

# History of Physics Newsletter

Volume V, Number 3

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## ELECTION OF OFFICERS & QUESTIONNAIRE ON NEWSLETTER

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 the ballot and questionnaire immediately. This year due to the new Constitution and Bylaws, we need to elect a Chair-Elect as well as a Vice Chair. In future years under normal circumstances, we should need to elect only 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 two Executive Committee Members to serve for three years.

This Newsletter contains a questionnaire concerning future issues of the History of Physics Newsletter. We would very much appreciate your filling out the questionnaire and returning it with your ballot in the enclosed envelope.

## FORUM NEWS

### APS 1993 MEETINGS

During 1993 the Forum on the History of Physics has scheduled three sessions of invited papers at general meetings of the APS.

**Seattle, WA, "Radar, World War II, and Postwar Physics"** This session is scheduled for Thursday morning, March 25th, 1993 at 11:00 AM. The session is being organized by Lillian Hoddeson. The chairperson of the session is Charles Slichter. Speakers include: *Brebis Bleany*, "Centimeter Wave Spectroscopy of Gases and Electron Magnetic Resonance." *R.V. Pound* "Microwave Technology as Related to Early Radio Astronomy and Nuclear Magnetic Resonance." *Lillian Hoddeson* "Research on Semiconductor Diodes During World War II." *Woodruff T. Sullivan III* "Wartime Radar and Postwar English and Australian Dominance of Radio Astronomy."

**Washington, DC, "Applied Research, World War II, and Postwar Physics"** The session is scheduled for Monday, April 12th, 1993 at 2:30 PM in the South Salon. It is being organized by Allan A. Needell. Speakers include: *Larry Owens* "Organizing War Research and its Implications for Postwar American Science." *William Higginbotham* "The Postwar Legacy of Wartime Instrumentation Development in Physics Research at Brookhaven." *Robert G. Sachs* "The Impact of CP1

on Postwar Science at the University of Chicago." *Sylvan S. Schweber* "The Los Alamos Experience and its Impact on Postwar Nuclear Physics at Cornell." (The Business Meeting of the Forum is scheduled to take place at the end of this session in the same room. See below.)

**Washington, DC, "Physicists and their Physical Review: a Symposium to Mark a Centennial."** The APS has scheduled at 10:30 AM a special talk by Victor Weisskopf preceding the Forum Session. (See below "Note: Special APS Session.") The Forum session is scheduled for Tuesday morning, April 13th, 1993 at 11:15 AM, in the West Salon. The session is being organized by Gerald Holton. Speakers include: *Gerald Holton* "Introductory Remarks." *Abraham Pais* "The Physical Review Then and Now." *Heintz Barschall* (Title to be announced.) *Jonathan Logan* "Samuel Goudsmit at the Physical Review." *David Lazarus* "The Jolly Green Giant." *R. K. Adair* "Comment on Physical Review Letters." *W.W. Havens* "The Physical Review in a Changing World 1947-1992." *Benjamin Bederson* "Comment on the Future of the Physical Review."

**Note: Special Session arranged by APS** The session is scheduled for Tuesday, April 13th, 1993 at 10:30 AM in the West Salon. The Speaker is *Victor Weisskopf*. The topic of his talk is "Physics since the founding of the Physical Review."

The APS is planning on continuing the tradition of **Unity Day** on Tuesday afternoon, April 13th, 1993 at the **Washington, DC Meeting**. One of the speakers will be *G.T. Emery* who has been doing extensive research on a "History of Physical Review."

### Business Meeting of the Forum

The Business meeting of the Forum will follow the Monday afternoon Invited Paper session of the Forum in the South Salon. At the Business Meeting, **Special Recognition will be given to Heinrich Medicus** for his successful efforts in arranging many excellent invited sessions on the history of physics.

### Forum Committees

The appointed Committees of the Forum for 1992-1993 are:

**Nominating Committee:** David Cassidy (chair), Stephen G. Brush, Lawrence Badash, and Peggy Kidwell.

The History of Physics Newsletter (HPN) is published by the Forum on the History of Physics of the American Physical Society. It is distributed free to all members of the Forum. Others who wish to receive it should make a donation to the Forum of the History of Physics of \$10 per volume (\$5 additional for airmail.) Each volume consists of 5 issues, Editor: Albert Wattenberg, Department of Physics, University of Illinois, Urbana, IL 61801-3080. Associate Editors: Stephen G. Brush, Department of History and Institute for Physical Science and Technology, University of Maryland, College Park, MD 10742, and Elizabeth Garber, History Department, SUNY at Stony Brook, Stony Brook, NY 11794.

**Program Committee:** Sylvan S. Schweber (chair), Lillian Hoddeson, Michael Nauenberg, and Norton Wise

**Publication Committee/Editorial Board:** Al Wattenberg (chair), Elizabeth Garber, and Arthur I. Miller.

**Fellowship Committee:** Martin Klein (chair), Elizabeth Garber, Sylvan S. Schweber.

## APS & AIP NEWS

**New APS Fellowships approved at the APS Council meeting on November 14th, 1992** included the following members of the Forum on the History of Physics:

**David Charles Cassidy:** For his work on the history of twentieth century physics, particularly his biography of Heisenberg.

**Charles Stewart Gillmor:** For his research in electricity, geophysics, and ionospheric physics and his service to the Division of the History of Physics.

**Matthew Norton Wise:** For his work on the history of the physical sciences in the nineteenth century, particularly his work on Lord Kelvin.

**The APS April Meeting is a joint meeting with the AAPT.** The Executive Committee of the Forum had voted in favor of scheduling the annual meeting of the Forum to be at the joint session of the APS and AAPT. This year technical sessions will be held three times daily: 8:00-10:30, 11:00-1:30, and 14:30-17:00. The meetings will be held in the Ramada Renaissance Techworld Hotel 12-15 April 1993.

**Electronic publishing of APS journals is being explored by a committee set up by the Executive Board of the APS.** The Electronic Publishing Committee consists of Bederson, Lustig, Judd, and Werthamer at the present time. They felt it was premature to have any discussions at the November APS Council meeting. The

APS is not the only Technical Society taking an interest in the long term possibilities of electronic publishing. In September 1992, there was a retreat involving AIP Societies and electronic publishing experts. Historians and archivists should be taking an interest in the long-term plans for the preservation of archival material.

**Status of the American Center for Physics, ACP:** At the November Council meeting, Werthamer, the Executive Secretary of the APS, reported that the ACP had closed on the purchase of the property in College Park, Maryland. The construction contract calls for completion and a move-in date of October 1993. The AIP Member Societies who will be sharing the building include: the APS, the AAPT, and the American Association of Physicist in Medicine.

The AIP was successful in finding a purchaser of their New York City building and many of the divisions of the AIP will move to the College Park building in October 1993. This includes the Center for History of Physics and its Niels Bohr Library. The Library's new facilities will include a much larger reading room and ample bookstacks and archives room with full climate control. Services by the Center for history of Physics will have to be curtailed during the summer and fall of 1993.

**Emilio Segré Visual Archives:** In the fall issue of the Newsletter of the Center for History of Physics, it was announced that there will be improved access and preservation of the collection of photographs and other audio-visual materials that are one of the highly valued features of the Niels Bohr Library. The improvements will be made with the aid of a generous gift from Mrs. Rosa Segré. Segré was an avid photographer of physicists especially at physics conferences. A listing of the most useful parts of the collection will be compiled to guide users. For several thousand important or heavily used pictures, new negatives will be made, and all negatives will be separated from the prints and stored apart. This collection has already been very useful to writers of scientific articles and books.

**Solid State Physics History:** The International Project in the History of Solid State Physics has been completed and the main results are published in "Out of the Crystal Maze: Chapters from the History of Solid State Physics" which was edited by *L. Hoddeson, E. Braun, J. Teichmann, and S. Weart*; Oxford University Press of New York is the publisher. The collection is based on interviews with over 100 eminent scientists, collections of unpublished materials, and studies of a great many scientific papers. Over a dozen historians in the U.S. and in Europe were involved in the project.

The AIP Center for History of Physics and the Deutsches Museum have announced the Publication of their "Guide to Sources for History of Solid State Phys-

ics, compiled by *J. Warnow-Blewett* and *J. Teichmann*. It is published by the American Institute of Physics and covers unpublished source materials such as collections of papers and records and oral history interviews. The catalog also includes a bibliography on the history of solid state physics.

#### **AIP Center completes first phase of multi-institutional collaborations:**

The Center for History of Physics announced in October that it had completed a two-year study of the field of high-energy physics as the first phase of its long-term investigation of multi-institutional collaborations in physics and allied sciences. The Center's project is a pioneering effort to learn how to document the activities of complex collaborations for future historical and other studies. These transitory mini-institutions are highly significant in modern scientific research, yet they have received only incidental attention from archivists, historians, and sociologists. The project sought to learn about patterns and trends in high-energy physics collaborations, and in particular, which of their members are likely to be creators and keepers of historically significant records. In the course of the study, project staff analyzed the bibliographic and managerial data sets maintained by the high-energy physics community, visited key institution for discussions with records managers, interviewed nearly 300 participants from selected collaborations, and received advice from a number of eminent physicists, historians, archivists, and sociologists.

The AIP Center has now printed four final reports:

Report 1: Summary of Project Activities and Findings/Project Recommendations;

Report 2: Documenting Collaborations in High-Energy Physics

Report 3: Catalog of Selected Historical Materials

Report 4: Historical Findings on Collaborations in High-Energy Physics. Report 2 addresses records created and retained both in the course of performing experiments and in the course of operating an accelerator laboratory; the report also provides guidelines for appraising the records of high-energy physics experiments. Report 3 presents an analysis of interviews with members of 18 selected experiments at U.S. sites, a report on multi-institutional collaborations at the CERN accelerator laboratory in Geneva, and case studies of three particularly significant experiments. Contributors include Joan Warnow-Blewett and Spencer Weart, project directors; Frederik Nebeker and Joel Genuth, project historians; Lynn Maloney, project archivist; and Peter Galison and John Krige, historical consultants.

