

NEWSletter

Vol. 38, No. 1, January 2009

of the History of Science Society



Roger Turner with poster at the 2008 HSS Meeting. (Photo courtesy Sage Ross)

I've discovered that the TV weather report was invented by discharged military meteorologists during the late 1940s, who combined the narrative form of the pre-flight briefing with comic art to produce a popular and broadly accessible form of public science.

LAUGHING AT THE WEATHER? THE SERIOUS WORLD OF WEATHER CARTOONS

Roger Turner, a Ph.D. candidate in History and Sociology of Science at the University of Pennsylvania, discusses his experiences as part of the inaugural poster session at the 2008 HSS Meeting.

My first thought on reading the call for papers was not noble. I'm on the job market, and a poster seemed a reliable route onto the program. After all, how many historians make posters? What began as a resume builder ended up as an exploration of popular print culture in America and its intersection with weather forecasting; from *Wonder Woman* and her lasso of truth (created by the inventor of the lie detector) to

cartooning meteorologists.

But first, the medium. I hadn't touched static visual media since a bitter experience in a high school language arts class. I love museums, though, so I took wall exhibits as my model. Posters are good for a visual argument, allowing audiences to linger over several images and to compare them. Standing next to a poster also lets you have a longer chat with an audience, but the poster's text and images must form a complete story in the absence of an external presenter. Unlike a verbal presentation, narrative is hard to control; hardly anybody starts reading at the top left.

Unfortunately, my dissertation project is long on narrative and short

on images. A history of aeronautical meteorology in the first half of the 20th century, my research tracks a group of Scandinavian and American meteorologists through their writings in operations manuals, research journals, memos, and textbooks. Out of all these, one drawing from a 1943 textbook stuck out. It shows the hand of reason pulling back a curtain marked "Weather Superstitions and Fallacies," to reveal a winding path posted with signs like "Bacon, Galileo, Torricelli, Boyle," and "Air Mass Analysis," and leading to a gleaming peak labeled "Weather Control." Sort of a cartoon history of meteorology.

Inspired by that cartoon, I looked more closely at materials from World War II.

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What's in a meeting?

As of this writing, 329 attendees of the 2008 HSS/PSA conferences had responded to our meeting survey, a 33% response rate and a 14% increase over the last joint-meeting results. What have we learned? Most delegates said they were either satisfied or very satisfied with Pittsburgh and the Omni William Penn (the conference hotel), 71% and 85% respectively. This was our third meeting in Pittsburgh in the last 25 years and each time, the city has not disappointed. Since our goal is to meet in interesting cities, we asked which first-tier cities, such as Berlin, New York, and San Francisco, would be most appealing. Chicago came out on top, followed closely by San Francisco and then Seattle. The most popular city outside the U.S. was London, but fewer than a third of respondents preferred London, with costs the apparent limiting factor. In fact, over 40% of respondents recorded that they would not spend more than \$175 U.S. per night for any hotel venue, effectively ruling out most major cities. Indeed, when asked to identify obstacles for attending the meeting, 65% cited costs, followed by problems receiving funding, covering classes, and excessive travel time to Pittsburgh. Since second-tier cities typically offer less expensive hotel rates, but also are more difficult to reach, we asked respondents to indicate which of these they would most like to visit. Portland, Oregon was mentioned most often, followed by Nashville, Tennessee. Some of those surveyed suggested that we meet in cities with easy access to large cities, but most people do not find the idea of meeting in a suburb enticing. Some delegates stated that they rarely leave the conference hotel anyway, no matter where it is located, and so had no preference for where we meet. But since experience shows that an attractive venue can swell the meeting numbers – as we experienced in Vancouver – and since expense looms so large in determining whether or not people can attend, and since attendance affects whether or not we lose money on a meeting, we will continue to balance all of these factors while planning future HSS meetings. Organizing the HSS conferences gives me sympathy for the alchemists, since, like the chymists of old, I rely on a combination of science and art, and, sometimes, the dross does not turn into gold.

Thank you for your membership in the HSS.

– Jay Malone, Executive Director

History of Science Society

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Moving?

Please notify both the HSS Executive Office and the University of Chicago Press.

