## THE CENTRAL PROGRAM OF THE 1972 AAAS ANNUAL MEETING

### EDUCATION AND THE HUMAN SCIENCES

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<th>Event</th>
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<tr>
<td><strong>Anthropological Perspectives of Educational Phenomena</strong></td>
<td>Washington Hilton</td>
<td>December 26</td>
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<tr>
<td>2:00 p.m. Chairman: Ralph Tyler (Dir. Emer., Center for Advanced Study in the Behavioral Sciences, Stanford, Calif.)</td>
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<tr>
<td>Theoretical Frameworks for the Anthropological Investigation of Formal Learning</td>
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<tr>
<td>Michael Cole (Assoc. Prof. of Ethnographic Psychology, Rockefeller Univ.) and Sylvia Scribner (Research Assoc., Mathematical Psychology Lab., Rockefeller Univ.)</td>
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<tr>
<td>Emerging Methodological Developments for Research Design, Data Collection, and Data Analysis</td>
<td>Peggy R. Sanday (Assoc. Prof., Dept. of Anthropology, Univ. of Pennsylvania)</td>
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<tr>
<td>Social Organization, Socialization, and Cultural Mediaion in Formal Learning Situations</td>
<td>Francis A. J. Ianni (Prof. and Dir.) and Patricia L. Caesar (Research Assoc., Horace Mann-Lincoln Inst., Teachers College, Columbia Univ.)</td>
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<td>The Federal Interest in Research on the Anthropology of Education Howard F. Hjelm</td>
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### Science Education in Traditional Cultures

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<tr>
<th>Event</th>
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<tr>
<td>Arranged by D. Park Teter (Ph.D. Candidate, Princeton University)</td>
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<td>December 28</td>
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<td>9:00 a.m. Chairman: D. Park Teter</td>
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<td>Scientific Revolution in Traditional Cultures—Some Questions D. Park Teter</td>
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<td>The African Primary Science Program Robert Carlisle (Former Dir., African Primary Science Program, Educ. Development Center, Newton, Mass.)</td>
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<td>Science Education in Southeast Asian Cultures Arthur H. Livermore (Deputy Dir. of Educ., AAAS)</td>
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<td>Science Education in Latin American Cultures Henry H. Walbesser, Jr. (Dir., Bureau of Educational Research and Field Services, Univ. of Maryland)</td>
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<td>Science Education in U.S. Minority Cultures Mary Budd Rowe (Prof., College of Educ., Univ. of Florida, Gainesville)</td>
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<tr>
<td>Thursday, December 28 Shoreham, Cabinet</td>
<td>2:00 p.m. Workshop on Strategies for Science Education in Developing Countries Chairman: D. Park Teter</td>
<td>December 28</td>
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<td>Thursday, December 28 Shoreham, Ambassador</td>
<td>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 &amp; 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)</td>
<td>December 28</td>
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<tr>
<td>Thursday, December 28 Shoreham, Board</td>
<td>2:00 p.m. Chairperson: Carolyn Sherif (Pennsylvania State Univ.)</td>
<td>December 28</td>
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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

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

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 Klopf (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 Lumi
Mary Ellen Hillaire (Contemporary Minority Program, Evergreen State College, Olympia, Wash.)

A Hands-On Approach to Science Education: The COPES Program
Janice Cutler (Asst. Dir., COPES, Research Scientist, Dept. of Physics, New York Univ.)

Concept Formation with Relation to Bilingual Education
Miguel A. Nevarez (Dir. of Bilingual Educ., School of Edu., 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 Engineering: Problems and Successes at College and College Prep Levels
Harry L. Morrison (Assoc. Dir., Lawrence Hall of Science, Prof. of Physics, Univ. of Calif., Berkeley)
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?

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. Raths (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 Center, 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:

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 Discovery
V. Orel (Dir., The Mendel Museum, Brno, Czechoslovakia)

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 Individual 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)

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<th>Commemorative Program: 500th Anniversary of the Birth of Copernicus</th>
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<td>Arranged by Raymond J. Seeger (Secretary, AAAS Section L; Dean, Human Service College, Natl. Graduate Univ.)</td>
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<td>Auditorium, History and Technology Museum, Smithsonian Institution</td>
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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

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

Introductory Remarks
His Excellency, Professor Witold Trampczynski, 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)

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<th>Mid-19th Century American Geology</th>
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<td>Arranged by George W. White (Dept. of Geology, University of Illinois)</td>
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Thursday, December 28

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. Schmeer (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 Science, 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)

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<th>Relations of American and European Geology before 1800</th>
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<td>Arranged by John C. Greene (Professor, Dept. of History, University of Connecticut)</td>
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Thursday, December 28

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

Johann David Schoepf, the True Pioneer of American Geology
Edmund M. Spieler (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. 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. Zucker (Dept. of Sociology, Columbia University)

Saturday, December 30 Shoreham, Club Room B

2:00 p.m. Chairman: Harriet A. Zucker
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 Otmar 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, Department of Electrical Engineering, Massachusetts Inst. of Technology).
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

Discusants:
Albert D. Biderman (Bureau of Social Science Research, Inc., Wash., D.C.), Zahava Blum (Dept. of Social Relations, Johns Hopkins Univ.) and Daniel Tunnell (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.)

