

History of Physics Newsletter

Volume IV, Number 4

February 1991

ELECTION OF OFFICERS

The election ballots are on the inside of the back page of this Newsletter. Members of the Division are urged to vote and to return their ballots immediately. The following positions are to be filled:

Vice-Chairperson (to become Chairperson the following year),
Secretary-Treasurer to serve for three years, and
Two Executive Committee Members to serve for three years.

DIVISION NEWS

APS 1991 MEETINGS

During the spring of 1991 the Division of History of Physics is sponsoring two sessions of invited papers.

Cincinnati, OH, "Discovery of High Temperature Superconductors"

This session is scheduled for Monday evening, March 18th, 1991 at 7:30 PM. The session is being organized by Allen M. Hermann.

Speakers include:

Georg Bednorz, "Discovery of Superconductivity in Lanthanum Barium Copper Oxide."

C.W. (Paul) Chu, "Discovery of Superconductivity in Yttrium Barium Copper Oxide."

Hiroshi Maeda, "Discovery of Superconductivity in Bismuth Strontium Calcium Copper Oxide."

Allen M. Hermann, "Discovery of Superconductivity in Thallium Barium Calcium Copper Oxide."

Washington, DC, "The Coming of Age of Nuclear Physics - The 1930's"

This session is tentatively scheduled for Tuesday morning at 8:00 a.m., April 23rd, 1991. The session is being organized by Heinrich A. Medicus.

Speakers include:

Maurice Goldhaber, "Reminiscences from the Cavendish Laboratory."

Victor F. Weisskopf, "The Tale of Three Cities - Theoretical Nuclear Physics in Europe."

H. Richard Crane, "Nuclear Experiments with No Money, Scrounged-up Equipment and Little Sleep."

Hans A. Bethe, "Theoretical Nuclear Physics in the 1930's in America."

NOTE: Plans are being made for a **John Bell Memorial Symposium** on the "Foundations of Quantum Mechanics" at the University of Maryland on Thursday afternoon, April 25th. See the section on MEETINGS for more information.

Business Meeting of the Division

Following the Tuesday morning, April 23rd, invited session of the Division of History of Physics, the Division is tentatively scheduled to hold its Annual Business Meeting in the same room as the invited session. The Executive Committee will report on the activities of the Division for the past year and on plans for the coming year.

Division & APS Committees

The appointed Committees of the Division for 1990-1991 are:

Nominating Committee: M. Klein (Chair), A. Franklin, E. Garber, and A. Wattenberg.

Program Committee: A. Franklin (Chair), J.T. Cushing, A.M. Hermann, and H. Medicus.

Fellowship Committee: M. Dresden (Chair) and E. Garber.

Both the Division and the APS are interested in involving additional members in their activities. Every year, the Chairperson of the Division receives a request from the APS to suggest persons who would be both able and enthusiastic about serving on an APS committee. The goal is to encourage participation by a wide spectrum of members including persons in the early stages of their careers. The committees of the APS include: applications of physics, constitution and by-laws, education, finance, international freedom of scientists, minorities in physics, panel on public affairs, status of women in physics. If you are interested in the work of any of these committees or in helping to organize invited sessions of the Division, please send a curriculum vitae to the present Vice-Chairperson of the Division, Prof. Martin Klein, Yale Station, Box 2036, New Haven, CT 06520.

The History of Physics Newsletter (HPN) is published by the Division of History of Physics of the American Physical Society. It is distributed free to all members of the Division. Others who wish to receive it should make a donation to the Division of History of Physics of \$10 per volume (\$5 additional for airmail). Each volume consists of 5 issues, Editor: Albert Watenberg, Department of Physics, University of Illinois, Urbana, IL 61801. Associate Editors: Stephen G. Brush, Department of History and Institute for Physical Science and Technology, University of Maryland, College Park, MD 20742, and Elizabeth Garber, History Department, SUNY at Stony Brook, Stony Brook, NY 11794.

APS & AIP NEWS

Walter Massey has resigned from his position as APS Vice-President since he was nominated to the position of Director of the National Science Foundation. Newly elected Vice-President Ernest Henley will move up to the position of President Elect in January 1991, and a special election will be held to fill the vacancy in the office of the Vice-Presidency.

Revision of the Council of the APS The total number of members of the Council of the APS and the number of Councillors from various divisions were revised under the recently adopted amendments to the constitution. The number of Councillors representing a division is based on what fraction of the total membership is in each division. Under the present by-laws, there is one Councillor for each 3% of the membership in a division. The Division of History of Physics will continue to be represented by one Councillor. The Councillor is to be elected by the members of the division. In the future, all Councillors are to be elected prior to September first. Beginning in 1992, all Councillors will take office on January first instead of at the same date as other officers of the Division.

Relocation of Headquarters from New York to Washington The APS, AIP, and AAPT are working together to develop and move into a new home near the University of Maryland in College Park, Maryland. To facilitate the legal aspects of the acquisition of a new building the three organizations have formed a corporation called "The American Center for Physics, Inc." The representatives from the APS are: Nicolaas Bloembergen (President of the APS), Harry Lustig (Treasurer), and N. Richard Werthamer (the new Executive Secretary). David Lazarus is chairing the Advisory Committee on the selection of an architect and on sites; he stated that the group will be looking at existing buildings as well as building sites because of the present state of the real estate market.

