History of Physics Newsletter

Volume V, Number 5

February 1994

ELECTION OF OFFICERS

The election ballots are on the inside of the back page of this Newsletter. Members of the Forum on the History of Physics are urged to vote and to return their ballots immediately. This year we need to elect a Vice-Chair, who will serve in that position for one year. The subsequent year, that person becomes the Chair-Elect, and the following year they become Chair of the Forum for a one year term. This year we also need to elect: a Forum Councillor, a Secretary-Treasurer, and two Executive Committee Members. The Forum Councillor serves for four years, and the Secretary-Treasurer and Executive Committee Members serve for three years.

FORUM NEWS

APS 1994 MEETINGS

During 1994 the Forum on the History of Physics has scheduled two sessions of invited papers at general meetings of the APS.

Pittsburgh, PA, "The Solid State Roots of Silicon Valley" The APS meeting is scheduled for March 21-25, 1994, and a request has been made to schedule this session on March 22. The organizer and chair of the session is Lillian Hoddeson. The speakers include: Fred Seitz "Research on Silicon and Germanium in World War II," Michael Riordin "The First Two Transistors: From the Point Contact to the Junction Transistor," Henry Ehrenreich "Directed Curiosity: Semiconductor Physics in the 50's," Stewart W. Leslie "The Business of Solid State Physics or Why Silicon Valley Isn't in New Jersey."

Crystal City, VA, "Science Advising to the Government" The session is tentatively scheduled for Tuesday evening, April 19th, 1994. The session has been organized by Sylvan Schweber; Gerald Holton will be chairperson for the session. Mildred Dresselhaus will be the commentator. The speakers include: Michael Dennis "Vannevar Bush and the Historical Problem of

Science Advising," Harvey Brooks "An Impressionistic History of Science Advising Since World War II," Kurt Gottfried "Physics After the Cold War-Policy Implications, One Outsiders Perspectives," Neal Lane Title to be announced.

BUSINESS MEETING OF THE FORUM

The Business Meeting of the Forum will be in Crystal City, VA, on April 19th immediately following the Tuesday evening invited session in the same room. There will be a report of the officers and an introduction of the new officers and the new editor of this Newsletter.

UNITY DAY

The APS is planning on continuing the tradition of UNITY DAY on Wednesday afternoon April 20th. The talks will be addressed to a general physics audience, and no technical or specialized sessions are scheduled for that afternoon.

APS & AIP NEWS

The APS Fellowship Committee recommended that Per F. Dahl and Lillian H. Hoddeson be made Fellows of the APS.

The new APS address as of November first is American Physical Society, The American Center for Physics, One Physics Ellipse, College Park, MD 20740-3844. The new telephone number is (301)209-3200. Approximately 45% of the existing staff relocated including Harry Lustig who is Treasurer and who is temporarily acting as Executive Secretary. The American Institute of Physics and the American Association of Physics Teachers are also moving into the American Center for Physics (ACP). It is about 12 miles from downtown Washington and about two miles from the College Park campus of the University of Maryland.

The AIP Center for the History of Physics has also relocated at the same address as the APS. However the telephone numbers are (301)209-3165 for the Center for History of Phys-

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ics and (301)209-3175 for the Niels Bohr Library. Key personnel that have moved to ACP include: the Center's Director, Spencer Weart, the Center's Associate Director Joan N. Warnow-Blewett, Associate Archivist Caroline Moseley, and Associate Historian Ron Doel. (A list of the personnel who did not relocate is given in the fall 1993 AIP History Newsletter.)

The American Center for Physics building can be reached from downtown Washington, DC in about half an hour by car. In December 1993, a Metro station on the new Green Line opened at College Park within walking distance.

Those attending the APS meeting in Crystal City that are interested in History of Physics, can take advantage of visiting the Center for History of Physics by taking the metro at Crystal City to College Park.

The new Archives will be open to researchers in phases beginning in February 1994. The National Archives will provide shuttle service from the Main Archives building in downtown Washington.

APS GENERAL MEETINGS: The APS Committee on Meetings and the Executive Board have discussed the possibility of creating a General Meeting of the APS by moving the present April meeting to the autumn and adding the presence of other subunits. At the present time, the APS holds two large meetings in the spring. The March meeting, predominantly condensed matter physics and materials, rotates among cities; the April meeting is traditionally held in the vicinity of Washington and contains a mix of other disciplines and the Forum on the History of Physics. The Society has been trying to emphasize and promote the common physical science principles that interlink the various subdisciplines, and the Executive Board feels that a General Meeting would enhance the unity of physics. There would be strong disciplinary sessions as well as more general interest sessions. The Chairs and Secretary-Treasurers of the subunits have received a letter requesting the reaction of the

subunit to the possibility of replacing the April meeting with a General Meeting in the autumn. The officers of the Forum would appreciate receiving comments from the membership on the possibility of a change to an autumn General Meeting.

MEETINGS

British Association, History of Science Section - An Annual Meeting is being planned at Loughborough University on 5-9 September 1995. The Section is organizing sessions on the use of computers in the history of science, the history of space exploration, and on theory and responsibility in science and technology. Further details about the program can be obtained from Dr. Frank A.J.L. James, RICHST, Royal Institution,21 Albemarle Street, London, WIX 4BS. Details about registration may be obtained from British Association for the Advancement of Science, Fortress House, 23 Savile Row, London WIX 1AB, Great Britain.

A British Society for the History of Science Meeting on Writing Scientific Biographies is being planned in London in May/June 1995. The meeting, in conjunction with the Society's 1995 Annual General Meeting, will continue the series devoted to important biographies, focusing on the Blackwell series of scientific biographies. The aim will be to discuss the values of scientific biographies written for a wider audience, from the perspectives of both the authors and readers of such texts. Send offers of papers to Frank A.J.L. James, RICHST, 21 Albermarle Street, London, WIX 4BS, Great Britain.

An international European Physical Society Conference on "History in Teaching Physics" will be held at the Teacher Training College, Szombathely, Hungary, on 28-30 August 1994. This will be together with a meeting of the European Physical Society Interdivisional Group on the History of Physics and in conjunction with the Roland Eötvös Physical Society and the Eötvös University Gothard Observatory. meeting is designed to support teachers and educators interested in the use of the history of science in teaching physics, Like previous meetings in this series held in Pavia, Munich, Paris, Cambridge, and Madrid, this presents a major opportunity for those interested in the pedagogical applications of the history of science to meet colleagues. There will be sessions and workshops on a variety of topics. Szombathely is about 120 km from Vienna. More information can be obtained from Dr. L. Kovács, Teacher Training College 9701, Szombathely PO Box 170, Hungary. Telephone 36/94/13-892, fax 36/94/312-248; or Mrs. K. Láng, ELFT H-1371, Budapest, PO Box 433, Hungary.

Geological Society of America meeting entitled "From the Inside and the Outside: Interdisciplinary Perspectives on the History of the Earth Sciences" will be held in San Diego on 19-21 March 1994. The aim of this conference is to bring together historians of science and scientists interested in the history of the earth sciences, with a focus on the methodological differences of their approaches to the subject. Further details can be obtained from Lee F. Laporte, Earth Sciences, University of California, Santa Cruz, CA 95064.

History of Science Society's (HSS) Annual Meetings: The annual meeting in 1994 will be in New Orleans 13-16 October 1994. Proposals for sessions, contributed papers, and works-in-progress must be submitted by April 1, 1994 to Amy Lanfear, History of Science Society Executive Office DR-05, University of Washington, Seattle, WA 98195; Fax (206)685-9544.