The reports are available free upon request, in a bound set; Report 1 may be requested individually. A

fifth report on sociological analysis of collaboration patterns, under the direction of Lynne Zucker, will be available next Spring. A second phase of the project, dedicated to the fields of space science and geophysics, is in progress. Proposals are under consideration for a final phase to deal principally with comparative and policy issues.

## **ANNOUNCEMENTS & REPORTS**

### **AIP Science Writing Award to David C. Cassidy**

David C. Cassidy has been awarded the 1992 American Institute of Physics Science Writing Award in Physics and Astronomy for articles, booklets, or books intended for the general public. The award of \$3,000 is for his book "Uncertainty: The Life and Science of Werner Heisenberg." (W.H. Freeman)

### **American Planetary Radar Astronomy**

NASA has announced a new history project with **Andrew J. Butrica** selected to write "American Planetary Radar Astronomy, 1946-1991: A History." The project will deal with very many aspects including: policy history, the interplay of government and private organizations, the debates among scientists engineers and managers, and the technological problems of this specialized research. Butrica would like to use planetary radar astronomy as a vehicle for understanding larger issues relative to the planning and execution of "big science" by the Federal Government. Butrica has previously authored or edited three books in the history of technology and science. Butrica would appreciate hearing from anyone who might have information on the history of planetary radar astronomy. He can be reached at 368D Hamilton St., Somerset, NJ 08873-2189.

### **Are you Throwing Away a Valuable Asset?**

The Association of Systematic Collections has recently published a brochure with the above title. It is concerned with the importance of archives for natural history collections. Copies are available from the Association of Systematic Collections at 730 11th Street, NW, 2nd Floor, Washington, DC 20001.

### **Cultural Resource Management Training Opportunities**

At the end of October 1992, legislation was passed and signed by the president which included Amendments to the Historic Preservation Act. The new law emphasizes the partnership between the National

Park Service and other federal and state organizations involved with historic preservation. Previous standards for professionals required only a bachelors degree for historians whereas other fields required a masters degree. Equivalent requirements are now required for all the disciplines involved. The National Park Service publishes a directory of training opportunities in Cultural Resource Management which lists: workshops, courses, seminars, and classes which will be held between now and December 1993. Single complimentary copies may be obtained by writing to Emogene Bevitt, Preservation Assistance Division, National Park Service P.O. Box 37127, Washington, DC 20013-7127.

#### **Deutsches Museum's Prize to Michael Segre**

Michael Segre has been awarded the annual Preis des Deutschen Museums für Publikationen der Mitarbeiter for "In the Wake of Galileo" published by the Rutgers University Press.

#### **Dibner Institute for the History of Science and Technology Dedicated**

The Dibner Institute at MIT was formally dedicated on 22 October 1992 at Cambridge, Massachusetts in ceremonies attended by several hundred people. The Institute was established as a consortium of MIT, Boston University, Brandeis University, and Harvard. The newly-relocated Burndy Library is housed in the remodeled building that is named in honor of Bern Dibner the engineer, industrialist, and historian of science whose collection of scientific and technological acquisitions is in the Library. For further information contact Rita Dempsey at the Dibner Institute for the History of Science and Technology, Dibner Building, MIT E56-100, 38 Memorial Drive, Cambridge, MA 02139. Telephone: (617) 253-8721.

#### **Goddard Historical Essay Award**

The National Space Club has set up a Robert H. Goddard Historical Essay Award. Essays may explore any significant aspects of rocketry and astronautics. The essays must be shorter than 500 words and will be judged on their originality and scholarship. The prize is a plaque and \$1,000 award. In 1992, the essays had to be received before the 3rd of December. For more information, write to Goddard Historical Essay Contest, c/o National Space Club, 655 15th Street, N.W., Suite 300, Washington, DC 20005.

#### **Heinz-Maier-Leibnitz-Preis for the History of Science**

This year was the first time that the prize was given in the category of Wissenschaftsgeschichte. The recipient was Dr. Klaus Hentschel who currently is Assistant Professor at the University of Göttingen's In-

stitut für Wissenschaftsgeschichte. The prize was awarded for his book "Interpretationen und Fehlinterpretationen der Speziellen und der Allgemeinen Relativitätstheorie durch Zeitgenossen Albert Einstein." This book is volume 6 in Birkhäuser's "Science Networks - Historical Studies Series" edited by *Erwin Hiebert* and *Hans Wussing*. The prize in 1992 was accompanied by a cash award of 6000 Deutschmark.

#### **HSS Publications of the Committee on Education**

With support from the Richard Lounsberry Foundation, the History of Science's Committee on Education prepared several publications of use to those who teach the History of Science. One of them, the "History of Science: A Guide for Undergraduates" by Michael J. Crowe is a pamphlet-sized guide to introduce students to the history of science and to indicate how the subject fits into various career plans. Copies are available from the (new) HSS Executive Secretary, Keith R. Benson, Department of Medical History and Ethics, University of Washington, School of Medicine SB-20, Seattle, WA 98195.

Another publication is the "History of Science Syllabus Sampler," collected and edited by *Henry J. Steffens*. 42 syllabi for a wide variety of courses in the history of science were selected from over 250 submitted from institutions in the United States. Copies may be obtained for \$10 by writing to Henry F. Steffens, Department of History, University of Vermont, Wheeler House, Burlington, VT 05405.

#### **Inventory of Sources for History of Twentieth-Century Physics, ISHTCP, by Bruce R. Wheaton**

The ISHTCP lists detailed information on the availability of more than three-quarters of a million letters concerning the development of physics since 1896. The letters available for scholarly research are in more than two thousand collections in 35 countries. The ISHTCP lists the letters by the name of the author or recipient. The letter indices are on 48 standard microfiche which require access to a 48X microfiche reader which is standard in many libraries for catalog information. A 300-page hardbound book fully identifies all collections and archival repositories; it also lists the 5,600 names of physicists identified in this ten year project. On 13 microfiche, there is an index to 75,000 non-physicists and where and in which letters references can be found.

The Inventory was prepared with the assistance of *Robin E. Rider* and the staff of the Office for History of Science and Technology, University of California at Berkeley. \$599 is the price announced by the GNT-Verlag (Verlag für Geschichte der Naturwissenschaften und der Technik) P.O. Box 81 02 63, D-7000 Stuttgart 80, Germany.

**NASA Historical Publications Pamphlet**

A pamphlet, "NASA Historical Publications, 1992-1993," has just been released containing a list of all books currently available or to be published in 1993 in the NASA History Series. Also listed are the New Series in NASA History published by the Johns Hopkins University Press. Copies of the pamphlet are available from the NASA History Division, Code ADA-2, Washington, DC 20546.

**Rivista di Storia della Scienza**

The "Seminario di Storia della Scienza" of the Faculty of Physics, Mathematics, and Natural Sciences of the University of Rome "La Sapienza", announced a new series of the journal *Rivista di Storia della Scienza*, an International Journal of History of Science. Contributions from scholars of all countries are welcome; papers are published in English, French, and Italian. The journal is interested in original studies in the history of mathematics and the natural sciences, especially papers that discuss topics of relevance in the last two centuries. The journal is published twice a year. One can obtain more information or send manuscripts to Dr. Gianni Battimelli, Dipartimento di Fisica, Università di Roma "La Sapienza", P.le A.Moro, 2-00185 Roma, Italy.

**MEETINGS**

**The Canadian Science and Technology Historical Association** invites papers for its eighth conference to be held in Kingston, Ontario during October 15th-17th, 1993. Its overall theme is "The History of Science and Technology Education in Canada"; however, sessions, papers, and work-in-progress reports on other subjects will also be welcome. For more information and application forms, contact Marianne Ainley, Simone de Beauvoir Institute, 1455 de Maisonneuve Blvd. West, Montreal, Quebec Canada H3G IM8.

**Geological Sciences in Latin America** - The International Commission on the History of the Geological Sciences will sponsor an international symposium, during 19-25 July 1993, in Campinas-SP and Ouro Preto-MG, Brazil. It welcomes submission of papers on all historical aspects of geological sciences in Latin America and papers on scientific exchange between Latin American and other countries. For further information, contact M.M. Lopes or S.F. de M. Figueiroa, IG/UNICAMP, P.O. Box 6152, 13081 Campinas-SP, Brazil.

**The International Association of Geomagnetism and Aeronomy** is holding sessions on "the History of Geomagnetism and Aeronomy" in Buenos Aires, Argentina,

August 8-20th, 1993. Topics to be covered include: the history of observatories, research programs and institutes, international cooperation, historical sources, and the relation between science and culture and society. Abstracts of papers should be sent to Dr. W. Schröder, Geophysical Institute Geophysical Institute, Hechelstrasse 8, D-2820 Bremen-Ronnebeck, Germany.

**HSS Call for Papers for 1993 Annual Meeting** - The History of Science Society will hold its annual meeting November 11-14, 1993 in Santa Fe, New Mexico. Proposals for sessions and for individual papers should be sent to: Paul Lawrence Farber, Department of History, Oregon State University, Corvallis, OR 97331-5104, or to Margaret J. Osler, Department of History, University of Calgary, Calgary, Alberta T2N 1N4, Canada. The deadline for proposals is April 1, 1993.

**International Union for the History and Philosophy of Science - Division of the History of Science** will hold its XIXth International Congress of History of Science in Zaragoza, Spain on 22-29 August 1993. The Congress will consist of Symposia on themes of special interest and Scientific Sessions devoted to various branches of the history of science and technology. A second circular is now available and may be requested from Mariano Hormigon, Facultad de Ciencias (Mathematics). Ciudad Universitaria, E-50009, Zaragoza, Spain.