News from the Center for History of Physics - Two of the articles in the Fall 1990 issue of the Center's History Newsletter are reports on the progress of the AIP Study of Research Collaborations. Large scale collaborative research efforts are the subject of a long-term study that has been undertaken by the AIP Center for the History of Physics to provide historians and others with a better understanding of what has become an important activity. The immediate goal addresses the problem of documentation of transient organizations of scientists. The creation and preservation of the documentation of these groups needs to be understood if scholars wish to study these groups. The first phase of the Study of Research Collaborations which is now underway is focusing on high-energy physics. The second phase of the project would be a two year study of space science and geophysics where research collaborations are quite different from those in high-energy physics. The initial study (see next paragraph) is scheduled to be completed in May 1991. Those interested in preliminary findings should contact the project staff at the AIP Center: Joan Warnow-Blewett, Spencer Weart, Joel Genuth (Project Historian), or Lynn Maloney (Project Archivist.)

The other related article by Joel Genuth covers the current status and some of the preliminary findings of the AIP High-Energy Study. Several interesting findings are: two-thirds of the experiments studied were part of a string of experiments of a collaboration sometimes improving features of a large detector; theorists were not members of the experiments studied so far and theory did not provide experimenters with something to test so much as guidance for an area of interest to theorists; the large number of collaborators and the tradition of alphabetizing names creates a problem for granting timely credit to physicists who are trying to build their careers. Genuth covers a number of other problems which bring to the forefront the sociology-history interface of recent science.

The AIP move of its headquarters includes moving the AIP Center for History of Physics and the Niels Bohr Library to the Washington-Maryland area. Some interruptions of Library services are inevitable. The policy will be to give highest priority to maintaining the services of immediate value to scholars, including responses to inquiries, the use of documentary materials in person, and the loan of photocopied documents through the mail. Notice of interruptions and changes will appear in future issues of the Center's Newsletter.

AIP Niels Bohr Library Acquisitions - Three microfilm versions of large manuscript collections have been received by the Niels Bohr Library this year; they are the papers of: **Gregory Breit** (1929-1980), **Enrico Fermi** (1919-1954), and **Robert E. Marshak** (1947-1988). Breit's papers consist of correspondence, diaries, and notebooks relating to his research and teaching career; they were microfilmed jointly by Yale

University and the AIP Center. Fermi's papers deal almost exclusively with his professional career in the U.S. after 1938 and include scientific correspondence, experimental notebooks, manuscripts of published papers, lecture notes and awards. The originals of these papers are at the Regenstein Library of the University of Chicago. Marshak's papers are mainly concerned with the Rochester Conferences on High Energy Physics from 1950 through 1970. The originals of these papers are housed at Virginia Polytechnic and State University.

The Library has a small but growing **Collection of Video Cassettes**. Three additions this year are: "50 Years with Nuclear Fission" which includes talks by an outstanding group of internationally famous scientists (several of whom have subsequently died) at a 1989 meeting held at the National Academy of Science, "The Quantum Universe" which was originally aired in June 1990 as program 505 of Smithsonian World, and "The Story of CP-1" which is a 29-minute 1959 film documenting the building of Chicago Pile 1, which produced the first self-sustaining nuclear chain reaction. The latter includes discussions with Arthur Compton, General Groves, and other participants and their versions of the problems faced in developing the atomic bomb.

ANNOUNCEMENTS & REPORTS

J. Bernstein Wins AIP's Gemant Award for Physics Writing

Jeremy Bernstein, a professor of physics at Stevens Institute of Technology and a well known science writer, is the 1990 winner of the AIP's Andrew Gemant Award. Bernstein is best known for his excellent profiles of famous physicists which were published in the New Yorker Magazine. He has written several scientific books for the general public; "Three Degrees Above Zero" is about the AT&T Bell Laboratories, and his most recent book "Quantum Profiles" discusses the development of the interpretation of the quantum theory. He received his Ph.D. in theoretical physics and held research positions at the Institute for Advanced Study and at Brookhaven National Laboratory.

The Gemant Award recognizes individuals who contribute to the understanding of the relationship between physics and society. The Award carries with it a \$5,000 prize for the winner along with a \$3,000 grant to be given to an organization designated by the winner.

Center for History of Electrical Engineering

In September 1990, the Center moved to the New Brunswick Campus of Rutgers - the State University of New Jersey. Previously it was at the headquarters of the IEEE in New York City where it was founded about ten years ago. The move will facilitate the staff

and visitors having access to Rutgers' libraries, faculty, trained student workers, and the Edison Papers Historical Project. The Center as well as being active in historical research programs also has an outreach program for the general public and prepares educational materials for students from grade school to college age.

Doctoral Program at the University of Notre Dame

Notre Dame has announced a new doctoral program in the History and Philosophy of Science; it is a two track system since Ph.D. candidates will be expected to fulfill the Ph.D. requirements in either History or Philosophy. Sixteen faculty make up the working group under the directorship of Ernan McMullin. Application forms and more information can be obtained from the Director, Program in History and Philosophy of Science, 309 O'Shaughnessy Hall, Notre Dame, IN 46556.

EOS: Transactions of the American Geophysical Union

EOS, a publication received weekly by about 20,000 geophysicists, is interested in receiving brief (ca. 2500 words) articles on the history of geophysics. Historical articles from EOS also appear in an annual edition of the journal and may be included in the series History of Geophysics. Submit material in triplicate to James R. Fleming, Program in Science and Technology Studies, Colby College, Waterville, ME 04901.

The Society of American Archivists has made Joan Warnow-Blewett a Fellow.

Joan Warnow-Blewett is the Associate Director of the AIP Center for History of Physics and was cited for educating many in the value of scientific records, for developing theories and guidelines for records preservation, and for stimulating the development of archives across the country.