The 1995 annual meeting will be in Minneapolis, MN 26-29 October 1995. In conjunction with the HSS meeting there will be the Third International History, Philosophy, and Science Teaching Conference at the University of Minnesota from October 27th to November 1st, 1995. Paper proposals should be sent to, and information about the conference can be obtained from, Prof. Fred Finley, Department of Curriculum and Instruction, University of Minnesota, Minneapolis, MN 55455-0208. FAX 1-612-624-8277; E-mail: finleyfin@vx.us.umn.edu and address to Fred Finley.

International Summer School in the History of Science meets biannually and the fourth School will be held in Paris at the Cité des Sciences et de l'Industrie. The School has two sessions of one week each; the first week session, of most interest to physicists, will take place on 4-8 July 1994 and the title is "Physical Sciences in the Old World." The School's purpose is to bring together specialists and advanced students to develop topics in the history of science and technology. The number of participants is limited to about twenty for each session. A chief goal of the School is to promote collaborative research on an international level. Mornings are devoted to lectures and discussions. Afternoons will be free for work in libraries, museums, laboratories, ad-hoc seminars, and visits. Further information can be obtained from the organizers, two of whom are: D. Pestre, CRHST, Cité des Sciences et de L'Industrie, 75930 Paris Cedex 19, France, or J.L. Heilbron, Office for History of Science and Technology, 470 Stephens Hall, University of aCalifornia, Berkeley, CA 94720, USA.

The Museum Boerhaave is holding a conference to examine such issues as the changing pattern of collecting scientific instruments, why are they of interest to collectors, etc. The conference will be at the Museum on 7-9 September 1994. Offers of papers and requests for further details should be sent to Peter de Clercq, Museum Boerhaave, PB 11280, 2312 EG Leiden, The Netherlands.

JOBS, FELLOWSHIPS, & GRANTS

AIP Center for History of Physics

The Center for History of Physics has a program of grants-in-aid for research in 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 to the work. Preference will be given to those who need part of the funds for travel and subsistence to use the Niels Bohr Library in College Park, Maryland, 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 (in which case they should include a letter of reference from their thesis advisor), or show a record of publication in the field. For more information, write to Spencer Weart, Center for History of Physics, One Physics Ellipse, College Park, MD 20740. Deadlines for receipt of applications are June 30 and December 31 of each year.

HSS Job and Fellowship Announcements are now electronically accessible. Previously the delays that occurred with the sequential publication times led to our notices appearing too late to be useful. We therefore welcome the efforts of the new Executive Secretary of the HSS, Keith R. Benson, for making these announcements available in this more timely method. The file is updated periodically and contains announcements slated for publication in the quarterly Newsletter of the Society.

The file is downloaded through Internet's File Transfer Protocol (FTP) by following these steps: type FTP FTP.U.WASHINGTON.EDU, when the internet responds, log in as anonymous, for user id give your e-mail symbol and address; type DIR, after internet listing response, type pub/user-supported/hss/hssjobs. To logoff type EXIT.

Lawrence Livermore National Laboratory (LLNL) History Program

The LLNL History Program includes summer appointments for undergraduate and graduate students. Participants earn competitive rates based on job assignment, academic achievement, and relevant work experience. Appointment of faculty members will also be made; their regular salaries will be prorated for the actual time at LLNL. There also are programs that support dissertation research, sabbatical projects, and other short-term projects with Laboratory internships of several months up to two years. Applicants must be US citizens and must undergo a background investigation required by the Department of Energy. Applicants for appointments should discuss their research plans with the LLNL historian before completing the application package and should submit detailed statements of historical interest. For further information contact the LLNL Historian, Barton C. Hacker, L-452, Lawrence Livermore National Laboratory, P.O. Box 808, Livermore, CA 94551; (510)422-7327.

The NSF Program in Science and Technology Studies directed by Ron Overman has a new address: 420 Wilson Boulevard, Arlington, VA 22230 and new telephone number: (703)306-1743.

ANNOUNCEMENTS

At the 1993 meeting of the History of Science Society David Cassidy was awarded the Pfizer Prize for the first volume of his biography of Heisenberg, Uncertainty: The Life and Science of Werner Heisenberg. Cassidy has garnered awards for his biography from both the history of science and the physics communities.

In an effort to alert Forum members to the range of resources available in the history of the physical sciences we note the availability of Linus Pauling, Crusading Scientist, a 57 minute video produced on the occasion of Pauling's ninetieth birthday. The video traces his work on the chemical

bond, in molecular biology as well as his role in the anti-bomb movement and his controversial stance on preventive medicine and vitamin C. For more information write: Richter Productions, 330 West 42nd St., New York NY 10036.

The University of Chicago Press has announced the publication of a new journal Perspectives on Science, editor Joseph C. Pitt. This quarterly is devoted to studies of science that place the sciences within their social context. As well as case studies, review articles and book reviews, current historiographical issues will be covered. Volume 1 appeared in 1993. For more information write: University of Chicago Press, 5801 South Ellis Ave., Chicago ILL 60637.

Studies in the History and Philosophy of Science recently announced a new section Studies in the History and Philosophy of Modern Physics that will be published as a fifth issue each year, beginning in 1993. Modern physics is defined as physics from the middle of the nineteenth century onwards-that is, from the date when physics became a profession and modern theoretical physics came into existence. The addition is available with a subscription to Studies in the History and Philosophy of Science. For more information write: Pergamon Press, Headington Hill Hall, Oxford OX3 0BW, UK.

Tractrix a yearbook in the history of science, medicine, technology and mathematics recently began publication. Volume three appeared in 1993. The journal is primarily, but not exclusively on the history and historiography of the sciences, medicine etc. in the Netherlands. Most of the articles are published in English. More information can be obtained from: Editions Rodopi, 233 Peachtree St., N. E., Suite 404, Atlanta GA 30303-1504.

The European Physical Society has recently established an Interdivisional group in the history of physics. The aims of the group include cataloguing the archives of collections of instruments in Europe, establishing conferences in the history of physics and promoting the use of history in the teaching of science. For more information write: Dr. Andrew Warwick, Science and Technology Studies, Imperial College of Science, Technology and Medicine, 446 Sherfield Building, Exhibition Road, London SW7 2AZ, England.

Inventory of Sources for History of Twentieth-Century Physics: Report and microfiche index to 700,000 letters, a decade in the making, is now in distribution from GNT-Verlag. It lists detailed information on the availability of more than three-quarters of a million letters concerning the development of physics since 1896. These letters, open for scholarly research, are scattered in more than two thousand archival collections in 35 countries. Rather than listing letters by collection as is the usual way, the ISHTCP lists them by the name of the physicist author or recipient. The 300-page hardbound book that accompanies the microfiche database fully identifies all collections and archival repositories and also lists the 5,600 names of physicists identified by the project. It accompanies more than 60 standard microfiche (48x) that contain the letter index. Each microfiche contains 268 pages, thus some 16,000 pages in all. Under the name of each physicist is an alphabetical list of his or her correspondents. Under each correspondent are listed by approximate date the letters they exchanged, each exchange identified by collection and location. There is also a microfiche index by name to 75,000 non-physicists. A limited-time pre-publication price of \$499 (U.S. currency) is available to institutions (or individuals) that prepay for immediate delivery before 31 March 1994. After then the price will rise to \$599. Orders with payment should be sent to GNT-Verlag, postbox 81-02-63, 70519 Stuttgart, Germany.