**La Nouvelle Physique du XIV Siecle** is the subject of a conference being organized by French and Italian scholars to be held in Nice, France, 3-5 September 1993. Contributions are expected from Danish, Dutch, French, German, Italian, and U.S. scholars. For further information contact Stefano Caroti, Museo e Istituto di Storia della Scienza, Piazza dei Giudici 1, 50122 Firenze, Italia.

**The Royal Society and the History of Time Measurement** will be the theme of a one day meeting on the 25th of June 1993 which is being jointly sponsored by the Royal Society and the Antiquarian Horological Society. The papers will reflect the role and influence on the Royal Society during the development of time keeping in England from the 17th to the 19th centuries. For additional details, write to Sheila Edwards, The Royal Society, 6 Carlton House Terrace, London, SW1Y 5AG England.

**The University of Essex and the Institute of Physics Group** are jointly sponsoring a meeting at the University of Essex, 9-11 July 1993, on the subject "William Gilbert and the Elizabethan World." For further information contact D. Tilley, Department of Physics, University of Essex, Wivenhoe Park, Colchester, CO4 3AQ England.

The **Society for the History of Technology Annual Meeting** will be held in Washington, DC October 14-17, 1993. One of the areas that the program committee is emphasizing is the social ramifications of aviation and space/satellite technologies. It is an opportunity for those working in these specialties of history to present their studies to a broader group of historians. Three copies of the summary of a paper and the authors curriculum vita should be sent to Philip Scranton, Center for the History of Business, Technology, and Society, Hagley Museum and Library, PO Box 3630, Wilmington, DE 19807.

There has been some discussion of having a special symposium focusing on Space History themes and topics. The dates suggested were the 17th and 18th of October immediately following the SHOT Annual meeting. For information about the status of the special symposium, write to Roger D. Launius, NASA History Division, Code ADA-2, Washington, DC 20546 or call (202) 358-0384.

The **West Coast History of Science Society** has tentatively scheduled its next meeting at the California Institute of Technology from the 30th of April through the 2nd of May 1993. For further information contact the WCHSS Secretary, Michael Osborne, Department of History, University of California, Santa Barbara, CA 93106-9410.

## GRANTS & FELLOWSHIPS

### 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 New York City (from fall 1993 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, American Institute of Physics, 335 East 45th Street, New York, NY 10017. Deadlines for receipt of applications are June 30 and December 31 of each year.

### American Philosophical Society, General Research Grants Program

The Philosophical Society awards "postdoctoral grants toward the cost of scholarly research in all areas of knowledge except those in which support by government or corporations is more appropriate and regularly available." Deadlines are the first day of: February, April, August, October, and December. For additional information contact, the Committee on Research, American Philosophical Society, 104 South 5th Street, Philadelphia, PA 19106.

### The American Philosophical Society's John Clarke Slater Fellowships

The Society invites doctoral candidates writing dissertations on the history of modern science to apply. In 1992 the Slater Fellowships carried a stipend of \$12,000. This past year the application deadline was December 1st. For application forms and further information, write to: Slater Fellowship, Executive Office, American Philosophical Society, 104 South Fifth Street, Philadelphia, PA 19106.

### The Bakken Library and Museum of Electricity in Life

The Bakken encourages the utilization of its collections by offering funds of up to \$1,000 for short study visits. Applicants should submit brief research proposals and complete curriculum vitae to The Director, The Bakken Library, 3537 Zenith Avenue South, Minneapolis, MN 55416.

### Lawrence Livermore National Laboratory (LLNL)

The Laboratory has recently established an LLNL History Program which 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-451, Lawrence Livermore National Laboratory, P.O. Box 808, Livermore, CA 94551; (510)422-7327.

**National Air and Space Museum Fellowships**

The National Air and Space Museum of the Smithsonian Institution offers several fellowships supporting research in aviation and space history. Twelve month fellowships are offered for pre- and post-doctoral research activities. In previous years the application deadline has been the 15th of November. Contact Cheryl Bauer, Room 3341, MRC 313, 6th and Independence Ave., S.W., Washington, DC 20560.

**National Endowment for the Humanities**

Previous issues of this *History of Physics Newsletter* contained information about the various Divisions of NEH and the opportunities for fellowships and grants. We hope that you obtained the most recent issue of the "Overview" by having written to "Overview", Room 406, National Endowment for the Humanities, 1100 Pennsylvania Avenue, NW, Washington, DC 20506.

If you misplaced your copy of the "Overview" or if you never received one, the following programs have **DEADLINES** that occur before the next issue of this newsletter. The names and telephone numbers of the person to call are listed with the program: (The area code for all telephone numbers is 202.) It has been announced that the Divisions are now accessible via the BITNET electronic-mail network. After each division below the six or seven capitalized bold letters should be used followed by (without a space) \_\_\_\_\_@gwvnm.BITNET

**NEH Division of Fellowships: NEHFELL**

Director: Marjorie A. Berlincourt Room 316, ...606-8466 Fellowships for University Teachers - Deadline is May 1, 1993. (This is a change from previous years; it was June 1st.)

Fellowships for College Teachers and Independent Scholars -Deadline is May 1, 1993. (Also a change from previous years.)

Summer Stipends - Thomas O'Brien...786-0466 October 1, 1993.

Travel to Collections - Kathleen Mitchell...786-0463 July 15, 1993.

Younger Scholars - Leon Bramson...786-0463 November 1, 1993.

Study Grants for College and University Teachers - Clayton Lewis ...786-0463 August 15, 1993.

**Division of Research Programs: NEHRES**

Reference Materials: Tools - Helen Agütera...786-0358 September 1, 1993.

Reference Materials: Guides - Jane Rosenberg...786-0358 September 1, 1993.

Interpretive Research: Humanities, Science and Technology - Daniel Jones...786-0210 October 15, 1993.

To receive guidelines for any NEH program, contact the **Office of Publications and Public Affairs: NEHOPA** (for use with BITNET) at (202) 786-0438. National Endowment for the Humanities, Washington, DC 20506. Guidelines are available at least two months in advance of application deadlines.

**National Science Foundation: STIS**

STIS, "The Science & Technology Information System of the NSF", is an electronic dissemination system that provides fast access to NSF publications free of charge (except for possible long distance phone charges if you are not on BITNET or INTERNET.) Publications currently available include: the NSF Bulletin, Program announcements, general publications, NSF organization charts, and phone books.

There are many ways to access STIS. Choose the method that works easily for you.

**Electronic Documents via E-Mail:** The documents you requested will be sent to you automatically if you use BITNET or Internet. To get started, send a message to stisserv@NSF (BITNET) or stisserv@NSF.gov (Internet). The text of the message should be as follows (the Subject line is ignored):

Request: stis

Topic: index

You will receive a list of all documents on STIS and instructions for retrieving them. Requests for *electronic* documents should be sent to stisserv; requests for *printed* publications should be sent to pubs@NSF (BITNET) or pubs@NSF.gov (Internet).

**On-line System:** If you are dialing in with a modem you can use 1200, 2400, or 9600 baud and 7-E-1. Dial 202-357-0359 or 202-357-0360. When connected press Enter; at the login prompt, enter *public*. The on-line system features full-text search and retrieval software. Once you locate a document you can browse through it on-line, or you can download it using the KERMIT protocol or you can request that it be mailed to you.

**WAIS, the Wide Area Information Service:** If your campus has access to WAIS, the campus client can search and download NSF publications. The NSF WAIS server is: stis.nsf.gov (128.150.195.40). You can get the ".src" file from the "Directory of Servers" at quake.think.com.

**More Information:** For additional assistance contact: E-mail: stis-req@nsf (BITNET) or stis-request@NSF.gov (Internet) or telephone: 202-357-7555 (voice mail).

**Changes for the History of Science at the NSF -** Projects in the history of science now fall within

the Directorate of Social, Behavioral, and Economic Sciences, SBES, which comprises a single Division of Social, Behavioral, and Economic Research. There are now a number of programs within the aforementioned Directorate. In the last few years, there were also some funds for projects in the Ethics and Values Studies Program. For many years Ron Overmann has been a very helpful source of information during the period when the NSF had the History and Philosophy of Science Program. In the last few years, Rachele Hollander has been a valuable person to contact regarding the SSTS program. (The Editor mentions human beings in the hope that one can still find them at the NSF, rather than receiving an instruction to push a number on a telephone dial or to type four letters on a keyboard.) The address of the NSF is 1800 G. Street NW, Washington, DC 20550.

**Publication 91-109** contains information on SBES programs. You can obtain the publication by using STIS described above, or by telephoning (202)357-7861. As discussed in last years' History of Physics Newsletter on page 8, NSF 91-109 gives information on: SSTS Scholar Awards, Professional Development Fellowships, and other programs that may provide financial support for physics historians.

## BOOK PUBLISHERS

### Adam Hilger

*Bernard Lovell* **Echoes of War: The Story of H2S Radar.**

*J. M. Thomas* **Michael Faraday and the Royal Institution.**

For more information write the North American distributor for Adam Hilger: American Institute of Physics, c/o AIDC, 64 Depot Road, Colchester VT, 05446.

### University of Alabama Press

*Thomas G. Manning* **U. S. Coast Survey vs. Naval Hydrographic Office.**

The Coast Survey was one of the first government agencies to employ physicists and mathematicians and one of the first places to study the politics of physics in America. For more information write: The University of Alabama Press, Box 870380, Tuscaloosa, AL 35487-0380

### American Institute of Physics

*Per Fridtjof Dahl* **Superconductivity: Its Historical Roots and Development from Mercury to the Ceramic Oxides**

*Henri Poincaré* **New Methods of Celestial Mechanics.** This is part of a series which has been renamed "Series of History of Modern Physics and Astronomy." It is a three volume work originally published in French in 1892-1895. For more information write: American Institute of Physics, c/o AIDC, 64 Depot Road, Colchester, VT 05446.