FY'91 Federal Budget

The budget items related to history were generally at the same level as the previous year. Although there was an increase in funds for the National Archives, the increases were for special renovations and improvements, and there was no new money for basic archival functions. The National Endowment for the Humanities budget increased by \$5.8 million over the FY'90 budget; however most of the increase goes to the preservation program and the state programs. Congress funded the Smithsonian Institution at \$327.8 million; the President's recommendation had been \$307.7 million.

Science Writing Prize of AIP Awarded to Murray of Caltech

Bruce C. Murray, a professor of planetary science at Caltech, was presented with this year's AIP science writing award. The award consists of \$3,000 and a certificate. Murray was chosen for his book "Journey Into Space: The First Thirty Years of Space Exploration." It is an account of his own involvement with the Mariner missions to Mars, Mercury and Venus, and the Voyager missions to the outer planets. He was Director of the Jet Propulsion Laboratory from 1976 to 1982.

International Summer School in Uppsala

The second meeting of the International Summer School in the History of Science took place in Uppsala during June 11-21, 1990 with representatives from eleven countries. A report on this summer school is one of the interesting articles in the **Uppsala Newsletter** which is published by the Office of History of Science at Uppsala University. During the first week of the summer school the theme discussed was "Physical Sciences and Engineering"; the first lecturer was Professor Mary Jo Nye who gave a series of talks on "Discipline Building in Nineteenth-Century Physical Science." The third International Summer School in the History of Science will be held at the University of California at Berkeley July 13-24, 1992, on the theme "The Natural Sciences and Their Applications Between the Two World Wars."

Uppsala Newsletter *History of Science*

There are other articles in this fall 1990 issue of the Uppsala Newsletter; one is on a joint project between Florence and Stockholm in the History of Instrument Making, and another is on the 1990-91 Centennial for Ludvig Lorenz by Helge Kragh. The Danish physicist Ludvig Lorenz developed the "scattering theory" that is the cornerstone in the field known as "optical particle sizing." This research area deals with the determination of the size and shape of very small particles such as molecules, bloodcells, cosmic dust and exhaust gases using optical methods. For more information concerning the Uppsala Newsletter in History of Science, write to the Editor, Tore Frängsmyr, Office for History of Science, Uppsala University, Box 256, S-751 05 Uppsala, Sweden.

MEETINGS

AAAS 1992 Annual Meeting - The AAAS is soliciting proposals for symposia, technical sessions, and workshops for its 1992 annual meeting to be held February 6th to 11th, 1992 in Chicago. For further information contact the AAAS, 1333 H Street, NW, Washington, DC 20005 and the Secretary of Section L, Edward Manier, Department of Philosophy, University of Notre Dame, Notre Dame, IN 46556.

BSHS: Babbage-Faraday Bicentenary Conference - A conference will take place in Cambridge, England, from July 5th to 7th, 1991, to discuss the lives and works of Charles Babbage and Michael Faraday the bicentenaries of whose births fall in 1991. The organizers are the Newcomen Society, the British Society for the History of Science, and the British Society for the History of Mathematics. Accommodations will be provided at St. John's College. Those with a possible interest in attending the conference should write immediately to Dr. J. M. Wheeler, 131 Richmond Road, Cambridge CB4 3PS England.

John Bell Memorial Symposium on the Foundations of Quantum Mechanics - The Committee on History and Philosophy of Science of the University of Maryland, College Park, has organized a session to honor John Bell who died recently. It is tentatively scheduled for Thursday afternoon, April 25th, 1991 at 3:30 PM (in room 2283 of the Zoology-Psychology Bldg.) in conjunction with the APS sessions in Washington. Speakers include: Jeffrey Bub, Allen Stairs, and Carroll Alley. Verification of the time and place can be obtained by writing to Prof. Stephen Brush, Department of History and Institute for Physical Science and Technology, University of Maryland, College Park, MD 20742 or by telephoning (301)-405-5691.

History of Science Society - The 1991 Annual Meeting will be held in Madison, Wisconsin from October 31st thru November 3rd in conjunction with the Society for the History of Technology's annual meeting. As well as regular sessions there will be a joint conference on "Critical Problems and Research Frontiers in the History of Science and Technology." Please direct enquiries to Albert E. Moyer or Richard Hirsh, Program Chairs, Department of History, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061-0117.

HSS Conference on Science and Discovery (in Madrid) - This conference is being cosponsored by the Sociedad Española de Historia de las Ciencias and the Sociedad Latinoamericana de Historia de las Ciencias. It will take place in the Cultural Center of the Caja de Madrid from June 25th to 28th, 1991. A number of the sessions deal with the transfer of science in both directions between the old world and the Americas; the scheduled talks cover a broad perspective. For more information about the program, write immediately to Michael H. Sokal, HSS Executive Secretary, 35 Dean Street, Worcester, MA 01609.

The International Commission on the History of the Geological Sciences will hold its sixth international symposium from September 9th to 15th, 1991 in Dresden, on the functions and significance of museums and collections on the history of the geological sciences. More information can be obtained from the Gessellschaft für Geologische Wissenschaft, Invalidenstrasse 43, Berlin, Germany.

SHOT 1992 Annual Meeting in Sweden - The Society for the History of Technology has just announced, that as a sign of the growing international character of the Society, it has scheduled its 1992 Annual Meeting at Uppsala University in Sweden for August 16th to 21st. The program committee welcomes all interested persons to propose a theme for a session or to contribute a paper at the annual meeting. Those interested are requested to send their suggestions and an abstract of about 25 lines, in five copies, to the SHOT program committee at the address: Prof. Hakon W. Andersen, Center for Technology and Society, University of Trondheim at Lade, N-7055 Dragvoll, Norway. Fax: 47-7-922580.

