

# HISTORY of Physics NEWSLETTER

## HISTORY OF PHYSICS AWARD

– Benjamin Bederson, Forum Chair

I am happy to relay to you the information that our Forum is initiating an award for excellence in the history of physics. The awardees will be selected by a distinguished group of historians of science and others using the highest standards of selection criteria. The idea for the award was originally presented by Laurie Brown with the help of several others on the FHP Executive Committee last year. It was approved by our Executive Committee and then submitted to the APS Council for consideration, and approved last May. I briefly outline the principal developments which have led to its present status.

In May, 2001 the then Chair of FHP, Laurie Brown, wrote the following letter to the APS Council:

*The Forum on the History of Physics (FHP) of the American Physical Society has noted that among the many professional organizations with which historians of physics affiliate, no award specifically for excellence in the history of physics has heretofore been established. Although there are a number of awards for history of science given by relevant organizations, the Award of Outstanding Contributions to the History of Physics that is*

*proposed ... would fill a unique role in the scholarly community as well as the community of physicists.*

The letter then included details of how the proposed award was to be managed.

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### FORUM ELECTION

**Forum Elections information is contained in this Newsletter.** Please vote for Vice Chair and two Members at Large of the Executive Committee. If you have email registered with APS, you will have received a message inviting you to vote electronically, as authorized by the FHP Executive Committee. If not, you should have received a paper ballot by mail. If you want a paper ballot but have not yet received one, please email your request, including your mailing address, to [kwford@bellatlantic.net](mailto:kwford@bellatlantic.net) or contact Kenneth W. Ford, 729 W. Westview Street, Philadelphia, PA 19119-3533, 215 844-8054. **Ballots must be returned so they can be received by March 18** in order to notify winning candidates and invite them to the April Executive Committee meeting. Brief resumes and statements from the candidates are printed later in this Newsletter.



Eugene Wigner, courtesy  
AIP Segre Photo Archives

Eugene Wigner was born November 17, 1902 in Budapest. He received the Nobel Prize in 1963. He died in 1995. See the notice below of a session at the upcoming April APS meeting in Albuquerque remembering Wigner in this centennial year of his birth.

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John V. Pickstone	

Council authorized the award. At a later meeting the APS Executive Board passed the following resolution:

*That the Executive Board approves fundraising for a joint APS/AIP History of Physics Award. Fundraising for the Award will be coordinated with AIP and will have a goal of \$100,000. The annual amount for the award will be \$5,000 and presentation of the Award will begin when the endowment goal is reached.*

After the initial approval by Council an Award Committee was established by FHP, whose first task was to take responsibility for the fund raising effort. The committee consists of the following: B Bederson, (Chair), Stephen G Brush, Gloria B Lubkin,

Harry Lustig, Michael Riordan, and Roger Stuewer. Somewhat later, in anticipation that the Center for History of Physics of the American Institute of Physics would join in co-sponsoring the award, Spencer Weart, Director of the Center, was added to the committee.

The first action of the Award Committee was to enlist the help of a group of individuals of high visibility in identifying potential donors, and who might serve as donors themselves. This group, still in formation, has been designated as the Executive Committee of the Award Committee. Its members thus far consist of Samuel B. Ballen, D. Allan Bromley, Russell J. Donnelly, Hans Frauenfelder, Jerome Friedman, Lillian

Hoddeson, Gerald Holton, Daniel J. Kevles, Neal Lane, Philip Morrison, Hans J. Quieser, Robert Resnick, John S. Toll and Carl Tomizuka.

A first gift has already been received – a pledge for \$5,000 from a member of the Executive Committee. Our Award Committee is now working diligently, first to identify major donors and also to involve as many historians of physics and physicists themselves as possible in this important effort. Readers of this *Newsletter* are encouraged to contact any of the members of the Award Committee with suggestions for potential donors or for nominations to the Executive Committee.

## Editor's Note

### Perspective

Not unexpectedly, I have had several interesting responses to my publication of Guggenheim's rather sharp review of Glasstone's *Physical Chemistry*. Thomas Hickmott provided a copy of a second review published a couple of months after Guggenheim's [*Transactions of the Faraday Society* 38:214 (1942)]:

*Textbook of Physical Chemistry*. By

Samuel Glasstone. (Macmillan, 1940. Pp. 1289. 42s.) A postscript.

In the city referred to in a recent review (*Trans. Faraday Soc.*, 38, 120) there were many young and somewhat inexperienced immigrants, needing urgently a comprehensive guide book so that they might quickly learn their way about the city and come without undue delay into the contemplation of the numerous and important works of art found in its various districts. A well known art critic, resident in the city, one who was naturally jealous of the fair fame of its art, took exception to the illustrated guide book, which, despite the herculean nature of the task attempted by its author, did somehow manage rather creditably to provide not only a well arranged guide, but also an informative, and in many respects very clear, panorama of the city. This was found useful not only by many of the immigrants, but also by some of those guides whose duty it was to instruct the immigrants in the laws and customs of the city. One of these was even stimulated by a not entirely unfavourable remark made by the art critic, to obtain a copy of the guide book; and basing his action on long acquaintance with, and a very considerable respect for, both the critic and the author, rushed immediately to buy a copy. He found, and still finds, that his apparently precipitate action was well judged, and others whom he has advised to do likewise have also shown appreciation of the advice. He appends his initials.

N. K. A.

Howard Huff commented also that he bought Glasstone's book in the late 50's and looked at it "as a compendium of *many* topics for a quick read to touch upon the major topics in the field. His discussion of Potential Energy Curves on p. 573-575 and the 2nd law on p.215-220, for example, were OK! I enjoyed perusing the book. But I don't think it was meant to be a perspective of "how we arrived where we are."

We should be fair to Glasstone, whose book certainly has its uses, but of course my purpose was – and is – to emphasize the importance of perspective in teaching, in learning, in research, and even moreso in communicating science to the public. History of physics can help provide that perspective. "An acquaintance with history, real history with its loose ends and blind alleys, brings perspective to any discipline. The history of physics is no exception." I want to place particular emphasis on the value of the perspective of history when communicating science to the public. There, for a healthy relationship with society, I believe we must both communicate the accomplishments of science and give some insight into the nature of science: how science goes about its business, and that scientific understanding of the physical world brings reliable knowledge of the world. The perspective of physics history is essential in this effort.

## HISTORY of Physics NEWSLETTER

The *History of Physics Newsletter* is published twice each year by the Forum on History of Physics of the American Physical Society. It is distributed free to all members of the Forum. The Forum also has reciprocal arrangements with History of Science Society, Philosophy of Science Association, and HOPOS. Others who wish to receive it should make a donation to the Forum of \$5 per year (+\$3 additional for air mail). Each 3-year volume consists of six issues.

### Editor:

William E. Evenson  
Department of Physics  
Brigham Young University  
Provo, UT 84602  
e-mail: evenson@byu.edu  
tel: (801) 378-6078

# Reports

## History of Physics Notes

The sixth annual Seven Pines Symposium will be held in May, 2002, on the subject, "Symmetry and Symmetry Breaking in Physics." A report will appear in the next issue of this *Newsletter*.

"Striving for Standards," a Smithsonian exhibit celebrating the centennial of the National Bureau of Standards/National Institute of Standards and Technology, was at the National Museum of American History for several months beginning in July, 2001. This exhibit, in a hallway exhibit case, included several instruments and photographs from NBS/NIST of historic importance. These included instruments related to three generations of length standards, the metric conversion program, and color standards.

Howard Huff (International SEMATECH, howard.huff@sematech.org) shared his article on "John Bardeen and Transistor Physics," detailing who did what and why from the critical days of November 17 to December 16, 1947 for Bardeen and Brattain and from December 24, 1947 to January 23, 1948 for Shockley. It is to be found in *CP550, Characterization and Metrology for ULSI Technology: 2000 International Conference*, D. G. Seiler et al., eds., published by AIP.

