T. Fox (*Dept. of Geology, Williams College, Williamstown, Mass.*)

2:00 p.m. Chairman: Jack W. Pierce

### Role of Foredunes in Shore Processes

Rudolph P. Savage (*Coastal Engineering Research Center, Wash., D.C.*)

### Modification of the New England Shoreline by Man

Miles O. Hayes (*Dept. of Geology, Univ. of S.C.*)

### Human Modification of Barrier Islands in the National Seashores

Robert Dolan (*Dept. of Environmental Sciences, Univ. of Virginia*)

### Ecology of Barrier Islands Influenced by Man

Paul J. Godfrey (*Dept. of Botany, Univ. of Massachusetts, Amherst*)

### Chronologies in New World Archaeology

Arranged by C. W. Meighan  
(*Professor, Dept. of Anthropology, University of California, Los Angeles*)

and  
R. E. Taylor  
(*Assistant Professor, Dept. of Anthropology, University of California, Riverside*)

Saturday, December 30

Shoreham, Forum

9:00 a.m. Chairman: Gordon R. Willey (*Prof., Dept. of Anthropology and Peabody Museum, Harvard Univ.*)

### The Application of Dating Techniques in Archaeology

R. E. Taylor (*Asst. Prof., Dept. of Anthropology and Institute of Geophysics, Univ. of California, Riverside*)

### Chronologies in New World Archaeology: North America

James B. Griffin (*Prof., Dept. of Anthropology, Univ. of Michigan*) and C. W. Meighan

Additional participants to be announced

2:00 p.m. Chairman: Gordon R. Willey

### Chronologies in New World Archaeology: Mesoamerica and South America

Irving Rouse (*Prof., Dept. of Anthropology, Yale Univ.*) and H. B. Nicholson (*Assoc. Prof., Dept. of Anthropology, Univ. of California, Los Angeles*)

Additional participants to be announced

## TECHNOLOGY

### Perspectives in Cybernetics

Arranged by Roy Herrmann  
(*President, American Society for Cybernetics, Washington, D.C.*)

Tuesday, December 26

Shoreham, Tudor

2:00 p.m. Chairman: Roy Herrmann

### The Cybernetic Approach to Global Research

Roy Herrmann

### Information Technology: Its Present and Future Impact on Decision-Making

Carl Hammer (*Dir., Computer Sciences, UNIVAC, Wash., D.C.*)

### Unsolvable Problems in Information Science

Allen Kent (*Dir., Office of Communications Programs, University of Pittsburgh*)

### Are We Ready for the Advanced Scientific Information Retrieval Systems?

Robert M. Landau (*Pres., Internat. Development Center, Wash., D.C.*)

Wednesday, December 27

Shoreham, Tudor

9:00 a.m. Chairman: Carl Hammer

### Topic to be announced

Heinz Von Foerster (*Chm., Dept. of Electrical Engineering, Univ. of Illinois, Urbana*)

### Measuring the Quality of Medical Care for the Improvement of Health

David D. Rutstein (*Dept. of Preventive and Social Medicine, Harvard Medical School*)

### Information Systems for Urban Problem Solvers

Manfred Kochen (*Mental Health Research Inst., Univ. of Michigan, Ann Arbor*)

### Diagnosis of Brain Function as an Adaptive Process

Mark N. Ozer (*Dept. of Neurology, Children's Hosp. of the D.C.*)

### Impact of the Cybernetic Law of Requisite Variety on a Theory of Information Science

Laurence B. Heilprin (*Prof. of Information Science, School of Library and Information Services, and Computer Science Center, Univ. of Maryland*)

2:00 p.m. Chairman: Roy Herrmann

### Discussion

### ERTS and EROS: Spacecraft and Aircraft Remote Sensing of the Environment

Arranged by William A. Fischer  
(*EROS Program Manager, Dept. of the Interior U.S. Geological Survey, Washington, D.C.*)

Wednesday, December 27

Sheraton-Park, Wilmington

9:00 a.m. Chairman: Vincent E. McKelvey (*Dir., U.S. Geological Survey, Wash., D.C.*)

The Earth Resources Technology Satellite (ERTS)  
William Nordberg (*Chief, Lab. for Meteorology and Earth Sciences, NASA/Goddard Space Flight Center*)

The ERTS Experiments  
Arch B. Park (*Chief, Earth Resources Survey/Earth Observations Programs, NASA, Wash., D.C.*)

The Federal Evaluation of ERTS as a Basis for Decisions on Future Operational Earth Resources Satellite Systems

Edward Risley (*Asst. Program Manager/EROS for Program Development, U.S. Geological Survey, Wash., D.C.*)

The Role of the National Academy of Sciences—National Research Council in Remote Sensing Development  
To be announced

#### Discussants:

George J. Zissis (*Tech. Mgr., IR and Optics Div., Willow Run Labs., Univ. of Mich., Ann Arbor*), Robert N. Colwell (*Prof., School of Forestry, Univ. of Calif., Berkeley*), Olin W. Mintzer (*Assoc. Prof., Civil Engineering, Ohio State Univ., Columbus*), and Mark Z. Brandon (*Chief, Liaison Office, Inter American Geodetic Survey, Wash., D.C.*)

2:00 p.m. Chairman: Paul Rosenberg (*Pres., Paul Rosenberg Associates, Pelham, N.Y.*)

#### New Photo-map Products: EROS Program

A. P. Colvocoresses (*Research Coordinator, Mapping Requirements, U.S. Geological Survey, Wash., D.C.*)

#### Agricultural and Forestry Uses of ERTS Data

Robert N. Colwell (*Prof., School of Forestry, Univ. of Calif., Berkeley*)

#### Oceanic and Atmospheric Uses of ERTS Data

William O. Davis (*Chief, Upper Atmosphere and Space Services, Environmental Monitoring and Prediction, NOAA, Rockville, Md.*)

#### Geologic and Hydrologic Uses of ERTS Data

Charles J. Robinove (*Assoc. EROS Prog. Mgr., U.S. Geological Survey, Wash., D.C.*)

#### Uses of ERTS Data for Environmental Monitoring

Willis Foster (*Deputy Asst. Administrator for Monitoring, EPA, Wash., D.C.*)

#### ERTS Data Applied to Global Development

Charles Weiss (*Sci. and Tech. Advisor to the President, IBRD, Wash., D.C.*)

#### Discussants:

Jules Lehmann (*Mgr., Advanced Instrument and Sensor Engineering Program, Earth Observation Programs, NASA*), Anthony DeSio (*Space Asst., Natl. Aeronautics and Space Council, Executive Office of the President, Wash., D.C.*), and William Brown (*Dir., Willow Run Lab., Univ. of Mich., Ann Arbor*)

### Space Shuttle Payloads

Arranged by  
George W. Morgenthaler  
(*Martin Marietta Corporation, N.Y.*)

Wednesday, December 27

Washington Hilton,  
Internat. Ballroom-West

8:30 a.m. The Space Shuttle System and Its Capability  
Chairman: Charles J. Donlan (*NASA Hdqtrs.*)

The Vehicle System: Flight Profiles, Operations, and Payload Capabilities

Jack Heberlig (*Manager, Payloads Coord. Office, NASA-MSC*)

Experimental Payloads: Inception to Integration  
Michael Bader (*NASA-ARC*)

9:45 a.m. Science Payloads for Space Shuttle  
Chairman: Allan Rosen (*Mgr., Space Science Dept., TRW Systems*)

Astronomy Payloads (LST, IR Telescope, X-ray Telescope, etc.)