The Society for Social Studies of Science 1991 Annual Meeting will be held in Cambridge, Massachusetts on November 13th to 16th. MIT will be hosting the event at the Marriott Hotel. To suggest panels or proposals for papers write immediately and enclose abstract of less than 300 words to Ellsworth Fuhrman at the Science Studies Center, Virginia Tech. Blacksburg, VA 24061-0247; phone: (703)-231-7687; E-mail: Fuhrman@VTVM1.BITNET.

GRANTS & FELLOWSHIPS

Grants-in-Aid for History of Modern Physics and Allied Sciences (Astronomy, Geophysics, etc.)

The Center for History of Physics of the American Institute of Physics has a program of grants-in-aid for the history of modern physics and allied sciences (such as astronomy, geophysics, and optics) and their social interactions. Grants can be up to \$2000 each. They can be used only to reimburse direct expenses connected with the work. Preference will be given to those who need part of the funds for travel and subsistence to use the resources of the Center's Niels Bohr Library in New York City, or to microfilm papers or to tape-record oral history interviews with a copy deposited in the Library. Applicants should either be working toward a graduate degree in the history of science, or show a record of publication in the field. To apply, send a vita plus a letter of no more than two pages describing your research project including a brief budget showing the expenses for which support is requested. Send to Spencer Weart, Center for History of Physics, American Institute of Physics, 335 East 45th Street, New York, NY 10017. Deadlines for receipt of applications are June 30th and December 31st of each year.

Bakken Library and Museum of Electricity in Life

Award monies (of up to \$1,000) are made for short visits to the Bakken for scholarly use of its collections of books, instruments, and archival materials by researchers at all levels. Applicants should send brief

research proposals and complete curricula vitae to John Senior, Bakken Library, 3537 Zenith Avenue South, Minneapolis, MN 55416.

Jacob J. Javits Fellows Program

In fiscal year 1991, approximately 120 fellowships were available in support of graduate study in the arts, humanities, and social sciences. Stipends up to \$15,000 are available again depending on the fellow's financial need. Individuals completing undergraduate degrees and those who have completed twenty or fewer graduate credit hours may apply for fellowships. For further information contact Allen Cissell, Department of Education, 400 Maryland Avenue, SW, Room 3022, ROB-3, Washington, DC 20202-5251.

National Endowment for the Humanities Programs

For those considering obtaining support from the NEH, it is essential to obtain a copy of the "Overview" of the Endowment Programs; the most recent issue is dated July 1990. Write to room 406, National Endowment for the Humanities, 1100 Pennsylvania Avenue, N.W., Washington, DC 20506, or phone (202)-786-0438. Information on the NEH 1991 Summer Institutes and Seminars can be obtained by writing to the same office, rm. 406, or to rm. 316 whose phone number is (202)-786-0463. Some information on four of the NEH Programs is given in the previous issue of this Newsletter on pages 41 and 42.

National Science Foundation Programs

The NSF has revised some of the documents related to the programs that provide support for history projects in its various divisions. Program announcements which may be of interest include: (NSF 87-10) from the Division of Teacher Preparation and Enhancement; (NSF 87-29), (NSF 87-49), (NSF 87-50) from the Division of Research Career Development; (NSF 88-14) issued by the Directorate for Science and Engineering Education, National Science Foundation, Room 516 Washington, DC 20550 tel: (202)-357-7557. The NSF states that General Information can be obtained from Grants for Research and Education in Science and Engineering (GRESE), (NSF 8357) (revised 1/87). Single copies of these publications may be ordered from: Forms and Publication Unit Room 232, National Science Foundation, Washington, DC 20550.

BOOK PUBLISHERS

Academic Press

Joan L. Richards **Mathematical Visions - The Pursuit of Geometry in Victorian England** Mathematics, especially geometry was the foundation of liberal education in Cambridge and is a strong element in the construction of the theories of William

Thomson, George Gabriel Stokes and James Clerk Maxwell. The author traces the changes in Victorians' understanding of geometry, the acceptance of non-Euclidian geometry and their unique approaches to proof and discovery. Write to: Academic Press, Order Processing Department, 465 South Lincoln Drive, Troy, MO 63379.

American Philosophical Society - Memoirs

Ronald E. Zupko **Revolution in Measurement: Western European Weights and Measures since the Age of Science.** Write to American Philosophical Society, Box 40098, Philadelphia, PA 19106.

Astronomy Books.

Compiler *Paul W. Luther* **Bibliography of Astronomers: Books and Pamphlets in English by and about Astronomers. Vol I. The Spirit of the Nineteenth Century.** Write to Astronomy Books, Bernardston MA.

Birkhäuser Verlag, Boston

Johann Bernoulli **Die gesammelten Werke der Mathematiker und Physiker der Familie Bernoulli** edited by *Naturforschenden Gesellschaft, Basel.*

Ivor Grattan-Guinness **Convolutions in French Mathematics, 1800-1840 From the Calculus and Mechanics to Mathematical Analysis and Mathematical Physics.** France enjoyed unprecedented prominence in science from 1789 to 1840. This is the first comprehensive study of French Mathematics in this period - based on many publications and archival sources. 3 volumes. Write to: Birkhäuser Boston Inc., P.O.Box 2485, Secaucus, NJ, 07096-2491.

Cambridge University Press

Julian B. Barbour **Absolute or Relative Motion: A Study from a Machian Point of View of the Discovery and Structure of Dynamical Theories. Vol 1: The Discovery of Dynamics** The title is descriptive of the contents which arose from the author's study of the general theories of relativity. Because these were at an impasse he felt the need for a comprehensive history of absolute and relative motion.

John Bell **Speakable and Unspeakable in Quantum Mechanics** All of Bell's papers, published and unpublished on the conceptual and philosophical problems of Quantum Mechanics.