BOOK PUBLISHERS

University of California Press

David Cahan ed. Hermann von Helmholtz and the Foundations of Nineteenth-Century Science.

Sir Charles Frank Operation Epsilon: The Farm Hall Transcripts.

Mary Jo Nye From Chemical Philosophy to Theoretical Chemistry: Dynamics of Matter, Dynamics of Disciplines, 1800-1950

A Mind Always in Motion: The Autobiography of Emilio Segré.

K. S. Shrader-Frechette Burying the Certainty: Risk and the Case against Geological Disposal of Nuclear Waste.

For more information write: University of California Press, 2120 Berkeley Way, Berkeley, CA 94720.

Cambridge University Press

Edward Grant Planets, Stars and Orbs: The Medieval Cosmos, 1200-1687.

Lillian Hoddeson, Paul W. Hendrickson and Catherine L. Westfall Critical Assembly: A Technical History of Los Alamos during the Oppenheimer Years, 1943-1945.

Toby E. Huff The Rise of Early Modern Science: Islam, China and the West.

Johannes Kepler The New Astronomy trans. William H. Donahue.

Erich Robert Paul The Milky Way Galaxy and Statistical Cosmology 1890-1924.

Olaf Pederson Early Physics and Astronomy.

Roy Porter and Mikulas Teich eds. The Scientific Revolution in National Context

Alexandr S. Sharov and Igor D. Novikov trans. by Vitaly I. Kiskin Edwin Hubble, the Discoverer of the Big Bang Universe.

Richard S. Westfall The Life of Isaac Newton.

B. H. G. Wormald Francis Bacon: History, Politics and Science. Bacon is usually seen as a philosopher of science yet he saw himself also as a clarifier and promoter of policy—the improvement of the structure and functioning of the civil state. The two enterprises developed hand-in-hand in his work.

For more information write: Cambridge University Press, 32 East 57th Street, New York, NY 10022.

University of Chicago Press

Michael Bess Realism, Utopia and the Mushroom Cloud: Four Activist Intellectuals and their Strategies for peace, 1945-1989. One of the four is Leo Szilard.

Mario Biagioli Galileo, Courtier. This is a study of Galileo from 1610, the date when he returned to Florence as court philosopher and mathematician to the grand duke of Tuscany until 1633, after his condemnation by the Inquisition. Biagioli argues that Galileo fashioned his science and his behavior in scientific disputes to keep the patronage of the Medici. This patronage was crucial. It allowed Galileo the freedom to pursue cosmological questions, otherwise socially dangerous, and to confer on his ideas a necessary social and intellectual legitimation.

For more information write: University of Chicago Press, 5801 South Ellis Avenue, Chicago, IL 60637.

Columbia University Press

Stuart W. Leslie The Cold War and American Science: The Military-Industrial-Academic Complex at MIT and Stanford. For more information write: Columbia University Press, 562 West 113th Street, New York NY 10025.

European Space Agency

Arturo Russo ed. Science beyond the Atmosphere: The History of Space Research in Europe. This volume is the proceedings of the conference held in Palermo, Italy, November 1992. For more information write: ESA publications Division, ESTEC Postbus 299, 2200 AG Noordwijk, The Netherlands.

Garland Publishing

Samuel L. Macey Time: A Bibliographic Guide. This bibliography ranges across the sciences from physics and cosmology to medicine.

Clive Holland Artic Exploration and Development, c 500BC-1915.

Joseph F. Mulligan ed. Heinrich Rudolf Hertz (1857-1894): A Collection of Articles and Addresses.

For more information write: Garland Publishing, 136 Madison Avenue, New York, NY 10016.

Harvard University Press

Gerald Holton Science and Anti-Science. For more information write: Harvard University Press, 79 Garden Street, Cambridge, MAS 02138.

Indiana University Press

Joseph Brent Charles Saunders Peirce: A Life. A long review of this biography of a fascinating and difficult man whose worked ranged across mathematics, statistics, metrology, philosophy and psychology, by Louis Menard appeared in New York Review of Books, December 2, 1993, 30-35. For more information write: Indiana University Press, Tenth and Morton Sts., Bloomington IN 47405.

Institute of Physics (IOP) Publishing

Sir Charles Frank Operation Epsilon: The Farm Hall Transcripts. Unknown to the German scientists rounded up and transferred to Farm Hall at the end of the second world war their conversations were recorded, transcribed and translated. These tapes, transcriptions etc., were classified top secret and only recently released after years of pressure from scientists and historians. This is the first publication of the transcribed conversations. It gives insight into the German progress on atomic weapons and scientists' reactions to the attack on Hiroshima. [In the USA this volume is available from the University of California Press, 2120 Berkeley Way, Berkeley CA, 94720.]

S. Webb From the Watching of Shadows: The Origins of Radiological Tomography. For more information write: IOP Publishing, c/o AIDC 64 Depot Road Colchester VT 05446.

Kluwer Academic Publications

William Wallace Galileo's Logical Treatises, translated with commentary. For more information write:

Kluwer Academic, P. O. Box 358, Accordia Station, Higham MA 02108-0558.

Oxford University Press

R. A. Divine The Sputnik Challenge: Eisenhower's Response to the Soviet Satellite.

Kristie Macrakis Surviving the Swastika: Scientific Research in Nazi Germany. This is a study of how normal scientific research was carried on during the third Reich, even though there was a real loss of scientific talent with the expulsion and exodus of Jewish scientists.

Charles Ruhlar The Physics of Chance: From Blaise Pascal to Niels Bohr, trans. G. Barton.

J. E. D. Williams From Sails to Satellites: The Origins and development of Navigational Science.

Allen M. Winkler Life under a Cloud: American anxiety about the Atom.

For more information write: Oxford University Press, 200 Madison Avenue, New York, NY 10016.

Penguin

Ian Stewart and Martin Golubitsky Fearful Symmetry: Is God a Geometer?

Michael White and John Gribbin Einstein: A Life in Science.

For more information write: Penguin USA, Academic Marketing Dept., 375 Hudson St., New York NY 10014-33657.

Princeton University Press

John Polkinghorne The Faith of a Physicist: Reflections of a Bottom-Up Thinker.

Eli Maor e: the Story of a Number.

Silvan S. Schweber QED and the Men who Made it: Dyson, Feynman, Schwinger and Tomonaga.

Roland Omnés The Interpretation of Quantum Mechanics.

For more information write: Princeton University Press, 3175 Princeton Pike, Lawrenceville, NJ 08648.

Routledge

Ivor Grattan-Guinness ed. The Companion Encyclopedia of the History and Philosophy of the Mathematical Sciences. Articles cover the history of mathematics in physics. For more information write: Routledge and Chapman Hall, 29 West 35th St., New York NY 10001-2291.

Rutgers University Press

Issued in paperback:

Michael Segre In the Wake of Galileo. This is a reinterpretation of the life of Galileo, his place in the scientific, cultural and political communities of northern Italy in the post-Renaissance era. For more information write: Rutgers University Press, 109 Church Street, New Brunswick, NJ 08901.

Science History Publications

Svante Lindqvist ed. Center on the Periphery: Historical Aspects of Twentieth-Century Swedish Physics. For more information write: Science History Publications, P. O. Box 493, Canton, MA 02021.