Huff also remarked on the report of the talk by A. J. Freeman that appeared in the last *Newsletter*, noting Freeman's comment "that all materials properties originate in electronic structure. . ." Huff's article in the 1996 *Encyclopedia of Applied Physics* (VCH Publishers, Inc.) compared the electrical, thermal, optical, and mechanical properties of diamond, silicon, germanium, and  $\alpha$ -tin. He points out that "These properties may generally be related to the metallicity parameter described by Walter Harrison: metallicity parameter =  $(s-p \text{ atomic spacing})/(\text{covalent band gap})$ . Since  $(s-p)$  is rather constant for

the above elements, as the band gap decreases from diamond to  $\alpha$ -tin, the metallicity parameter increases."

Dr. J.M.H. (Anneke) Levelt Sengers of N.I.S.T. presented a talk entitled "Korteweg's Theory of Plaits on Surfaces (1891)" that was given at the 86th Statistical Mechanics Conference in celebration of Michael E. Fisher's 70th birthday at Rutgers University on 16 December 2001. Korteweg's early work constituted a Landau-type theory of the thermodynamics of systems near criticality.

A Symposium on the Life and Times of Enrico Fermi was held at UCLA November 30-December 1, 2001. This event was held to commemorate Enrico Fermi in the 100th year from his birth. The symposium reviewed Fermi's scientific contributions and teaching legacy, and at the same time looked at how Fermi and other scientists responded to the extraordinary political and social upheaval in which they found themselves. Fermi's remarkable legacy of "doing physics" and teaching physics continues to the present day, along with his many important contributions to modern physics in the theory of the weak interaction, Fermi-Dirac statistics, nuclear and high-energy physics, and many other areas. He played a key role in the development of atomic energy and the atomic bomb, and thus in defining issues of warfare, international relations, armament policy, and nuclear energy that are still with us. But Fermi's life and work were also embedded in social, cultural, and political developments that shaped the world we have inherited.

The symposium included an introduction by Claudio Pellegrini and Vince Pecora (UCLA), Michelangelo De Maria (U of Rome) on "The New Physics in Italy During Fascism: Political, Institutional and Scientific Aspects," Giovanni Battimelli (U of Rome), "Scientific Successes and Failed Ambitions:

Fermi's Group in the Thirties," Judy Goodstein (Cal Tech), "Italian Culture Under Fascism," Paolo Fabbri (U of Bologna), "Croce, Fermi, and Gentile: Italian Intellectuals in the 1920's and 1930's," Nina Byers (UCLA), "Fermi and Szilard," Barton Bernstein (Stanford), "Fermi and Nuclear Weapons," Richard L. Garwin (Council on Foreign Relations), "The Rise and Fall of Nuclear Weaponry, 1945-2001," and Arthur Rosenfeld (Commissioner, California Energy Commission), "From Over-Reliance on Nuclear Power to a Balance of Supply and Demand."

There was also a "Fermi's Students Roundtable" that included Geoffrey Chew (UC Berkeley), Richard Garwin, Marvin L. Goldberger (UCSD), Jay Orear (Cornell), Arthur Rosenfeld, Gaurang Yodh (UC Irvine), Nina Byers, Steven Moszkowski, and W. Slater (UCLA). A "Panel on Current Issues on Nuclear Weapons Policy" was moderated by Michael Intriligator (UCLA), with Richard L. Garwin, Jonathan Schell (The Nation Institute, New York), Bruce Blair (Director, Center for Defense Information, Washington D.C.), and R. Coyle (Center for Defense Information, Washington, DC). Roberto Peccei (Vice Chancellor for Research and Physics and Astronomy Department, UCLA) hosted an evening program at the Italian Institute of Culture.

The symposium was organized by Nina Byers, Massimo Ciavolella, Michael Intriligator, Vincent Pecora, Claudio Pellegrini, Norton Wise (UCLA), and Guido Fink (Italian Cultural Institute, Los Angeles), under the auspices of the Consul General of Italy. It was sponsored by UCLA Center for Modern and Contemporary Studies, UCLA Center for History of Physics, UCLA Department of Physics and Astronomy, UCLA Department of Italian, and the Italian Institute of Culture, Los Angeles.

# Forum News

## Forum Councillor

Gloria Lubkin, *Physics Today* (gbl2@aip.org), was re elected as Forum Councillor in the election held last November. Her

term of office is four years, until December 2005.

## Forum Program at March and April APS Meetings

At the upcoming APS March Meeting in Indianapolis, the Forum on History of Physics is cosponsoring two symposia. Session A6, "Tunneling, From Alpha



**Particle Decay to Biology,**” will be held on Monday, March 18, at 8 am. Chaired by *Hans Frauenfelder*, Los Alamos National Laboratory, the following talks will be presented: “Tunneling in Superconductors,” *Ivar Giaever* (Rensselaer Polytechnic Institute), “Tunneling in Biology,” *Jose Onuchic* (UCSD), “Tunneling - the Beginning,” *Eugen Merzbacher* (UNC Chapel Hill), and “Tunneling in Chemistry,” *Nancy Makri* (UIUC).

**“Synchrotron Radiation: From Stepchild to Star,”** Session Q14, is scheduled for Wednesday, March 20, at 2:30 pm. The speakers and topics will be “Milestones in Research Using VUV/Soft X-ray Synchrotron Radiation,” *Yves Petroff* (Advanced Light Source, LBNL), “Milestones in materials research using hard X-ray synchrotron radiation,” *Martin Blume* (APS and Brookhaven), “Milestones in Biological Research using Hard X-ray Synchrotron Radiation,” *Stephen Harrison* (Harvard), and “Faster than Moore’s Law: An Historical Review of Synchrotron Source Technology and Prospects for an X-ray Laser,” *David Moncton* (Argonne).

At the April APS Meeting in Albuquerque, the Forum is sponsoring a contributed session and two symposia, and cosponsoring a third symposium. The contributed session will be held on Monday, April 22, 10:45 am, chaired by Ben Bederson (New York University).

An invited session on **“From EPR to Entanglement”** will be held on Saturday, April 20, 10:45 am, chaired by Elizabeth Paris (Harvard). Speakers and topics will be *Arthur Fine* (U. of Washington), “EPR: Some History and Clarification,” *Martin Jones* (Oberlin), “Interpretations of Entanglement,” *Alain Aspect* (University of Paris South), “Experimental tests of Bell’s inequalities: the Orsay’s 1982 experiments,” *Anton Zeilinger* (University of Vienna), “Quantum Entanglement and Information,” and *Guido Bacciagaluppi* (UC Berkeley), commentary.

A second symposium, **“History of Los Alamos,”** will be held on Sunday, April 21, 2:30 pm, and chaired by Damon Giovanielli (LANL). Scheduled speakers are *John C. Browne* (LANL), “Post-Cold War Science and Technology at Los Alamos,” *Val L. Fitch* (Princeton), “The Role of the Special Engineering Detachment at Los Alamos during WWII,” *Richard Garwin* (IBM), “Los

Alamos From the Inside Out,” *Francis Harlow* (LANL), “Building Bridges from Micro-Scale to Macro-Scale,” and *Herb York* (UCSD), title to be determined.

Finally, FHP will cosponsor a **“Eugene Wigner Centennial”** in cooperation with the Division of Nuclear Physics, the Division of Particles and Fields, and the Forum on International Physics. This symposium will be held on Sunday, April 21, at 10:45 am and chaired by Joseph Ginocchio (LANL). Talks scheduled for this session are “Reforms of the Research and Higher Education Base in Hungary: Knowledge as a Resource in a Competitive World” by *József Pálkás* (Ministry of Education, Hungary), “Wigner in Hungary” by *George Marx* (Eotvos University, Budapest), “Eugene Wigner, The First Nuclear Reactor Engineer” by *Alvin M. Weinberg* (Oak Ridge), “Wigner’s Changing View of the Elementary Quantum Phenomenon” by *John Archibald Wheeler* (Princeton and U of Texas at Austin), and “Eugene Wigner and symmetries in physics” by *Marcos Moshinsky* (UNAM, Mexico).