J.T. Cushing **Theory Construction and Selection in Modern Physics** The author examines the important question of the criteria used to select and justify theories and practices in modern physics. As a

case study he narrates the abandonment of Heisenberg's S-Matrix for quantum field theory.

Allen Franklin **Experiment Right or Wrong** Uses two episodes: the experiment and development of the theory of weak interactions from 1934 to 1957 and atomic parity violation experiments and unified field theory of electroweak interactions of 1970 and 1980's to explore the fallibility and corrigibility of experimental results.

Niccolò Guicciardini **The Development of Newtonian Calculus in Britain: 1700-1810** Newton's unique form of the calculus "fluxions" was developed and taught by a line of distinguished mathematicians in Britain in the 18th century. It was neither neglected nor did it decline.

Peter Harmann **The Scientific Letters and Papers of James Clerk Maxwell Vol I 1842-1862.** The first volume of a comprehensive edition of Maxwell's manuscript papers and letters.

Robin Hermann **Fusion: The Search for Endless Energy** The international race to build the first fusion reactor.

Editors *B.N. Kursunoglu and E.P. Wigner* **Paul Adrien Maurice Dirac: Reminiscences about a great Physicist** Memorial volume by twenty-four friends, colleagues and contemporaries.

Bruno Rossi **Moments in the Life of a Scientist** Scientific Autobiography. The book includes glimpses into trials of a Jewish family in Fascist Italy.

Robert W. Smith with contributions from *Paul A. Hanle, Robert H. Kargon and Joseph N. Tatarewicz* - **The Space Telescope** Examines the politics and management of Big Science, the factors, new institutions and strategies required to carry out large-scale scientific projects.

Mark Walker **German National Socialism and the Quest for Nuclear Power, 1939-49** The author argues that the decision not to go into the production of nuclear weapons was dictated by economic and political factors, not technical or moral ones.

Derek T. Whiteside **The Preliminary Manuscripts for Newton's Principia 1684-1686**

Write to: Cambridge University Press, 32 East 57th Street, New York, NY 10022.

Chicago University Press

Translation, notes and conclusion by *Albert Van Helden* **Galileo Galilei: Siderius Nuncius or the Sidereal Messenger** Write to: University of Chicago Press, 5801 South Ellis Avenue Chicago, IL 60637.

W.H. Freeman and Co.

Reprint with a new introduction of *Steven Weinberg*
The Discovery of Subatomic Particles Write to:
W.H. Freeman, 41 Madison Ave., New York, NY 10010.

Harvard University Press

Alan Lightman and *Roberta Braver* **Origins: The Lives and Worlds of Modern Cosmologists** Interviews with Stephen Hawking, Roger Penrose, Steven Weinberg and many others which deal with personal, philosophical and other issues in their work. The introduction includes an overview of the ideas in particle theory and new observations that led to the new cosmology.

I. Bernard Cohen **Benjamin Franklin's Science** Professor Cohen returns to the subject of his earlier study in the history of science, Benjamin Franklin. Write to: Harvard University Press, 79 Garden Street, Cambridge, MA 02138.

University of Hawaii Press

R. Rubinger **An American Scientist in Early Meiji Japan: The Autobiographical Notes of Thomas C. Mendenhall** Thomas C. Mendenhall was first professor of physics at Tokyo University 1878-81.

Lehigh University Press

Editor *Elizabeth Garber* **Beyond History of Science: Essays in Honor of Robert E. Schofield** Festschrift in honor of Robert E. Schofield whose wide range of interests are reflected in the papers of this collection. *Russell McCormack* has a paper on Henry Cavendish and his handling of political turmoil in the Royal Society, *M.J. Klein* on the intellectual relationship between Gibbs and Duhem (they never met), *Elizabeth Garber* discusses Simeón-Denis Poisson's mathematical solutions to physical problems and criteria making those solutions mathematical rather than physical. Both *Edwin T. Layton* and *Andrew J. Butrica* discuss difficulties transforming physical principles into engineering practice. The two cultures debate is discussed by *Harry Eisenmann* and *David Topper* -the co-editor of *Leonardo*. Write to: Associated University Presses, 440 Forsgate Drive, Cranbury, NJ 08512.

Kluwer Publishing

Trevor H. Levere and *William R. Shea* **Nature, Experiment, and the Sciences: Essays on Galileo and the History of Science in Honour of Stillman Drake** In this collection are five articles on

Galileo as astronomer, physicist and metaphysician. In addition there are two essays on Ptolemaic astronomy, six on science since Galileo, one on the inductive sciences in the nineteenth century and one on the background to Heinrich Hertz's experiments in electrodynamics.

P. Kosso **Observability and Observation in the Physical Sciences** Write to: Kluwer Academic, P.O. Box 358, Accordia Sta., Higham, MA 02108-0358.

Plenum Publishing

Editor *Arthur Miller* **Sixty-Two Years of Uncertainty** Nineteen papers by fourteen authors on various aspects of the historical and philosophical problems associated with quantum mechanics, the uncertainty principle, wave-particle duality and quantum field theory. NATO ASI Series: Series B: Physics.

Routledge

Editors *R.E. Olby*, *G.N. Cantor*, *J.R.R. Christie* and *M.J.S. Hodge* **Companion to the History of Modern Science** Survey of the state of the history and philosophy of science. Articles on the Copernican revolution, relativity, quantum theory, the history of atomism, physical optics, cosmology and particle physics as well as articles on education in the sciences and science and the public. Write to: Routledge and Chapman Hall, 29 West 30th St., New York, NY, 10001-2211.