Harlan Smith (*Univ. of Texas*)

Particle and Field Payloads

Juan G. Roederer (*Univ. of Denver*)

Atmospheric Studies Payloads

Robert Hudson (*NASA-MSC, Houston, Texas*)

Earth Orbital Systems and Biomedical Research

Russell Jordan (*Charles F. Kettering Research Lab., Ohio*)

1:45 p.m. Applications Payloads for Space Shuttle  
Chairman: Charles Mathews (*NASA Hdqtrs.*)

Use of the Space Shuttle for Earth Resource Mapping, Inventory, and Evaluation

W. Douglas Carter (*U.S. Geological Survey*)

Use of the Space Shuttle for Communications and Navigation Experiments

Richard B. Marsten (*NASA Hdqtrs.*)

Use of Shuttle to Support Large Space Power Generation Systems

Peter Glaser (*Arthur D. Little, Inc.*)

3:40 p.m. Technology and Engineering Development Payloads for Space Shuttle  
Chairman: R. Bisplinghoff (*NSF*)

Use of Shuttle for Test of Space Hardware in the Space Environment

Robert Hammel (*TRW Space Systems*)

Use of Shuttle for Manufacturing and Materials Process Experiments in Low-g

Louis McCreight (*General Electric Space Div.*)

Thursday, December 28 Washington Hilton,  
Internat. Ballroom-West

8:30 a.m. Space Shuttle Cost-Effectiveness Studies  
Chairman: Stanley Ross (*Pres., S. Ross and Co.*)

The MATHEMATICA Studies

Klaus Heiss (*MATHEMATICA*)

Low Cost Payload Studies

William Moore (*NASA Hdqtrs.*)

9:45 a.m. Space Operations Roles for Shuttle  
Chairman: John Mosich (*Aerospace Corp.*)

Teleoperators and EVA for Shuttle Missions

Thomas Malone (*Essex Corp.*) and Stanley Deutsch (*NASA Hdqtrs.*)

Refurbishing Spent Satellites and Tending Remote Space Platforms

Fritz Runge (*McDonnell-Douglas*)

Planetary Exploration in the Space System Era

William Bursnall and G. R. Hook (*Martin Marietta Corp.*)

Use of Shuttle in Establishing Large Space Installations  
Krafft Ehrlicke (*Autonetics, North American*)

1:45 p.m. International Participation in Shuttle Payloads  
Chairman: Ivan Rattinger (*National Aeronautics and Space Council*)

Soyuz-Apollo Mission Experiments  
Rocco A. Petrone (*NASA Hdqtrs.*)

Possible International Roles in Space Shuttle Payloads  
Carl Koben (*Martin-Marietta Corp.*)

The European View, ESRO  
To be announced

3:40 p.m. Space Shuttle Contributions to Technological, Economic, Political, and Defense Goals  
Chairman: George W. Morgenthau

Panel:

Earl Hubbard (*Philosopher*), Julian Scheer (*Natl. Center for Resource Recovery*), William Anders (*Natl. Aeronautics and Space Council*) and John Naugle (*NASA Hdqtrs.*)

### The Limits to Growth of Technology

Arranged by Glen P. Wilson  
(*Professional Staff Member, U.S. Senate Committee on Aeronautical and Space Sciences*)

Saturday, December 30 Washington Hilton,  
Military

9:00 a.m. Chairman: Glen P. Wilson

Genesis of Future Technical Options  
Chauncey Starr (*Dean, School of Engineering and Applied Science, UCLA*)

Panelists:

Richard A. Carpenter (*Exec. Dir., Environmental Studies Board, Natl. Acad. of Sciences*), Maxwell W. Hunter II (*Asst. to the Vice Pres., Space Systems Div., Lockheed Missiles and Space Co., Sunnyvale, Calif.*), Roy P. Jackson (*Assoc. Admin., Office of Aeronautics and Space Technology, NASA, Wash., D.C.*), Arthur Kantrowitz (*Dir., AVCO Everett Research Lab., AVCO Corp., Everett, Mass.*) and S. Fred Singer (*Prof. of Environmental Sciences, Univ. of Virginia, Charlottesville*)

## SCIENCE AND SOCIAL NEEDS

### A Rational Basis for Planning Medical Science Education

Arranged by Richard H. Kessler  
(*Associate Dean and Professor of Medicine, Northwestern University Medical School, Chicago*)

Tuesday, December 26 Sheraton Park,  
Continental

2:00 p.m. Chairman: Richard H. Kessler

The Forces of Change  
John S. Millis (*Pres., National Fund for Medical Educ.*)

Legislative Response to Increasing Public Demand for Medical Care  
Peter N. Kyros (*U.S. House of Representatives, Maine; Member of Public Health Committee*)

The University: A Potential for Innovation in Medical Care  
Edmund D. Pellegrino (*Vice Pres. for the Health Sciences; Dir. of the Health Sciences Center, SUNY at Stony Brook*)

A System Model for the Education and Training of Health Care Delivery Personnel

Ouida C. Upchurch (*Special Asst. for Educ. and Training, Bureau of Medicine and Surgery, U.S. Dept. of the Navy*)

### Public Services in the Public Interest: The Case of Transit in Washington, D.C.

Arranged by Stephen C. Swaim  
(*Dept. of Economics, University of Maryland*)

Tuesday, December 26 Washington Hilton,  
Georgetown-East

2:00 p.m. Chairman: George W. Grier (*Washington Center for Metropolitan Studies*)

Opening Statement:

Vigorous Regulation and Management of Transportation Services Can Make Substantial Improvement in a Transit System

Stephen C. Swaim

Critical Reaction:

Are Large-Scale Increases in Public Transit Ridership Possible?

Richard H. Pratt (*Pres., R. H. Pratt Associates*)

Can Regulatory Powers Be Used to Initiate Service Improvements?

George A. Avery (*Attorney; Former Chairman, Washington Metropolitan Transit Commission*)

Is it Politically Realistic to Improve Mass Transit and Restrict Automobile Use?

Idamae Garrot (*Member, Montgomery County Council*)

How Much Public Interest Regulation and Management of Transit Services Should the Federal Government Require?

John E. Hirtson (*Asst. Secretary of Transportation for Environment and Urban Systems, U.S. Dept. of Transportation*)

Discussion

### Facts and Fiction With Regard to Sex Differences

Arranged by Elizabeth L. Scott  
(*Professor, Dept. of Statistics, University of California, Berkeley*)

Wednesday, December 27 Washington Hilton,  
Monroe

9:00 a.m. Chairman: Mary Gray (*Prof. of Mathematics, Amer. Univ.*)

Sex Differences from the Physiological Point of View: Facts and Fiction

Estelle Ramey (*Prof., Georgetown School of Medicine, Georgetown Univ.*)

Sex Differences from the Sociological Point of View: Facts and Fiction

Jacqueline J. Jackson (*Prof., Medical Sociology, Duke Univ.*)

Panelists:

Barbara Bergmann (*Prof., Endocrinology, Dept. of Economics, Univ. of Maryland*), Lupe Anguiano (*Educator, Dept. of Health, Education and Welfare*), Vera Kistiakowsky (*Physicist, Dept. of Physics, MIT*), and Deborah Shapley (*News and Comment, Science, AAAS*)

## Is Social Experimentation a Practical Way to Develop Social Programs?

Arranged by Frederick Mosteller  
(Professor, Dept. of Statistics, Harvard University)

and  
Alice M. Rivlin  
(Senior Fellow, Brookings Institution,  
Washington, D.C.)

Washington Hilton,  
Lincoln-West  
Wednesday, December 27

9:00 a.m. Chairman: Alice M. Rivlin

Critique of the Income Maintenance Experiments—  
Especially Gary, Denver, and Seattle

Jodie T. Allen (Senior Research Assoc., The Urban  
Inst., Wash., D.C.)

Lessons of the Performance Contracting Experiment  
Edward M. Gramlich (Acting Dir., Policy Re-  
search Div., Office of Planning, Research and Eval-  
uation, Office of Economic Opportunity)

Problems in the Housing Allowance Supply Experi-  
ment

Charles E. Nelson (Program Dir., RAND Corp.,  
Wash., D.C.)

2:00 p.m. Chairman: Frederick Mosteller

Social Experimentation and Public Policy

Thomas K. Glennan, Jr. (Dir., Office of Planning,  
Research and Evaluation, Office of Economic Op-  
portunity, Wash., D.C.)

Moral and Ethical Issues of Experimenting with  
People

Henry W. Riecken (Prof., School of Medicine,  
Univ. of Pennsylvania)

Experiments in Education: Rigor vs. Feasibility

John W. Evans (Asst. Commissioner, Office of  
Planning, Budgeting, and Evaluation, Office of  
Educ., U.S. Dept. of HEW)

## Research on Career Development in the Health Professions

Arranged by Lois K. Cohen  
(Chief, Office of Social and Behavioral Analysis,  
Division of Dental Health, National Institutes  
of Health)

and Ayres G. D'Costa  
(Associate Director, Division of Educational  
Measurement and Research, Association of  
American Medical Colleges, Washington)

Sheraton-Park,  
Continental  
Wednesday, December 27

9:00 a.m. Career Process of Health Professionals

Chairman: Robin Badgley (Prof. and  
Chm., Dept. of Behavioral Sciences, Fac-  
ulty of Medicine, Univ. of Toronto)

Panel: Research Analyses

Ayres G. D'Costa, Robert O'Shea (Assoc. Dir.,  
Dept. of Sociology, School of Dentistry, SUNY at  
Buffalo), Christopher Rodowskas (Project Dir.,  
Pharmacy Manpower Project, Amer. Assn. of Col-  
leges of Pharmacy, Silver Spring, Md.), and Faye  
G. Abdallah (Chief, Nurse Officer, USPHS and  
Acting Deputy Dir., Natl. Center for Health Ser-  
vices Research and Development, Rockville, Md.)