### **“Interpreting Copenhagen” at April APS Meeting**

At the upcoming April APS meeting in Albuquerque, there will be an invited paper session on the subject “Interpreting Copenhagen.” It will take place on Saturday, April 20 at 2:30 pm. It deals with the physics and the history of the 1941 meeting between Niels Bohr and Werner Heisenberg, as portrayed in the highly acclaimed, but controversial play *Copenhagen* by Michael Frayn. The session will be chaired by Andrew M. Sessler (Lawrence Berkeley Laboratory) and will feature talks by *Roger H. Stuewer* (U of Minnesota), “An Act of Scientific Creativity: Meitner, Frisch and Nuclear Fission,” *David C. Cassidy* (Hofstra), “New Light on *Copenhagen* and the German Nuclear Project,” *David Pines* (LANL) and *Suzy Pines* (Tesuque, NM), “Niels and Margrethe Bohr – Some Favorite Memories: A Dialogue,” and *Harry Lustig* (CCNY), “Science as Theater; Theater as Science.”

### **APS Fellow Nominations**

Fellow nominations are due by March 31, and the Forum Fellowship Committee

must review those who are proposed, make a recommendation, and complete the nomination file before that time. Michael Riordan is chair of the Forum’s Fellowship Committee for 2001-2002. Any Forum members who wish to nominate a candidate for Fellow in APS are invited to send him their suggestion(s), along with a c.v. and letter describing the candidate’s achievements in history of physics. Send suggestions to Dr. Michael Riordan, MS 80, SLAC Director’s Office, Stanford, CA 94309; michael@slac.stanford.edu.

### **Forum Business and Executive Committee Meetings**

The annual Forum Business Meeting will be held on Monday, April 22, at 12:15 pm at the April APS meeting in Albuquerque. It will immediately follow the Forum-sponsored contributed session. All Forum members and other interested persons are invited to attend. The Forum Executive Committee will also meet at the April APS meeting on Sunday, April 21. This meeting is for members of the Executive Committee and guests.

### **Meeting of Representatives of Science Society History Groups**

Forum Chair Ben Bederson and Stephen Brush represented FHP at a meeting of representatives of ten history groups associated with physical science societies on November 16, 2001. The meeting was organized by Spencer Weart and his colleagues and held at the Center for History of Physics. The societies represented were: American Association of Physicists in Medicine, American Association of Physics Teachers, American Astronomical Society, American Crystallographic Association, American Geophysical Union, American Meteorological Society, American Physical Society, Acoustical Society of America, American Vacuum Society, and American Institute of Physics. Nearly all the groups have online activities that can be accessed through the society home pages.

Numerous ideas for strengthening the work of FHP came out of the discussions and will be considered by the FHP Executive Committee.

## Request for Information about Memorial Sessions for Prominent Physicists

When readers of this *Newsletter* hear of memorial sessions being planned to honor prominent physicists, please notify Bill

Evenson, Editor of the *History of Physics Newsletter*, and Spencer Weart, Director of the AIP Center for History of Physics, at the addresses below. We want to be able to notify others in the history of physics community and gather records of the physicist's life as appropriate.

Bill Evenson: Department of Physics, Brigham Young University, Provo, UT 84602-4645; evenson@byu.edu.

Spencer Weart: Center for History of Physics, American Institute of Physics, One Physics Ellipse, College Park, MD 20740; sweart@aip.org.

# APS and AIP News

## Processing Grants for Physics, Astronomy, and Geophysics Collections

The Center for History of Physics, American Institute of Physics, announces its 2002 Grants to Archives program. The deadline for applications is July 1. The grants are intended to make accessible records, papers, and other primary sources which document the history of modern physics and allied fields (such as astronomy, geophysics, and optics). Grants may be up to \$10,000 each and can be used to cover direct expenses connected with preserving, inventorying, arranging, describing, or cataloging appropriate collections. Expenses may include staff salaries/benefits and archival storage materials but not overhead or equipment.

The AIP History Center's mission is to help preserve and make known the history of modern physics and allied fields, and the grant program is intended to help support significant work to make original sources accessible to researchers. Preference will

accordingly be given to medium size or larger projects for which the grant will be matched by the parent organization or other sources. For grant guidelines check the Center's Web site at [www.aip.org/history/grntgde.htm](http://www.aip.org/history/grntgde.htm) or call 301 209-3165. Sample proposals are available on request, and a list of previous recipients is on the Web site. Deadline for receipt of applications is July 1, 2002.

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

The AIP 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 \$2,500 each. They can be used only to reimburse direct expenses connected with the work. Preference will be given to those who need funds for travel and subsistence to use the resources of the Center's Niels Bohr Library (near Washington, DC), or to microfilm papers or

to tape record oral history interviews with a copy deposited in the Library. Applicants should name the persons they would interview or papers they would microfilm, or the collections at the Library they need to see; you can consult the online catalog at our website, [www.aip.org/history](http://www.aip.org/history), and please feel free to make inquiries about the Library's holdings.

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 adviser), or show a record of publication in the field. To apply, send a vitae, a letter of no more than two pages describing your research project, and a brief budget showing the expenses for which support is requested to: Spencer Weart, Center for History of Physics, American Institute of Physics, One Physics Ellipse, College Park, MD 20740; phone: 301 209-3174, fax: 301 209-0882 e mail: [sweart@aip.org](mailto:sweart@aip.org). Deadlines for receipt of applications are June 30 and December 31 of each year.

# Notes and Announcements

*Quarks Unbound: the new new physics*, a brochure surveying the aspirations and achievements of particle physics, was produced recently by the APS Division of Particles and Fields. This attractive brochure presents the main themes of the field of particle physics in the context of scientists' "curiosity about the world and the capacity of science to fascinate as we see our world anew, in ways we barely imagined. It evokes what Casimir called the science technology spiral through examples that show particle physics as both beneficiary and creator of new technologies that, when domesticated,

become available to society at large." Copies will be sent to DPF members, APS officers and Council members, officers of other APS units, and physics department chairs, as well as to people in government and the media. DPF is also trying to get a copy of this brochure to every high school teacher. A *Quarks Unbound* website ([www.aps.org/dpf/quarks\\_unbound.html](http://www.aps.org/dpf/quarks_unbound.html)) will contain a digital version and a rich library of supporting information.

DPF invites FHP members to make use of this brochure and then to participate with them in helping to promote greater apprecia-

tion of science in society at large. The DPF Executive Committee is especially interested in working with FHP members and officers to consider historical education and outreach materials that might further this cause.

**Stephen G. Brush, Distinguished University Professor at the University of Maryland, was awarded the Joseph Hazen Education Prize of the History of Science Society at the Society's annual meeting in November. The Prize is awarded each year "in recognition of outstanding contributions to the teaching of history of science,"**

including influential writing or preparation of pedagogical materials as well as classroom teaching. The citation for the award of the Prize to Professor Brush mentioned the recent publication of a historically-oriented textbook, *Physics, The Human Adventure: From Copernicus to Einstein and Beyond*, co-authored with Professor Gerald Holton of Harvard, and other projects to enable teachers to use the history of science in their courses. It notes that he also supported science education by publicly challenging efforts to force public schools to teach creationism or abandon the teaching of evolution. Brush has been on the faculty at University of Maryland College Park since 1968, with a joint appointment in the Department of History and the Institute for Physical Science and Technology. He has served as President of the History of Science Society, and also won the Society's Pfizer Award for "the best book on history of science published in 1976."

**Donald E. Osterbrock (Director Emeritus of the Lick Observatory) has been named 2002 LeRoy Doggett Lecturer** by the Historical Astronomy Division of the American Astronomical Society.