Springer-Verlag

Laurie M. Brown ed. Renormalization: From Lorentz to Landau (and Beyond).

Alec Edin The Search for Christian Doppler

For more information write: Springer-Verlag, 175 Fifth Avenue, New York, NY 10010, or, P. O. Box 2485, Secaucus, NJ 07096-2491.

Variorum

Variorum is publishing a series on Islamic history, societies and cultures. Of particular interest are: David A. King Islamic Mathematical Astronomy.

David A. King Astronomy in the Service of Islam.

For more information write: Variorum, Old Post Road, Brookfield VT, 05036-9704.

Westview Press

Raymond Bentley Research and Technology in the former German Democratic Republic. For more information write: Westview Press, Boulder CO.

RECENT ARTICLES

American Journal of Physics

1992, vol. 60

"Fermi and Wigner," Frederick Seitz, 875-876.

Angewandte Chemie

1991, vol. 30

"Lise Meitner and Fission: Fallout from the Discovery," Ruth Lewin Sime, 942-953.

Annals of Science

1992, vol. 49

"Essay Review: Einsteinian Fixations," S. Sigurdsson, 577-583.

1993, vol. 50

"Oliver Heaviside and the Significance of the British Electrical Debate," I. Yavetz, 135-173.

Archives internationales d'histoire des sciences

1992, vol. 42

1991 marked the bicentenary of the birth of Michael Faraday. The reviews of the crop of books on Faraday

that have recently appeared are themselves now being published. Two appear here by *L. Pearce Williams*. "Frank A. J. L. James on the Correspondence of Michael Faraday," 418-419, and "Ryan D. Tweney and David Gooding eds. Michael Faraday's Chemical Notes and Brian Bowers and Lenore Symons eds. Curiousity Perfectly Satisfied: Faraday's Travels in Europe, 1813-185," 377-378.

Archive for History of Exact Sciences

1992, vol. 44

"Møller Scattering: A Neglected Application of early Quantum Electrodynamics," Xavier Roqué, 197-264.

1993, vol. 45

"The Electrodynamic Revolution in Germany as documented by early German Expositions of Maxwell's Theory," Olivier Darrigol, 189-280.

"The Uniqueness of Trigometric Series and Descriptive Set Theory, 1870-1985," R. Cooke, 281-334.

Berichte zur Wissenschaftsgeschichte

1992, vol. 15

"Camille Flammarion und der zweite Haupsatz der Thermodynamik," Andreas Kleinert, 243-249.

"Dokumentation und Information: History of the Interrelations between Biology, Chemistry and Physics—Internationale Tagung," *Brigitte Hoppe*, 250-253.

British Journal for the History of Science

1993, vol 26

The March issue of the journal is devoted to "Energy and Society." The focus is on the social history of energy systems including an article on the nuclear debates and the NIMBY syndrome in Britain, why combined heat and power generation and district heating was not introduced into Britain while these systems were important in Scandinavia and elsewhere. The final article examines how housewives were induced to use electricity during the 1930s. Also of interest are.

"Images of the Sun: Warren de la Rue, George Biddell Airy and Celestial Photography," Holly Rothermel, 137-170

"The Case of Brownian Motion: A Note on Bachelier's Contribution," Robert W. Dimand, 233-234.

"Infinity and Creation: the Origin of the Controversy between Thomas Hobbes and the Savilian Professors Seth Ward and John Wallis," Siegmund Probst, 271-280.

"A Duty of the Greatest Moment': Isaac Newton and the Writing of Biblical Criticism," Scott Mandelbrote, 281-302

"Essay Review, Personal Development and Intellectual Biography: the Case of Robert Boyle," Steven Shapin, 335-346.

Bulletin of Atomic Scientists

1992, vol. 48 no. 5

"From the Nuclear Frying Pan into the Global Fire," Spencer Weart, 18-27.

Earth Sciences History

1993, vol. 12

The first issue in this volume is devoted to the proceedings of a symposium on the history of oceanography. Articles include an introduction to the history of oceanography and a bibliography of sources by Eric L. Mills, the foundation of marine stations in Britain in the late nineteenth century by Magaret B. Deacon and Mott T. Greene on oceanography's "double life."

Historical Records of Australian Science 1991, vol. 8

"Spectroscopic Research in CSIRO division of Chemical Physics," J. B. Willis, 151-182.

1992, vol. 9

"Albert Lloyd George Reed, 1916-1989," Alan Walsh and J. B. Willis, 31-47.

"Bok, Woolley and Australian Astronomy," S. C. B. Gascoigne, 119-126.

"Edward George Bowen, 1911-1991," B. G. Hyde and P. Day, 151-166.

"Ernest William Titterton," J. O. Newton, 167-188.

Historical Studies in the Physical and Biological Sciences

1993, vol. 23

"The discovery of the Redshift of Solar Fraunhofer Lines by Rowland and Jewell in Baltimore around 1890," Klaus Hentschel, 219-278.

"The Discovery of Spontaneous Fission in Plutonium during World War II," Lillian Hoddeson, 279-300.

"The Emergence of Reference Frames and the transformation of Mechanics in the Enlightenment," Domenico Bertolini Meli, 301-336.

History and Technology

1993, vol. 9

The complete volume is devoted to the topic of "Choosing Big Technologies" and is guest-edited by John Krige. Two articles, by John Krige and Arturo Russo are on the European Space Research Organization (ESRO). Also of interest are,

"The Decision-making Process for the main Particle Accelerators built throughout the World from the 1930s to the 1970s," *Dominique Pestre*, 163-174.

"Technology Choice in early High-Energy Physics," Robert W. Seidel, 175-188, *

"The Back-end of the Nuclear Fuel Cycle," William Walker, 189-202.

History of Geophysics

1993, vol. 5

The first issue in this volume is devoted to the history of the Carnegie Institution in Washington and its

branches and available archival resources. In addition there are articles on the Carnegie Institution by Gregory A. Goode, its funding by E. L. Yochelson, early work accomplished by Goode and H. S. Yoder, The issue also contains articles on Merle Tuve and geophysics, Henry Norris Russell, Mount Wilson, isotope geology, meteorology and the ionosphere.

History of Science

1993, vol. 31

There is an important essay review by Jack Morrell on Judith Goodstein's Milikan's School and Robert Kohler's Partners in Science.

Isis

1993, vol. 84

"The Dilemmas of Science in America: Alexander Dallas Bache and the U.S. Coastal Survey," *Hugh Richard Slotten*, 26-49.

"Currents from the Underworld: Electricity and the Technology of Display in the early Victorian Period," Iwan Rhys Morus, 70-88.

"The Social Event of the Season: Solar Eclipse Expeditions and Victorian Culture," Alex Soojun-Kim Pang, 252-277.

"Newton, Leibniz and Barrow Too: An Attempt at a Reinterpretation," Mordechai Feingold, 310-338.

"Science as a Career in Enlightenment Italy: The Strategies of Laura Bassi," Paula Findlen, 441-469.

"Postwar Scientific Intelligence Missions to Japan," R. W. Home and Morris F. Low, 527-537.

Journal for the History of Astronomy

1992, vol. 23

"Neptune in America: Negotiating a Discovery," John G. Hubbell and Robert W. Smith, 261-291.

Journal of the British Interplanetary Society 1992, vol. 45

"War Heads into Peace Heads: Holger N. Toftoy and the Public Image of the V-2 in the United States," David H. DeVorkin, 439-444.