Springer-Verlag

G. Böhme, *E.A. Fellman*, *D. Speiser* and *C.A. Truesdell* **Die Anfänge der Mechanik: Newton's Principia gedeutet aus ihrer Zeit und ihrer Wirkung auf die Physik.**

J. Lützen **Joseph Liouville, 1809-1882, Master of Pure and Applied Mathematics.**

Editor *Bernard J. Rousel* **R.S. Mulliken, Life of a Scientist: An Autobiographical Account of the Development of Molecular Orbital Theory** Write to: Springer-Verlag, Dept S282, 175 Fifth Ave., New York, NY 10010.

Stanford University Press

Felix Bloch **Fundamentals of Statistical Mechanics: Manuscripts and Notes of Felix Bloch.**

Herbert F. York **The Advisors: Oppenheimer, Teller and the Superbomb** with an essay by Hans Bethe Write to: Stanford University Press, Stanford CA 94305.

The Whipple Museum of the History of Science

A.J. Turner **From Pleasure and Profit to Science and Security: Etienne Lenoir and the Transformation of Precision Instrument Making in France 1760-1830** Write to: Whipple Museum of the History of Science, Free School Lane, Cambridge, CB2 3RH U.K.

RECENT & FUTURE ARTICLES**American Journal of Physics**

July 1990

"Short biography of G.E.Uhlenbeck," by *G.E.D.Cohen*, 618-19

"G.E.Uhlenbeck and Statistical Mechanics," (same author), 619-625

September 1990

An exchange on Newton's *Principia* and the inverse square law continues in this issue, with a letter from *Hermann Erlichson* 882-84 and a reply by *Robert Weinstock*, 884-86.

American Review of Materials Science

1990

"Forty years of pressure tuning Spectroscopy," by *H. G. Drickamer*, 1-18.

Annals of Science

July 1990

"Forming new physics communities: Australia and Japan, 1914-1950," by *R.W.Home* and *M. Watanabe*.

Annals of the History of Computers

1988

"Douglas Hartree and early computations in quantum mechanics," by *Paul A. Medwick*, 105-111.

Archive for History of Exact Sciences

1988

"Nineteenth century anticipations of the modern theory of dynamical systems," by *Michael A.B. Deakin*.

1990

"History of the Mathematics of Double Refractions," by *L.Garding*, 355-86.

"Albert Einstein und der Welle-Teilchen Dualismus," by *Alexander Bach*, 172-206.

British Journal for the History of Science

March 1990

"Precision measurement and the Genesis of physics teaching Laboratories in Victorian Britain," by *Graeme Gooday*, 25-51.

June 1990

"The magnetic circuit model, 1850-1890: The resisted flow Image in Magnetostatics," by *D. W. Jordan*, 131-173.

September 1990

"The Case of Brownian motion," by *Roberto Maiocchi*, 257-83.

"Delaroche and Bérard and experimental error," by *Eric Mendoza*, 285-92.

Bulletin of the Seismological Society of America

August 1990

"An unknown seismological Manuscript of the Eighteenth Century," by *R.M. W. Musson*, 1026.

Current Contents

May, October 1990

"The most cited physical-science Publications in the 1945-1954 *Science Citation Index*, Part I," 14th May, 7-17, "Part II 15th October, 8-13, "Part III," 22nd October, 7-15 by *Stephen G. Brush*.

Historia Scientiarum

1989

"The development of renormalization in quantum electrodynamics," by *Seiya Aramabi*, vol. 36, 97-116 and vol. 37, 91-113.

History of Science

1990

"Work and Waste: Political Economy and Natural Philosophy in Nineteenth Century Britain III," by *M. Norton Wise* and *Crosbie Smith*, 221-261.

Journal of Chemical Education

1989

"Reflection on nuclear fission at its first half century," editorial.

Physica A

1989

"The Van der Waals Fund, van der Waals Laboratory and Dutch high-pressure science," by *J.M.H.Levelt* and *J.V.Sengers*.

Physics Today

November 1990

Special issue devoted to communicating physics to the public.

Quarterly Journal of the Royal Astronomical Society

"The Transits of Venus and the new Astronomy in early Seventeenth Century England," by *A. Chapman*, 333.

SUMMARIES

Authors of books and articles on the history of physics are invited to send summaries for publication in this section. Maximum length: 75 words for articles, 150 words for books. Publication will be expedited if each summary is typed, on a separate sheet, in the format of the summaries below. Summaries should be sent to Elizabeth Garber, History Dept., SUNY at Stony Brook, Stony Brook, NY 11794.

NOTE: The curtailed number of SUMMARIES in this issue is an anomaly. It is hoped that we will return to several pages of summaries in future issues of the History of Physics Newsletter.

ETHER & RELATIVITY

Schröder, Wilfried, *A Contribution on the Early Discussion of Ether and the Reception of Einstein's Theory of Relativity*. *Annalen der Physik*, 1990, 7 47: 475-489.

This paper deals with the discussion on the ether problem and Einstein's new theories between 1905-1925. Extracts from unpublished letters and papers of Emil Wiechert and Hendrik A. Lorentz concerning the ether problem, the relativity theory of Einstein and related aspects are presented here so as to give an idea of the discussion on this subject during the years 1905-1925. Reprints address: Dr Wilfried Schröder, Hechelstrasse 8, D-2820 Bremen-Roenebeck, FRG.

TRANSURANIUM ELEMENTS

Seaborg, Glenn T. and Loveland, Walter D., *The Elements Beyond Uranium*, 359 pp., New York, John Wiley, 1990.

This book includes unique, not generally available, firsthand accounts of the discovery of the transuranium elements and the only person to hold a patent on a chemical element. It also contains such special features as excerpts from original notebooks, pictures of element discovery teams, etc. The book also contains an up-to-date summary of the chemical, physical and nuclear properties of the transuranium elements.