**Daniel J. Kevles (Yale) has been awarded the Sarton Medal**, the highest award of the History of Science Society.

**John Heilbron (Oxford) has been awarded the Pfizer Prize** by the History of Science Society for his book, *The Sun in the Church: Cathedrals as Solar Observatories* (Harvard University Press).

**Mary Henninger Voss (Princeton) received the Derek Price Award** from the History of Science Society for her *Isis* article, "Working machines and noble mechanics: Guidobaldo del Monte and the translation of knowledge."

A scholar funded through an NEH grant to the International Research and Exchanges Board to support study of Eastern Europe and the former Soviet Union has been honored by Russia's St. Petersburg State University. **Nathan Brooks, a New Mexico State University history professor**, received the university's first honorary doctorate in the history of science. Brooks spent two weeks in Russia last summer to attend an international conference at which he presented a paper on Dmitry Mendeleev (1834-1907), developer of the periodic table of elements. Mendeleev was a professor of chemistry at St. Petersburg State University.

**Loren Graham (MIT) will give the George Sarton Award Lecture** at the AAAS

meeting in Boston on 15 February 2002 on "Russian Basic Science: Changes since the collapse of the Soviet Union and the impact of international support."

**The Max Planck Institute for the History of Science in Berlin announces two postdoctoral fellowships** for up to two years, beginning 1 October 2002. Application deadline is 28 February 2002. Contact Max Planck Institute for the History of Science, Abt. III, Wilhelmstrasse 44, D-10117 Berlin, Germany.

**Smithsonian Institution Libraries 2003 Resident Scholar Programs in Special Collections: Dibner Library Resident Scholar Program and Baird Society Resident Scholar Program** are accepting applications until 1 March 2002. For information go to [www.sil.si.edu](http://www.sil.si.edu) or email [libmail@sil.si.edu](mailto:libmail@sil.si.edu).

**Annals of Science Prize** is offered each year to the author of an unpublished essay in the history of science or technology, which is not under consideration for publication elsewhere. The prize, supported by Taylor and Francis, is intended for those who have been awarded their doctorate within the past four years, and for doctoral students. Essays should be submitted to the Editor in a form suitable for publication in *Annals of Science* (style guide at [www.tandf.co.uk](http://www.tandf.co.uk)), and may be in English, French, or German. Essays should be between 6,000 and 9,500 words in length, including footnotes. The winning essay will be published in the journal, and its author will be awarded \$500. Papers should be submitted by 1 September 2002, and the winner will be notified by 31 December 2002. The Editor's decision is final.

**NASA Johnson Space Center Summer Faculty Fellowship Program:** The NASA Johnson Space Center history office is seeking qualified applicants in history to apply for a 10-week summer faculty fellowship offered through the NASA Faculty Fellowship Program. The successful applicant will work closely with the JSC history office to conduct research and write a finished monograph on a selected topic in the history of human spaceflight. Requirements for the fellowship include U.S. citizenship and employment as a faculty member (adjunct or full time) with an accredited U.S. college or university. Stipends are \$1,200 per week plus a travel allowance. In addition, a relocation allowance will be provided for those fellows who must relocate their residence. Application deadline is February 15. For further

information on the NFFP program and to submit an application, please visit the website [www.asee.org/NFFP/default.cfm](http://www.asee.org/NFFP/default.cfm) or contact Dr. Richard Bannerot at the University of Houston, email [rbb@uh.edu](mailto:rbb@uh.edu).

**NASA Johnson Space Center Oral History Project Summer Intern Program:** The Lyndon B. Johnson Space Center announces its 2002 Oral History Project Summer Intern Program. Established by Center Director in 1996, the Johnson Space Center (JSC) Oral History Project's primary goal is to research and interview individuals who enabled the exciting and challenging space programs of yesterday and today. This program provides temporary summer work only and is limited to undergraduate and graduate students. Application deadline is Feb. 28, 2002. For Additional History Program information contact: Bill Larsen, 281 483-4062 or Glen Swanson, 281 483-6924.

**Kennedy Space Center Summer Faculty Fellowship in History:** The NASA Kennedy Space Center seeks qualified history applicants for the NASA Faculty Fellowship Program. Research will be conducted on the history of Kennedy Space Center with a particular focus on 1976 to the present. Desired specialized capabilities include: PhD in History or related field; published record, preferably a book, in a peer reviewed historical periodical, evidencing serious historical research and writing; and, familiarity with the aerospace field and the State of Florida. For additional information, please contact: Dr. C. Shannon Roberts, Associate Director for External Relations and Business Development (XA), Kennedy Space Center, NASA, Kennedy Space Center, Florida 32899; 321-867-0867; [Shannon.Roberts1@ksc.nasa.gov](mailto:Shannon.Roberts1@ksc.nasa.gov).

**The November 2001 issue of *Concepts in Magnetic Resonance*** is a topical issue devoted to "The History of NMR Well Logging." Most of the research in the history is in the field of physics and many members may be interested in the history, even if not particularly interested in the petroleum industry.

**Authors wanted for new series: ABC CLIO Handbooks in Science and Society**, Mark A. Largent, Editor. Consulting Editors: Sally Gregory Kohlstedt and Paul Lawrence Farber. This new series by ABC CLIO Publishers is designed to help students and teachers integrate the history of science into the general history curriculum. It will provide readable and historically sophisticated narrative accounts of science and its



social influences, primary source materials, biographical entries, glossaries, and bibliographic essays. They are now soliciting proposals for individual volumes in the series. Four volumes are currently under contract: *Science and Race*, *Science and the Environment*, *Science and Gender*, *Science and Exploration*. Subjects sought include Science and Religion; Scientific Communication and Rhetoric; Science and Industry; Science and International Relations; Science, Imperialism, and Colonialism. Contact the series editor for details about proposal requirements and financial compensation: Mark Largent, University of Puget Sound, mlargent@ups.edu.

**Physics in Perspective.** Most journals are targeted to a small group of scholars. That is not the case for the journal *Physics in Perspective*, which has now been published since early 1999 for a wide audience of historians, philosophers, physicists, and the interested public. The editors believe that scholarly papers written by historians of physics, philosophers of physics, and physicists themselves can be an effective means for bringing the ideas, the substance, and the methods of physics to non-specialists, provided jargon is avoided and care is taken in the writing.

*Physics in Perspective* is published quarterly. Besides articles and book reviews, the journal has two regular features: first, "The Physical Tourist," identifies sites for the traveler whose interests include artifacts from the history of physics, laboratories with historical significance, birthplaces of well known physicists, and the like; second, "In Appreciation" is written about a physicist by a student, first-hand acquaintance, or colleague. *Physics in Perspective* is available to members of the American Physical Society at the special subscription rate of \$35 per year plus \$10 shipping and handling. Additional information can be found at the Birkhäuser Verlag website, [www.birkhauser.ch/journals/1600/1600\\_tit.htm](http://www.birkhauser.ch/journals/1600/1600_tit.htm).

First-hand accounts of participants in interesting and important research projects – experimental, theoretical, or computational – often become documents of historical import. The editors of *Physics in Perspective* welcome such first-hand accounts and hereby extend an invitation to physicists, and particularly to members of the Forum on History of Physics, to submit manuscripts for publication. (John S. Rigden, American

Institute of Physics, One Physics Ellipse, College Park, MD 20740, [jrs@aip.org](mailto:jrs@aip.org) and Roger H. Stuewer, Tate Laboratory of Physics, University of Minnesota, 116 Church Street SE, Minneapolis, MN 55455, [rstuewer@physics.spa.umn.edu](mailto:rstuewer@physics.spa.umn.edu)).

**National Endowment for the Humanities Programs:** *NEH OUTLOOK*, an email newsletter of the National Endowment for the Humanities ([www.neh.gov](http://www.neh.gov)) can be obtained by sending an email to [newsletter@neh.gov](mailto:newsletter@neh.gov); type the word "subscribe" in the body of the message. NEH offers summer programs for professors and school teachers and supports Chautauquas around the country in addition to summer stipends for research and other programs.