EDITORIAL POLICIES, ADVERTISING AND SUBMISSIONS

The *History of Science Society Newsletter* is published in January, April, July, and October, and sent to all individual members of the Society; those who reside outside of North America pay an additional \$5 annually to cover a portion of airmail charges. The *Newsletter* is available to nonmembers and institutions for \$25 a year.

The *Newsletter* is edited and desktop published in the Executive Office. The format and editorial policies are determined by the Executive Director in consultation with the Committee on Publications and the Society Editor. All advertising copy must be submitted in electronic form. Advertisements are accepted on a space-available basis only, and the Society reserves the right not to print a submission. The rates are as follows: Full page (7 x 9.25"), \$625; Horizontal or Vertical Half page (7 x 4.6"), \$375; Quarter page (3.5 x 4.6"), \$225. The deadline for insertion orders is six weeks prior to the month of publication and should be sent to the attention of the HSS Executive Office. The deadline for news, announcements, and job/fellowship/prize listings is firm: Six weeks prior to the month of publication. Long items (feature stories) should be submitted eight weeks prior to the month of publication. Please send all material to the attention of the managing editor, Michal Meyer: michal@hssonline.org.

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LETTERS

A Note on the History of Science in Portugal

I was surprised and disappointed to see no reference made to the late Professor A. Jorge Andrade de Gouveia or to the Lisbon Academy of Sciences in Dr. Ana Simões discussion of the "History of Science in Portugal: Where Do We Stand?"¹ A former Rector of the University of Coimbra and a prominent chemist, Professor Gouveia had a long interest in the history of science. He had a special interest in the history of chemistry in Portugal where there was an early acceptance of the new chemistry of Lavoisier.² He had earlier invited Professor R. Hooykaas to lecture at Coimbra and he invited me in 1983 where I gave a series of four lectures on the historiography of the history of science at Coimbra and the Academy of Sciences in Lisbon.³

The following year Professor Gouveia was instrumental in organizing the first of two symposia on the development of the sciences in Portugal with Professor Pinto Peixoto at the Academy of Science in Lisbon. The first of these dealt with the period to 1900 and met 15-19 April 1985. The proceedings of this meeting were published in two volumes.⁴

A second symposium was convened at the Academy four years later which was devoted to the 20th century. These papers were gathered together in three volumes published in 1992.⁵

The significance of the history of Portuguese science was recognized by the international community of scholars in a meeting sponsored by the University of Coimbra, the International Union of History and Philosophy of Science, and the International Council of Scientific Unions (18-22 April 1988). Professor Hooykaas returned to Coimbra for this meeting and the collected papers from 16 scholars were published as *Revolutions in Science: Their Meaning and Relevance* (Canton, Massachusetts: Science History Publications, 1988). Professor Gouveia's contribution was recognized in the dedication to him as a "distinguished chemist, long-time Rector of the University of Coimbra, and a driving force behind the rapid growth of the History of Science in

Portugal."⁶

To celebrate the 500th anniversary of the birth of Paracelsus, Professor Gouveia arranged for additional lectures given at the University of Coimbra and the Lisbon Academy of Sciences, which were published in 1996.⁷ Unfortunately, illness and advancing age brought a halt to these efforts. Nevertheless, I think that it is hard to judge the state of the history of science in Portugal without taking into account Professor Gouveia's devotion and significant contributions to the field.

– Allen G. Debus, *The University of Chicago*

6. William R. Shea, editor, *Revolutions in Science: Their Meaning and Relevance* (Canton, MA: Science History Publications, 1988), p. 9.

7. Allen G. Debus, *Paracelsus and the Chemical Factor in the Scientific Revolution*, introduction by A.J. Andrade Gouveia and J. Simões Redinha (Lisbon: Academia das Ciências, 1996). These papers were also published separately in the *Memórias da Academia das Ciências de Lisboa - Classe de Ciências*, vol. XXXVI.

1. Ana Simões, "History of Science in Portugal: Where Do We Stand Today," *History of Science Society Newsletter*, 37 (2008), 16-17.