Knowledge

1993, vol. 14

"A Story too Good to Kill: The "Nuclear" Explosion in San Francisco Bay," Lawrence Badash and Richard G. Hewlett, 356-371.

Minerva

1993, vol. 31

"The Creation of Postdoctoral Fellowships and the Siting of American Scientific Research," *Alexi Assmus*, 151-183.

"How Specialities Survive," David H. DeVorkin, 246-252. This is an essay review of Karl Hufbauer Exploring the Sun: Solar Science since Galileo.

New Scientist

1992

"Fears, Fantasies and Fallout," Spencer Weart, 2-5.

New York Review of Books

1993. October 21

"Nature's biggest Secret," Roger Penrose, 78-82. This is an essay review of Steven Weinberg **Dreams of a**Final Theory.

Osiris

1993, vol. 8

"Research Schools: Historical Reappraisals," Gerald L. Geison and Frederick L. Holmes eds. The whole of this annual volume is devoted to the topic of research schools. Gerry Geison gives a overview of the historiography of the concept. Essays of interest are on the general issue of schools of research, by John Servos, the role of tacit knowledge in their formation by Kathryn Olesko and national styles in chemistry by Mary Jo Nye. Case studies included in the volume are: R. Steven Turner on the study of vision in Germany in the nineteenth century and Helmholtz v. Hering, Jack Morrell on Manchester v. Oxford and the change in Perkin's chemistry, José M. Sanchez-Ron and Antoni Roca-Rosell on Spain's first school of physics, and David S. Kushner on Sir George Darwin and British geophysics.

Physics Today

1993, vol. 46 no. 1

"The Birth of the Nuclear Age," Albert Wattenberg, 44-51.

vol. 46, no. 10

"Physical Review Centenary: From Basic Research to High Technology," Robert K. Adair and Ernest M. Henley, 222-225.

"Physical Review records the Birth of the Laser Era," Nicolas Bloembergen, 28-31.

"Early Magnetic Resonance Experiments: Roots and Offshoots," Norman Ramsey, 40-43.

"Superconductivity: from Physics to Technology," Theodore Geballe, 52-56.

"A Semicentury of Semiconductors," Alan B. Fowler, 58-62.

"Medical Cyclotrons," Henry G. Blosser, 70-73.

Social Studies of Science

1993, vol. 23

"Constructing a Tokamak: Political, Economic and Technical factors as Constraints and Resources," Yves Gringras and Michael Trépanier, 5-36.

"How to be Universal: Some Cybernetic Strategies," Geof Bowker, 107-128.

Scientific American

"The Great Wall of China," Hans Ulrich Vogel, 116-121.

Studies in History and Philosophy of Science 1992, vol. 23

"The Discovery of the Zeeman Effect: A Case Study of the Interplay between Theory and Experiment," Theodore Arabatzis. 365-388.

"Einstein's Attitude towards Experiments: testing Relativity Theory, 1907-1927," Klaus Hentschel, 593-624.

"Cambridge Mathematics and Cavendish Physics: Cunningham, Campbell and Einstein's Relativity Theory. Part I," Andrew Warwick, 625-656.

Technology and Culture

1992, vol. 33

"Science, Progressivism and Military Preparedness: The Case of the Naval Research Laboratory, 1915-1923." David J. van Keuran, 710-736.

Tradition and Discovery

1993, vol. 19#1

"Michael Polanyi and the History of Science," Gerald Holton, 16-28.

University of Chicago Magazine

1993, vol. 85, August

"Portrait of a Scientist," Debra Ladestro, 33-35. An interview with Jerome Friedman.

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.

SUMMARIES

Tycho Brahe

Jole Shackelford Tycho Brahe, Laboratory Design and the Aim of Science, Isis, 1993, 84: 211-230.

Tycho Brahe constructed a chemical laboratory at Uraniborg as well as an astronomical observatory both of which disappeared with his removal from the island of Hven in 1597. Our only knowledge of them exist in Brahe's descriptions and in the criticisms of Brahe's scientific theories and personal conduct at Hven. From these critiques historians have constructed an ideological foundation for Brahe's science; that Brahe's laboratory and observatory served the needs of contemplation and the secrecy of the Paracelsian natural philosophy. whereas Libavius, opponent of both Brahe and Paracelsian chemistry, built a laboratory open and dedicated to public utility. Brahe represents socially irresponsible, and Libavius open, public science. Libavius's characterization of Brahe and his description of Brahe's laboratory cannot be justified from the available evidence.

Astronomy Pictures

Mary G. Winkler and Albert van Helden Representing the Heavens, Isis, 1992, 83: 195-217.

Before Galileo turned the telescope to the heavens only diagrams of the theoretical depictions of the heavens appear. There were no naturalistic representations of the sky. Galileo used pictures of the moon in his Siderius Nuncius to support his notion that the moon was irregular like the earth. Similarly, his depictions of a month's observations of the sun show the evolution

of sunspots. Galileo was not alone. Visual communication only became common in astronomy after 1640. The purpose of these depictions was accurate depiction of the faces of the moon and other planetary bodies unencumbered by theoretical considerations.

Early Astronomy at Harvard

Sara Schechner Genuth From Heaven's Alarm to Public Appeal: Comets and the Rise of Astronomy at Harvard pp. 28 - 54 in Clark A. Elliott and Margaret W. Rossiter (eds.) Science at Harvard University: Historical Perspectives, Lehigh University Press, 1992: Associated University Presses, 1992.

From Harvard's inception in 1636 until the endowment of its observatory in 1843, comets were viewed with alarm and assurance. This essay uses the history of cometary research as an index of the intellectual and institutional changes that made astronomy an independent field of study within Harvard and the object of financial support from outside Harvard. It examines how religion, teaching, and research had to strike a new balance before the modern research university could emerge.

Nineteenth-Century Solar Eclipse Expeditions

Alex Soojung-Kim Pang The Social Event of the Season: Solar Eclipse Expeditions and Victorian Culture Isis, 84 (June 1993), 252-277.

The cultural history of Victorian solar eclipse expeditions examines the planning of expeditions, the experience of field work, and observing agendas and observations made during totality. It shows how changes in instrumentation, rise of astrophotography, professionalization,

and especially colonial institutions and technological systems affected the way expeditions were organized and observations made. Based on the author's dissertation, *Spheres of Interest* (U. Pennsylvania, 1991; UMI # 9200379). Author's address: Department of History, University of California, Dwinelle Hall, Berkeley CA 94720. Reprints available.

Solar Fraunhofer Lines

Klaus Hentschel The Discovery of the Redshift of Solar Fraunhofer Lines by Rowland and Jewell in Baltimore around 1890, Historical Studies in the Physical and Biological Sciences, 1993, 23: 219-277.

H.A. Rowland's improvements in the technology of ruling diffraction gratings, in quality testing and his invention of concave gratings are discussed in detail as well as the impact on spectroscopy and on Rowland's own program of establishing solar wavelength standards. Rowland was thus able to notice minute shifts of Fraunhofer lines relative to terrestrial comparison spectra. Though Rowland himself considered these shifts of the order of 0.01Å artefacts, his laboratory assistant L.E. Jewell proved him wrong and interpreted them as pressure shifts.

Einstein & Freundlich

Klaus Hentschel Der Einstein -Turm, Erwin F. Freundlich und die Relativitätstheorie, Ansätze zu einer dichten Beschriebung von institutionellen, biographischen und theoriengeschichtlichen Aspekten Heidelberg: Spektrum, 1992.