Reactor Panel: Putting Research into Action

Lee Burchinal (Natl. Institute of Education,  
HEW), John A. D. Cooper (Pres., Assn. of

Amer. Med. Colleges, Wash., D.C.), Kenneth Endi-  
cott (Dir., Bureau of Health Manpower Education,  
NIH), and Anne R. Somers (Assoc. Prof., Dept.  
of Community Medicine, College of Medicine and  
Dentistry of New Jersey, Princeton)

2:00 p.m. Minority Group Resources for the Health  
Professions

Chairman: Roger Lennon (Pres., The Psy-  
chological Corp. and Senior Vice-Pres.,  
Harcourt, Brace, Jovanovich, Inc., New  
York)

Panel: Research Analyses

Edward Cassavantes (Deputy Chief, Mexican-  
Amer. Studies Div., U.S. Commission on Civil  
Rights, Wash., D.C.), Alexander Astin (Dir., Office  
of Research, Amer. Council on Education, Wash.,  
D.C.), and James Curtis (Assoc. Dean, Cornell  
Univ. Medical College, New York)

Reactor Panel: Implications of Research for Action

George Blue Spruce (Chief, Office of Health Man-  
power Opportunity, Bureau of Health Manpower  
Education, NIH), Evelyn Perloff (Assoc. Prof.,  
School of Nursing, Univ. of Pittsburgh), and Dan  
Collins (Trustee, Meharry Medical College, Nash-  
ville)

Summary

Joseph Henry (Dean, School of Dentistry, Howard  
Univ.)

## Property Rights and Land-Use Controls: Techniques and Institutions for Achieving Public Interests in Management of Land Resources

Arranged by Norman Wengert  
(Professor, Dept. of Political Science,  
Colorado State University, Fort Collins, Colorado)

Washington Hilton,  
Internat. Ballroom-East  
Wednesday, December 27

9:00 a.m. Chairman: Norman Wengert

Constitutional Limitations on the Control of Land Use  
Fred Bosselman (Attorney and Partner, Ross,  
Hardies, O'Keefe, Babcock & Parsons, Chicago)

Land-Use Controls for Directing Urban Growth

William Reilly (Attorney, Council on Environ-  
mental Quality, Executive Office of the President,  
Wash., D.C.)

Who Owns America? Problems in Preserving the  
Rural Landscape

Gene Wunderlich (Senior Agricultural Economist,  
Environmental Economics Branch, Economic Re-  
search Service, USDA.)

Land-Use Controls in Megalopolis—Policies and Prob-  
lems

Marion Clawson (Dir., Land Use and Manage-  
ment Program, Resources for the Future, Inc.,  
Wash., D.C.)

Managing Growth in a Fragile Environment: Problems  
of the Rocky Mountain States

Evan C. Vlachos (Prof. of Sociology, Colorado  
State Univ.)

2:00 p.m. Chairman: Norman Wengert

Population Policy and Land-Use Control: Density,  
Dispersal, or What?

Michael F. Brewer (Pres., Population Reference  
Bureau, Inc., Wash., D.C.)

Prospects and Problems of New Towns

William Alonso and Chester McGuire (Inst. of

*Urban and Regional Development, Univ. of California, Berkeley)*

Emerging Federal Interests in Land-Use Controls and Developing Patterns of Intergovernmental Relations  
Arthur A. Davis (*Vice Pres., The Conservation Foundation, Wash., D.C.*)

The Politics of Land-Use Control  
Matthew Holden, Jr. (*Prof. of Political Science, Univ. of Wisconsin, Madison*)

### **The National Environmental Policy Act: At the Interface of Law and Environmental Science**

Arranged by James W. Curlin  
(*Library of Congress, Congressional Research Service*)

Wednesday, December 27

Washington Hilton,  
Jefferson-East

9:30 a.m. The National Environmental Policy Act  
Chairman: James W. Curlin

Introduction  
James W. Curlin

Legislative History and Congressional Intent of NEPA  
John D. Dingell (*U.S. House of Representatives, Michigan*)

Administration of NEPA  
Steven D. Jellinek (*Council on Environmental Quality*)

Judicial Interpretation of the National Environmental Policy Act  
Harold P. Green (*The Natl. Law Center, George Washington Univ.*)

Discussion

1:30 p.m. Implementation of the Act  
Chairman: Dan Dreyfus (*Staff Member, Senate Interior and Insular Affairs Committee*)

Introduction  
Dan Dreyfus

The Atomic Energy Commission Environmental Statements for Nuclear Power Reactors  
Daniel R. Muller (*U.S. Atomic Energy Commission*)

Adequacy of AEC Environmental Impact Statements  
David Sive (*Winer, Neuburger and Sive, New York City*)

Corps of Engineers Approach to Drafting Environmental Impact Statements  
Robert R. Werner (*Corps of Engineers, Wash., D.C.*)

Water Resources Projects and NEPA  
Leo M. Eisel (*Environmental Defense Fund, East Setauket, N.Y.*)

NEPA and the National Resource Lands  
Burton W. Silcock (*Bureau of Land Management, Wash., D.C.*)

NEPA and Federal Decision Making  
Edward L. Strohbehn, Jr. (*Natural Resources Defense Council, Wash., D.C.*)

Discussion

Thursday, December 28

Washington Hilton,  
Jefferson-East

9:00 a.m. Systematic Analysis of Environmental Impacts  
Chairman: Lee M. Talbot (*Council on Environmental Quality, Wash., D.C.*)

Introduction

Lee M. Talbot

Evaluating the Ecological Impact of Electrical Power Generation on Aquatic Systems

Charles C. Coutant (*Oak Ridge Natl. Lab.*)

Evaluating the Environmental Impact of Electrical Power Generation on Terrestrial Systems

John P. Witherspoon (*Oak Ridge Natl. Lab.*)

Evaluating the Environmental Impact of Water Resources Development Projects

John T. McGinnis (*Battelle Columbus Lab., Ohio*)

Environmental Impacts of Public Transportation Programs

Richard E. Morrison (*Arthur D. Little Inc., Wash., D.C.*)

Development of Procedures and Programs to Assist in the Preparation and Review of Impact Statements

Jens C. Sorenson (*Univ. of California, Berkeley*)

Discussion

2:00 p.m. Developing Systems for Impact Analysis  
Chairman: Joseph F. Coates (*NSF*)

Introduction

Joseph F. Coates

Application of Ecosystems Analysis to Highway Location

H. Henry Shugart (*Oak Ridge Natl. Lab.*)

Potentials of Systems Analysis in Evaluation of Aquatic Environmental Impacts

Robert A. Kelly (*Resources for the Future, Wash., D.C.*)

Analysis of Regional Ecosystems

Carl Steinitz (*Harvard Univ.*)

Discussion

### **Affirmative Action Programs— Their Impact on Women Today**

Arranged by Hope E. Hopps  
(*Assistant to the Director, Bureau of Biologics, FDA, Dept. of HEW, Washington, D.C.*)

Wednesday, December 27

Washington Hilton,  
Monroe

2:00 p.m. Chairman: Hope E. Hopps

Some Undergraduate Institutional Factors Associated with the Probability of Career Success

M. Elizabeth Tidball (*Prof. of Physiol., George Washington Univ.*)

What's New in Universities?—It Used to be a Man's World

Bernice Sandler (*Exec. Assoc. and Dir. Progress on the Status and Educ. of Women, Assoc. of Amer. Colleges, Wash., D.C.*)

Myth and Reality in the Employment of Women

Elizabeth D. Koontz (*Dir. of the Women's Bureau, U.S. Dept. of Labor*)

Divide and Be Conquered—Unite and Proceed

Fann Harding (*Scientist Administrator, Thrombosis and Hemorrhagic Dis. Branch, Natl. Heart and Lung Inst., NIH*)

Discussants:

Florence J. Hicks (*Dir. Women's Action Program, U.S. Dept. of HEW, Wash., D.C.*), Daisy Fields (*Pres. Md. Div., WEAL, Silver Spring, Md.*) and Margaret Stone (*Sr. Curator, Bailey Hortorium, Cornell Univ.*)

### Educational Implications of Zero Growth

Arranged by Wayne W. Welch  
(Associate Program Director, Academic Year  
Study Program, National Science Foundation—  
On leave 1972-73 from the University of Minnesota)

Washington Hilton,  
Georgetown-West  
Wednesday, December 27

2:00 p.m. Chairman: Wayne W. Welch

#### An Historical Perspective

Robert H. Beck (*Prof., History and Philosophy of  
Educ., Univ. of Minnesota, Minneapolis*)

#### From a Psychologist's Viewpoint

Herbert J. Walberg (*Research Prof., College of  
Educ., Univ. of Illinois, Chicago*)

#### Economic Implications

Walter W. McMahon (*Prof., Dept. of Economics,  
Univ. of Illinois, Urbana*)