2. See especially his introduction to Vicente Coelho de Seabra, *Elementos de Chimica: Reprodução Fac-similada da Edição Impressa em Coimbra, na Real Oficina da Universidade em 1788 (Parte I) e 1790 Parte II* (Coimbra: Universidade de Coimbra: Departamento de Química, 1985), pp. vii-xviii.

3. Allen G. Debus, *Science and History: A Chemist's Appraisal* (Coimbra: Edição do Serviço de Documentação e Publicações da Universidade da Coimbra Subsidiado pela Fundação Calouste Gulbenkian, 1984).

4. *História e Desenvolvimento da Ciência em Portugal: I Colóquio – até ao Século XX. Lisboa, 15 a 19 Abril de 1985* (2 vols., Lisboa: Academia das Ciências de Lisboa, 1986).

5. *História e Desenvolvimento da Ciência em Portugal no Séc. XX: Lisboa, 13 a 17 de Novembro de 1989* (3 vols., Lisbon: Publicações do II Centenário da Academia das Ciências de Lisboa, 1992).



Massachusetts Institute of Technology

It takes everyone at MIT to be MIT.

Postdoctoral Fellowship in Energy and Society

The MIT Energy Initiative (MITEI), established in September 2006, is an Institute-wide initiative designed to help transform the global energy system to meet the needs of the future and to help build a bridge to that future by improving today's energy systems. As part of this important effort, the School of Humanities, Arts, and Social Sciences will offer a two-year postdoctoral fellowship (with a possible third year) in Energy and Society, effective 1 July 2009. Candidates must have a Ph.D. in history, economics, political science, history and/or social studies of science and technology, or anthropology. This postdoctoral fellowship will help the candidate develop a project that concerns energy production, consumption, or regulation in a broad context. The successful candidate will develop an undergraduate class on energy and society, teach one class per year in the relevant department, and will work with departmental and Institute colleagues to conceive and sponsor a workshop and other activities on energy issues that would benefit the discipline and the social study of energy at MIT.

Applications should include a cover letter, research proposal (2 pages maximum), *curriculum vitae*, and three letters of recommendation to:

Dean Deborah Fitzgerald,
School of Humanities, Arts, and Social Sciences,
Massachusetts Institute of Technology, E51-255,
77 Massachusetts Avenue, Cambridge, MA 02139

Applications must be received by 15 January 2009.

MIT is an equal opportunity/affirmative action employer. Applications from women, minorities, veterans, older workers, and individuals with disabilities are strongly encouraged.

For more information about the MIT School of Humanities, Arts, and Social Sciences please go to: <http://web.mit.edu/shass/>

<http://web.mit.edu>

(continued from page 1)

Over the last five years, I've collected several hundred items of weather-related ephemera and books, mostly on eBay. Going through my shelves, I noticed the many cartoons in texts designed to train soldiers and pilots. Simple line art, often featuring recurring comic characters, these images reinforced key messages with a funny and memorable picture. Up until my poster research, I had ignored the silly cartoons that now proved the most obvious and interesting feature of these manuals.

Figuring out why the military went mad for cartoons whisked me into a far richer story than I expected, one that included Ken Alder's article on the lie detector, which mentioned that one of the machine's inventors also created Wonder Woman and her lasso of truth. "Of course!" I thought. Comic books were the favorite reading material for young men in the 1940s. A bit of time in the library revealed that comic books – and, even more so, comic strips in newspapers and advertising – had made comic art the most widely shared aspect of American print culture by the 1930s. A day or two later, while searching for secondary literature on comic art in weather training, I found references to meteorologists who drew cartoons for television weather reports. After a semester's worth of research, I've discovered that the TV weather report was invented by discharged military meteorologists during the late 1940s, who combined the narrative form of the pre-flight briefing with comic art to produce a popular and broadly accessible form of public science. But comic art's enduring valences

I noticed the many cartoons in texts designed to train soldiers and pilots. Simple line art, often featuring recurring comic characters, these images reinforced key messages with a funny and memorable picture.

as entertainment and low culture had an unexpected consequence on meteorology. Some TV stations required trained forecasters to take cartooning classes, while many others hired entertainers rather than meteorologists. Meteorologists have struggled to control TV weather ever since.