Three interrelated themes are explored based on new source material: (i) The career of the German astronomer Erwin Finlay

Freundlich, who was one of Einstein's early collaborators; (ii) Freundlich's efforts from 1911 onward to verify gravitational redshift and light deflection as predicted by the general theory of relativity; and (iii) the impressive solar tower telescope, informally known as the Einstein Tower, designed by the architect Eric Mendelsohn and constructed in 1920 at the Potsdam Astrophysical Observatory, primarily for Freundlich's researches.

The End of Science

Gerald Holton Spengler, Einstein and the Controversy over the End of Science Physis, 1991, 28: 543-556.

At different times in modern history a challenge to the role of science in culture has assumed different forms; but its roots are ancient and robust. How might one think and act in response? Useful precedents for doing that exist. This paper focusses on the confrontation between the two main, thematically opposed positions: (a) our sciences are by their nature subject to eventual decay (as presented in the writings of Oswald Spengler), versus (b) our sciences are destined to merge eventually into one coherent body of understanding of all phenomena (as proposed by Einstein and others).

Physics and the Russian Revolution

Paul R. Josephson Physics and Politics in Revolutionary Russia University of California Press, 1991.

This book describes the development of the physics discipline in Soviet Russia from 1900 to 1940. It discusses the impact of scientific, political, and cultural revolution on physicist's research and institutions. It examines the efforts of physicists to secure funding for their work under the Tsarist and Soviet governments, and how the changing policies of the Bolshevik regime under Lenin and Stalin altered the face of their discipline. The author also

discusses how philosophical disputes over the epistemological issues raised by quantum mechanics and relativity theory were politicized under Stalin in the 1930s. The book is based on extensive archival research in the leading Soviet physics institutes, in particular the Leningrad Physical Technical Institute. Finally, the book suggests that many of the critical problems that Russian science faces today have roots in the prewar years.

Ernst Mach

Gerald Holton Ernst Mach and the Fortunes of Positivism in America, Isis, 1992, 83: 27-60.

Ernst Mach took every opportunity to ensure that his influence would extend far beyond physics. The essay chronicles the acknowledged influence recorded by Paul Carus, William James, Jacques Loeb, B.F. Skinner, W.V. Quine and P. W. Bridgman. The essay gives an account of the transfer of much of the Vienna Circle tradition into exile in America following the emigration from Europe of many members such as Philipp Frank, and the founding of the energetic Institute for the Unity of Science. Reprints available from Joan Laws, Jefferson Physical Laboratory, Harvard University, Cambridge, MA 02138.

Michael Polanyi

Gerald Holton Michael Polanyi and the History of Science Tradition and Discovery, 1993 #1:16-28.

This essay is a study of Polanyi's career as scientist and philosopher from the point of view of the history of science, starting with the first step in his academic career helped by an intervention of Albert Einstein. The essay studies the sources and ambitions of Polanyi's notion of the tacit dimension, his attitude to evolution and emergence, and his contribution to the search for the origins of Einstein's Relativity Theory. His success in the last of

these is shown to be an exemplar of Polanyi's own philosophy.

Molecular Physics in America

Alexi Assmus The Americanization of molecular Physics, Historical Studies in the Physical and Biological Sciences, 1992, 23: 1-34.

It is generally agreed that American physics matured between the two world wars and this maturity was not dependent on either the German emigré scientists nor massive federal funding. The research community in physics included theorists and experimentalists in quantum physics. Molecular structure had been a primary problem in quantum physics until after 1916. In that year Sommerfeld developed his generalized quantum conditions and drew European physicists into the study of the atom. American physicists took the molecule as the focus of their research. Rather than compete directly with German atomic physicists Americans claimed their place in the emerging fields of quantum physics by establishing quantum molecular physics.

Edward Bowles

Alex Soojung-Kim Pang Edward Bowles and Radio Engineering at MIT, 1920-1940, Historical Studies in the Physical and Biological Sciences, 1990, 20:313-337.

Edward Bowles was a major figure in the creation of modern electrical engineering at MIT. Between the World Wars, he and Vannevar Bush developed new courses and research programs, and trained a number of future MIT faculty. This article examines Bowles as a teacher and director of the Round Hill Research Station. Bowles was notable for his interdisciplinary research and entrepreneurial style, and his research on aircraft navigation and detection in the 1930s laid the foundation for the Radiation Laboratory. Author's address: Department of History, University of California, Dwinelle Hall, Berkeley CA 94720.

SUMMARIES

1930's Nuclear Model

Karen E. Johnson Independent-particle Models of the Nucleus in the 1930s, American Journal of Physics, 1992, 60:164-172.

In the early 1930s physicists developed two competing ways of describing the structure of the nucleus. One of these, the liquiddrop model as articulated by Niels Bohr, was widely regarded as preferable to Walter Elsasser's shell model, and became the accepted nuclear model by the end of the decade. According to the conventional history of nuclear physics, independent-particle models like Elsasser's were only revived 10 years later with the nuclear shell model of Mayer and Jensen. Throughout the period when they claimed to reject the view of nucleons as independent particles, however, nuclear physicists continued to treat nucleons mathematically as independent particles in order to calculate energy levels. Author's address: Department of Physics, St.Lawrence University, Canton, NY 13617. Reprints available.

Herzfeld's Rate Derivation

Karen E. Johnson Bringing Statistical Mechanics into Chemistry: the Early Scientific Work of Karl F. Herzfeld Journal of Statistical Physics, 1990, 59: 1547-1572.

The physicist Karl F. Herzfeld was instrumental in introducing the techniques of statistical mechanics to physical chemists in the years between 1920 and 1935. Herzfeld's work included an early derivation of the rate constant for a first-order reaction. This was similar to and fifteen years earlier than the Eyring's calculation of the rate constant. Herzfeld also carried out the first calculation of a relaxation equation for vibrational energy transfer. Herzfeld's success lay in his classical approach to physics, which, it is suggested, made his work accessible to chemists. Reprints available, see above.

Radar

R.D. Hill *Origins of Radar*, Eos, Vol 71, 781-783 (1990).

This paper was prepared for the AGU History of Meteorological Radar session on May 22, 1986 approximately 50 years after the invention of radar claimed at NRL, Washington on April 28, 1936. The paper discusses original developments of radar in three independent scientific groups - by the U.S. physics group associated initially with W.F.G. Swann (subsequently president of the APS in 1931-32), by the U.K. lightning physics group led by (Sir) Robert Watson-Watt, and by a German Naval Signal Command group led by Rudolph Kuenhold. Brief references are made to the first employment of radar in the U.K. and Germany in WWII and to the significant contributions to radar science following WWII.

The Manhattan Project

Hugh T. Richards Through Los Alamos, 1945: Memoirs of a Nuclear Physicist 95 pp Arlington Place Press, 1993; distributed by Medical Physics Publishing, 732 N. Midvale Blvd., Madison WI 53705; tel (800) 442-5778; fax (608) 265-2121.