**NASA History: News and Notes** is published quarterly by the NASA History Division, Office of Policy and Plans, Code ZH, NASA Headquarters, Washington, DC 20546. You can receive *NASA History: News and Notes* via email. To subscribe, send a message to [domo@hq.nasa.gov](mailto:domo@hq.nasa.gov). Leave the subject line blank. In the text portion simply type "subscribe history" without the quotation marks. You will receive confirmation that your account has been added to the list for the newsletter and to receive other announcements that may interest you. The latest issue of this newsletter is also available on the web at [www.hq.nasa.gov/office/pao/History/nltrc.html](http://www.hq.nasa.gov/office/pao/History/nltrc.html).

**Aide for history of electromagnetism: Demystifying Electromagnetic Equations: A Complete Explanation of EM Unit Systems and Equation Transformations** (SPIE Press) by Douglas Cohen shows how and why electromagnetic equations change form when written in different units. Some of the units discussed, such as cgs esu units, cgs emu units, the 19th century "practical" units, and the unrationalized mks units, are nowadays only of interest to science historians, and it is not easy to find good, detailed descriptions of these unit systems elsewhere.

## Conferences

**Midwest Junto for the History of Science**, April 5-7, 2002, at Iowa State University. Contact Amy Bix, History Department, 633 Ross Hall, Iowa State University, Ames, IA 50011, tel. 515 294-0122, fax 515 294-6390, [abix@iastate.edu](mailto:abix@iastate.edu).

**International Symposium on H.C. Oersted and the Romantic Legacy**, May 10 and 11, 2002, at the History of Science Department, Harvard, cosponsored by

Harvard and MIT. Oersted was an important and fascinating figure in 19th-century science and philosophy. Yet, until recently his place in history, that of his circle, and the intellectual origins, have been studied by only a few scholars. The Symposium is open and free to interested scholars and students, and might help stimulate further scholarly work. The full program, involving about 30 scientists, historians and philosophers, is available from History of Science Department, Harvard University, Science Center, Cambridge, MA 02138.

Planned sessions and presenters include *Session 1: Kant*, with John Murdoch (Harvard), Paul Guyer (U of Pennsylvania), Michael Friedman (Indiana U), and Keld Nielsen (Danmarks Museum, Denmark). *Session 2: The Danish Context*, with Ole Knudsen (U of Aarhus), Karen Jelved (Copenhagen), Anja Skaar Jacobsen (U of Aarhus), Dan Ch. Christensen (Kvanløse Havremark, Denmark), Keld Nielsen (Danmarks Museum, Denmark), Andrew Wilson (Keene State College). *Session 3: Links to German Science/Philosophy*, with Gerald Holton (Harvard), Lorraine Daston (Max-Planck-Institut für Wissenschaftsgeschichte, Berlin), Robert Brain (Harvard), Diedrich von Engelhardt (Medizinische Universität zu Lübeck), Ernst Hamm (York U), Frederick Beiser (Syracuse U), and Robert Richards (U of Chicago). *Viewing Equipment at Historical Instrument Collection*: Sara Schechner (Harvard). *Session 4: Spirituality/Religion*, with Stuart Strickland (Munich), Frederick Gregory (U of Florida), Dan Ch. Christensen (Kvanløse Havremark, Denmark), Andrew D. Wilson (Keene State College), David Knight (U of Durham, UK). *Session 5: Links to France*, with Olivier Darrigol (Paris), Christine Blondel (Paris), Michael Dettelbach (Boston U). *Session 6: Links to England*, with Robert Brain (Harvard), Trevor Levere (U of Toronto), Gordon McOuat (Dibner Institute, MIT), David M. Knight (U of Durham, UK). *Session 7: Instruments and Experiments*, with Erwin Hiebert (Harvard), Olaf Breidbach (Friedrich-Schiller-Universität Jena), Kenneth L. Caneva (U of North Carolina), Ole Knudsen (U of Aarhus), Roberto de Andrade Martins (Campinas), Heinz-Otto Sibum (Max-Planck-Institut für Wissenschaftsgeschichte, Berlin), Maria Trumpler (Harvard).

Oersted Symposium Organizing Committee: Gerald Holton (Chair), Robert Brain, Allan

M. Brandt, Erwin N. Hiebert, Ole Knudsen, John E. Murdoch. Co-sponsorship: History of Science Department, Harvard University, and Program in Science, Technology and Society, Massachusetts Institute of Technology.

**Faces of anti-Newtonianism, 1672-1832**, will be held 24-25 May 2002 at Center for History and Philosophy of Science, Department of Philosophy, University of Paris-X (Nanterre), France. Organizers: Philippe Hamou (PhilippeHamou@aol.com) or Neil Ribe (ribe@ipgp.jussieu.fr).

**The Canadian Society for the History and Philosophy of Science (CSHPS)** is holding its annual conference at the University of Toronto, 26-28 May 2002. Information about Congress registration and accommodation can be found at [www.er.uqam.ca/nobel/r20430/schps\\_toronto\\_2002](http://www.er.uqam.ca/nobel/r20430/schps_toronto_2002). Canadian Society for History and Philosophy of Science: [www.ukings.ns.ca/cshps](http://www.ukings.ns.ca/cshps).

**HOPOS 2002**, the Fourth Congress of the International Working Group in History of Philosophy of Science, will be held in Montreal, June 21-23, 2002. The congress is being held in cooperation with Concordia University, McGill University, the Université de Montréal, and the Université du Québec à Montréal. Inquiries: Alan Richardson, Co-Chair, HOPOS 2002 Program Committee, Department of Philosophy, 1866 Main Mall - E370, University of British Columbia, Vancouver, BC V6T 1Z1, Canada.

**Karl Popper 2002 Centenary Congress**, 3-7 July 2002, Vienna. The work of the Congress will be arranged in seven sections: 1. Philosophy of the physical sciences, 2. Philosophy of the biological sciences, 3. Philosophy of the social sciences, 4. Moral & political philosophy, 5. Logic & scientific method, 6. Epistemology & metaphysics, 7. Life & times of Karl Popper. Invited lectures and symposia are planned for all

sections. Contributed papers relevant to Popper's work will be invited in all sections (though papers tackling problems appropriate to more than one section will be welcome). Potential contributors are asked to bear in mind that a period of 30 minutes will be allotted to each contributed paper, including discussion. The deadline for the submission of abstracts will be early in 2002. All abstracts will be refereed. Letters of acceptance will be mailed not later than 1 April 2002. The Congress languages are English and German. For more information, please contact Gerhard Budin at the University of Vienna, Department for Philosophy of Science, Sensengasse 8/10, A-1090 Vienna; fax: +43-1-4277-9476; preferably by e-mail: [karlpopper2002.econ@univie.ac.at](mailto:karlpopper2002.econ@univie.ac.at). The Congress website situated at [www.univie.ac.at/karlpopper2002](http://www.univie.ac.at/karlpopper2002) will be kept up to date.

On 7-10 November 2002 the **History of Science Society** will hold its annual meeting in Milwaukee, WI. Contact: History of Science Society Executive Office, University of Washington, Box 351330, Seattle WA 98195-1330, 206 543-9366; [depts.washington.edu/hsexec](mailto:depts.washington.edu/hsexec); [hsexec@u.washington.edu](mailto:hsexec@u.washington.edu).

**A Robert Hooke Tercentenary Conference** will be held at The Royal Society, London, 7-9 July, 2003. Keynote speakers are Michael Nauenberg (UC Santa Cruz) on *Hooke's Dynamics*, Jim Bennett (Museum of the History of Science, Oxford) on *Hooke's Scientific Instrumentation*, Mordechai Feingold (Virginia Polytechnic Institute) on *Hooke's Social Role and Relations with The Royal Society*, Jacques Heyman (University of Cambridge) on *Hooke's Structures and Buildings*.