#### As Viewed by a Demographer

John K. Folger (*Exec. Dir., Tennessee Higher  
Educ. Comm., Nashville*)

#### Discussant:

Hendrik Gideonse (*Dean, College of Educ. and  
Home Economics, Univ. of Cincinnati*)

### Research Applied to National Needs

Arranged by H. E. Carter  
(Coordinator of Interdisciplinary Affairs,  
University of Arizona, Tucson)

and  
R. L. Bisplinghoff  
(Deputy Director, National Science Foundation)

Shoreham, Diplomat  
Friday, December 29

9:00 a.m. Chairman: H. E. Carter

#### NSF's Research Applied to National Needs Program— A Progress Report

R. L. Bisplinghoff

#### Institutional Response to Multidisciplinary Problems

George T. Reynolds (*Dept. of Physics, Princeton*)

#### Interdisciplinary Research in a University—Some Les- sons Learned

Robert Nathans (*Chm. Eng. Sciences, SUNY, Stony  
Brook*)

2:00 p.m. Chairman: R. L. Bisplinghoff

#### Impact of Leaded Gasoline on Man's Environment

Herbert A. Laitinen (*Dept. of Chemistry, Univ. of  
Illinois, Champaign-Urbana Campus*)

#### Studies of a Catalytic Reactor Using an Immobilized Multi-Enzyme System

R. L. Laurence (*Dept. of Chemistry and Engineer-  
ing, Univ. of Massachusetts, Amherst*)

#### Structural Dynamics Investigations of the San Fer- nando Earthquake of February 9, 1971

George Housner (*Div. of Engineering and Applied  
Mechanics, Calif. Inst. of Technology, Pasadena*)

#### Technology Assessment of Winter Orographic Snow- pak Augmentation in the Upper Colorado River Basin

George H. Hopkins (*Dir. Operations Evaluation  
Dept., Stanford Research Inst., Menlo Park*)

### Women and Ethnic Minorities in Science and Technology: The Role of Professional Societies

Arranged by Richard Trumbull  
(Deputy Executive Officer, AAAS)

Shoreham, Tudor  
Friday, December 29

2:00 p.m. Chairman: Warren M. Washington (*Nat-  
ional Center for Atmospheric Research,  
Boulder, Colo.*)

#### Methods and Problems in Data Collection

Betty M. Vetter (*Exec. Dir., Scientific Manpower  
Commission, Wash., D.C.*)

#### Discussants:

Chauncey A. Alexander (*Exec. Dir., Natl. Assn.  
of Social Workers, New York*), Maurice Jackson  
(*Exec. Specialist for Race and Minority Relations,  
Amer. Sociological Assn., Wash., D.C.*), and Theresa  
Tellez (*Professional Assoc., Office of the Foreign  
Secretary, Natl. Acad. of Sciences*)

#### Placement, Recruitment, and Compliance

Robert E. Smith (*Acting Dir., Higher Educ. Div.,  
Office for Civil Rights, HEW*)

#### Discussants:

Margaret E. Law (*Harvard Univ.*), Carter L. Mar-  
shall (*Assoc. Prof., Dept. of Community Medicine,  
Mount Sinai School of Medicine, New York*) and  
Bernice Sandler (*Exec. Assoc., Assn. of American  
Colleges, Wash., D.C.*)

#### Programs

William P. Layton (*Asst. to the Manager, Field  
Services, Amer. Soc. of Civil Engineers, New York*)

#### Discussants:

Alonzo C. Atencio (*Asst. Dean of Student Affairs  
and Asst. Prof. of Biochemistry, Univ. of New  
Mexico, Albuquerque*), James W. Mayo (*Program  
Dir., College Science Improvement Program, NSF*),  
and Reace E. J. Watkins, Jr. (*Natl. Chairman,  
Natl. Black Science Students Organization, N.Y.*)

### Research Concepts and Ideas for RANN: Research Applied to National Needs

Arranged by Joseph F. Coates  
(Program Manager,  
Office of Exploratory Research and Problem  
Assessment, National Science Foundation)

Shoreham, Diplomat  
Saturday, December 30

9:00 a.m. Chairman: Holt Ashley, (*Dept. of Aero-  
nautics and Astronautics, Stanford Univ.*)

#### Discussants:

J. Herbert Holloman (*Provost, MIT*), Joseph F.  
Coates, and James Miller (*Vice Pres., Acad. for  
Educational Development, Wash., D.C.*)

### Interdisciplinary Approaches to Community Health with Emphasis on Social Sciences and Mental Health

Arranged by Mirta T. Mulhare  
(Chairman, *Sociology and Anthropology,  
Carlow College;*  
Clinical Assistant Professor of Anthropology,  
Dept. of Psychiatry, Univ. of Pittsburgh Medical School)

and Jack A. Wolford  
(Acting Chairman and Psychiatrist in Chief,  
Dept. of Psychiatry,  
Western Psychiatric Institute and Clinic,  
Univ. of Pittsburgh Medical School, Pittsburgh, Pa.)

Saturday, December 30

Sheraton-Park,  
Continental

8:30 a.m. Chairman: Jack A. Wolford

Selection or Behavioral Adaptation: The Urban Dilemma

Michael Crawford (Assoc. Prof. of Anthropology,  
Univ. of Kansas, Lawrence)

The Use of Crisis Intervention in Community Health Programs

Jay Nolan (Asst. Prof. of Psychiatry, Yale Univ.  
Medical School)

Problems in Interdisciplinary Learning

Edward Norman (Prof. of Psychiatry and Preventive Medicine, Tulane School of Public Health)

Regressive Behavior in a Maximum Security Prison

Herbert E. Thomas (Chief Psychiatrist, Forensic Service, School of Medicine, Univ. of Pittsburgh)

Concepts of Interdisciplinary Contributions to New Professional Roles in Community Mental Health

Tobias Brocher (Chm., Dept. of Psychoanalysis and Social Sciences, Justus Liebig Univ. of Gießen, Germany)

1:30 p.m. Chairman: Mirta T. Mulhare

One Family, Many Views: An Interdisciplinary Perspective of a Problem Family

The Sociocultural Context

David Dyson (Grad. Asst. Urban Affairs, Dept. of Psychiatry)

The Psychiatric Context

Shoukry Matta (Clin. Asst. Prof. of Psychiatry, Univ. of Pittsburgh Medical School)

Large Groups, Small Groups, and the Family: An Interdisciplinary Model for the Study of Differences in Relationship to the Task of Teaching Family Therapy

Murray Charleson (Clin. Asst. Prof. of Psychiatry, Univ. of Pittsburgh Medical School)

The Integration of Behavioral Science Concepts into Service and Training in a Community Health Program

Mirta T. Mulhare

Social Psychiatry in Community Health: An Interdisciplinary Model

Jack A. Wolford

Discussion

## SCIENCE POLICY— ANATOMY OF DECISION

### Oceans Policymaking by Science, Government, and Public

Arranged by Grant Hilliker  
(Adjunct Professor of Political Science and  
Public Policy, Mershon Center,  
Ohio State University, Columbus)

Wednesday, December 27

U.S. Dept. of State,  
22nd and C Streets, N.W.

9:00 a.m. Adequacy of Scientific Bases of Policymaking in Ocean Resource Management

Chairman: Donald L. McKernan (Special Asst. to the Secretary for Fisheries and Wildlife, Dept. of State)

Introduction

U. Alexis Johnson (Under Secretary for Political Affairs, Dept. of State)

Policymaking for International Fisheries

Francis T. Christy, Jr. (Resources for the Future, Inc., Wash., D.C.) and William F. Royce (Assoc. Dir. for Resource Research, Natl. Marine Fisheries Service, NOAA)

10:30 a.m. Chairman: Richard N. Gardner (Henry L. Moses Prof. of Law and Internat. Organization, Columbia Univ.)

Policymaking for Control of Oceanic Pollution

Gordon J. F. MacDonald (Henry Luce Prof. of Environmental Policy, Dartmouth College) and George A. Birrell (General Counsel, Mobil Oil Corp., New York City)

2:00 p.m. Current Policymaking Issues in Oceans Research

Chairman: Grant Hilliker

Cooperative International Scientific Expeditions

Thomas S. Austin (Dir., Environmental Data Service, NOAA) and Arthur E. Maxwell (Provost, Woods Hole Oceanographic Inst.)

3:30 p.m. Chairman: John A. Knauss (Dean, Grad. School of Oceanography, Univ. of Rhode Island, Kingston)

Freedom of Research and Other Scientific Issues in the Law of the Sea Conference

Lauriston R. King (Interagency Liaison Officer, NSF)

### Community Information Exchange: Philosophical and Technical Issues and Case Studies

Arranged by Chandler H. Stevens  
(Frank and Lillian Gilbreth Professor,  
Rensselaer Polytechnic Institute, Troy, N.Y.)