GOETHE'S COLOR THEORY

Sepper, Dennis L., *Goethe contra Newton: Polemics and the Project for a New Science of Color*, xvi + 222 pp., Cambridge, Cambridge University Press, 1988.

The "German Shakespeare," J. W. von Goethe, is notorious for attacking Isaac Newton's theory of colors, based on his own theories presented in the multivolume *Zur Farbenlehre* (1810). Goethe's color science has been almost unanimously rejected as nonphysical, expressing a poet's incapacity for scientific method. This book shows that

the repudiation of Goethe's physical and anti-Newtonian claims is based on erroneous assumptions about the history of Newton's theory and about the method and goals of Goethe's color science. By illuminating the historical background and the experimental, methodological, and philosophical character of Goethe's work the author argues that the *Farbenlehre* is in an important sense genuinely physical, and that it anticipated significant twentieth-century results in the history and philosophy of science and in color science itself.

EDWIN HUBBLE

Osterbrook, Donald E., Brashear, Ronald S., and Gwinn, Joel A., *Self-Made Cosmologist: The Education of Edwin Hubble*, *Astronomical Society of the Pacific Coast-Conference Series*, 1989, 10: 1-18.

The youth, education, early life, and first research accomplishments of Edwin Hubble, the outstanding American observational cosmologist, are described. This biography is based very largely on written and published sources contemporary with the events described.

MAGNETIC CIRCUIT

Jordan, Dominic W., *The Magnetic Circuit Model, 1850-1890: The Resisted Flow Image in Magnetostatics*, *British Journal of the History of Science*, 1990, 23: 131-173.

The image of flow of magnetic induction driven against a "resistance" developed from Faraday's theories. Early versions aimed to provide a descriptive framework less mathematical and more flexible than classical magnetic theory. It was refined into a computational aid for electrical machine construction through multiple rediscoveries by designers in the period 1884 to 1886, and remains a paradigm of descriptive magnetostatics. M. Faraday, J. Clerk Maxwell, H. Rowland, R. H. Bosanquet, G. Kapp, J. and E. Hopkinson, G. Forbes, W. E. Ayrton and J. Perry played a part.

DUTCH HIGH PRESSURE SCIENCE

Levelt Sengers, J.M.H., and Sengers, J.V., *Van der Waals Fund, Van der Waals Laboratory, and Dutch High-Pressure Science*, *Physica* 1989, A 156: 1-14.

At the 25th anniversary of his doctorate, in 1898, Van der Waals was honored by the establishment of a fund that enabled him to initiate research in high-pressure phase behavior at what was to become the van der Waals Laboratory in Amsterdam. The impact of the fund on the development of high-pressure science at this laboratory, and its effect on industry in the Netherlands, is traced through three periods, namely that of van der Waals and Kohnstamm (1898 to 1920), that of Michels (1920 to 1961) and that of Trappeniers (1961 to 1987).

ANNALEN DER PHYSIK

Schröder, Wilfried, *Two Hundred Years "Annalen der Physik"*, *Mitteilungen Arbeitskreis Geschichte Geophysik, Deutsche Geophysik. Gesellschaft*, 1990 No. 1.

Annalen der Physik has been published for two hundred years. Some developmental phases with biographical sketches are described. Dr. Wilfried Schröder, Hechelstrasse 8, D-2820 Bremen-Rönnebeck, FRG.

FALSE IMAGE OF EINSTEIN

Lidenfeld, Peter, *Millikan Lecture 1989: The Einsteinization of Physics*, *American Journal of Physics*, 1990, 58: 301-305.

This article deplores the popular vision of Einstein as an otherworldly figure given to arcane pursuits, and his emergence as the most widespread icon of physics, reinforcing an image of the subject as remote and irrelevant.

Examples are given of easily understandable observations which nevertheless are rarely discussed in courses for non-specialists: the discovery of pulsars, of the microwave background, and the Einstein-de Haas experiment. The article concludes with a plea for more direct and widely accessible teaching in physics.

DIVISION ELECTION

Nominees for the 1991 Divisional Election

We need to elect a Vice-Chairperson who will become Chairperson next year, a Secretary-Treasurer who will serve for three years, and two members of the Executive Committee who will serve for three years.

For Vice-Chairperson

Gerald Holton

Gerald Holton is Mallinckrodt Professor of Physics and Professor of History of Science at Harvard University. He received his PhD there in 1946 in experimental high pressure physics as student of P.W. Bridgman. His main current research interests are in the history of modern physics. Initiator of the AIP Center for History of Physics. Fellow of the American Physical Society, American Academy of Arts and Sciences, Deutsche Akademie der Naturforscher Leopoldina, etc. Among honors, George Sarton Medal, Jefferson Lecturer, Millikan and Oersted Awards. Former President, History of Science Society. Editorial Committee, Collected Papers of Albert Einstein. Author of Thematic Origins of Scientific Thought, Introduction to Concepts and Theories in Physical Science, the Scientific Imagination: Case Studies, The Advancement of Science, and Its Burdens: The Jefferson Lecture and Other Essays.

Heinrich Medicus

Heinrich A. Medicus, Professor Emeritus of Physics at Rensselaer Polytechnic Institute, received his D. Sc. degree from the Swiss Federal Institute of Technology in Zurich. His field of research was experimental nuclear physics. In later years his interests shifted to the history of twentieth century physics. Presently, he does research on Einstein and some of his Swiss friends. Among his publications are "50 Years of Matter Waves" in *Physics Today* and "A Comment on the Relations Between Einstein and Hilbert" in *Am. J. of Phys.* On his suggestion the Division decided to participate in the March meetings of the A.P.S. with a symposium on a topic of interest to condensed matter physicists. He organized and chaired the sym-

posia in 1988 in New Orleans on the history of semiconductor physics and in 1989 in St. Louis on the history of optical properties of condensed matter, which drew audiences of approximately 800 and 700 respectively.