Robert Hooke (1635-1703) was a true polymath. Author of the influential *Micrographia* (1665), he was one of the leading natural philosophers of his day. As an

inventor, he was second to none. He also played a major role in the rebuilding of London after the Great Fire, while his diaries give a revealing picture of his lifestyle and milieu in the Restoration metropolis.

This major international conference, organised under the auspices of Gresham College, London, will give attention to all aspects of Hooke's life and work. It will include an evening reception and a dinner. Optional guided tours are being arranged for the 9th July to visit some examples of Hooke's architectural work - St Mary Magdalene Church, Willen, Buckinghamshire and Ragley Hall, Alcester, Warwickshire.

**Call For Papers:** Most of the programme of papers is now complete, but we still have room for one or two more. Anyone who is actively engaged in research on Hooke is invited to offer a paper to the organisers, Professor Michael Cooper ([m.a.r.cooper@city.ac.uk](mailto:m.a.r.cooper@city.ac.uk)) and Professor Michael Hunter ([m.hunter@history.bbk.ac.uk](mailto:m.hunter@history.bbk.ac.uk)). Please enclose a proposed title and synopsis. Papers should be about twenty minutes in length.

**Registration:** Those who would like to attend and/or wish to be kept informed of plans as they develop should send their details to the administrator, Mrs Julie Jones ([julie.jones6@btinternet.com](mailto:julie.jones6@btinternet.com)) or telephone her (01235 762744). Information and registration details can also be obtained from the Gresham College website at [www.gresham.ac.uk/hooke](http://www.gresham.ac.uk/hooke).

## Web Resources

### AAAS History and Archives Website

The American Association for the Advancement of Science has launched a new AAAS History and Archives website at [archives.aaas.org](http://archives.aaas.org).

# Forum Elections

Please vote for Vice Chair and two Members at Large of the Executive Committee. If you have email registered with APS, you will have received a message inviting you to vote electronically, as authorized by the FHP Executive Committee. If not, you should have received a paper ballot by mail. If you want a paper ballot but have not yet

received one, please email your request, including your mailing address, to [kwford@bellatlantic.net](mailto:kwford@bellatlantic.net) or contact Kenneth W. Ford, 729 W. Westview Street, Philadelphia, PA 19119-3533, 215 844-8054. **The closing date of the election is March 18 – ballots must be received by that date to be valid.** Brief resumes and statements from the

candidates begin on this page. The candidates on the ballot are

### Vice Chair:

Nina Byers  
David L. Goodstein



## Executive Committee:

William A. Blanpied  
Per Dahl  
Mariet Hofstee  
Daniel Siegel

## Nominees for Vice Chair

**Nina Byers** lived through historic times in physics. She was an undergraduate at UC Berkeley 1946-1950 and a graduate student at U. of Chicago 1951-1956; as such she witnessed the birth of particle physics, the year of the oath in Berkeley, and Robert M. Hutchins' defense of academic freedom during the McCarthy times in Chicago. Both as an undergraduate and graduate student, she was privileged to learn physics from Luis Alvarez, Gian Carlo Wick, Enrico Fermi, and many other distinguished teachers. As postdoc and young faculty, she continued to learn physics from great physicists - R. E. Peierls in Birmingham, England and Oxford, Felix Bloch and C. N. Yang in Stanford, and Richard Feynman when she returned to UCLA. Since 1961 she has been a professor of physics at UCLA, with sabbatical and other leaves taken at CERN, The Institute for Advanced Studies in Princeton, and a joint appointment with Oxford University 1967-1972. Her research has mainly been in particle physics theory with a brief foray into superconductivity.

In 1995 she began serious studies of the history of 20<sup>th</sup> century physics. In 1997, a Center for History of Physics was established with co-director Claudio Pellegrini. His focus is on earlier centuries. The Center has sponsored many colloquia and symposia at UCLA. Byers historical research has mainly focused on two subjects. One is Leo Szilard and Enrico Fermi: the sharply contrasting lives, temperaments and philosophies of these two great physicists. This study led to intensive examination of the roles scientists played in the 1945 decision to use atomic bombs in the war against Japan. She has spoken and written about these topics in recent years. The other focus of Byers' historical research has been on the contributions of 20th century women to physics. Results are presented in a website - [www.physics.ucla.edu/~cwp](http://www.physics.ucla.edu/~cwp). This is a site with data on the scientific lives and major achievements of 86 women who have made original and important contributions to physics. Arising out of this study is a book *Out of the Shadows; contributions of 20th century women to physics*.

*Statement:* The Forum on History of Physics plays an important role in humanizing our science, and as such is a uniquely vital unit of APS. Its symposia and publications illuminate the process of intellectual development and creativity that is progress in physics, often showing this process in the context of the society in which it develops. The dissemination of this information attests to the human face of physics - of physicists as men and women found in many different times and places around the world. As a famous historian once said, "reality does not survive description." Therefore in constructing our collective memory, I believe we cannot overestimate the value of the venue the Forum provides for physicists, historians, and other members of the APS to discuss and explore the historical dimensions of physics research. I feel honored to be nominated to be an officer of the Forum and, if elected, would be very happy to do what I can to support and further its work.

**David L. Goodstein** is vice provost and professor of physics and applied physics at the California Institute of Technology, where he has been on the faculty for more than 30 years. In 1995 he was named the Frank J. Gilloon Distinguished Teaching and Service Professor. His book, *States of Matter*, published in 1975 by Prentice Hall and reissued by Dover Press in 1985, was hailed by *Physics Today* as the book that launched a new discipline, Condensed Matter Physics. His research, in experimental condensed matter physics, has dealt with phases and phase transitions in adsorbed, two-dimensional matter, ballistic phonons in solids, superfluidity in liquid helium, and critical point phenomena. This work has led to nearly 200 scientific publications. He is currently working on a future flight experiment that will examine the dynamics of the superfluid phase transition in the absence of gravity.

Goodstein has served on numerous scientific and academic panels, including the National Advisory Committee to the Mathematical and Physical Sciences Directorate of the National Science Foundation. He is a founding member of the Board of Directors of the California Council on Science and Technology. He was the host and project director of *The Mechanical Universe*, a 52-part college physics telecourse based on his popular lectures at Caltech. The project, which has been adapted for high school use and translated into many other languages,

has been broadcast on hundreds of public broadcasting stations and has garnered more than a dozen prestigious awards, including the 1987 Japan Prize for television. Goodstein has been awarded the 1999 Oersted Medal of the American Association of Physics Teachers, and the 2000 John P. McGovern Medal of the Sigma Xi Society.

In recent times, Goodstein has become interested in some of the larger issues that affect science as a profession. In a series of articles, colloquia and speeches, he has stressed and analyzed the profound changes in science that became inevitable in the last few decades when its long period of exponential expansion came to an end. He has also turned his attention to issues related to conduct and misconduct in science. Prompted by the need to compose a set of regulations governing possible misconduct at Caltech, he has developed an academic sub-specialty in this area, writing and speaking about it in a variety of forums. Together with his colleague, Professor of Philosophy James Woodward, he has developed a course, Research Ethics, which has been taught each year at Caltech since the early 1990's.

Born in Brooklyn, NY, Goodstein attended Brooklyn College and received his Ph.D. in physics from the University of Washington. He lives in Pasadena with his wife, Dr. Judith R. Goodstein, who is a faculty associate in history at Caltech, where she serves as archivist and registrar. The Goodsteins have two grown children, two grandchildren, and have recently coauthored a best-selling book, *Feynman's Lost Lecture*.

*Statement:* I come to the history of science not as a contributor, but rather as a user. That is to say, I make or have made extensive use of the history of science in my teaching of physics at Caltech, in the educational television series *The Mechanical Universe*, in a technical book (*States of Matter*) and a popular one (*Feynman's Lost Lecture*, written with my wife, who is a real historian of science), and in many articles I have written. I think promoting this kind of activity is an important function of the Forum, and I would welcome the opportunity to help do so.