Thursday, December 28 Washington Hilton,  
Monroe

9:00 a.m. Chairman: Chandler H. Stevens  
Moderator: Thomas B. Sheridan (Prof. of Mechanical Engineering, MIT)

Science and the Citizen in Puerto Rico: Design Issues and a System

Luis A. Ferré (Governor of the Commonwealth of Puerto Rico)

Preliminary Findings of Electronic Town Hall Project (MINERVA)

Amitai Etzioni (Prof. of Sociology, Columbia Univ., and Dir., Center for Policy Research, New York City)

Communications and the Citizen in Canada: A National Commitment

Richard J. Gwyn (Director-General, Socio-Economic Planning, Canadian Dept. of Communications, Ottawa)

2:00 p.m. Chairman: Thomas B. Sheridan

Towards a Global Network of Community Knowledge Centers

Robert V. Bartz (Research Policy Analyst, Public Policy Research Organization, Univ. of California, Irvine, and Dir., BLUEPRINT, Pasadena)

Television Town Meetings for the New York Region  
Michael J. McManus (*Exec. Dir., CHOICES for '76, Regional Plan Assn., New York City*)

The AAAS Interactive Exposition on Science and Technology in Relation to Social Needs of the Washington, D.C. Region

Joseph A. Valerio (*Project Coordinator, AAAS, and Univ. of Wisconsin, Milwaukee*)

### Scientists in the Legal System: Tolerated Meddlers or Essential Contributors?

Arranged by William A. Thomas  
(*Leader, Environmental Indices Group, Environmental Program, Oak Ridge National Laboratory*)

Friday, December 29 Washington Hilton,  
Jefferson-East

9:00 a.m. Chairman: William A. Thomas

Jurimetrics: Science in Law

Lee Loevinger (*Hogan & Hartson, Wash., D.C.*)

Reception of Science by the Legal System

Ralph Norvell (*Former Dean, School of Law, Temple Univ.*)

Current and Desired Communication between Science and Law

James W. Curlin (*Environmental Policy Div., Congressional Research Service, Library of Congress*)

Obligation of Scientists to Respond to Society's Needs

Ralph Nader (*Center for the Study of Responsive Law, Wash., D.C.*)

The Legal System: Can It Be Analyzed to Suit the Scientist?

James P. Vanyo (*Dept. of Mechanical Engineering, Univ. of California, Santa Barbara*)

Exchange of Ideas between Scientists and Lawyers:  
A Cost/Benefit Analysis

Roderick A. Cameron (*Exec. Dir., Environmental Defense Fund, East Setauket, N.Y.*)

1:00 p.m. Chairman: William A. Thomas

Courts as Institutions for Assessing Technology

Philip L. Bereano (*Dept. of Environmental Engineering, Cornell Univ.*)

Scientists as Suppliers of Facts: Do Lawyers Listen?

Donald R. Moore (*Pres., Federal Trial Examiners Conf., Wash., D.C.*)

The Legislative Process and the Reluctant Scientist

Tom C. Jorling (*Dir., Center for Environmental Studies, Williams College, Williamstown, Mass.*)

The Need for Forensic Science

Harold P. Green (*Prof., National Law Center, George Washington Univ.*)

Scientists in the Courtroom

David Sive (*Winer, Neuburger & Sive, New York*)

The Time Lag between Advances in Medicine and Law

Bernard D. Hirsh (*General Counsel, Amer. Medical Assoc., Chicago*)

The Scientists' Role in Citizen Environmental Advocacy

John S. Winder, Jr. (*Exec. Dir., Metropolitan Washington Coalition for Clean Air, Inc., Wash., D.C.*)

### Policy Making as a Social Process

Arranged by Raymond A. Bauer  
(*Professor of Business Administration, Graduate School of Business Administration, Harvard Univ.*)

Friday, December 29

Washington Hilton,  
Georgetown-East

9:00 a.m. The Institutional Level

Chairman: Joseph L. Bower (*Professor, Grad. School of Business Admin., Harvard Univ., Cambridge*)

Metamanagement in Business

Joseph L. Bower (*Prof., Grad. School of Business Admin., Harvard Univ.*)

The National Foreign Policy Process: The Okinawa Story

Morton Halperin (*Senior Fellow, Brookings Institution*)

The State Policy Process: Budgeting in Alaska

Graeme Taylor (*Vice Pres., Management Analysis Center, Wash., D.C.*)

2:00 p.m. The Individual Level

Chairman: John D. Steinbruner (*Asst. Prof. of Government, Harvard Univ.*)

Decisions Under Complexity: The Psychological Basis of Political Analysis

John D. Steinbruner (*Asst. Prof. of Government, Harvard Univ.*)

Changing Nature of Federal Leadership

Charles Schultze (*Senior Fellow, Brookings Institution*)

### The Trans-Alaska Pipeline A Case Study of a Social Decision

Arranged by Gordon A. Enk  
(*Director of Research, The Institute on Man and Science*)

Saturday, December 30

Washington Hilton,  
Jefferson-East

9:00 a.m. Chairman: Gordon A. Enk

Orientation to the Environment of the Alaska Pipeline—The Impetus for Alaska Oil

Speaker to be announced

Using Available Knowledge of Permafrost Construction to Protect the Environment

Barry Donnellan (*Soil Consultant and Lawyer, Anchorage, Alaska*)

Changes in the Seismic Design Criteria Resulting from the Environmental Impact Statement

Lloyd Cluff (*Private Consultant, Oakland, Calif.*)

A Predictive Model of the Consequences of Possible Oil Spills in Prince William Sound, Alaska

Richard E. Warner (*Memorial Univ., St. John's, Newfoundland*)

2:00 p.m. Chairman: Gordon A. Enk

I. The Economics of the Alaskan Pipeline and Its Alternatives

The Economics of Alternative Routes. A Benefit-Cost Analysis

Charles Cicchetti (*Prof. of Economics, Univ. of Wisconsin*)

The Meaning of Alaskan Oil to the U.S. Economy  
Richard L. Gordon (*Prof. of Mineral Economics, Pennsylvania State Univ.*)

The Business of Alaskan Oil  
Edward L. Patton (*Pres., Alyeska Pipeline Services Inc.*)

## II. National Security and Alaskan Oil

National Security and The Trans-Alaskan Pipeline  
Thomas B. Stoel (*Natural Resources Defense Council*)

Alaskan Oil and National Defense  
Speaker to be announced

## SCIENCE AND SOCIAL INSTITUTIONS

### Science Reporting Via Television and How Can It Be Improved?

Arranged by Eugene H. Kone  
(*Public Relations Associate, Rockefeller University*)  
and  
Howard J. Lewis  
(*Director, Office of Information, National Academy of Sciences*)

Wednesday, December 27 Sheraton-Park,  
Baltimore

9:00 a.m. Chairman: Eugene H. Kone

Greetings  
Ronald Kotulak (*Pres., Natl. Assn. of Science Writers*)

Introduction  
Howard J. Lewis

Problems of Getting Good Science on Commercial Television  
Jules Bergman (*Science Editor, ABC-TV, New York*)

Opportunities and Limitations of Public Television  
Michael Ambrosino (*Station WGBH-TV, Boston*)

A General View of the Medium and Its Interaction with the Public  
Speaker to be announced

The Scientists' Message  
D. Allan Bromley (*Chm., Dept. of Physics, Yale Univ.*)

Panel Discussion

### Organizing for International Research

Arranged by Roy L. Lovvorn  
(*Administrator, Cooperative State Research Service, U.S. Dept. of Agriculture, Washington, D.C.*)

Thursday, December 28 Washington Hilton,  
Georgetown-East

9:00 a.m. Chairman: Jackson A. Rigney (*Dean for Internat. Programs, North Carolina State Univ.*)

A Concentration of Effort  
R. W. Cummings (*Dir., Internat. Rice Research Inst., Manila*)

Participatory—Primarily at a Center

R. L. Sawyer (*Dir., Centro Internacional de Papa, Lima, Peru*)

Diffuse Participation—Center Coordination

J. D. Axtell (*Dir., Purdue Internat. Sorghum Program, Purdue Univ.*)

International Network

J. W. Fitts (*Dir., Internat. Soil Testing Program, North Carolina State Univ.*)

### AAAS Looks to the Future (Arden House Hearing)

Arranged by Richard A. Scribner  
(*Washington Meeting Director, AAAS*)

Thursday, December 28 Sheraton-Park,  
Park Room

9:00 a.m. Professional Societies in the Process of Change

Chairman: Leonard Rieser (*Pres. Elect, AAAS; Dean of the Faculty, Dartmouth College*)

Implications of Populist Movements for Professional Societies

Alan C. Nixon (*Pres. Elect, Amer. Chemical Soc.*)