10:15 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 Auenkamp (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)
Computed 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)
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.)

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

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

LIVING WORLD

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

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

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)
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. Gableman (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
Sheraton-Park, Assembly

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 Embryogenesis
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 29
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 (Foreyth Dental Center, Boston)

A New Model for Alkaline Earth Metabolism
John H. Marshall (Senior Biophysicist, Radiological Physics Div., Argonne Natl. Lab.)

Models Related 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.)
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 Stimulation of the Brain
Herbert G. Vaughan, Jr. (Assoc. Prof. of Neurology, Einstein Medical School, Bronx, N.Y.)

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 Sciences, Inst. of Society, Ethics and the Life Sciences)

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

Pragmatic Aspects of Plastic and Graphic Modalities of Semiosis: 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 Mystifying 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 Kolbschlag (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 Communications 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)

Survival in Aquatic Habitats

Arranged by Willis King

Friday, December 29 Sheraton-Park, North Cottillion

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 Service)

Status of Fish Populations in Streams
William M. Clay (Tom Wallace Prof. of Conservation, 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 Natural 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 (Nat'l Marine Fisheries Service)

Coastal Zone Habitats
James T. McBroom (U.S. Fish and Wildlife Service)

Degradation of the Environment in Delaware Bay and Its Effects on Marine Fisheries
Kent S. Price (Asst. Dean, College of Marine Studies, 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 Research 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
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

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 F. Lamy (Dir., Institutional Pharmacy Programs, Univ. of Maryland)

Selected Studies of Drug Interaction
Philip F. 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

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

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 Waldner (Prof., 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)

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

National and Regional Communication Networks in Health Care Delivery and the Biomedical Sciences
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.)
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 Gen-
etics Choices?
Arranger and Moderator: Richard A. Tropp (Teaching Fellow and Asst. Instr.
in Political Science; Task Force on Ge-
etics 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, Ken-
dy School of Government, Harvard Univ.)

Knowledge and Value Requirements for Peace
Arranged by Berenice A. Carroll
(Asst. 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
(Div. of Field Studies) and Julie Latané (Research Assoc., Center for Nonviolent Conflict Resolu-
tion, 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.)
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 Staepler *(Dir. of Forestry Research, Wehrhauser 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 *(Nat. 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 Sub-committee 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. Crutched *(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:

**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

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. Buza (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

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

In the Beginning There Was GARP

Robert W. Stewart (Dir., Marine Sciences Directorate, Pacific Region, Environment Canada, Victoria, B.C.)

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

Verner E. Suomi (Dir., Space Science and Engineering 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


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

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:

Demtri Shimkin (Univ. of Illinois, Urbana), William Hausman (Univ. of Minnesota), and Samuel Klausner (Univ. of Pennsylvania)

Saturday, December 30

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. Sloomann (Architect, Hanby, Kennerly, Sloomann & Smith)

The Environment as Code

Alton De Long (Univ. of Texas, Austin)

Sociocultural Factors in Physical and Mental Breakdown

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

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. Winlow (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:


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

Role of Rivers in the Coastal Zone

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 Science, 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
Sheraton-Park, Dover

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?

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

Wednesday, December 27
Sheraton-Park, Wilmington

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

**Arranged by**
George W. Morganthaler  
(Martin Marietta Corporation, NY)

<table>
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<th>Time</th>
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| 8:30 a.m. | The Space Shuttle System and Its Capability  
Chairman: Charles J. Donlan (NASA Hqtrs.)  
**Washington Hilton, Internat. Ballroom-West** |
| 9:45 a.m. | Science Payloads for Space Shuttle  
Chairman: Allan Rosen (Mgr., Space Science Dept., TRW Systems)  
**Washington Hilton, Internat. Ballroom-West** |

**Thursday, December 28**

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<th>Time</th>
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| 8:30 a.m. | Space Shuttle Cost-Effectiveness Studies  
Chairman: Stanley Ross (Pres., S. Ross and Co.)  
**Washington Hilton, Internat. Ballroom-West** |

**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-ra: 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 Hqtrs.)

