AAAS Symposia

Annual Meeting: Washington, D.C.

AAAS INVITED LECTURES AND ILLUSTRATED PRESENTATIONS

- **Invited Lecture I (26 Dec., WH)**
  Jerome Kagan (Professor, Department of Social Relations, Harvard University).
  Cross Cultural Perspectives on Early Development
- **Invited Lecture II (27 Dec., SP)**
  Wolf von Eckardt (Architectural Critic, The Washington *Post*).
  The New Urban Vision
- **Invited Lecture III (28 Dec., SP)**
  Richard L. Gregory (Institute for Brain Research, Bristol University).
  A Paradigm for Perception
- **Address of the Retiring AAAS President (28 Dec., SP)**
  Mina Rees (President Emeritus, Graduate Division, City University of New York).
  Saga of American Universities: The Role of Science
- **George Sarton Memorial Lecture (28 Dec., SH)**
  Thomas S. Kuhn (Professor of the History of Science, Princeton University).
  Mathematical versus Experimental Tradition in the Development of Physical Science
- **The B. Y. Morrison Lectureship (29 Dec., SP)**
  René Dubos (Professor Emeritus, Rockefeller University).
  Humanizing the Earth
- **RESA Annual Address and Procter Prize (29 Dec., WH)**
  Lewis M. Branscomb (Vice President and Chief Scientist, IBM, Inc., Armonk, N.Y.).
  Federal Support of Commercially Relevant R & D
- **Phi Beta Kappa Lecture (29 Dec., SH)**
  I. Bernard Cohen (Professor, Department of History of Science, Harvard University).
  Isaac Newton: Mathematics, Experiment, and Imagination
- **Invited Lecture IX (30 Dec., SP)**
  Stephen Toulmin (Provost, Crown College, University of California, Santa Cruz).
  . . . And Shall We Have Science for Ever and Ever?
- **Illustrated Presentation I (26 Dec., WH)**
  Voices and Images of Washington, D.C.
  Urban Ritual
- **Illustrated Presentation II (27 Dec., SP)**
  Jerome Weingart (Environmental Quality Laboratory, Pasadena, California).
  Harnessing the Sun
- **Illustrated Presentation III (29 Dec., SP)**
  Ryan W. Drum (Fairhaven College).
  Single Cell Ecology—Diatoms
- **Illustrated Presentation IV (30 Dec., SP)**
  Tom Frost (Mountain Photography, Ventura, California).
  Adventure in Exploration: The South Wall of Annapurna 1970

Women and Ethnic Minorities in Science

On Wednesday morning, 27 December, a half-day symposium entitled "Facts and Fiction with Regard to Sex Differences" will discuss sex differences from the physiological and sociological point of view, and the psychological basis of sex differences as related to ability in science. Arranged by Elizabeth L. Scott, of the University of California, Berkeley, this symposium will feature Estelle Ramey of Georgetown University and Jacqueline J. Jackson of Duke University as well as a panel consisting of four other women who are accomplished professionals.

Closely related to this program, is one arranged by Hope E. Hopps of the FDA, Department of HEW, entitled "Affirmative Action Programs—Their Impact on Women Today." This symposium, occurring on Wednesday afternoon, 27 December, will present a critical evaluation of women's action programs both in the university and government areas. It will seek answers to the questions: What are the substantive changes of the past 6 years?; What is happening in education and employment?

Other symposia related to these include: "Sex-Role Learning in Childhood and Adolescence"; "Human Learning Capacity in Neurobiological Perspective"; and "Women and Ethnic Minorities in Science and Technology: The Role of Professional Societies."

The last named symposium, scheduled for Friday afternoon, 29 December, is arranged by Richard Trumbull of AAAS. It will (i) present problems and methods related to information gathering on availability of individuals and educational and employment opportunities; (ii) review placement, recruitment, and compliance aspects; and (iii) discuss programs now under way to meet the needs and those which have been planned. Participants include: Betty M. Vetter of the Scientific Manpower Commission; Robert E. Smith of the Office of Civil Rights, HEW; and William P. Layton of the American Society of Civil Engineers.

On Thursday, 28 December, a symposium entitled "Minorities in Physical Science" arranged by Martin A. Paul of the NAS–National Research Council will consider the range of efforts being made to increase the numbers of blacks, certain other minorities, and women entering careers in the physical sciences.

Besides assessing the present situation in education and employment this symposium will consider such other topics as the role of black colleges in science education and research and educational projects to broaden opportunities for minorities in science. Participants will include: Adolph Y. Wilburn of the National Academy of Sciences; Lucius P. Gregg, Jr., of the First National Bank of Chicago; Warren E. Henry and Moddie D. Taylor of Howard University; Mary W. Gray of American University; and Alfred E. Brown of Celanese Research Company.

Science in the Cultural Setting

On 27 December a symposium will be presented on semiotics, arranged by William McLean of the University of Illinois, with emphasis on plastic and graphic aspects of semioses. Some of the topics to be covered include film, modern art, photographs of the whole earth, and conceptual aspects of multiple system processes of communication.

On 29 December, in the afternoon, Gerald Holton of Harvard University will organize a symposium on "Science and the New Challenges to Rationality." The leading paper of this symposium will be presented by Charles Frankel of Columbia University on "The Nature and Sources of Irrationalism."