### Birkhäuser Verlag Boston

*Paul Benoit, Karina Chemla and Jim Ritter* eds., **Histoire de fractions, fractions d'histoire.**

*J. Eisenstaedt and A. J. Kox* eds., **Studies in the History of General Relativity.**

Proceedings of the second international conference on the history of general relativity, Luminy, France, 1988.

*Fyodor A. Medvedev,* **Scenes from the History of Real Functions.**

For more information write to: Birkhäuser Boston Inc., P. O. Box 2485, Secaucus, NJ 07096-2491

### University of California Press

*Albert E. Moyer* **A Scientist's Voice in American Culture: Simon Newcomb and the Rhetoric of Scientific Method.**

*Robert Serber* **The Los Alamos Primer: The first Lectures on how to Build an Atomic Bomb.**

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

### Cambridge University Press

*William H. Donahue* ed. **Johannes Kepler's New Astronomy.** This is the first, complete English translation of *Kepler Astronomia Nova, 1609.*

*Owen Gingerich* **The Great Copernicus Chase and other Adventures in Astronomical History**

*P. M. Harman and Alan E. Shapiro* **The Investigation of Difficult Things: Essays on Newton and the History of the Exact Sciences in Honour of D. T. Whiteside.**

Most of the papers collected here are on aspects of Newton's work but there are papers on eighteenth century mathematics, George Gabriel Stokes, James Clerk Maxwell and Henri Poincaré.

*Olaf Pedersen* **Early Physics and Astronomy** second edition.

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

*Victor Thoren* **The Lord of Uraniborg: A Biography of Tycho Brahe.**

*Klaus Winter* ed., **Neutrino Physics.**

The first section of the volume is devoted to the history of neutrino physics. For more information write: Cambridge University Press, 32 East 57th Street, New York, NY 10022.



**University of Chicago Press**

*Daniel Garber* **Descartes' Metaphysical Physics.**  
*David C. Lindberg* **The Beginnings of Western Science.** Traces the European scientific tradition from 600 BC to 1450 AD.

*Edward Shils* ed. **Remembering the University of Chicago: Teachers, Scientists and Scholars.** In this volume are essays on Subrahmanyan Chandrasekhar by K. C. Wali, Arthur Holly Compton by J. A. Simpson, James Franck by E. Teller, Maria Goppert-Mayer by R. G. Sachs and Otto Struve by S. Chandrasekhar. For more information write: University of Chicago Press, 5801 South Ellis Avenue, Chicago, IL 60637.

**Dutton**

*Michael White* and *John Gribbon* **Stephen Hawking: A Life in Science.**

For more information write: Dutton, 375 Hudson Street, New York, NY 10014.

**European Space Agency**

*Arturo Russo* **Choosing ESRO's First Scientific Satellite**

For more information write: ESA Publications Division, ESTEC Postbus 299, 2200 AG Noordwijk, The Netherlands.

**Garland Publishing**

*Norriss S. Hetherington* ed. **Cosmology: Historical, Literary, Religious, and Scientific Perspectives.**

This is a paperback selection from a larger book. Authors of the historical articles include, Stillman Drake, Norriss Hetherington, Wilbur Knorr, Helge Kragh, Donald Osterbrock, John Roche, Colin Ronan, Victor Thoren, Richard Westfall and Gerald Whitrow. For more information write: Garland Publishing, 136 Madison Avenue, New York, NY 10016.

**GNT-Verlag**

*Bruce R. Wheaton* ed. **Inventory of Sources for the History of Twentieth-Century Physics.**

This consists of two sets of fiche detailing the location of the letters of over 5,000 physicists and a hardbound index. The guide and index were compiled by Bruce Wheaton, Robin Rider and the staff at the Office for History of Science and Technology at Berkeley. For more information see page 44 and write to: GNT-Verlag, P. O. Box 81 02 63, D-7000 Stuttgart 80, Germany.

**Institution of Electrical Engineers**

*Frank A. J. L. James* ed. **Correspondence of Michael Faraday.**

For more information write: Institution of Electrical Engineers, London, England.

**Indiana University Press**

*Martin Krieger* **Doing Physics: How Physicists take hold of the World.**

For more information write: Indiana University Press, Tenth and Morgan Streets, Bloomington IN, 47405.

**Kluwer Academic Publishers**

*John Blackmore* ed. **Ernst Mach—A Deeper Look.**

Contents include a chapter on the Mach-Planck polemic and an article by Gerald Holton on Mach and Einstein.

*Mary Jo Nye, Joan L. Richards* and *Roger Stuewer* **The Invention of Physical Science. Intersections of Mathematics, Theology and Natural Philosophy since the seventeenth Century. Essays in Honor of Erwin N. Hiebert.** Boston Studies in the Philosophy of Science, vol. 139.

For more information write: Boston Philosophy of Science Association, Center for the Philosophy of Science, 745 Commonwealth Avenue, Boston MA 02215, or, Kluwer Academic Publishers, P. O. Box 358, Accordia Station, Higham MA 02108-0558.

**MIT Press**

*Jack S. Goldstein* **A Different Sort of Time: The Life of Jerrold R. Zacharias, Scientist, Engineer, Educator.** For more information write: MIT Press, 55 Hayward Street, Cambridge, MA 02142.

**Oxford University Press**

*Anatole Abragam* **Time Reversal: An Autobiography.**

*Gregg Herken* **Cardinal Choices: Presidential Science Advising from the Atomic Bomb to SDI**

*Charles Ruhla* **The Physics of Chance: From Blaise Pascal to Niels Bohr.**

*Ralph G. Scurlock* **Origins and History of Cryogenics.** For more information write: Oxford University Press, 200 Madison Avenue, New York, NY 10016.

**University of Pennsylvania Press**

*Philip L. Cantelon, Richard G. Hewlett* and *Robert C. Williams* **The American Atom: A Documentary History of Nuclear Policies from the Discovery of Fission to the Present.**

For more information write: University of Pennsylvania Press, P. O. Box 4836, Hampden Station, Baltimore MD 21211.

**Plenum Publishing Corporation**

*Eugene P. Wigner* **Recollections as told to Andrew Szanton.**

For more information write: Plenum Publishing Corporation, 233 Spring Street, New York, NY 10013-1578.

**Princeton University Press**

*G. I. Barenblatt and R. A. Sunyaev* **Selected Works of Yakov Borisovich Zeldovich** vol. 1 *Chemical Physics and Hydrodynamics*, trans. A. Granik.

*Kenneth Canava* **Robert Mayer and the Conservation of Energy**

*Eli Maor* **To Infinity and Beyond: A Cultural History of the Infinite**

*Marcello Pera* **The Ambiguous Frog: The Galvani-Volta Controversy on Animal Electricity** For more information write: Princeton University Press, 3175 Princeton Pike, Lawrenceville, NJ 08648.

**Smithsonian Institution Press**

*Michael H. Gorn* **The Universal Man: Theodore von Kármán's Life in Aeronautics**

For more information write: Smithsonian Institution Press, Dept. 900, Blue Ridge Summit, PA 17294.

**Springer-Verlag**

*A. Wightman and A. M. Weinberg* eds. **The Collected Works of Eugene Paul Wigner** vol. 5 *Nuclear Energy*. For more information write: Springer-Verlag, 175 Fifth Avenue, New York, NY 10010, or, P. O. Box 2485, Secaucus, NJ 07096-2491.

**Stanford University Press**

*Peter Galison and Bruce Herley* **Big Science: The Growth of Large Scale Research**

For more information write: Stanford University Press, Stanford, CA 94305.

**St. Martin's Press**

*Morton Szasz Ferenc* **British Scientists and the Manhattan Project: The Los Alamos Years**

For more information write: St. Martin's Press, Scholarly and Reference Division, 175 Fifth Avenue, New York, NY 10010.

**Variorum**

*Robert Fox* **The Culture of Science in France, 1770-1900**. Of interest are articles on J. H. Lambert, Laplacian Physics, and Sadi Carnot.

*R. W. Home* **Electricity and Experimental Physics in Eighteenth-Century Europe**.

For more information write: Gower Publishing Co., Old Post Road, Brookfield, VT 05036.

**RECENT ARTICLES****American Journal of Physics**

1991, vol. 59

"In Defense of Marie Curie," *T. M. Semkow and K. W. Semkow*, 871-72. "The Principle of Identity as the

Foundation of Quantum Theory. Part I The Gibbs Paradox," *Peter D. Pei*, 971-74, and "Part II The Role of Identity in the Foundations of Quantum Theory," 975-79. "Langevin's Derivation of the Relativistic Expression for Energy," *Y. Simon and N. Husson*, 982-87. 1992, vol. 60

"Doctoral Oral Examination of Heinrich Kayser, Berlin, 1879," *Joseph F. Mulligan*, 38-43. "Resource Letter HEPP-1: History of Elementary Particle Physics," *R. Corby Hovis and Helge Kragh*, 779-807. "Motive Force and Centripetal Force in Newton's Mechanics," *Hermann Erlichson*, 842-49, and "Newton's 1679/80 Solution of the Constant Gravity Problem," 728-33.

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"Ein Beitrag zur früher Diskussion um den Äther und die Einsteinische Relativitätstheorie," *Wilfried Schröder*, 475-89.

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1990, vol. 47

"H. A. Lorentz's Contribution to Kinetic Gas Theory," *A. J. Cox*, 571-606.

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"J. J. Thomson: The Discovery of the Electron and the Chemists," *Michael Chayut*, 527-44.