**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 Hqtrs.)

**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 Processing Experiments in Low-G**  
Louis McCreight (General Electric Space Div.)

**9:00 a.m.**  
Space Shuttle Cost-Effectiveness Studies  
Chairman: Stanley Ross (Pres., S. Ross and Co.)

**The MATHMATICA Studies**  
Klaus Heiss (MATHMATICA)

**Low Cost Payload Studies**  
William Moore (NASA Hqtrs.)

**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 Hqtrs.)

**Refurbishing Spent Satellites and Tending Remote Space Platforms**  
Fritz Runge (McDonnell-Douglas)

**Planetary Exploration in the Space System Era**  
William Burnsall and G. R. Hook (Martin Marietta Corp.)

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

**1:45 p.m.**  
International Participation in Shuttle Payloads  
Chairman: Ivan Rattinger (National Aeronautics and Space Council)
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, 1972
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. Hirtan (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, 1972
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 Kistlakowsky (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

Problems in the Housing Allowance Supply Experiment
Charles E. Nelson (Program Dir., RAND Corp., Wash., D.C.)

2:00 p.m. Chairman: Frederick Mosteller
Social Experimentation and Public Policy

Moral and Ethical Issues of Experimenting with People
Henry W. Riecken (Prof., School of Medicine, Univ. of Pennsylvania)

Experiments in Education: Rigor vs. Feasibility

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)

Wednesday, December 27
Sheraton-Park, Continental
9:00 a.m. Career Process of Health Professionals
Chairman: Robin Badgley (Prof. and Chm., Dept. of Behavioral Sciences, Faculty 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 Rodowkas (Project Dir., Pharmacy Manpower Project, Amer. Asm. of Colleges of Pharmacy, Silver Spring, Md.), and Faye G. Abellah (Chief, Nurse Officer, USPHS and Acting Deputy Dir., Natl. Center for Health Services Research and Development, Rockville, Md.)

Reactor Panel: Putting Research into Action
Lee Burchinal (Nat'l. Institute of Education, HEW), John A. D. Cooper (Fres., Asmn. of Amer. Med. Colleges, Wash., D.C.), Kenneth Endicott (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 Psychological Corp. and Senior Vice-Pres., Harcourt, Brace, Jovanovich, Inc., New York)

Panel: Research Analyses

Reactor Panel: Implications of Research for Action
George Blue Spruce (Chief, Office of Health Manpower Opportunity, Bureau of Health Manpower Education, NIH), Evelyn Perloff (Assoc. Prof., School of Nursing, Univ. of Pittsburgh), and Dan Collins (Trustee, Meharry Medical College, Nashville)

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)

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 Environmental 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 Research Service, USDA.)

Land-Use Controls in Megalopolis—Policies and Problems
Marion Clawson (Dir., Land Use and Management 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?

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)

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

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

**Washington Hilton, Jefferson-East**

Wednesday, December 27

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

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

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

**Washington Hilton, Monroe**

Wednesday, December 27

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:
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

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)

Friday, December 29
Shoreham, Diplomat
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 Lessons 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 Engineering, Univ. of Massachusetts, Amherst)

Structural Dynamics Investigations of the San Fernando Earthquake of February 9, 1971
George Housner (Div. of Engineering and Applied Mechanics, Calif. Inst. of Technology, Pasadena)

Technology Assessment of Winter Orogenic Snow-pak Augmentation in the Upper Colorado River Basin

Women and Ethnic Minorities in Science and Technology: The Role of Professional Societies

Arranged by Richard Trumbull
(Deputy Executive Officer, AAAS)

Friday, December 29
Shoreham, Tudor
2:00 p.m. Chairman: Warren M. Washington (National Center for Atmospheric Research, Boulder, Colo.)

Methods and Problems in Data Collection
Betty M. Vetter (Exe. Dir., Scientific Manpower Commission, Wash., D.C.)

Discussants:
Chauncey A. Alexander (Exe. Dir., Natl. Assn. of Social Workers, New York), Maurice Jackson
(Exe. Specialist for Race and Minority Relations, Amer. Sociological Assn., Wash., D.C.), and Theresa
Telles (Professional Assoc., Office of the Foreign Secretary, Natl. Acad. of Sciences)

Placement, Recruitment, and Compliance

Discussants:
Margaret E. Law (Harvard Univ.), Carter L. Marshall (Assoc. Prof., Dept. of Community Medicine,
Mount Sinai School of Medicine, New York) and
Bernice Sandler (Exe. 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 Rease 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)

Saturday, December 30
Shoreham, Diplomat
9:00 a.m. Chairman: Holt Ashley, (Dept. of Aeronautics 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 Charleston (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—THE ANATOMY OF DECISION