Constructing the poster was fun but challenging. I used PowerPoint, which can create posters up to 36" x 56". That gave space for 18 images and about 500 words of captions and header text, though somewhat bigger text would have been better; 24pt is

probably a minimum. I laid out the argument in three frames, echoing the form of a comic strip. I used solid black text over a very light, cloudy blue sky background, and arranged color as well as black and white images. Printing on glossy paper cost about \$100 at Kinkos, and took overnight. Have them print you a proof first, and scrutinize it!

Presenting the poster was a wonderful experience. For nearly four hours, people paused to look and ask questions. Viewers seemed more engaged than during paper presentations, and I could readily assess which aspects interested people.

Best of all, the poster improved my scholarship while sparking research that also engaged the wider public. My university's publicity group featured weather cartoons in a Web-slide show, which attracted a profile in the university newspaper and a freelance writer who produced a forthcoming piece for *Air & Space* magazine. Finally, creating this poster reinforced the power of images to communicate ideas, a power up till now I'd not considered in my dissertation.



A 1940 aviation insurance booklet used cartoon strategies like recurring characters, personified clouds, and humorous scenes to make safety messages more memorable for pilots.

2009 HSS MEETING

Some Guidelines to Presentations at the HSS

Those who are not familiar with the HSS annual meeting may wonder what kinds of papers should be presented. The answer is that this is not the place to try out an introduction to a topic from a seminar paper, nor is the meeting a workshop for you to explore preliminary ideas on a topic or to discuss the bibliography of a work in progress, nor is it the time to edit during your presentation or read a densely packed paper, inaccessible to others. Rather, attendees at the annual HSS meeting expect polished and practiced presentations that end on time. You may read a paper, though that is often much less effective than talking through your ideas in a logical and coherent fashion. You may use Powerpoint, but too many people rely on images rather than words, thus weakening the impact of their argument. You must be aware of *exactly* how long it takes to present your ideas (15-20 minutes). A 20-minute slot translates into no more than 12 pages (large type size, double spaced) and 12 slides, and we insist that session chairs observe the allotted amount of time (practicing your presentation beforehand is always recommended). HSS conferences feature multiple, competing sessions, in which all papers are arranged to begin and end at the same time. Not only will audience members leave if you are not effective, if you go over your allotted time, you disrupt the schedule and curtail the time for co-presenters in your session. The best presentations make a clear point that listeners can remember and discuss later. The HSS Web site will have answers to FAQs to offer further guidance. By observing these guidelines, you will not only enhance your professionalism, you will elevate the quality of the annual meeting.



The History of Science Society and the Philosophy of Science Association wish to thank The School of Arts and Sciences (University of Pittsburgh) for its sponsorship of the 2008 Meeting.

HSS 2009 Annual Meeting: Call for Papers

Phoenix, AZ, USA

19-22 November 2009

The History of Science Society will hold its 2009 Annual Meeting in Phoenix, Arizona in the Hyatt hotel in downtown Phoenix (the weekend before the U.S. Thanksgiving). Proposals for sessions, contributed papers, and posters must be submitted by 1 April 2009 to the History of Science Society's Executive Office. Papers that are part of a session (i.e. sessions with an organizer) are due no later than 8 April 2009. Poster proposals must describe the visual material that will make up the poster. The HSS encourages pre-circulated papers. Electronic submissions are strongly encouraged – please go to <http://www.hssonline.org> after 1 January 2009.

Submissions on all topics are requested. All proposals must be submitted on the HSS Web site (<http://www.hssonline.org>) or on the annual meeting proposal forms that are available from the HSS Executive Office. HSS members are asked to circulate this announcement to non-HSS colleagues who may be interested in presenting a paper or poster at the Annual Meeting. You do not need to be a member to participate, but all participants must register for the meeting. Applicants are encouraged to propose sessions that include diverse participants: a mix of men and women and/or a balance of professional ranks (e.g., mixing senior scholars with junior scholars and graduate students). Strong preference will be given to panels whose presenters have different institutional affiliations. Only one proposal per person may be submitted. In order to ensure broad involvement, an individual may only appear once on the program (see the guidelines for exceptions). Prior participation (*not* including poster sessions) at the 2007 or 2008 meetings will be taken into consideration.