The Legitimacy of Social Concerns as a Professional Society Focus

Earl Callen (*Chm., Forum on Physics and Society, Amer. Physical Soc.; Prof. of Physics, Amer. Univ.*)

How the Technical and Scientific Professions Can be of Service to Government

Mike McCormick (*U. S. House of Representatives, Washington*)

New Roles of the Professional Society in Communicating with the Public

Gerald Holton (*Prof. of Physics, Harvard Univ.*)

Changing Roles and Competing Priorities in the Professional Society of the Future

N. Jay Demerath III (*Prof. of Sociology, Univ. of Massachusetts, Amherst*)

10:45 a.m. Forum on AAAS in the Process of Change (Arden House Hearing)

Chairman: Leonard Rieser

Participants:

To include officers of the Association

### Minorities in Physical Science

Arranged by Martin A. Paul  
(*Executive Secretary, Div. of Chemistry & Chemical Technology, National Academy of Sciences—National Research Council, Washington, D.C.*)

Thursday, December 28 Shoreham, Diplomat

9:00 a.m. Chairman: Martin A. Paul

Status of Minorities in Scientific Employment

Adolph Y. Wilburn (*Exec. Secretary, Commission on Minorities in the Sciences and Engineering, Natl. Acad. of Sciences—Natl. Research Council*)

Educational Projects to Broaden Opportunities for Minorities in Science

Lucius P. Gregg, Jr. (*Vice Pres., Personal Banking Dept., First Natl. Bank of Chicago*), W. W. Grigorieff (*Consultant, Educational Programs for Minorities, U.S. Atomic Energy Commission*),

## SCIENCE AND SOCIAL INSTITUTIONS

James W. Mayo (*Program Dir., College Science Improvement Program, NSF*), and Leo Schubert (*Chm., Dept. of Chemistry, American Univ., Wash., D.C.*)

### Minorities in Physics

Warren E. Henry (*Prof. of Physics, Howard Univ.*)

2:00 p.m. Chairman: Martin A. Paul

### Role of the Preponderantly Black Colleges in Science Education and Research

Moddie D. Taylor (*Chm., Dept. of Chemistry, Howard Univ.*)

### Employment Opportunities and Problems for Minorities in Physical Science Education and Industry

Mary W. Gray (*Prof. of Mathematics, American Univ., Wash., D.C.*), W. E. Hanford (*Vice Pres., R&D, Olin Corp., Stamford, Conn.*), Samuel P. Massie (*Prof. of Chemistry, U.S. Naval Acad.*) and Robert K. Neuman (*Head, Dept. of Professional Relations and Manpower Studies, Amer. Chemical Society*)

### Strategy for the Future

Alfred E. Brown (*Pres., Celanese Research Co., Summit, N.J.*)

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### Non-Formal Education

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Arranged by Gordon I. Swanson  
(*Prof., College of Education,  
Univ. of Minnesota, Minneapolis*)

Thursday, December 28

Washington Hilton,  
Georgetown-West

2:00 p.m. Chairman: Gordon I. Swanson

### Non-Formal Education: Conceptual and Operational Variations

Bernard Wilder (*Research Assoc., Center for Internat. Programs, Michigan State Univ.*)

### Non-Formal Education: Problems and Processes

Manzoor Ahmed (*Asst. Dir., Internat. Council for Educ. Development, Essex, Conn.*)

### Discussants:

Patrick Ralston (*Assoc. Dir. of Science and Educ., Office of the Secretary, USDA*) and Robert Worthington (*Assoc. Commissioner, Bureau of Adult Vocational and Technical Educ., U.S. Office of Educ.*)

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### Institutions for the Application of Science to Social Needs

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Arranged by John C. McKinney  
(*Vice Provost and Dean of the Graduate School,  
Duke University, Durham, N.C.*)  
and Richard A. Scribner  
(*Staff Officer, AAAS*)

Thursday, December 28

Shoreham, Tudor

2:00 p.m. Chairman: Richard A. Scribner

### Institutions for the Application of Science to Social Needs

John C. McKinney

### Organizing the Federal Government to Support Social R & D

Roger E. Levien (*Dir., Washington Domestic Programs, The Rand Corporation*)

### Experimentation as a Means of Planning and Evaluating Social Innovations

Henry W. Riecken (*Prof. of Behavioral Science, Univ. of Pennsylvania*)

### An Electronic Town Hall: A Case Study in Engineering and Social Science Collaboration

Amitai Etzioni (*Prof. Sociology, Columbia Univ., and Dir., Center for Policy Research*)

### Redirecting a Research Institute to Focus on Social Goals: A Case Study

George R. Herbert (*Pres., Research Triangle Inst.*)

### Discussants

Harold Orlans (*Senior Fellow, Governmental Studies, The Brookings Institute*), Sidney Sternberg (*Deputy Asst. Dir., Research Applications, NSF, Wash., D.C.*) and Richard Bolt (*Bolt Beranek and Newman, Inc., Cambridge, Mass.*)

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### Alternative Computer Systems in Instruction

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Arranged by Duncan N. Hansen  
(*Director, Center for Computer Assisted Instruction,  
Florida State University*)

Thursday, December 28

Washington Hilton,  
Georgetown-East

2:00 p.m. Chairman: Duncan N. Hansen

### Plato IV in the 70's

Donald Bitzer (*Univ. of Illinois*)

### A Networking Service for Computers in Education

Louis Bright (*Western Inst. for Science and Technology, Waco, Tex.*)

### Advanced Instructional System

Roger Grossel (*Air Force Human Resources Lab., Lowry Air Force Base, Denver, Colo.*)

### Ticcit—A Small Company Approach to Instruction

Kenneth Stetten (*Mitre Corp., McLean, Va.*)

### Discussant:

Robert J. Seidel (*Human Resources Research Organization, Alexandria, Va.*)

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### Where Does Scientific Education Begin?

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Arranged by Eugene Garfield  
(*President, Institute for Scientific Information*)  
and Morton V. Malin  
(*Vice President,  
Corporate Planning & International Relations,  
Institute for Scientific Information*)

Friday, December 29

Shoreham, Executive

9:00 a.m. Chairman: Eugene Garfield

### Literature and Bibliography for the Biologist

T. H. Milby (*Assoc. Prof. of Bibliography [Science Librarian] and Asst. Prof. of Botany, Univ. of Oklahoma*)

### Everything the Medical Student Wanted to Know about Information and What an Information Center Did about It

Lois F. Lunin (*Program Dir., Info. Center for Hearing, Speech and Disorders of Human Communication, Johns Hopkins Medical Institutions*)

### Teaching Experiences in an Information Discovery Course

R. J. McDaniel (*Assoc. Prof., Dept. of Agronomy and Plant Genetics, Univ. of Arizona*)

### Science in the United Nations

Arranged by Arthur K. Solomon  
(*Professor of Biophysics, Harvard Medical School, Boston, Massachusetts; Chm., Committee on Higher Degrees in Biophysics, Faculty of Arts and Sciences, Harvard Univ.*)

Friday, December 29

Washington Hilton,  
Internat. Ballroom-West

9:00 a.m. **Science in the Service of the U.N.**  
Chairman: Leonard Rieser (*Provost, Dartmouth College; Pres. Elect, AAAS*)

Introduction: Scientific and Technical Activities of the U.N.

Herman Pollack (*Dir., Bureau of Internat. Scientific and Technological Affairs, Dept. of State*)

The Role of Science in U.N. Development Activities

Victor Urquidi (*Pres., El Colegio de Mexico, Guanajuato, Mexico; Chm., Advisory Committee on the Application of Science and Technology to Development, United Nations*)

The Role of Science in a Specialized Agency

Martin Kaplan (*Chief, Office of Science and Technology, WHO, Geneva*)

The Problem of the Environment: Contribution to Its Solution

Thomas F. Malone (*Dean, Grad. School, Univ. of Connecticut; Deputy Foreign Secretary, Natl. Acad. of Sciences*)

Roundtable: What Can the U.N. Do Most Effectively in Science?

Guy B. Gresford (*Dir., Office of Science and Technology, United Nations, New York*), Eugene Skolnikoff (*Dir., Center for Internat. Studies, MIT*) and Session Speakers.