On 29 and 30 December, at the Corcoran Gallery of Art, a symposium will be organized to explore "Visual Perception and the Modern Arts," following upon the invited lecture of the previous day by Professor Richard Gregory of Bristol University, entitled

"A Paradigm for Perception." The first day of the symposium, arranged by Rudolf Arnheim of Harvard University, will present formal explanations of perceptual processes in such varied contexts as the history of environmental perception, cartooning, non-Euclidean space in Van Gogh, and ambiguity in the prints of M. C. Escher. The second day will feature discussions of creative processes through which artists and others exploit perceptual processes, including a paper, "Aesthetics and the 'Right Answer'" by Frank Oppenheimer, Director of the San Francisco Exploratorium, and a panel discussion with artists from the Washington environs, arranged by Gene Baro, Director of the Corcoran Gallery of Art.

The first of two symposia on psychohistory will be offered on 28 December, concentrating on the history of consciousness, arranged by Robert L. Hall of the New School for Social Research. In what sense do human nature and consciousness change over time, and what light does this shed on contemporary cultural dilemmas? On 30 December a symposium on the psychohistory of science will feature presentations on Schliemann and the psychoanalytic study of biography, arranged by Herman M. Serota of the University of Chicago.

Space Science and Astronomy

Perhaps the most fundamental advances in space science of the recent past and near future are associated with the astrophysics of x-ray, gamma-ray, cosmic-ray, and infrared sources and the sun.

"Recent Advances in Space Physics and Astrophysics" is the subject of a symposium scheduled for Wednesday, 27 December, and arranged by Herbert Friedman of the Naval Research Laboratory and George B. Field of the University of California, Berkeley. This symposium will examine the implications of recent advances in space science as well as consider what new astronomical projects may soon be allowed by near-future space vehicle systems.

The subjects to be covered are: Solar Physics; High Energy Astronomy; Infrared Astronomy; Cosmic-Ray Astronomy; Solar-Terrestrial Physics; and Magnetospheric Physics. Participants include: Leo Goldberg of Kitt Peak National Observatory; Edward Ney of the University of Minnesota; Peter Meyer of the University of Chicago; Francis S. Johnson of the University of Texas; and Juan G. Roederer of the University of Denver. Full of authoritative information and interpretations about our universe and recent measurements of physical phenomena, this program promises to be an in-depth review complete with insights about future work and should be of interest to specialist and nonspecialist alike.

A related program, "Copernicus . . . and Modern Dynamical Astronomy" is arranged by P. Kenneth Seidelman of the U.S. Naval Observatory. Scheduled for Thursday, 28 December, this symposium will cover: Planetary Theories; Lunar Theories; Cometary Motions; Minor Planet Motions; Planetary Probes; The Origin of the Solar System; The Problem of Three Bodies; Stellar Dynamics; Galactic Dynamics; and Computerized Analytical Manipulation. The second session on Friday morning, 29 December, will be held at the U.S. Naval Observatory.

What circumstances during the early history of the earth led to the evolution of its surface chemistry, from inorganic to organic and eventually to a global prolification of the biota? Is this evolutionary track unique to the earth or are all the planets following the same path but at varying rates depending on their size, mass, and distance from the sun? These are some of the basic questions which are related to the fundamental problem of defining the place of the earth in the solar system.

The primary data on the other planets when studied in context with Earth, can be expected to eventually answer some of these questions. In the last few years, we have systematically unveiled many of the mysteries of Mars and Venus. The symposium "NASA's Planetary Research" arranged by S. I. Rasool of NASA and scheduled for 29 December will discuss what we have learned so far and how it affects our understanding of the solar system.

On Saturday, 30 December, "Redshifts of Galaxies and Quasars" arranged by George B. Field of Harvard University will attempt to clarify some of the issues related to the recent challenges to the traditional interpretation of the redshifts of galaxies.

Classically, redshifts of galaxies are attributed to velocity shifts associated with the expansion of the universe. The discovery of the very large redshifts of quasars, and the apparent spatial association of some quasars with objects of small redshifts has challenged this interpretation, with profound implications for cosmology. It may be that the apparent spatial associations are not real—a decision on this matter calls for careful analysis. Participants in this program include: Halton C. Arp of Hale Observatories and John E. Bahcall of the Institute for Advanced Studies, Princeton, N.J.

Modern Physics

The significant discoveries in physics often come from the most abstract, internally motivated research, and take the form of new points of view whose profound practical importance then unfolds as they are explored. A symposium, "From Abstraction to Reality: Two Revelations—the Laser and Superconductivity," will illustrate this pattern with case histories of two such revelations concerning the behavior and control of matter: superconductivity and the laser. Both of these now play indispensable roles throughout all science and technology. Participants include: Benjamin Bederson of New York University and John K. Hulm of Westinghouse Research Laboratories.

A second symposium, "Physics: Its Future, and Its Role throughout Science" arranged by Rolf M. Sinclair and scheduled for Thursday, 28 December, will consist of two lectures on physics.

The first talk by D. Allen Bromley of Yale University will present a popular summary of the recently completed NAS Physics Survey Report. It will outline the present size and problems of the physics enterprise, and will discuss the regions of greatest promise of fresh discoveries in physics of the next decade and the priorities accorded them.

The second talk by Edward C. Creutz of the National Science Foundation will illustrate the crucial role that the ideas and techniques of measurement and analysis in physics have come to play in providing a quantitative framework for all of science. Thus, such techniques as x-ray crystallography, nuclear magnetic resonance, or artificial radioactivity, which were originally developed within physics, have spread through such disciplines as chemistry, biology, and archeology to revolutionize them.