ANATOMY OF DECISION

Oceans Policymaking by Science, Government, and Public

Arranged by Grant Hilliker
(Adjunct Professor of Political Science and Public Policy, Merhon Center, Ohio State University, Columbus)

U.S. Dept. of State, 22nd and C Streets, N.W.
Wednesday, December 27
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

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 Gibbreth 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)

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**SCIENCE POLICY—THE ANATOMY OF DECISION**

Television Town Meetings for the New York Region

Michael J. McManus (Exeq. Dir., CHOICES for '76, Regional Plan Asmn., 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)

Washington Hilton, Jefferson-East

Friday, December 29

9:00 a.m. Chairman: William A. Thomas

Jurimetries: 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 (Exeq. 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, Neuberger & Sive, New York)

The Time Lag between Advances in Medicine and Law

Bernard D. Hirah (General Counsel, Amer. Medical Assoc., Chicago)

The Scientists' Role in Citizen Environmental Advocacy


**Policy Making as a Social Process**

Arranged by Raymond A. Bauer

(Professor of Business Administration, Graduate School of Business Administration, Harvard Univ.)

Washington Hilton, Georgetown-East

Friday, December 29

9:00 a.m. The Institutional Level

Chairman: Joseph L. Bower (Prof., Grad. School of Business Admin., Harvard Univ., Cambridge)

Metamangement 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 Schultz (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)

Washington Hilton, Jefferson-East

Saturday, December 30

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

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

Thursday, December 28

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
(Aden House Hearing)

Arranged by Richard A. Scribner
(Washington Meeting Director, AAAS)

Thursday, December 28

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 (Aden 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

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
Non-Formal Education

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 Inter-Programs, Michigan State Univ.)

Non-Formal Education: Problems and Processes

Discusssants:
PatrickRalaton (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.)

Institutions for the Application of Science to Social Needs

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. Leven (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.)

Discusssants:
Harold Orlans (Senior Fellow, Governmental Studies, The Brookings Institute), Sidney Sternberg (Deputy Asst. Dir., Research Applications, NSF, Wash., D.C.) and Richard Bolt (Bolt Berneke and Newman, Inc., Cambridge, Mass.)

Alternative Computer Systems in Instruction

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 Shutten (Mitre Corp., McLean, Va.)

Discusssant:
Robert J. Seidel (Human Resources Research Organization, Alexandria, Va.)

Where Does Scientific Education Begin?

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

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 Weiskopf (Prof. of Physics, MIT)

Roundtable: Effectiveness of International Science Programs
Harrison Brown (Foreign Secretary, Natl. Acad. of Sciences), John Fobes (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:
Amir Etzioni (Prof. of Sociology, Columbia Univ. and Dir., Center for Policy Research, New York), Harold Orlans (Senior Fellow, Governmental Studies, Brookings Institution) and Julius Margolits (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

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 Aeronautics, 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 Institutions
Harold Orlans (Senior Fellow, Brookings Institution)

Federal Relationships with Universities: Mine Fields Ahead

Accountability in Government-University Relations
Bruce L. R. Smith (Prof. of Gouv., 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:

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
**Can We Afford the Research Library?**

Arranged by Gerard Salton
(Professor of Computer Science, Cornell University)

**Washington Hilton, Military**

Friday, December 29

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**

**Civiliizations 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)

**Sheraton-Park, Sharetan Hall**

Thursday, December 28

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 Psychophysics of History
Robert L. Hall

Some Aspects of Civilizations as Psychohistory
Zevedee Barb (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)

**Visual Perception and the Modern Arts**

**Sheraton-Hilton, 17th and E Streets, N.W., Lecture Room**

Thursday, December 28

4:30 p.m. Chairman: To be announced

A Paradigm for Perception
Richard L. Gregory (Inst. for Brain Research, Bristol 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
SCIENCE IN THE CULTURAL SETTING

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 Contributed to Art?
Joel Corcos Levy (Pres., Artists for Environment Foundation, Columbia, N.J.)

Nondiscursive Communication
Richard Land (Research Assoc. in Mech. Engineering, 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 Chicago; and Fellow of Peterhouse, Cambridge Univ.)

The Nature and Sources of Irrationalism
Charles Frankel (Old Dominion Prof. of Philosophy 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

Clinical Data: On Schliemann and the Beginnings of Scientific Archaeology
William G. Niederland (Clin. Prof., Psychiatry Div. of Psychoanalytic Edu., 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 Biography 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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Departure date: ________ Prefer a.m., p.m. (circle one)

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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 Washington 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, reservations 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.
THE CENTRAL PROGRAM OF THE 1972 AAAS ANNUAL MEETING

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