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"Grebe/Bacherns Photometrische Analyse der Linienprofile und Gravitations-Rotverschiebung, 1919 bis 1922," *K. Hentschel*, 21-46. "Frederick Soddy: The Scientist as Prophet," *M. Davies*, 351-67. "The Instantaneous Impulse Construction as a Formula for Central Force Motion," *Hermann Erlichson*, 369-75. "Essay Review: The Whewell Story," *Harvey W. Becher*, 377-84.

**Archive for History of Exact Sciences**

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"On the Role of the Lorentz-FitzGerald Contraction Hypothesis in the Development of Joseph Larmor's Theory of Matter," *Andrew Warwick*, 29-91. "The Reggeization Program, 1962-1982: Attempts at reconciling Quantum Field Theory with S-Matrix Theory," *Tian Yu Cao*, 239-83. "Relativistic Collisions: The Work of Christian Möller in the Early 1930s," *Helge Kragh*, 299-328.

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"Von L. Boltzmann bis J. J. Thomson: Die Versuche einer mechanischen Grundlegung der Thermodynamik (1866-1890)," *Günther Bierhalter*, 25-75. "Levi-Civitasche Parallelverschiebung, affiner Zusammenhang, Übertragungsprinzip: 1916/17-1922/23," *K. Reich*, 77-105. "The Moon Test in Newton's Principia: Accuracy of the Inverse-Square Law of Gravitation," *Aoki Shinko*, 147-90.

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"Physics, Chemistry and the Theory of Errors," *Eric Mendoza*, 282-306.

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"EURATOM, ENEA und die nationale Kernenergiepolitik in Deutschland," *Thomas Stamm-Kuhlmann*, 39-49.

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"Einstein and the Noulens Affair," *Frederick S. Litten*, 465-67.

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"Einstein and Relativistic Thermodynamics in 1952: A Historical and Critical Study of a Strange Episode on the History of Modern Physics," *Chuang Liu*, 185-206. "Radiological Weapons and Radioactive Waste in the United States: Insider's and Outsider's Views, 1941-55," *Adri de la Bruheze*, 207-28. "The Tales of Benjamin Abbott: A Source of the Early Life of Michael Faraday," *Frank A. J. L. James*, 229-40. "The Rad Lab and the World," *Andrew Pickering*, 247-51, essay review.

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1991, vol. 30

"A '40 feet' Oil Barometer," *Allan Mills and John Pritchard*, 5-9.

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"Zyklische Zeitvorstellung, Zeitrichtung von die frühen Versuche einen Deduktion des Zweiten Hauptsatzes der Thermodynamik," *Günter Bierhalter*, 345-67.

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"Richmann's Experiment and the Electrophorus," *L. N. Kryzhanousky*, 119-24. "How Newton went from a Mathematical Model to a Physical Model for the Problem of First Power Resistance," *Hermann Erlichson*, 272-83, and, *Herman Erlichson*, "Newton's first Inverse Solution," 345-66.

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"Sommerfeld und die Anfänge der Festkörperphysik," *Michael Eckert*, 33-71.

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"Follow the Needle: Seeking the Magnetic Poles," *Gregory A. Goode*, 154-67.

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"The Berlin School of Thermodynamics founded by Helmholtz and Clausius," *Werner Ebeling and Dieter Hoffmann*, 1-9. "Revisiting Classical Charged Particles yet again," *L. Belloni*, 153-55.

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1990, vol. 41

"'On the Connexion of the Physical Sciences': Classification and Organization in the early Nineteenth-Century Sciences," *Michael Shortland*, 17-36.

**Historical Studies in the Physical and Biological Sciences**

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"Piotr Kapitza and Stalin's Government: A Study in Moral Choice," *Aleskeo Kozhevnikov*, 131-164. "The Discovery of Cosmic Rays: Rivalries and Controversies between Europe and the United States," *M. de Maria, M. G. Ianniello and A. Russo*, 165-92. "The Molecular Tradition in early Quantum Theory," *Alexi Assmus*, 209-31. "Atoms, Cancer and Politics: Supporting Atomic Science at the University of Chicago, 1944-1950," *Stuart M. Feffer*, 233-61. "Attitudes towards Infinites: Responses to Anomalies in Quantum Electrodynamics," *Alexander Rueger*, 309-37. "Physics and Propaganda: Werner Heisenberg's Foreign Lectures under National Socialism," *Mark Walker*, 339-89.

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1992, vol. 83

"Ernst Mach and the Fortunes of Positivism in America," *Gerald Holton*, 27-60. "Representing the Heavens: Galileo and Visual Astronomy," *Mary G. Winkler and Albert van Helden*, 195-217. "Representing the Earth's Shape: The Polemics surrounding Maupertuis's Expedition to Lapland," *Mary Terrall*, 218-37. "Science, Security and the Cold War: The Case of E. U. Condon," *Jessica Wang*, 238-69. The December issue has a long section of articles on ancient science. These articles force reexamination of our assumptions of the Greek origin of western science and mathematics. Articles are by F. Rochberg, David Pingree, G. E. R. Lloyd, Heinrich von Staden and Martin Bernal.

**Journal for the History of Astronomy**

1990, vol. 21

"Rosse, Robinson and the Resolution of the Nebulae," *Michael Hoskin*, 331-44.

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"The Earliest National Observatory in Latin America," *Phillip C. Keenan*, 31-30. "The Origins of the Dominion Observatory, Ottawa," *Richard A. Jarrell*, 45-53. "The Rosse Spirals," *David W. Dewhirst and Michael Hoskin*, 257-66. "The Kenya Expeditions of the Leiden Observatory," *J. K. Katgert-Merkelijn*, 267-96.

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"Walter S. Adams and the imposed Settlement between Edwin Hubble and Adrian van Maanen," *Norriss Hetherington and Ronald Brashear*, 53-56. "Seeing Red: Observations of Colour in Jupiter's Equatorial Zone on the Eve of the Modern Discovery of the Great Red Spot," *Thomas Hockey*, 93-105.

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1991, vol. 8

"Thinking about Nineteenth-Century Astronomy as Big Science," *Karen A. Rader*, 9.

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1991, vol. 45

"Edmond Halley and Newton's *Principia*," *Alan Cook*, 129-38. "Sir John Herschel and Babbage's Difference Engine No. 1," *Peter Tuvey*, 165-76. "Hertha Ayalon and the Admission of Women to the Royal Society," *Joan Mason*, 201-20. "Maxwell's Early Career," *Frank A. J. L. James*, 266-71. "At the Feet of Whitehead," *Ivor Grattan-Guinness*, 271-76.

**NTM Schriftenreihe für Geschichte der Naturwissenschaften Technik und Medizin**

1991, vol. 28

"Das Wechselverhältnis von Astronomie und Maschinenbau, dargestellt am Beispiel des Wirkens von Georg von Reichenbach, 1771-1826," *Klaus Dieter Herbst*, 61-72.

**Osiris**

1992, vol. 7

The whole volume is devoted to the topic, "Science after '40." That is 1940. Included are articles on the universities and national defense by Roger Geiger, the invention of the Maser by Paul Forman, Cold Fusion, by Bruce Lewenstein, and three articles on science and politics by Sheila Jasanoff, Margaret Rossiter and Ronald E. Doel. The final article by Joan Warnow-Blewett is on documenting recent science.

**Physics Today**

1992, vol. 45, July

"The Eventful Life of Fritz Houtermans," *Iosif B. Khriplovich*, 29-37.

1992, vol. 45, November

"The Nobel Prizes at Ninety," *Gloria Lubkin*. "Creativity and Big Science," *John L. Heilbron*.

1993, vol. 46, January

"The Birth of the Nuclear Age," *Albert Wattenberg*.

**Physics**

1991, vol. 28

"Spengler, Einstein and the Controversy over the End of Science," *Gerald Holton*, 543-56.

**Progress of Theoretical Physics**

1992

The whole issue is devoted to "Elementary Particle Physics in Japan, 1930-1960." Edited by Laurie Brown and Rokuo Kawabe, it is the Proceedings of a Workshop of June 1991.

**Revue d'Histoire des Sciences et de leurs Applications**

1990, vol. 43

"Sur le théorème d'Ampère," *Jean-Paul Mathieu*, 333-38.

**Scientia Canadensis**

1990, vol. 14

"Liquefaction of Helium and the Promotion of National Science," *Andrew Ede*, 51-65.

**Scientific American**

1991, vol. 266, December

"Sophie Germain," *Amy Dahan Dalmédico*, 116-120.

1992, vol. 267, August

"How Cosmology became a Science," *Stephen G. Brush*, 62-70.

1992, vol. 267, November

"Astronomy in the Age of Columbus," *Owen Gingerich*, 100-105.

**Studies in the History and Philosophy of Science**

1991, vol. 22

"Remarks on the Bohr-Höfdding Relationship," *David Favre-holdt*, 399-414. "Planck's Principle and Jeans's Conversion," *Geoffrey Gorham*, 471-97.

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"Kinds and the Wave Theory of Light," *Jed Buchwald*, 39-74. "Cognitive Appraisal and Power: David Brewster, Henry Brougham and the Tactics of the Emission-Undulatory Controversy during the early 1850s," *Xiang Chen* and *Peter Barker*, 75-101. "A Study in Theory Unification: Maxwell's Electromagnetic Theory," *Margaret Morrison*, 103-45.

**Tractrix**

1991, vol. 3

"The Age of the Air Pump," *Anne C. van Helden*, 149-72.

**Vistas in Astronomy**

1990, vol. 33

"James Joule and Meteors," *David W. Hughes*, 143-48.

