

History, Philosophy, and Sociology of Science

Because the study of the history of science and technology has always provided a rich source of insights to philosophers and scientists, no AAAS meeting would be complete without its complement of perceptive symposia on the history, empirical basis, and sociology of science. This year we have a particularly broad offering which includes three commemorative symposia: Copernicus, the 500th anniversary of his birth; Joseph Henry; and Mendel, the 150th anniversary of his birth.

The Copernicus symposium, arranged by Raymond J. Seeger, will include a private gathering at the Naval Observatory, an evening event at the Smithsonian Institution's Museum of History and Technology, and a public morning session on 28 December in the Shoreham Hotel. In keeping with the worldwide nature of the various Copernican observances, this symposium will be truly international in character involving nine visitors from foreign countries, including the Ambassador from Poland, His Excellency Professor Witold Trzampczynski. Among those giving major addresses will be Dr. Jerzy Dobrzycki of the University of Warsaw, Poland; Professor Stillman Drake of the University of Toronto, Canada; Professor Owen Gingerich of Harvard Univer-

sity; Professor A. A. Mikhailov of the Pulkovo Observatory in Leningrad, U.S.S.R.; Dr. Jerry Ravetz of Leeds University, United Kingdom; and Professor Edward Rosen of the City University of New York.

Each participant in this symposium will consider some aspect of the humanistic significance of our Copernican heritage—its contributions to science and civilization.

Meeting attendees who are interested in the history of science will want to take note of a symposium, of primary interest to astronomers and mathematicians, arranged by P. Kenneth Seidemann of the Naval Observatory, titled "Copernicus . . . and Modern Dynamical Astronomy." In the five centuries since the birth of Copernicus, the field of dynamical astronomy has progressed from infancy to adulthood. This symposium will review the progress made in this field, assess the present-day status, and outline the possibilities for the future. The afternoon session on 28 December in the Washington Hilton will be followed by a morning session and a tour at the Naval Observatory.

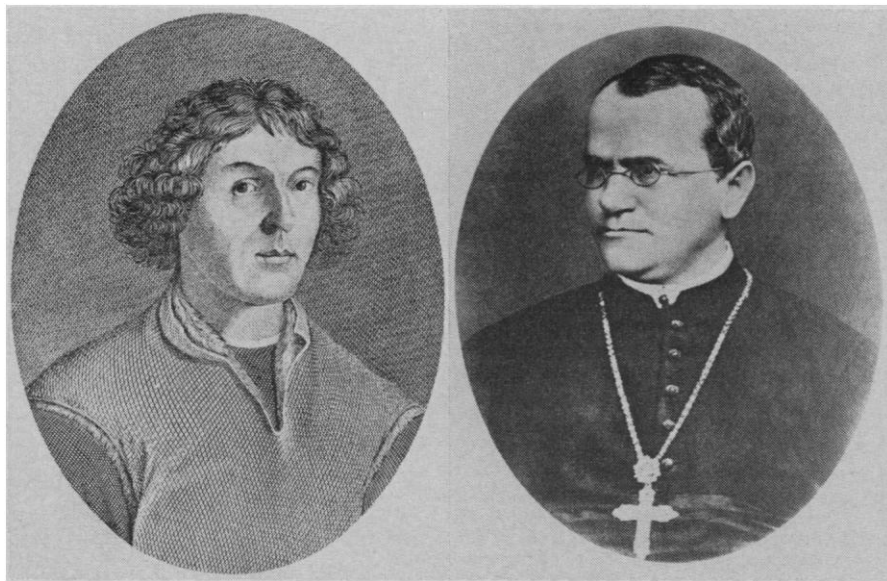
The Joseph Henry symposium, "Physical Thought in the Early Nineteenth Century," has been arranged to coincide with the formal release by the Smith-

sonian Institution of the first volume of *The Papers of Joseph Henry*, a documentary history of the life and times of the eminent American physicist. This symposium, arranged by Nathan Reinhold of the Smithsonian Institution and scheduled for 29 December in the Shoreham Hotel, will not be restricted to Henry himself or to his immediate scientific environment; it will present three aspects of the state of the physical sciences in the years immediately preceding and during the entry of Henry on the scientific scene. These aspects will be: Brewster and the wave theory of light; opposition to ethereal and imponderable media; and natural philosophy in the early 19th century.

"Genetics Since Mendel," arranged by Garland E. Allen of Washington University, will explore several directions which research in heredity took after rediscovery in 1900 of Mendel's previously neglected work of the 1860's. The emphasis in this symposium, scheduled for 27 December in the Shoreham Hotel, will be on genetics in the 20th century, starting from analysis of Mendel's own work and his concept of "factors," through development of the chromosome theory in the 1920's and concluding with the advent of molecular genetics.

Although Mendelian genetics belongs to the 20th century perhaps more than most other aspects of biology, not all its implications were readily accepted. Mendelian genetics are involved in the problems of practical breeding and cytology and led on toward population genetics and eugenics. It also provided key concepts crucial to the advancement of such fields as development and evolution. The growth of genetics thus serves as a valuable means of understanding the growth of scientific theories in biology, their interaction with other theories, and the nature and varieties of scientific explanations.