## Nominees for Members at Large of the Executive Committee

**William A. Blanpied** received his PhD in experimental nuclear physics from

Princeton University in 1959. He is currently nearing the end of a three-year appointment as Director of NSF's Tokyo Regional Office. He joined NSF in 1976 as Program Manager for Ethics and Human Values in Science and Technology, and was subsequently Head of the Office of Special Projects in the Office of the Director before joining the Division of International Programs in 1983. Prior to his service with NSF, he 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 co-founded (with Gerald Holton) and served as first editor of a newsletter which subsequently evolved into the quarterly journal, *Science, Technology and Human Values*. He left Harvard in 1974 to become Head of the Division of Public Sector Programs at the American Association for the Advancement of Science (AAAS), where he was among those responsible for instituting the annual AAAS budget analysis and the series of annual meetings which evolved into the AAAS Science and Technology Policy Colloquia.

Blanpied first became interested in the history of physics during his undergraduate years at Yale, and began to pursue it seriously when he joined Gerald Holton at Harvard in the early 1970s. Since that time he has written extensively on the development of science policy in the post-World War II period – primarily in the United States, but also in Asia. He has also presented invited lectures on the evolution of science policy in several countries, including India, Hungary, Japan, Mexico and the People's Republic of China.

During the early 1990s, Blanpied served concurrently as Chair of the APS's ad-hoc Task Force on the Crisis of Physics in the Former Soviet Union, and its Forum on International Physics. From 1996 to 1998, he was a member of the FHP Executive Committee and editor of the *FHP Newsletter*. He took a leave of absence from NSF from 1987 to 1989 as Scholar in Residence at the Graduate School of International Relations at the University of California, San Diego, and was an Adjunct Professor at George Mason University's International Institute from 1991 to 1996. He has been elected a Fellow of both the American Physical Society and the American Association for the Advancement of Science.

*Statement:* If elected to membership on the Executive Committee of the APS Forum

on History of Physics, I would attempt to help sustain and expand the efforts of former and current APS/FHP officers in emphasizing (through special sessions at national and regional APS meetings, for example) the importance of history as a means for both researchers and students at all levels (including or, perhaps, more particularly those who do not plan to pursue physics as a career) to understand where we have been and where we think we may be going. Such an emphasis must focus even more strongly on the interactions of physics and society. After several centuries of inquiry, we understand the physical universe in detail that would not even have been imagined by Newton and "those giants" on whose shoulders he claimed to have stood. But do we really understand (or appreciate) the complex interactions between science and society better than Newton, assuming, of course, that he ever thought about that matter? The continuing importance of physicists in government, even at a time when decreasing numbers of students elect to devote their careers to our discipline, is certainly worth exploring. It is surely significant, for example, that with two or possibly three exceptions, all presidential science advisors have been trained as physicists. Those within the APS who enjoy pursuing history and understand its value need to use the tools at our disposal to inquire more deeply into the relatively recent history of the past half century during which physics has been in the vanguard of the emergence of American science to undisputed world leadership. We also need to pay more attention to the roles of physics communities outside the United States and Europe in the history and probable future of physics. If the early years of the 21st Century are truly the era of globalization, then physics, as perhaps the most international of the sciences, will surely help lead the way. So will our Asian colleagues. We should listen to what they have to say.

**Per Dahl** received his Ph.D. in nuclear physics at Wisconsin in 1960 (under R. G. Herb). His career was spent, primarily, at Brookhaven and Lawrence Berkeley National Laboratories, in high energy physics and the history of modern physics – in the latter connection involved in numerous archival investigations in the U.S., Norway, England, and on the Continent. He was elected Fellow of the American Physical Society "for his pioneering research in the history of superconductivity and other areas of the

history of physics, and his contributions to the design and development of superconducting accelerator magnets." Retired at LBNL, he is currently a visiting scholar at LBNL and the Office for History of Science and Technology at UC Berkeley, a Docent at the Lawrence Hall of Science, and continuing his historical researches in the U.S. and abroad. His books include: *Ludvig Colding and the Conservation of Energy Principle: Experimental and Philosophical Contributions* (1972); *Superconductivity: Its Historical Roots and development from Mercury to the Ceramic Oxides* (1992); *Flash of the Cathode Rays: A History of JJ Thomson's Electron* (1997); *Heavy Water and the War-time Race for Nuclear Energy* (1999). The latter two volumes appeared on the Outstanding Academic Books Lists put out by *Choice: Current Reviews for Academic Libraries*.

*Statement:* As a member of the Executive Committee of the APS Forum for the History of Physics, I would continue to expand communication between the physics and history of physics communities, students in both areas, and the public in general. In particular, being associated with the Office of History of Science and Technology and the active community in Berkeley, and at this stage free to devote my full time to historical matters, I am in an excellent position to interact with students and faculty alike, and with physicists and historians of science in meetings, workshops, and archival institutions in this country and abroad. I am an active participant in activities of the APS and the History of Science Society, involved in various speaking circuits, and in regular contact with members of the history of science community.

**Mariet Hofstee** received her Masters (in 1986) and PhD (1992, nuclear physics) from the University of Groningen in the Netherlands. Through a serendipitous visit to the island Hven, where Tycho Brahe had pursued his astronomical observations, she became interested in the history of astronomy and physics. During her undergraduate and graduate career she gave guest lectures and wrote articles for the Dutch youth astronomy club on historical topics and visited historical sites throughout Europe. After receiving her PhD, she moved to the USA to pursue a professional career in nuclear astrophysics. Currently she is an assistant professor at the Colorado School of Mines, where she teaches courses in Modern Physics, Astronomy, Astrophysics

and the History of Physics.

*Statement:* I believe that knowledge and appreciation for the history of physics can help all students of physics better to understand where we are coming from, and where we are going. Often my students, who are predominantly nonmajors, show a better retention of Modern Physics if it has been placed in its historical context. Having been educated in Europe, where many universities are older than the USA, this historical perspective is a natural part of my perception of physics. Although I have not had the opportunity to contribute to professional publications in the field of the history of physics, I do feel that I can make a valuable contribution to this forum. As an officer I would like to work towards interesting a broader and younger audience in the history of physics. I believe this can be achieved by working together with groups such as the AAPT (American Association of Physics Teachers) and the SPS (Society of Physics Students). The world wide web provides an excellent way to communicate with such an audience. As the webmaster of the CSM physics department, as well as by using this technology in the classroom, I have gained experience which will help me use this modern tool for spreading information about the history of physics. Finally, I see an increased role for FHP in education. While high school students are not likely to do a physics project for fun, they might do a history of physics project and thus get exposed to physics and physics role models.

**Daniel Siegel** received his PhD in physics from the University of California-Berkeley in 1968, where his research was in experimental high energy physics, in the Alvarez Group (Lawrence Berkeley Labora-

tory). He then retreated as an historian of science with Martin Klein at Yale, receiving an M. Phil. in 1970. Since then, he has been at the University of Wisconsin-Madison, in the Department of the History of Science, where he is now Professor Emeritus. His research in the history of physics has centered on the 19th and 20th centuries, resulting in publications, for example, dealing with Joule and the energy law, Kirchhoff and the radiation law, Einstein and the concept of mass, and, especially, Maxwell and electromagnetic theory. His book on *Innovation in Maxwell's Electromagnetic Theory: Molecular Vortices, Displacement Current, and Light* (Cambridge University Press, 1991) addresses in depth the question of the role of mechanical models in Maxwell's thought. His article on "Balfour Stewart and Gustav Robert Kirchhoff: Two Independent Approaches to 'Kirchhoff's Radiation Law'" was awarded the Henry Schuman Prize of the History of Science Society; he subsequently served on and chaired the Schuman Prize Committee. His historiographical approach, which emphasizes attention to the details of scientific discourse rather than superficial breadth, is set forth in "Text and Context in Maxwell's Electromagnetic Theory," in *No Truth Except in the Details: Essays in Honor of Martin J. Klein*, ed. A. J. Kox and D. Siegel (Kluwer, 1995). His current work is on an edition – with a new translation, as well as introduction, explanatory notes, and post-script – of Einstein's *Relativity: The Special and the General Theory*. In his teaching, in addition to teaching a broad range of history of science and history of physics courses, he was a founding member and subsequently chair of the revived Integrated Liberal Studies program at the

University of Wisconsin, in which the history of science plays a central role in making science accessible to nonscientists. He is a Fellow of the American Physical Society.