## 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

## History of Science &amp; Technology

**James MacLachlan** *Children of Prometheus: A History of Science and Technology* xxvi + 320 pp., Toronto, Wall & Emerson, 1989

This college-level text based on a broadcast-radio course is an easy-to-read introduction. Eight of 22 chapters treat topics common in histories of physics, including four on the scientific revolution, with stress on Galileo and Newton. For recent physics, it treats energy conservation, electromagnetics leading to telephone and radio, and atomic physics culminating in Hiroshima. It provides a general overview using selected topics to illustrate the social importance of science and technology.

## Essays by Seltz

**Frederick Seltz** *The Science Matrix: The Journey, Travails, Triumphs* xiii + 146 pp., New York, Springer-Verlag Inc., 1992.

The book contains twelve interrelated non-mathematical essays dealing with the historical background of modern science and its profound influence on diverse issues such as human perception of the natural world and the evolution of technology. The core essay (Chapter 3) deals with five crucial steps which led us to the powerful scientific edifice we have today. It starts with the work of the Greeks in the heyday of Athens, emphasizes the important role of the other cultural groups including Indian, Egyptian, Moslem, Jewish and Persian scholars and finally leads into the successes and struggles which arose once the great classical scientific texts, nurtured and consolidated by the Moslems, were transferred to the Christian world in the Middle Ages. Essays dealing with fraud in science, the psychological reaction to the discovery of radioactivity and the rise of the environmental movement

are included. A critique is given of the stimulating book, "*The Next Million Years*", by the physicist grandson of Charles Darwin which appeared at the end of World War II.

## Scientific Knowledge

**Stanley Goldberg** *The History of Science and the Science of History*, Paper delivered at the XVII Pacific Science Congress, Honolulu, HI, May, 1991

It is a deeply imbued part of the metaphysics of our culture that measurement confers on scientific knowledge an ontological and epistemological status that is different than is the case in other abstract disciplines. On the other hand, historical case studies of how instruments have been used in the prosecution of scientific research calls into question the notion that measurement opens a window to the true nature of the universe. That belief represents a conflation in our culture between our ability to manipulate the physical world and our efforts to discover the way the world works--between technology and science.

## Harvard &amp; Comets

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

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.

## Solar Science since Galileo

**Karl G. Hufbauer** *Exploring the Sun: Solar Science since Galileo* xv + 370 pp., Baltimore, The Johns Hopkins University Press, 1991.

Since Galileo's study of sunspots, three trends have dominated the history of solar science. Scientists have acquired an ever more diverse and precise set of observational and theoretical tools for investigating the sun. The scientists who have used these tools have constituted an increasingly interactive and differentiated collectivity. All the while, as their tool kit has become more powerful and their social organization more complex, scientists studying the sun have developed an increasingly detailed and robust picture of its structure, workings, and evolutions. This book seeks to characterize these trends by tracing the development of solar science from the early seventeenth century to the present. The coverage is reasonably comprehensive until World War II. Thereafter it is more selective, using, for instance, chapters on solar-wind and solar-irradiance research to illuminate the workings of solar physics in the space age.

## Galileo

**James MacLachlan** *Drake Against the Philosophers, in Nature, Experiment, and the Sciences* T.H. Levere and W. Shea (eds), Boston, Kluwer Academic Publishers, 1990, 123-44.

MacLachlan uses the work of Stillman Drake to de-whig recent historiography of Galileo. He presents evidence and argument to show that (a) "inertia" for Galileo was no more circular than for Descartes and Newton; (b) experiment was essential for Galileo, without thereby making him a mere empiricist; (c) the *Dialogue* was intended more to re-orient physics away from Aristotle than to promote Copernicus; (d) Galileo did not adhere dogmatically to mathematics but used it instrumentally. Author's address for reprints: 49 Williamson Rd., Toronto, M4E 1K6, Canada.

### 1991 Geophysics Conference

**Wilfried Schröder, Michele Colacino and Giovanni Gregori eds.** *Exploring the Earth: Progress in Geophysics during the last Centuries* x + 300 pp., IAGA, D-2820 Bremen-Roennebeck, Germany.

Some historical papers from the IAGA meeting in August 1991 in Vienna have been collected. They deal with the relations between physical science and geophysics. A special paper by S. Debarbat discussed the role of women in science; other papers dealt with geomagnetism, the function of observatories (Brazil, Italy, Hungary), the ionosphere, and the progress of atmospheric physics in university teaching during the 19th century.

#### John Wilkins

**Allen Chapman** 'A World in the Moon': *John Wilkins and his Lunar Voyage of 1640*, Quarterly Journal of the Royal Astronomical Society, 1991, 32, 12 pp., Lecture delivered to Royal Astron. Soc. 12th Oct., 1990.

The astronomy of Galileo and Kepler demonstrated that planetary bodies were worlds as opposed to quintessential lights. Following upon a tradition of speculative voyages (Such as Godwin's *Man in the Moone*) Wilkins became the first person to discuss a lunar voyage within the context of known science and technology. The physical mechanics of gears, levers and springs were discussed by him with a view to devising a powered "flying chariot." His work inspired Robert Hooke and many early Fellows of the Royal Society of London.

#### Newton

**Betty Jo Teeter Dobbs** *The Janus Faces of Genius: The Role of Alchemy in Newton's Thought*, Cambridge/New York, Cambridge University Press, 1992.

Newton's intellectual life constituted a unified whole, in which his work in mathematics, physics, and cosmology was closely related to his study of alchemy. To Newton, those several pursuits were all ways of approaching Truth, as was his work on the interpretation of prophecy and his systematic study of ancient natural philosophy and theology. Newton's primary goal was not the study of nature *per se* but was rather an attempt to infer the attributes of the Creator by studying the creation.

He hoped and intended to establish a unified system including both natural and divine principles, and his methodology was broader than previous scholars have supposed. Newton struggled with the intertwined problems of the microcosmic "vegetable spirit" of alchemy and a cause for the cosmic principle of gravitation (after his discovery that Cartesian vortices could not be mathematized) for the rest of his life, his final word on the subject appearing only in the 1717/18 edition of *Opticks*.

#### Seebeck and Goethe

**Keld Nielson** *Another Kind of Light: The Work of T.J. Seebeck and his Collaboration with Goethe, Part 2*, Historical Studies in the Physical and Biological Sciences, 1991, 21, 317-97.

From 1812 to 1816, Seebeck--now with Goethe as his only scientific supporter--was active in optical research and discovered several novelties which he interpreted on the basis of Goethe's color theory. He developed controversial scientific opinions and in particular was hostile towards Laplacian physics. Seebeck became a salaried member of the Berlin Academy in 1818, mainly because of his work with polarized light and crystals. Following Oersted's discovery of electromagnetism, Seebeck stopped his optical work and in 1821 discovered thermoelectricity. His usual interpretation of electromagnetism, his knowledge of Kant's dynamic matter theory, his propensity for polarities, and his Goethe-inspired wish to perceive experimental situations in their totality all helped to guide him to this discovery.

#### Emil Warburg

**Stefan L. Wolff** *Emil Warburg - mehr als ein halbes Jahrhundert Physik*, Physikalische Blätter, 1992, 48, 275-279.

The physicist Emil Warburg (1846-1931) had an extraordinary career lasting more than fifty years. He started in the little private laboratory of Gustave Magnus and ended his career as head of one of its greatest institutions the Physikalisch-Technische Reichsanstalt. Warburg became known by his remarkable contributions to the kinetic theory of gases (1875) and was still able to participate in the beginnings of quantum theory in the 20th century. So the story of his life illustrates many aspects of the evolution of physics during that time.

### Hysteresis

**Matthias Dörrles** *Prior History and Aftereffects: Hysteresis and Nachwirkung in Nineteenth-Century Physics*, Historical Studies in the Physical and Biological Sciences, 22:1 1991, 25-55.

During the 19th and 20th centuries, history emerged as a central parameter in the natural sciences. This paper focuses on the practical origins of historical considerations in physics. Experimental practice led physicists to take their instruments and machines as objects of research and to study their behavior over time. The results of this new scrutiny forced physicists to limit the jurisdiction of existing general laws: in order to compute the state of certain systems at a given moment, they had to take into account not only the forces at that moment but also the previous history of the systems. The paper examines two case studies, elastic Nachwirkung and magnetic hysteresis. Authors address for reprints: Office for the History of Science and Technology, 470 Stephens Hall, University of California at Berkeley, Berkeley, CA 94720.

#### Riemann and Electrical Theory

**Thomas Archibald Riemann** *and the Theory of Electrical Phenomena: Nobili's Rings*, Centaurus 1991, 34, 247-271.

This paper discusses three mathematical models of the phenomenon known as Nobili's Rings, due respectively to Edmond Becquerel, Emil du Bois-Reymond, and Bernhard Riemann. The models serve somewhat different functions with regard to theory, and vary enormously in their mathematical sophistication.

#### Hertz and Hertzian Waves

**Manuel G. Doncel** *On the Process of Hertz's Conversion to Hertzian Waves*, Archive for History of Exact Sciences, 1991, 43, 1-27.

This paper provides new elements for reconstructing Heinrich Hertz's conversion from an electrodynamic concept to a concept of field theory, a process that took place between September 1887 and February 1888. It is first argued that, contrary to what one could deduce from Hertz's own presentation in his *Electric Waves*, paper #5 was actually written after the first publications of papers #6 and #7; this fact is illuminated by Hertz's un-

published correspondence. Second, by complementing Hertz's published *Memoirs, Letters, Diaries* with his unpublished Laboratory Notes, a very fine description of this conversion process can be given. Therewith Hertz's idea of "air waves" belongs at the very end of the process, and was mainly attained through experimental hints found within Helmholtz's theoretical framework.

### 19th Century Optical Theory

**Helge Kragh** *Ludvig Lorenz and Nineteenth Century Optical Theory: the Work of a great Danish Scientist, Applied Optics*, 1991, 30, 4688-95.