2:00 p.m. **The Support of Science by Sovereign States**

Chairman: John W. McDonald (*Coordinator for Multilateral Development Programs, Bureau of Internat. Organization Affairs, Dept. of State*)

Support of International Science by UNESCO

A. Buzzati-Traverso (*Asst. Dir. General for Science, UNESCO, Paris*)

Global Atmospheric Research Program: Cooperation between the World Meteorological Organization and the International Council of Scientific Unions

R. W. Stewart (*Dir., Marine Science Directorate, Pacific Region, Environment Canada, Victoria, B.C.*)

Intergovernmental Support of Science: European Center for Nuclear Research (CERN) and European Microbiological Organization (EMBO)

Victor Weisskopf (*Prof. of Physics, MIT*)

Roundtable: Effectiveness of International Science Programs

Harrison Brown (*Foreign Secretary, Natl. Acad. of Sciences*), John Fobes (*Deputy Dir. General, UNESCO*), Roger Revelle (*Dir., Center for Population Studies, School of Public Health, Harvard Univ.; Deputy Foreign Secretary, Natl. Acad. of Sciences*), and Arthur K. Solomon

### Public Policy and Social Science

Arranged by Harvey M. Sapolsky  
(*Associate Professor of Political Science, Massachusetts Institute of Technology*)

Friday, December 29

Washington Hilton,  
Jefferson-West

2:00 p.m. Chairman: Daniel P. Moynihan (*Prof., Graduate School of Education, Harvard Univ.*)

Speaker: James Coleman (*Prof. of Social Relations, Johns Hopkins Univ.*)

#### Public Policy and Social Science

Discussants:

Amitai Etzioni (*Prof. of Sociology, Columbia Univ. and Dir., Center for Policy Research, New York*), Harold Orlans (*Senior Fellow, Governmental Studies, Brookings Institution*) and Julius Margolis (*Dir., Fels Center of Government, Univ. of Pennsylvania*)

### Prison Research

Arranged by Lowell H. Hattery  
(*Professor of Management and Public Administration, American University*)

Saturday, December 30

Washington Hilton,  
Jefferson-West

9:00 a.m. Chairman: Lowell H. Hattery

The Deprisonization of Corrections: A Task for Research

John P. Conrad (*Senior Fellow for Criminal Justice, Academy for Contemporary Problems, Columbus, Ohio*)

Prison Research in Sweden

Norman Bishop (*Dir. of Prison Research, Ministry of Justice, Swedish National Government, Stockholm, Sweden*)

Research on Educational Programs for Inmates: U.S. and Europe

Kenneth E. Kerle (*Assoc. Prof. of Government, Dept. of Government, Hagerstown Junior College, Hagerstown, Md.*)

Multidisciplinary Research: Sociology and Prison Architecture

Edith E. Flynn (*Prof. and Assoc. Dir., Natl. Clearinghouse for Criminal Justice Planning and Architecture, Depts. of Architecture and Sociology, Univ. of Illinois, Urbana*)

1:45 p.m. Chairman: Lowell H. Hattery

Federal Policy and Program for Prison Research

Richard W. Velde (*Assoc. Administrator, Law Enforcement Assistance Agency, U.S. Dept. of Justice*)

Legal and Constitutional Considerations in Prison Research

Nicholas M. Kittrie (*Prof. and Dir., Inst. for Justice and Social Behavior, Washington College of Law, Amer. Univ.*)

New Approaches to Research

Philip G. Zimbardo (*Prof. of Social Psychology, Dept. of Psychology, Stanford Univ.*)

Perspectives on Prisons: Inside and Outside

J. D. Wells (*Citizen Service Officer, City of Houston, and Ex-Convict, Texas State Prison*)

Prison Research and the Administrator  
Hubert M. Clements (*Deputy Dir., Dept. of Corrections, State of S.C., Columbia*)

## SUPPORT FOR SCIENCE— A FOCUS FOR PUBLIC POLICY

### Federal R&D and Universities: Impacts of Funding and Policy on Institutional Patterns

Arranged by Rodney W. Nichols  
(*Vice President, Program Planning and Development, Rockefeller University*)

Wednesday, December 27 Shoreham, Palladian

9:00 a.m. Chairman: Rodney W. Nichols

MIT: Research Trends and Policies  
Walter A. Rosenblith (*Provost, MIT*)

Princeton: Research Trends and Policies  
Harold A. Feiveson (*Lecturer, Woodrow Wilson School, Princeton*)

Stanford: Research Trends and Policies  
William F. Miller (*Vice Pres. and Provost, Stanford Univ.*)

Congressional Views of Federal Research Support  
J. Thomas Ratchford (*Science Consultant, Committee on Science and Astronautics, U.S. House of Representatives*)

ONR Trends and Policies  
William P. Raney (*Chief Scientist, Office of Naval Research, Arlington, Va.*)

2:00 p.m. Chairman: Rodney W. Nichols

Medical Education and Research: Trends and Issues  
Sherman M. Mellinkoff (*Dean, School of Medicine, UCLA Center for Health Sciences*)

Federal Thrust to Improve Institutional Quality: A Retrospective Look  
Louis Levin (*Former Asst. Dir. for Institutional Programs, NSF; Special Consultant for Evaluation and Planning, Office of the President, Texas Tech Univ., Lubbock*)

Competition between Universities and Nonprofit Institutes  
Harold Orlans (*Senior Fellow, Brookings Institution*)

Federal Relationships with Universities: Mine Fields Ahead  
John F. Morse (*Dir., Commission of Federal Relations, Amer. Council on Educ., Wash., D.C.*)

Accountability in Government-University Relations  
Bruce L. R. Smith (*Prof. of Govt., Columbia Univ.*)

A Faculty Viewpoint on the Administration of New Institutional Programs  
Robert E. Hughes (*Prof. of Chemistry, Cornell Univ.*)

### The Stimulation and Control of Technology by Government

Arranged by Joel D. Goldhar  
(*Assistant Professor of Management, Rensselaer Polytechnic Institute of Connecticut, Hartford*)

and Don E. Kash  
(*Director, Science and Public Policy Study Program, University of Oklahoma, Norman*)

Thursday, December 28 Washington Hilton, Lincoln-East

9:00 a.m. Government Stimulation of Technological Innovation  
Chairman: Joel D. Goldhar

Panel:  
Edwin Mansfield (*Prof. of Economics, The Wharton School, Philadelphia*), Thomas P. Hughes (*Prof. of History, Southern Methodist Univ.*), Richard Rettig (*Prof. of Admin., Ohio State Univ., Columbus*), Joel D. Goldhar, Alfred E. Brown (*Pres., Celanese Research Co., Summit, N.J.*), Harold Glaser (*Acting Dir., Experimental Technology Incentives Program, NBS*) and Arthur A. Ezra (*Head, Industrial Sector Office, Office of Experimental R&D Incentives, NSF*)

2:00 p.m. Government Control of Technology  
Chairman: Don E. Kash

The Development of Policy Alternatives  
J. Herbert Holloman (*Dir., Center for Policy Alternatives, MIT*)

Anti-Intellectualism and Other Obstacles to the Control of Technology  
Joseph Coates (*Staff Assoc., NSF*)

NEPA: Proliferating Paperwork or Plotting a New Direction  
Richard Christofferson (*Asst. Prof. of Political Science, Wisconsin State Univ., Stevens Point*)

Policies for Stimulation and Control: Will They Cancel Out Technology?  
Robert L. Stern (*Xerox Corp., Stamford, Conn.*)

### Federal Support of Commercially Relevant R&D

(Scientific Research Society of America  
Procter Prize and Annual Address)

Arranged by John M. Evans, Jr.  
(*National Bureau of Standards, Washington, D.C.*)  
and  
Jordan D. Lewis  
(*Battelle Memorial Institute, Columbus, Ohio*)

Friday, December 29 Washington Hilton, Lincoln-East

9:00 a.m. Chairman: Myron Tribus (*Vice Pres., R&D, Xerox Corp., Rochester, N.Y.*)

Procter Prize Presentation and Address by the Recipient  
Lewis M. Branscomb (*Vice Pres. and Chief Scientist, IBM, Inc., Armonk, N.Y.*)

Alternative Policies and Programs  
Aaron Gellman (*Consultant, Wyncote, Pa.*), Gabor Strasser (*Dir., Planning, Battelle Memorial Inst., Columbus, Ohio*), William L. Givens (*Consultant, Boston Consulting Group, Inc., Boston, Mass.*), Basil J. Bard (*Managing Dir., Natl. Research Development Corp., London, England*) and Herbert J. Holloman (*Dir., Center for Policy Alternatives, MIT*)

### Can We Afford the Research Library?

Arranged by Gerard Salton  
(*Professor of Computer Science, Cornell University*)

Friday, December 29

Washington Hilton,  
Military

9:00 a.m. Chairman: Frederick Burkhardt (*Pres., Amer. Council of Learned Societies*)

The Crisis for Research Libraries  
Frederick Burkhardt

Rather, How Can We Afford the Research Library?  
Hugh C. Atkinson (*Dir. of Libraries, Ohio State Univ.*)

A Computerized Cooperative Library Network  
Frederick G. Kilgour (*Dir., Ohio College Library Center*)

Remote Access of Full Text  
Carl F. J. Overhage (*Dir., Project Intrex, MIT*)