These memoirs of a Wisconsin professor include A-bomb research at Rice and Minnesota before Los Alamos started. He measured fast neutron energy spectra, scattering and reaction cross sections, number of neutrons/fission, and devised mock fission neutron sources. For the first A-bomb test he led the group doing neutron measurements. Interspersed are anecdotes and trivia about Feynman, Fermi, Teller, Bohr, Bethe, Segre, Cyril Smith, Frisch, and others. Of general interest is the account of his spartan lifestyle during the Great Depression; early days at Los Alamos; his marriage while at Los Alamos, and their baby's birth three months before the Trinity test. Also included are the Post-1945 years at Wisconsin, (briefly treated in the

epilogue), and the infamous 1970 Sterling Hall bombing (with pictures) where his quarters suffered major damage although the target was the Army Math Research Center.

Women Scientists in the Manhattan Project

Ruth H. Howes and Caroline L. Herzenberg Women in Weapons Development: The Manhattan Project Lynne Rienner Publications.

This is an ongoing project which includes oral history and the collection of information and recollections in regard to women who were active participants in developing and producing nuclear energy and nuclear weapons and all of the technical supporting activities. Over 80 women have been identified who worked in various scientific and technical capacities in the Manhattan Project and related activities; they worked at Los Alamos, Oak Ridge, at the University of Chicago, Columbia University, Hanford Reservation, and other sites. Some very significant and even crucial contributions to the progress of these programs have been identified as originating from the work of these women. The scientific accomplishments and lives of some of the individual women are summarized. The book is available from Lynne Rienner Pub., Inc., 1800 30th St., Boulder CO 80301.

The German Atomic Bomb

Mark Walker Myths of the German Atomic Bomb Nature, 359 (1992), 473-474.

This article describes briefly the recently released Farm Hall transcripts and analyzes how this document does and does not change our picture of the German uranium project, often called the German atomic bomb. These transcripts support neither the thesis that the German scientists were incompetent, nor the thesis that there was a conspiracy among German scientists to deny nuclear weapons to Hitler.

Mark Walker Physics and Propaganda: Werner Heisenberg's Foreign Lectures under National Socialism Historical Studies in the Physical and Biological Sciences, 1992, 22:339-389.

This article examines thoroughly the lecture tours Werner Heisenberg took under National Socialism, usually to contries allied with or occupied by Germany during the second world war. These lecture tours provide the context for a reevaluation of the mythical journey Werner Heisenberg and Carl Friedrich von Weizsäcker took to Copenhagen in September of 1941 and their meeting with their Danish colleague and mentor Niels Bohr.

Big Science

S.S. Schweber Big Science in Context In P. Galison and B. Hevly, eds. Big Science. Stanford University Press 1992. pp. 149-183.

The article examines how a university's alignment with respect to outside interests affects the conduct of their research. From its beginning MIT was designed to work with industry; by contrast, Cornell was designed to restrain movements towards militarism and mercantilism. Their response to the threat of Fascism, to World War II, and to the opportunities of the post war era are presented. The article analyses how their differing traditions shaped both the character and the content of the research carried out in laboratories for the nuclear studies they established after the war.

Wolfgang K.H. Panofsky SLAC and Big Science In P. Galison and B. Hevly, eds. Big Science. Stanford University Press 1992.

Big science at Stanford started as small science through the work of William Hansen, triggered by his invention of the electromagnetic cavity and his construction of the first electron linear accelerator. Then came a succession of electron linear accelerators, culminating in the two-mile machine at SLAC which has now reached 50 Gev. In accor-

dance with the innovate or die precept in it big science, there have been a series of add-ons to SLAC, from the electron-positron storage rings to the SLAC linear collider, which have kept the laboratory in the forefront. The paper addresses many of the societal issues concerning big science: compatibility with academic values, management, laboratory-government relations, and others. The central theme is that the motivation of the scientist pursuing the work remains the same whether science is big or small.

The Fifth Force

Allan Franklin The Rise and Fall of the Fifth Force: Discovery, Pursuit, and Justification in Modern Physics vii + 141 pp., American Institute of Physics (cloth), 1993.

This book examines the history of the Fifth Force, a proposed modification of Newton's Law of Universal Gravitation, from its original suggestion in 1986 by Aronson, Fischbach, and Talmage, to its generally agreed upon demise, four years later. It examines the evidential context at the time the suggestion was made and discusses the question of how a scientific hypothesis is proposed and is deemed worthy of further experimental and theoretical investigation by the scientific community. The discussion traces the experimental evidence from the original discordant results reported by Thieberger and by Adelberger to the conclusion, based on an overwhelming preponderance of experimental evidence, that the Force is not with The book also includes a detailed examination of the e-mail correspondence. The book closes with a discussion contrasting the author's evidence model of science in which the evaluation of theoretical hypotheses is made on the basis of valid experimental evidence, with the social constructivist view.

Pattern Recognition: With or Without Humans

Peter Galison Fortran, Physics, and Human Nature in Mary Jo Nye et al.

eds., The Invention of the Physical Sciences, pp 225-260, Kluwer Academic Publishers, 1992.

Under the cascade of bubble

chamber photographs during the 1950s and 1960s, two distinct strategies arose about how to interpret them. Luis Alvarez and his team at Lawrence Radiation Laboratory (LRL) developed one method, which demanded the thorough intercalibration of human and automated work. By contrast, a second method, pioneered principally at Brookhaven National Laboratory (BNL) and the Center for European Nuclear Research (CERN), aspired to the complete elimination of the human function by function as one enthusiast put it. In each of these competing workshop-laboratories we can see both a conception of how work should be subdivided and how human nature itself would be integrated into a human/machine system. To the LRL group, pattern recognition was inalienably human and the necessarily central interpretation. To CERN/ BNL group high statistics mattered more than rare events, and only full automation could provide the key to discovery.

Hans-Jürgen Treder

Wilfried Schröder, ed. The Earth and the Universe (Festschrift in honour of Hans-Jürgen Treder) 500 pp, Bremen, Science Edition, 1993

The Festschrift on the 65th birthday of Professor Dr. Hans-Jürgen Treder, formerly director of the Einstein-Laboratory for Theoretical Physcis in Potsdam contains papers and letters in theoretical physics, geophysics, relativity and geodesy, mathematics, solar-terrestrial physics and the famous work of Treder in various parts of fundamental research on Einstein and the application and generalization of Einstein's work. Authors of the Festschrift are Sir Karl Popper, S. Antoci, V de Sabbata, U. Bleyer, J. Pecker et. al. Publisher: Science Edition (W. Schröder), Hechelstrasse 8. D-28777 Bremen (Germany), Price 26 DM (incl. postage)

FORUM ELECTION

The ballot is on the last page. Please vote for: a Vice-Chair, two new members of the Executive committee, and the Forum representative to the APS Council.

NOMINEES FOR VICE-CHAIR

Gordon Baym

Gordon Baym was raised in New York City, and studied mathematics and physics at Cornell [AB, 1956] and Harvard University [Ph.D., 1960]. He then spent two years at the Institut for Teoretisk Fysik in Copenhagen (now the Niels Bohr Institute), where he has been a frequent visitor ever since. After a year at the University of California, Berkeley, he settled down at the University of Illinois in 1963.

His interests embrace theoretical condensed matter physics, from laboratory superfluids and superconductors to neutron stars, as well as studying matter under extreme conditions in ultrarelativistic heavy ion collisions. His historical studies have included the development of the quantum theory of metals, the theory of collective phenomena, the history of neutron stars, and the technical history of the wartime Los Alamos. He served on the Executive Committee of the APS Division of History of Physics from 1985 to 1988 and was earlier a member of the Division's Nominating Committee. He has also served on advisory committees to the National Science Foundation and Department of Energy. He is a Fellow of the American Academy of Arts and Sciences, the American Physical Society, and the American Association for the Advancement of Science, and is a member of the National Academy of Sciences.