*Statement:* In addition to the ongoing and very valuable activities of the Forum on History of Physics and the Center for History of Physics in bringing the history of physics to physicists and to the public, I would like to see us work toward greater involvement of the history of physics in the teaching of physics. Physics education is in difficulty – we are being successful neither in attracting a sufficient number of majors nor in inspiring those who take the courses for nonmajors. Science popularizers have discovered the power of narrative in making science accessible and palatable to a broad audience, employing both historical and personal narratives. Physics education also could benefit greatly from the incorporation of more historical narrative into physics teaching. (In doing this, one of course wants to get beyond the use of historical anecdotes to spice up lectures, instead making use of serious history of physics to illuminate the scientific process and provide avenues toward the understanding of physics concepts.) At recent conferences of the International History, Philosophy, and Science Teaching Group, these matters have been discussed, by Gerald Holton in connection with Project Physics, and by myself in connection with Integrated Liberal Studies. The time is now ripe for the Forum on History of Physics to participate more fully in this enterprise, and I will work toward that end as a member of the Executive Committee.

## Book Review

**John V. Pickstone, *Ways of Knowing: A new history of science, technology, and medicine***, University of Chicago Press, 2001. xii+272 pp. ISBN: 0 226 66794 4 \$55 (cloth), ISBN: 0 226 66795 2 \$20 (paper).

*Reviewed by Duane E. Jeffery, Brigham Young University*

John Pickstone, a well-established British historian of science and medicine, invites us on an exploration of some major problems in current society. The "Ways of

Knowing" of his title do not, as such words often suggest, deal with the psychological/philosophical 'ways of knowing' (empiricism, intuition, rationalism, etc.) but rather with the patterns of history formed primarily by the application of rationalism and science.

He senses, first of all, a complex modern world where commercialization and corporate interests threaten the health of both science and society, and where public distrust of science has grown very signifi-

cantly from a half-century ago. He suggests some mid-course corrections.

Pickstone's approach is to identify three 'ways of knowing' that for him characterize the growth of science/technology/medicine (STM). These are, briefly, 1) natural history: the recording or inventorying of our natural resources both animate and otherwise, 2) analysis, by which he means primarily the reductive methods we use to reveal how these resources are put together and



interact with one another, and 3) experimentalism, by which he includes both formally-designed experiments to test the accuracy of our previous analyses, and also the synthesis and manufacture of novel commodities. To these three he adds two further elements to outline his method: time (analyzing the past three centuries or so) and breadth (seeking perspective from social forces, politics, warfare, etc.), in addition to developments in the sciences *sensu strictu*.

And his intended audiences? First, “historians and other analysts of social and intellectual change.” Second, the movers and shakers of “expert knowledges and techniques” – scientists, doctors, etc. Third, the general reader.

My suspicion is that the first audience will quickly find much in Pickstone to inform their further thinking; Pickstone is indeed a master of remarkable breadth. But it is a commonplace in academic comparisons that workers in some disciplines, say physics and mathematics, make their major contributions when they are young and can creatively manipulate the relatively few (albeit complex) rules of their discipline. In contrast, the latest to mature are the historians, who have to assimilate masses of loosely-connected data in order to find synthetic patterns. One can rarely use computers or statistics to fish out genuine wisdom from history; that comes only from long stocking of cerebral memories.

And it takes such stocking to really appreciate the strength of Pickstone’s analyses. His peers will possess that; most others will not. For as Pickstone warns us even before his opening chapter, this is “a novel book” and he develops it as “a set of tales...a pack of narratives.” Those narratives form the critical data, of course, and they are paraded past the reader in such staggering array and necessary brevity that, unless one knows them in some detail, which is not given, one is simply at a loss to judge whether the synthesis Pickstone derives from them is really valid or justified.

Only occasionally does Pickstone depart from this practice, as with some nice anecdotes featuring Paul Ehrlich or Louis Pasteur. Perhaps fewer narratives, more fleshed out, would serve the second and third audiences better. In short, this is not a book

from which to learn the history of science; it is a book with which to consider the patterns of that history.

Having said all that, and having lauded the breadth of his coverage, I found myself puzzled at the complete exclusion of a scientific technology that I felt could be used to illustrate not only his concerns, but also some of his recommendations. I refer to radar, which surprisingly gets no recognition at all.

Pickstone sets his stage with discussion of his aims and method, then turns to the question of meaning in humans’ perceptions of their world and universe. “Hermeneutics,” to him, means not just extracting meaning from ancient texts, but from everything we encounter: the natural history of diseases (were they really divine punishments?), of natural laws and cosmology and possible divine intervention therein. But, he asserts, we no longer see such meaning in nature. He takes little time, however, to explore whether that loss has had any particular significance for society.

He launches immediately into “natural history:” the descriptions of our world. This encompasses anatomy; disease patterns; geography and the exploration of new peoples, plants and predators; collections of curiosities and mementoes; museums and displays. And, he posits, the present Worldwide Web may in many senses continue that practice.

Next comes “analysis” – the probing of the natural inventory. This reveals the personalities of the chemical elements, the syntheses of Darwin and Mendel, the work of the cosmologists and the microscopists, mathematical analyses in physics and engineering. Stratigraphy and mineralogy receive their due, as do fossils and even phrenology. All of these are seen as supplying understanding for the next phase of development in science/technology/medicine: experimentation.

In Pickstone’s hands “experimentation” encompasses not only the Baconian testing of understanding gleaned from the previous two methods, thus validating and refining our understanding—but the turning of all this knowledge to technology *per se*, to invention and the innumerable applications that make our civilization run. Political

matters come into focus: the influence of the French Revolution and its resultant nationalism in pursuing science, the influence of the two World Wars and the Cold War which followed. The rise of universities and industries as research institutions is critical and duly noted. And then Pickstone turns to his final chapter: Technoscience and Public Understandings.

Herein lies the wisdom gleaned from the foregoing analyses. Pickstone is rightly concerned with the increasing commercialization of science. Science has become a commodity, a system with which to build private and corporate wealth, collective and national power, rather than a tool to serve the people. The peoples’ resources have become the grist of accountants’ datasheets, and let the public buy them back if they can. So he calls (overly gently and in ways that will be missed by many readers) for extended governmental regulation to preserve public interests (e.g. ready access to DNA sequences), more open disclosure of conflicts of interest by researchers, independence of R&D funding from commercial or private enterprise, better international cooperation in the assessment of the value of competing technologies, more open disclosure of the data on which government makes its decisions (no surprise that a Britisher will see this as a top priority, given recent agricultural disasters). Further pleas are for a re-recognition and re-valuing of knowledge simply as knowledge rather than as commodity, and a broadening of what we call “science” to include the social sciences and all enterprises to which rational analysis can be applied.

And lastly, for my vote at least, comes a possibly surprising call to re-enthroned the value of studying natural history. For all our societal systems are incredibly complex, and it is in natural history that we best observe their effects: the impact on human health, the ecological costs of our technology, the sickening of the planet by the unintended consequences of systems that were too promising for us to consider their dark sides.

This is an excellent and valuable work, but it took me multiple readings to grasp much of that. Be prepared to do some definite mind-engagement; the return is worth it.