The career of the Danish physicist Ludvig V. Lorenz (1829-1891) is outlined and his contributions to optical theory between 1860 and 1891 are discussed. These included a non-Maxwellian electro-dynamical theory of light in 1867, a theory of refraction of 1869 (including the Lorenz-Lorentz law), and in 1890 a theory of the scattering of plane waves by spherical particles. The paper concludes with an estimation of Lorenz's position in nineteenth-century optics. It is argued that Lorenz's phenomenological attitude and indifference to Maxwellian theory were the main reasons why his mature works in optics exerted little influence. Author's address: Roskilde University Center, P.O. Box 260, 4000 Roskilde, Denmark.

### Poincaré and Chaos Theory

**A. Dahan Dalmedico and J.L. Chabert** *Henri Poincaré, le précurseur*, La Recherche, 1991, 566-570.

Here is a glimpse of the works of Poincaré related to the topics of dynamical systems, given on the occasion of a special issue of *La Recherche*, devoted to Chaos. The genesis and the main features of the qualitative theory of differential equations as well as Poincaré's geometrical approach are described, and his principal results in celestial mechanics are summarized. Several contemporary tools of dynamical systems are shown as present in his works. A larger version (about 40 pages) of this paper by the same authors, including Poincaré's point of view on the Maxwell-Boltzmann postulate, and what later was called ergodic theory, is going to appear in the book *Chaos et Déterminisme*, Editions Le Seuil, in May 1992.

### Australian Science

**R. W. Home**, *Georg von Neumayer and the Flagstaff Observatory, Melbourne*, in *From Berlin to Burdekin: German Contributions to the Development of Australian Science, Exploration and the Arts* David Walker and Jürgen Tampke eds. Sydney, University of New South Wales Press, 1991, 40-53.

A general discussion of Neumayer's reasons for establishing a geophysical observatory at Melbourne, Australia, in the 1850s, and a survey of the results he achieved.

**R. W. Home**, *The Flagstaff Observatory, Melbourne: New Documents relating to its Foundation*, Historical records of Australian Science, 1991, 8, 213-43.

This paper publishes two previously unknown documents that shed new light on the rationale behind the founding of a major geophysical observatory at Melbourne, Australia, in the 1850s by the young Georg Neumayer; on the local difficulties he had to overcome before bringing his plans to fruition and on the base of support available for such a venture at that time.

### Percy Bridgman

**Albert E. Moyer**, *Percy Bridgman's Operational Perspective on Physics. Part I Origins and Development*, Studies in the History and Philosophy of Science, 1991, 22, 237-58.

This article examines the intellectual milieu in which Harvard physicist Bridgman (1882-1961) fashioned his operational outlook and the particular path he followed as his thinking developed. An introductory section suggests that Bridgman served as an interpreter of modern physics who used operationalism for rhetorical ends. Specific topics in the main text are: Bridgman's student years at Harvard; his later grappling with special relativity and dimensional analysis; and the emergence of operationalism in the context of his appraisal of general relativity. This article is the first of a two-part analysis.

**Albert E. Moyer**, *Percy Bridgman's Operational Perspective on Physics. Part II Refinements, Publication and Reception*, Studies in the History and Phi-

losophy of Science, 1991, 22, 373-97. Part II adds the topic of Bridgman's attempt to comprehend quantum theory. Part II also examines Bridgman's 1927 book *The Logic of Modern Physics*, covering three areas: influences of contemporary philosopher-scientists; publication; initial reactions. The article concludes that Bridgman served as an interpreter of modern physics who used operationalism for rhetorical ends.

### Nobel Prizes

**James MacLachlan** *Defining Physics: The Nobel Prize Selection Process, 1901-1937*, American Journal of Physics, 1991, 59, 166-74.

In the first thirty-seven years of Nobel prizes for physics, 448 sponsors submitted 1800 nominations for 213 scientists. Of these sixty-six received the prize, although ten were post-1937 and twelve were in chemistry. A distinctly experimentalist bias prevailed in the selection committee until after 1950. Only since then have prizes for theoretical work exceeded 30% of the number awarded. Einstein was nominated sixty-two times beginning in 1910 for his prize in 1922; Dalén only once for the 1912 prize. Author's address: 49 Williamson Road, Toronto, Canada, M4E 1K6. Reprints available.

### Statistics and Quanta

**Olivier Darrigol** *Statistics and Combinatorics in early Quantum Theory. II Early Symptoms of Indistinguishability and Holism*, Historical Studies in the Physical and Biological Sciences, 1991, 21, 237-298. This paper is a sequel to the article in the same journal, 1988, 19, 17-80. The general theme is the role of statistical thermodynamics in the emergence of the first quantum concepts. Part I describes various attempts to account for Planck's blackbody formula in terms of a gas of light quanta. Part II recounts early quantum theories of gases. In both cases the legitimacy of indistinguishability and the choice between molecule or ensemble statistics appear to have been central issues. The last part of the article shows how a synthesis of matter and light proposed by Louis de Broglie transformed these issues.

### Complementarity & Quantum Field Theory

Olivier Darrigol, *Cohérence et complétude de la mécanique quantique: l'exemple de 'Bohr-Rosenfeld'*, Revue d'Histoire des Sciences et de leurs Applications, 1991, 44, 137-79.

In the early thirties severe paradoxes impeded the progress of relativistic quantum theory. Several physicists questioned the legitimacy of the concept of the electromagnetic quantum field. In 1933, against such doubts Bohr and Rosenfeld proved the latter notion to be the precise mathematical expression of the possibilities of measuring fields by conceivable devices. This case study is used to show that in Bohr's complementarity the agreement between possibilities of definition and possibilities of measurement were the central condition for the coherence and completeness of quantum theory.

#### Werner Heisenberg

David Cassidy, *Uncertainty: The Life and Science of Werner Heisenberg* xii + 669 pp., New York: W. H. Freeman and Co., 1991.

This comprehensive biography of German physicist Werner Heisenberg (1901-1976) examines his life and work in the context of his times and attempts to integrate the two into an account of the man and his science. It is based on as thorough a utilization as possible of the available sources. Particular emphasis is given to the nature and impact of the most formative contexts of Heisenberg's life--late Wilhelmine culture, the German youth movement, Weimar quantum physics as both science and profession, and the nightmare world of the Third Reich. Particular attention is devoted to the most significant facets and problems of Heisenberg's life and work: His important contributions to the formulation and extensions of quantum mechanics and his controversial decision to remain in Germany and hold prominent positions during the Third Reich, to work on nuclear fission during World War II, and to defend his behavior after the war. His early postwar efforts regarding West German science policy and his later work on unified field theories are also discussed.

### Cosmic Rays in 1930s

M. De Maria, M. G. Ianniello and A. Russo, *The Discovery of Cosmic Rays: Rivalries and Controversies between Europe and the United States*, Historical Studies in the Physical and Biological Sciences, 1991, 22, 165-92.

The discovery of cosmic rays, first derived from the observations of K. Bergwitz, V. Hess, W. Kolhörster and E. Schweidler and their "rediscovery", made about ten years later by R. A. Millikan and co-workers, resulted in a controversy that opposed Millikan to his European colleagues during the 1920s. This provides the opportunity for the case study which sheds light on the interplay between scientific and extrascientific factors in the phase of growth and consolidation of this new field of research. All the more so since it soon became clear that the new field was based on incorrect theoretical principles. The transition phase of cosmic-ray physics from "infancy" to "adolescence" is closely scrutinized.

Laurie M. Brown and Helmut Rechenberg, *Quantum Field Theories, Nuclear Forces and Cosmic Rays*, American Journal of Physics, 1991, 59, 595-605.

During the 1930's cosmic rays were the most important source of data on the high-energy behavior of quantum electrodynamics and nuclear forces. In the period 1934-1938 the dominant fundamental theory of nuclear forces was that of the Fermi field. In cosmic-ray phenomena in the atmosphere it was found that the less penetrating components were associated with electromagnetic cascade showers and that the more penetrating component contained a new "elementary" particle, the mesotron. However, there remained puzzling features that left room for other interpretations.

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#### Vector Meson Theory

Laurie M. Brown and Helmut Rechenberg, *The Development of the vector meson theory in Britain and Japan (1937-38)*, British Journal for the History of Science, 1991, 24, 405-33.

The discovery in 1937 of the heavy cosmic particle having about the mass of Hideki Yukawa's U-quantum provided a breakthrough of the latter's theory of nuclear forces. Simultaneously in Japan, Yukawa and his collaborators Shoichi Sakata and Mituo Taketani, and in England Homi Bhabha, Herbert Fröhlich, Walter Heitler and Nicholas Kemmer, developed vector field theory. It seemed to account satisfactorily not only for the observed nuclear forces but also for the hard component in cosmic radiation.

#### Quantum Field Theory

Laurie M. Brown and Tian Yu Cao, *Spontaneous Breakdown of Symmetry: Its Rediscovery and Integration into Quantum Field Theory*, Historical Studies in the Physical and Biological Sciences, 1991, 21, 211-35.

Two fundamental ideas form the basis of the current standard model of weak, strong, and electromagnetic forces. One is non-Abelian quantum gauge fields, the other is the spontaneous breaking of symmetry, which gives mass to the intermediate bosons of the electroweak interaction. This article deals with the history of spontaneous symmetry breaking, from its first systematic study by Pierre Curie until its modern integration into quantum field theory by Nambu, Goldstone, Higgs and others.

#### Science Policy in Japan

Satlo Hayakawa and Morris Fraser Low, *Science Policy and Politics in Post-War Japan: The Establishment of the KEK High Energy Physics Laboratory*, Annals of Science, 1991, 48, 207-29.