Daniel F. Siegel

Daniel F. Siegel is Associate Professor of the History of Science and Integrated Liberal Studies at the University of Wisconsin, Madison. His Ph.D. is in Physics (University of California, Berkeley, 1968); he also holds an M. Phil. in History of Science (Yale University, 1970). His publication in experimental physics deal with observations in a hydrogen bubble chamber of final states containing strange baryons (lambdas) plus two pions to three pions produced by a beam of (negative) K-mesons. Representative publications in the history of physics include "Balfour Stewart and Gustav Robert Kirchoff: Two Independent Approaches to 'Kirchoff's Radiation Law" (1976, awarded the Henry Schuman Prize of the History of Science Society); "Classical-Electromagnetic and Relativistic Approaches to the Problem of the Non-Integral Atomic Masses" (1978); "Thomson, Maxwell, and the Universal Ether in Victorian Physics" (1981), and "The Origin of the Displacement Current" (1986). He is currently completing a book dealing with Maxwell's electromagnetic theory. He is focusing especially on the role of mechanical reasoning and mechanical models in the origin of Maxwell's major innovations in electromagnetic theory, including the displacement current and the electromagnetic theory of light. He has served as chairperson of his department and on various committees of the History of Science Society.

NOMINEES FOR EXECUTIVE COMMITTEE MEMBERS

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. Ph.D., 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 (1983-86) History of Geophysics series, 4 vols., 1986-94. Major area of research: History of Physics & Engineering 1970present, especially history of ionospheric and space physics, science policy studies; quantitative measures of science. Secretary/Treasurer, Division of History of Physics, American Physical Society, 1988-94.

Peggy A. Kidwell

Peggy Aldrich Kidwell watches over the collections in the Section of Mathematics of the Smithsonian's National Museum of American History. She has an undergraduate degree in physics and a Ph.D. in history of science. Her research interests include the history of astrophysics, the role of women in science, and the history of computing services.

George L. Trigg

George L. Trigg was born in Washington, D.C., and grew up in St. Louis, Mo., where he attended public schools. His advanced education was received at Washington University in St. Louis, where he earned the A.B. degree in 1947, the A. M. in 1950, and the Ph.D. in 1954, all with majors in Physics. He taught for three years Knox College, Galesburg, Il, and for eight years at Oregon State college (now University), reaching the rank of Associate Professor of Physics. In 1958, while on leave from Oregon State, he joined the editorial staff of The American Physical Society, and assisted in the establishment of Physical Review Letters. He stayed there for only a year, but returned during the summers of 1959-1961. In 1962 he again returned, this time on a permanent basis, with the title of Assistant Editor of Physical Review Letters. In 1966 he became Editor. In 1984 he became Production Editor, and held that position until his retirement in 1987. Since then he has been a free-lance technical editor.

In the summers of 1951 and 1952, he served as Consultant for the Control Systems Laboratory at the University of Illinois; in the summer of 1953, he was a Guest physicist at Brookhaven National laboratory. he has served as consultant to the Funk & Wagnalls and the American Heritage Dictionaries, and to the International Dictionary of Medicine and Biology. He served on the Committee on Symbols, Units, and Nomenclature of the National Research Council,

and on the Technical Advisory Group to ISO-TC12. He has served on the Boards of Directors of the Society for Scholarly Publishing (of which he is a charter member) and the Long Island Library Resources Council. He is a Fellow of "The American Physical Society, the American Association for the Advancement of Science, and the Society of the Sigma Xi; he is a member of Phi Beta Kappa and Sigma Pi Sigma.

He is the author of three books: a textbook, Quantum Mechanics, and two semi historical physics books, Crucial Experiments in Modern Physics and Landmark Experiments in the 20th Century Physics. He has also written journal articles, part of the article "Atomic Structure" for the 1972 edition of Encyclopedia of Physics, and is currently acting as scientific editor of a multi-volume Encyclopedia of Applied Physics.

Virginia Trimble

Virginia Trimble is a product of UCLA (BA 1964), Caltech (Ph.D. 1968), and Cambridge (MA 1969). She currently occupies half-chairs at U. California Irvine (physics) and U. Maryland College Park (astronomy). She is interested in the universe, most of its contents, the science of astronomy, and how each got to be the way it is, and has written rather too much about all of them. Trimble currently serves as associate editor of the Astrophysical Journal and vice president of the Galaxies commission of the International Astronomical Union.

FORUM COUNCILOR

Roger H. Stuewer

Roger H. Stuewer is Professor of the History of Science and Technology at the University of Minnesota, with faculty appointments in the School of Physics and Astronomy, the Minnesota Center for Philosophy of Science, and the American Studies Program. He was born in 1934 and received his Ph.D. from the University of Wisconsin in the history of science and physics in 1968. He was on the faculty of Boston

University, 1971-72, and he has held visiting appointments at Harvard University, 1974-75, the Deutsches Museum, Munich, 1981-82, and the Universities of Vienna and Graz, 1989. Fellow, American Council of Learned Societies, 1974-74, 1983-84: AAAS, 1983; APS, 1991. AAPT Distinguished Service Citation, 1990. Secretary, History of Science Society, 1972-78; Editor, AAPT/AJP Resource Letters, 1978-present; Chair, AIP Committee on History of Physics, 1980-93; Chair, APS Division of History of Physics, 1987-88; Chair, AAAS Section L, 1993-94. Author of "The Compton Effect: Turning Point in Physics" (1975); co-editor of "Springs of Scientific Creativity" (1983), "The Michelson Era in American Science 1870-1930" (1988), and "The Invention of Physical Science" (1992). Current research and numerous papers on history of nuclear physics between first and second world wars.

Al Wattenberg

He was born in 1917. His MA is from Columbia University (1939), his Ph.D. from University of Chicago (1947-neutron physics). He was a member of the Fermi group at Columbia and in Chicago (1942-1946). Positions held: Group Leader (1947-49) and Acting Director of Physics Division at Argonne National Lab (1949-50); Research Physicist at MIT (1951-58); Technical Advisor in Japan for Eisenhower's "Atoms for Peace Program" (1956); University of Illinois Research Professor (1958-90 particle physics); Visiting Professorships: University of Rome (1962-63) and Stanford University (1973, 1980-81). Historical activities include: Co-editor with Amaldi Anderson, and Segré of "Collected Papers of Enrico Fermi." Articles on Fermi and/or the first nuclear chain reaction in: Acad. Nazionale dei Lincei, "All in Our Time," Bulletin of Atomic Scientists, European Journal of Physics, Physics Today. Chairperson of the organizing committee for a Division of History of Physics, Secretary-Treasurer (85-88) of DHP, APS Councilor for DHP (90-94) Editor of History of Physics Newsletter (85-

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The Ballot must be returned before March 22, 1994 to Professor Silvan Schweber, Department of Physics, Brandeis University, Waltham, MA 02154.

Vice-Chair Vote for ONE	Executive Committee Vote for TWO	
Gordon Baym	C. Stewart Gillmor	
Daniel F. Siegel	Peggy A. Kidwell	
Forum Councillor Vote for ONE	George L. Trigg	
Roger H. Stuewer	Virginia Trimble	
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HISTORY OF PHYSICS NEWSLETTER

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