For Secretary-Treasurer

C. Stewart Gillmor

C. Stewart Gillmor was born in 1938. He is Professor of History and Science at Wesleyan University, Middletown, CT. BSEE, Stanford, 1962. PhD, History of Science, Princeton, 1968. Ionospheric Physicist, National Bureau of Standards 1960-62, as NSF Exchange Scientist with Sixth Soviet Antarctic Expedition, 1960-62. Sabbatical/Leave as Fulbright Senior Research Fellow Cavendish Physical Laboratory, Cambridge, England 1976; NASA History Scholar 1981; NSF-CNRS Research Fellow at Center for Research in Terrestrial and Planetary Physics, Paris, France 1986. Author: Coulomb and the Evolution of Physics and Engineering in Eighteenth-Century France (1971), and about 45 articles. Editor, Transactions-American Geophysical Union, 1983-86. Editor (1983-) History of Geophysics series, 4 vols., 1986-90. Major area of research: History of Physics & Engineering 1950-present, especially history of ionospheric and space physics, science policy studies; quantitative measures of science. Secretary/Treasurer, Division of History of Physics, American Physical Society, 1988-

For Executive Committee

John P. Blewett

John P. Blewett earned his doctorate in physics at Princeton and spent a post-doctoral year at the Cavendish Laboratory then directed by Rutherford. He worked at the GE Research Laboratory for a decade and then for some thirty years at Brookhaven National Laboratory concentrating on accelerator design and synchrotron radiation, among other subjects. He continues to consult and to write on the history of the Cosmotron and synchrotron radiation. He has a particular interest in helping to preserve the historical record of physics.

Lillian Hoddeson

Lillian Hoddeson. Born 1940. Senior Research Physicist in Department of Physics and Visiting Associate Professor in Department of History, University of Illinois. Ph.D. in Physics, Columbia, 1966. Research in history of science since 1967, focus on accelerators, particle physics, solid state, large laboratories, industrial research and atomic weapons. 1967-70 with Samuel Devons, created Barnard-Columbia History of Physics Laboratory. 1971-80, research on solid-state physics at Bell Laboratories. 1980-90, with Spencer Weart, American section of International Project on the History of Solid-State Physics. Since 1977, Fermilab historian. Since 1984, head of team writing technical history of Los Alamos in World War II. Collaboration in organizing symposia on history of particle physics: 1930s and 40s with Laurie Brown; 1950s with Brown and Max Dresden. Present major research is the emergence of big science, focussing on Fermilab. Books include: with Spencer Weart, Ernest Braun, Jürgen Teichmann and others, Out of the Crystal Maze: Chapters in the History of Solid-State Physics, to appear in 1991; with Catherine Westfall, Roger Meade and Paul Henriksen, Critical Assembly: A History of Los Alamos During the Oppenheimer Years, 1943-1945, to be published in 1992, with Laurie Brown, The Birth of Particle Physics, 1983; and with Laurie Brown and Max Dresden, Pions to Quarks, 1989. Articles in journals in history of: solid state physics, accelerator physics and laboratories, and Los Alamos.

Nancy Nersessian

Nancy Nersessian is Assistant Professor at Princeton University in the Program for the History of Science. She is a philosopher of science (Ph.D. Case Western Reserve University) with a particular concern for the historical development of concepts in physics. Much of her work concerns H.A. Lorentz including a volume of his Selected Works and a translation of his dissertation. Her book Faraday to Einstein: Constructing Meaning in Scientific Theories has recently been reprinted in a paperback edition. Her current work uses cognitive science to help analyze conceptual change.

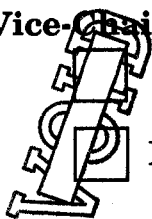
Phillip Taylor

Philip Taylor is the Perkins Professor of Physics and Macromolecular Science at Case Western Reserve University, where he has been since earning his Ph.D. in theoretical physics from the University of Cambridge in 1962. He conceived and was Executive Director of the Michelson Morley Centennial Celebration, which drew attention to the anniversary of the 1887 experiment through a year-long program of conferences, competitions for young people, and commissioned works of music and art.

1991 Ballot

The Ballot must be returned before April 4th, 1991, to Allan Franklin, Department of Physics, University of Colorado, Box 390, Boulder, CO 80309-0390.

Vice-Chairperson--Vote for ONE



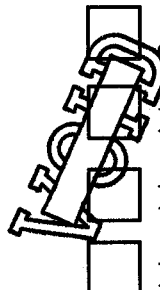
GERALD HOLTON

HEINRICH MEDICUS

SEC.-TREASURER-- Vote for ONE

C. STEWART GILLMOR

Executive Committee--Vote for TWO



JOHN P. BLEWETT

LILLIAN HODDESON

NANCY NERSESSIAN

PHILLIP TAYLOR

HISTORY OF PHYSICS NEWSLETTER
Volume IV Number 4 -- February 1990

DIVISION NEWS:	49
AIP & APS NEWS:	50-51
ANNOUNCEMENTS & REPORTS:	51-52
MEETINGS:	52-53
GRANTS & FELLOWSHIPS:	53
BOOK PUBLISHERS:	53-55
RECENT & FUTURE ARTICLES:	56
SUMMARIES:	57
DIVISION ELECTION NOMINEES	58-59
ELECTION BALLOT:	59