This year the George Sarton Memorial Lecture, scheduled for 28 December, will be given by Thomas S. Kuhn of Princeton University. The title of his lecture will be "Mathematical versus Experimental Tradition in the Development of Physical Science." The AAAS Invited Lecture on 30 December will feature Stephen Toulmin of the University of California, Santa Cruz, and



Nicolaus Copernicus (1473–1543) and Gregor Mendel (1822–1884) [National Library of Medicine, Bethesda, Maryland]

the title of his lecture is ". . . And Shall We Have Science for Ever and Ever?" Coming at the end of the annual meeting, this Invited Lecture promises to be a penetrating look at science today and its future by one of the country's most insightful and incisive philosophers.

The Sarton Lecture's subject is reflected in two other program offerings: "Case Studies on the Relationship between Experiment and Theory in Science" being arranged by Stanley Goldberg of Hampshire College and "Historical Experiments in Physics" being arranged by Otto Mayr of the Smithsonian Institution. The former is scheduled for 30 December in the Shoreham Hotel and the latter is one of the Washington area establishment programs and will be held at the Smithsonian's National Museum of History and Technology on 28 December. It will feature a lecture demonstration of famous historical experiments in physics in which the lecturer, Samuel Devons of Barnard College, will employ historical equipment from the collections of the museum.

In recent years, historians of science have uncovered a number of cases in which, at the crucial moment, experiment played little role in determining theory choice. Thus, the first symposium in this set will examine closely several case studies of the role of experiment in the shaping of acceptable theories. Under scrutiny will be the old relationship, promulgated by most textbooks, that experiment suggests the theoretical structures which are then used to predict previously undiscovered phenomena which in turn provide confirmation of the theory.

On 28 December there will be two half-day symposiums dealing with historical aspects of geology. "Relations of American and European Geology Before 1860," arranged by John C. Greene of the University of Connecticut, will attempt to show how European geologists contributed to the exploration and development of American geology, how



Joseph Henry (1799–1878) [National Library of Medicine, Bethesda, Maryland]

European geological theories influenced American work, what patterns of rivalry and cooperation developed between European and American geologists, and how personal contacts between American and European geologists furthered the development of geology on both sides of the Atlantic. "Mid-Nineteenth Century American Geology," arranged by George W. White of the University of Illinois, will consist of reports on research in progress and new findings or interpretations of the early history of several state geological surveys.

The annual meeting will also have two half-day symposia, scheduled for 30 December, which consider the sociology of science. Barbara Rosenkrantz of Harvard University is the arranger of a program entitled "Scientists Face the Social Implications of Their Work—Above the Sound and Fury?" which will present three different situations where the social consequences of scientific work were affected by the professional training and organization of the persons responsible for the research.

Although the specific areas covered will include three kinds of scientific en-

deavor at different periods and in different settings, the discussion will attempt to establish common relationships among social structure, professional image, scientific training and views of public role. The cases presented will include: scientists and postwar politics, the environmental controversy surrounding the use of pesticides in high-technology agriculture, and the British medical profession at the end of the 19th century and the control of venereal disease.

A symposium titled "Historical Sociology of Science" has been arranged by Harriet Zuckerman of Columbia University. This program will consider three areas of interest to sociologists and historians of science: the interaction of science and the new class—the case of Manchester in the industrial revolution; the social contexts of nuclear physics before the atomic bomb; and the social construction of science. The latter topic will be the subject of the address of the vice president of the History and Philosophy of Science Section, Everett Mendelsohn.

In addition, more than a dozen other specialized, private, or auxiliary programs in the general area of the history of science will be presented at the meeting. The subjects of these programs include: The history of American psychology between 1880 and 1930; Buffon's role in 18th-century science; the history of scientific exploration voyages in the 19th century; the place of the history of life and medical sciences in undergraduate education; the independence of simultaneous inventions; the historiography of technology; the development phase of technological change; antitechnological movements in history; and several other programs specifically for the interested scholar.

These programs, arranged primarily by the History of Science Society and the Society for the History of Technology, along with the ones discussed above in more detail afford a variety of opportunities for scientists and others interested in historical discussion.

A popular exposition, expressly designed for the Washington community, will be held in conjunction with the AAAS meeting. The exposition will seek to facilitate communication between citizens of Washington and scientific and technologically oriented organizations, both large and small, that are working on problems of major concern to the local community. The individual presentations will vary considerably, but in general they will consist of some visual display which will be both instructive and entertaining. Each display will be manned by an individual representing the particular organization, who will be prepared to answer questions which attendees may have. Approximately 35 organizations will participate in the exposition which will be held in the Washington Hilton Exhibition Hall from 26 to 30 December and will be open from 1 p.m. to 9 p.m. Tuesday through Friday and from 10 a.m. to 6 p.m. on Saturday.