The Dynamic Library of the Future  
Gerard Salton

## SCIENCE

### IN THE CULTURAL SETTING

#### Civilizations as Psychohistory and the Modern Dilemma

Arranged by Robert L. Hall  
(*Adjunct Prof., Dept. of Social Sciences  
New School for Social Research, New York City*)

Thursday, December 28

Shoreham, Blue Room

9:00 a.m. Chairman: Michael J. Flack (*Prof. of Internat. and Intercultural Affairs, Graduate School of Public and Internat. Affairs, Univ. of Pittsburgh*)

#### Welcome

Benjamin Nelson (*Pres., Amer. Chapter of the Internat. Soc. for the Comparative Study of Civilizations*)

Western Civilization on Trial: An Interpretation of Joseph Conrad Through Integrational Analysis  
Lorin Loverde (*Dir., Internat. Center for Integrational Analysis*)

#### Some Aspects of Psychohistory

Arnold Toynbee (*The Royal Inst. of Internat. Affairs, London, England*) [Paper to be read in absentia]

The Psychophilosophy of History  
Robert L. Hall

Some Aspects of Civilizations as Psychohistory  
Zevedei Barbu (*Prof., Univ. of Sussex, England*) [Paper to be read in absentia]

Consciences, Sciences, Structures of Consciousness: From the Perspective of the Comparative Historical Sociology of Sociocultural Process and Civilizational Relations

Benjamin Nelson

2:00 p.m. Chairman: Michael J. Flack

Cargo Cults as Cultural Historical Phenomena  
Charles H. Long (*Prof. of History and Religions, Univ. of Chicago, Divinity School*)

Cognitive Factors in the Evolution of Civilizations: The Categories, Valuation of Categories, and Emotional Shifts in Any Civilization during Its Rise and Fall  
Carroll Quigley (*Prof. of History, School of Foreign Service, Georgetown Univ.*)

The Nature of Higher Civilizations as Denominated by Metaphysical World-Outlook  
David Bonner Richardson (*Prof. of Philosophy, Edinboro State College, Edinboro, Pa.*)

Contrasts in Attitudes toward Universality and Conceptualization of Political Realities in the First Millennium B.C. in the Chinese and the Greco-Roman Civilizations with an Exploration of Causes

Margaret Maxwell (*Prof., Dept. of History and Government*) and Jean Ellis (*Prof. and Chm., Dept. of History and Government, Finch College, New York*)

Closing Remarks  
Robert L. Hall

### Visual Perception and the Modern Arts

Thursday, December 28

Sheraton-Park,  
Sheraton Hall

4:30 p.m. Chairman: To be announced

#### A Paradigm for Perception

Richard L. Gregory (*Inst. for Brain Research, Bristol Univ.*)

Friday, December 29

Corcoran Gallery of Art,  
17th and E Streets, N.W.,  
Lecture Room

9:00 a.m. Visual Perception and the Modern Arts, Part I  
Arranger and Chairman: Rudolf Arnheim (*Prof. of the Psychology of Art, Harvard Univ.*)

#### Modern Art as a Showcase of Perception

Rudolf Arnheim (*Prof. of Psychology of Art, Harvard Univ.*)

From Contrast to Assimilation:—in Art and in the Eye  
Dorothea Jameson and Leo M. Hurvich (*Dept. of Psychology, Univ. of Pennsylvania*)

Environmental Perception: What Art Has Contributed to Science

Philip C. Ritterbush (*Dir., Archives of Institutional Change*)

#### Perceptual Aspects of Cartooning

Anthony G. Barrand, John Roberts, and Thomas L. Toleno (*Program in Psychology and the Arts, Marlboro College*)

Concepts of Color and Form in the Impressionists and Post-Impressionists

Jerome Y. Lettvin (*Prof. of Biology, MIT*)

#### Noneuclidean Space in Van Gogh

Patrick Heelan (*Chm. of Philosophy Dept., SUNY*)

#### Sources of Ambiguity in Maurice Escher

Marianne Teuber (*Cambridge, Mass.*)

Aesthetic Perception as a Source of Pleasure and Emotion

Daniel Berlyne (*Prof. of Psychology, Univ. of Toronto*)

2:00 p.m. Chairman: Rudolf Arnheim

**Corcoran Gallery of Art,  
17th and E Streets, N.W.,  
Lecture Room**

**Saturday, December 30**

**9:00 a.m. Visual Perception and the Modern Arts,  
Part II**

Arranger and Chairman: Gene Baro (*Dir.,  
The Corcoran Gallery of Art*)

Aesthetics and "the Right Answer"

Frank Oppenheimer (*Dir., The Exploratorium, San  
Francisco*)

Environmental Perception: What Has Science Con-  
tributed to Art?

Joel Corcos Levy (*Pres., Artists for Environment  
Foundation, Columbia, N.J.*)

Nondiscursive Communication

Richard Land (*Research Assoc. in Mech. Engineer-  
ing, Harvard Univ.*)

Experimental Film and Perception

Leonard Meyers (*Humanities Instructor, Calif.  
State Univ. at San Francisco*)

**2:00 p.m. Chairman: Gene Baro**

Panel Discussion with artists from the Washington,  
D.C. area and environs

### Science and the New Challenges to Rationality

Arranged by Gerald Holton  
(*Professor of Physics, Harvard University*)

**Friday, December 29**

**Shoreham, Blue Room**

**1:30 p.m. Chairman: Gerald Holton**

The Future of Science

Edward Shils (*Prof. of Sociology, Univ. of Chi-  
cago; and Fellow of Peterhouse, Cambridge Univ.*)

The Nature and Sources of Irrationalism

Charles Frankel (*Old Dominion Prof. of Philoso-  
phy and Public Affairs, Columbia Univ.*)

To What Extent Can Quantitative Methods Illuminate  
and Help Solve the Problems of Local Government?

Bernard Gifford (*Pres., New York City Rand  
Inst.*)

Conception of Nature in East-Asian Culture

Masao Watanabe (*Prof., History of Science  
Dept., Tokyo Univ.*)

Discussants:

William Blanpied (*Harvard Univ.*), Roger Hahn  
(*Univ. of California*), and Brian Schwartz (*MIT*)  
social advances beyond science itself?

### Psychohistory: A Psychoanalytic Study

Arranged by: Herman M. Serota  
(*Professorial Lecturer, University of Chicago  
Psychiatry and Staff Member,  
Institute for Psychoanalysis*)

**Saturday, December 30**

**Shoreham, Blue Room**

**9:00 a.m. Chairman: Albert J. Solnit (*Dir., Yale  
Child Study Center, Yale Univ.*)**

Introduction

Burness E. Moore (*Pres. Elect, Amer. Psychoan-  
alytic Assn., New York City*)

Clinical Data: On Schliemann and the Beginnings of  
Scientific Archaeology

William G. Niederland (*Clin. Prof., Psychiatry,  
Div. of Psychoanalytic Educ., SUNY, Downstate  
Medical Center*)

Clinical Data: On the Reconstruction of Isaac Newton's  
Depression and Recovery

Herman M. Serota

**2:00 p.m. Chairman: Albert J. Solnit**

Methodological Problems in the Study of Psychohistory

Albert J. Solnit and David Musto (*Asst. Prof.,  
Dept. of History, Yale Univ. and Child Study  
Center*)

The Psychoanalytic Contribution to the Study of Biog-  
raphy and History

Bernard C. Meyer (*Clin. Prof., Psychiatry, Mt.  
Sinai School of Medicine*)

Discussion

## Low-Cost Travel from California to Washington Meeting

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Names of accompanying family members (for children include  
ages): \_\_\_\_\_

Departure date: \_\_\_\_\_ Prefer a.m., p.m. (circle one)

Return date: \_\_\_\_\_ Prefer a.m., p.m. (circle one)

Return completed form to: AAAS Washington Meeting, S.C.  
Valley Section, ACS, P.O. Box 395, Palo Alto, CA. 94302.

In order to encourage attendance at the forthcoming Wash-  
ington meeting, special air travel arrangements have been  
made for California members (San Francisco and Los Angeles-  
San Diego areas). Participants will be able to save about \$100  
per person, compared to regular coach round-trip fare. Tickets  
are good for 30 days; however, only certain dates may be used for  
travel: prior to 20 December, 23, 25, 27, 30, and 31 December;  
1, 4, 5, 6, and 8 January, and dates thereafter. Travel not  
permitted Fridays and Sundays between 1400 and 2400. Limited  
space has been reserved on flights leaving San Francisco and  
Los Angeles 25 December; if other dates are desired, reserva-  
tions cannot be guaranteed.

*This is a function of the S.C. Valley Section of the ACS.*

Persons interested in these arrangements should fill in the  
form at left, and mail it, at their earliest convenience, to the  
address given.