This paper provides a detailed account of the pre-history of the KEK High Energy Physics Laboratory at Tsukuba in Japan. Attempts to establish Japan's first truly national laboratory marked the beginning of 'big science' in Japan. An examination of the debate and decision-making processes, which spanned over a decade, provide insight into the political aspects of policy making in the post-war period. Author's address: Department of Japanese Studies, Monash University, Clayton, Melbourne, Victoria 3168, Australia.



## FORUM ELECTION

### Nominees for the 1993 Forum Election

This year, because of the new Constitution and Bylaws we need to elect both a Chair-Elect and a Vice-Chair. The Chair-Elect will become Chair next year.

We also need to elect two members of the Executive Committee who will serve for three years.

### For Chair-Elect or Vice Chair

#### Elizabeth Garber

Associate Professor, History, State University of New York at Stony Brook. Ph.D. Case Institute of Technology (History of Science) 1966. Dissertation Maxwell, Clausius, Gibbs: Aspects of the Development of Kinetic Theory and Thermodynamics. MS Case Institute of Technology (Physics) 1962. B.Sc. London University (Physics, Mathematics) 1960. Fellow of the American Physical Society. Current Research Interests: In press is a third volume of Maxwell's unpublished manuscripts, letters and notes on gas theory, thermodynamics and statistical mechanics, co-edited with Stephen G. Brush (Maryland) and Francis Everitt (Stanford). I am finishing a monograph on the relationship between mathematics and physics in the eighteenth and the nineteenth centuries. This is an examination of the problematic role of mathematics in the emergence of the modern discipline of theoretical physics in Germany and Britain about 1850.

As soon as this is off my desk I want to focus on an issue that came out of my current work and is an aspect of science that has been ignored thus far. Namely, that scientists, since the seventeenth century have addressed different audiences (colleagues, students, the general public) and these audiences are usually conflated in accounts of the development of modern science. Different audiences bring to their reading of a text wholly different sets of presuppositions and expectations which the author must address at least in part. This means that far from seeing any unified set of values which authors' address in their science, no matter who the audience, the audience is part of the construction of the text. We must also consider that the acts of reading are ones of interpretation(s). The audiences' interactions with the various "texts" of science needs examination, as does the scientists' interactions with their var-

ied "audiences." We can trace these audiences far closer than other historians dealing with the same problem in the fields of political ideas and ideals etc. Texts can mean book, lecture, experiment, exhibitions, museum displays, etc. Tentative title is "Audience and Text."

#### 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- ) 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-

#### John S. Rigden

Johns S. Rigden is on leave from the American Institute of Physics where he serves as Director of Physics Programs. He is currently a consultant for the National Science Education Standards Project at the National Academy of Sciences. He received his B.S. from Eastern Nazarene College in 1956 and his Ph.D. from Johns Hopkins University in 1960. After his Graduate work, he was a post doctoral fellow at Harvard University. He has taught at Eastern Nazarene College, Middlebury College, and the University of Missouri-St. Louis. He has served both as member and as chairperson of the nominating committee of the APS History of Physics Division. He is a member of the Editorial Board of the AAPT Resource Letters, a member of the Editorial Board, Science Networks-Historical Studies series, Birkhäuser Verlag AG. Other professional activities include: Visiting Scholar, Harvard University; Editor, American Journal of Physics. He is a Fellow of the American Association for the Advancement of Science. He is the author of Rabi: Scientist and Citizen. His research interests include the history of 20th-century physics and the history of contemporary physics. He is currently writing a book on the role of the hydrogen atom in the history of physics.

## For Executive Committee

### William A. Blanpied

William A. Blanpied, who received his Ph.D. in Experimental Nuclear Physics from Princeton, is Senior International Analyst in the Division of International Programs at the National Science Foundation (NSF). In that capacity, he is currently engaged in planning with respect to scientific cooperation with Central/Eastern Europe and Latin America. He serves as NSF's principal staff liaison officer for the International Council of Scientific Unions (ICSU) and the International Institute for Applied Systems Analysis (IIASA), and is Executive Secretary to a U.S. Government Interagency Committee on Megascience Projects. During 1992, he served as Chair of the APS Committee on International Scientific Affairs. He remains Chair of the APS Task Force on the Crisis of Physics in the Republics of the Former Soviet Union, and its Forum on International Physics. Blanpied's historical research and writing, in addition to the evolution of Western science in non-European cultural areas, is in the area of post-World War II science policy.

Prior to joining NSF in 1976 as Program Manager for Ethics and Human Values, Blanpied held faculty appointments in the physics departments at Case Western Reserve, Yale, and Harvard Universities, where his research interests were in experimental particle physics. While at Harvard, he initiated and served as first editor of an international newsletter that subsequently evolved into the quarterly journal, Science, Technology and Human Values. He left Harvard to become Head of the Division of Public Sector Programs at the American Association for the Advancement of Science (AAAS), where he instituted the annual AAAS colloquium series on Research and Development in the Federal Budget. Blanpied is an adjunct member of the faculty at George Mason University in Arlington, Virginia. He is the author of three books, and has published numerous articles and reviews on physics, history of science, science policy in the professional literature.

### Yves Gingras

Born in 1954, Yves Gingras is associate professor in the Department of History at the Université de Québec à Montréal. After a B.Sc. and a M.Sc. in physics at Laval University (a department founded by Franco Rasetti!) he completed a Ph.D. in history of science at the Université de Montréal in 1984. His research areas are the social history of scientific communities and sociological studies of decision-making in big science. Over the last few years, he has given many conferences in college professors about how to use history of science in science courses. He is the co-author (with Luc Char-

trand and Raymond Duchesne) of Histoire des sciences au Québec (Montréal, Boréal, 1987), co-editor (with Marcel Fournier and Othmar Keel) of Sciences et médecine au Québec: perspectives sociohistoriques (IQRC, Québec, 1987) and (with Richard Jarrell) of Building Canadian Science: the Role of the National Research Council (Scientia Press, Ottawa, 1992). His most recent book is Physics and the Rise of Scientific in Canada (McGill-Queen's, Montreal, 1991) and he has just finished his next book on the history of the French-Canadian Association with the Advancement of Science. On big science, he has published (with Michel Trépanier) "Constructing a Tokamak: Political, Economic and Technical Factors as Constraints and Resources," *Social Studies of Science*, vol. 23, no. 1 February 1993. He has also published papers in *Minerva*, *Science and Public Policy*, *Canadian Historical Review*, *Actes de la recherche en sciences sociales* and other French language journals. He is President of the Canadian Science and Technology Historical Association and co-editor of *Scientia Canadensis* (Journal of the History of Canadian Science Technology and Medicine). During the winter of 1993 he is visiting Scholar at the Centre de recherche en histoire des sciences et des techniques at the Cité des sciences et de l'Industrie in Paris, and will pass the academic year 1993-94 as Visiting professor at the Institute for the History and Philosophy of Science and Technology at the University of Toronto.

### Caroline L. Herzenberg

Caroline Herzenberg is a Physicist at Argonne National Laboratory. S.B. in physics, MIT; MS and Ph.D. in Physics, the University of Chicago. Former faculty member at Illinois Institute of Technology, University of Illinois at the Medical Center, California State University Fresno, and former technical staff member at IIT Research Institute. Past research in experimental low energy nuclear physics, Mossbauer spectrometry, lunar sample analysis, fossil energy instrumentation; current work in radiological emergency preparedness. Fellow of the APS, past chair of the Committee on the Status of Women in Physics, current secretary/treasurer of the Forum on Physics and Society. History of science research and publications primarily relate to contributions of women scientists.

### Erwin Hierbert

Erwin Hiebert, Professor Emeritus of the History of Science at Harvard, is engaged in research on a volume entitled: *Lise Meitner and her Scientific Circle*. Other current interests include: nuclear physics in Austria between the two World Wars, low temperature quantum chemistry, and the historical examination of problems at the interface of chemistry and physics.

## QUESTIONS ABOUT FUTURE NEWSLETTERS

An Editorial Committee set up under the new bylaws would like to obtain input on what sections of the History of Physics Newsletter are of value to any members of the Forum and which sections are of very little interest and should be eliminated or reduced in size. For example, we do not know whether anybody has found the Section on Grants and Fellowships of use to themselves or to their students. We would like to know whether the section on Recent Books and/or on Recent Articles is an unnecessary duplication of listings that you look at elsewhere. The increased costs of mailings raises the question of whether one issue per year of the Newsletter would be adequate. There would be some loss of timely information about meetings.

We would appreciate your filling out the enclosed questionnaire and returning it in the same envelope as the election ballot. Obviously, we will draw our own conclusions about the opinions of those of you who remain silent.

### QUESTIONNAIRE

<u>SECTION</u>	<u>OF INTEREST</u>	<u>NOT OF INTEREST</u>	<u>INFO. READ ELSEWHERE</u>
MEETINGS	_____	_____	_____
GRANTS & FELLOWSHIPS	_____	_____	_____
BOOK PUBLISHERS	_____	_____	_____
RECENT ARTICLES	_____	_____	_____
SUMMARIES	_____	_____	_____

Should the number of issues per year of the History of Physics Newsletter be one \_\_\_\_\_ or two \_\_\_\_\_.

We would appreciate any other comments or suggestions. \_\_\_\_\_

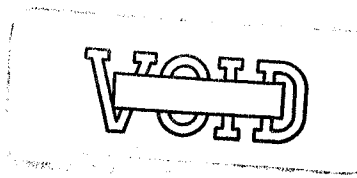
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## 1993 ELECTION BALLOT

The Ballot must be returned before March 29, 1993, to Professor Gerald Holton, Jefferson Laboratory, Harvard University, Cambridge, MA 02138.

### Chair-Elect or Vice-Chair--Vote for TWO

- Elizabeth Garber
- C. Stewart Gillmor
- John S. Rigden



### Executive Committee--Vote for TWO

- William A. Blanpied
- Caroline L. Herzenberg
- Erwin Hiebert
- Yves Gingras

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