Before sending a proposal to the HSS Office, we ask that everyone read the Committee on Meetings and Programs' "Guidelines for Selecting Papers, Posters, and Sessions" (on the HSS Web site). The 2009 program co-chairs are Cathryn Carson (University of California, Berkeley) and Jessica Riskin (Stanford University).

NEWS AND INQUIRIES

Applicants Wanted for Seminar on Disease in the Middle Ages

Scholars are invited to apply to participate in the seminar "Disease in the Middle Ages," to be held 5 July – 8 August 2009 in London. Gathering scholars interested in health, disease and disability in medieval Europe, the seminar's primary goal will be to explore how the new scientific technologies of identifying pathogens (particularly leprosy and plague) can inform traditional, humanistic methods of understanding cultural responses to disease and disability. A stipend of \$3800 is provided to all participants. Deadline: 2 March 2009. For further information: <http://medievalseminar2009.asu.edu>. Or contact by phone: (480) 965-4661, fax: (480) 965-1681, or e-mail MedievalSeminar2009@asu.edu.

Making Visible Embryos: Online Exhibition



Ella Lippmann (1882–1967) finishes a wax embryo. From 1918 until 1959 she was the head modeller or mouleuse at the German Hygiene Museum in Dresden.

This online exhibition is about how embryo images were produced and made to represent some of the most potent biomedical objects and subjects of our time. It contextualizes

such icons as Ernst Haeckel's allegedly forged Darwinist grids and Lennart Nilsson's 'drama of life before birth' on a 1965 cover of *Life* magazine. It also interprets over 120 now little-known drawings, engravings, woodcuts, paintings, wax models, X-rays and ultrasound scans from the fifteenth to the twenty-first century. It displays the work of making visible embryos. The exhibition is by Tatjana Buklijas and Nick Hopwood (University of Cambridge) with support from the Wellcome Trust. Visit <http://www.hps.cam.ac.uk/visibleembryos/> or contact: hps-embryo@lists.cam.ac.uk.

Call for Authors: ABC-CLIO, Science/Technology

ABC-CLIO is developing a comprehensive 21-volume Encyclopedia of World History. We are looking for interested scholars to prepare 200-1500 word articles with a global perspective in the area of the History of Science, Medicine, and Technology. Contributors must have a Ph.D., ABD or have recognized expertise in the field. For listing of open topics, visit: <http://www.abc-clio.com/academic/aboutus/callToAuthors.aspx>.

Arizona State University: Graduate Programs in Science and Society

ASU has particular strengths in the history and philosophy of developmental biology, conservation biology, evolutionary theory, social evolution and systematics as well as in general philosophy of science and decision theory. Research in these areas is conducted in close collaboration with campus research centers and institutes in the sciences, social sciences, humanities, and science policy. Contact: Jane Maienschein (maienschein@asu.edu) or Felicity Snyder (felicity.snyder@asu.edu) or Paul Hirt (paul.hirt@asu.edu). For further information: <http://history.clas.asu.edu/graduate/>; http://sols.asu.edu/grad/bio_soc.php; or <http://sols.asu.edu/cbs/education.php>.

Vienna International Summer University, "The Culture of Science and Its Philosophy," Course

The ninth annual Vienna International Summer University (VISU) will be held at the University of Vienna, Austria, on the topic, "The Culture of Science and Its Philosophy," 13-24 July 2009. This two-week course for international graduate students reflects the heritage of the Vienna Circle and is dedicated to major current issues in the natural and social sciences and their history and philosophy. Deadline for

applications is 30 January 2009 (later applications will be considered if space is still available). For further information, see <http://www.univie.ac.at/ivc/VISU>.

Call for Authors: History of Science and Technology Reference Book

M.E. Sharpe, a New York-based academic and reference publisher, and East River Books, a reference book producer, seek contributing scholars for a reference work on the history of science and technology from prehistoric times through the present-day. The project is aimed at the academic high school and undergraduate student. Articles will vary in length from 1,000-4,000 words and many will be accompanied by ancillary materials, including charts, sidebars, tables, and primary documents. Contributors will receive authorial credit, a modest cash honorarium and/or copy of the full encyclopedia set. For further information: <http://www.encyclopediawebsite.com>.

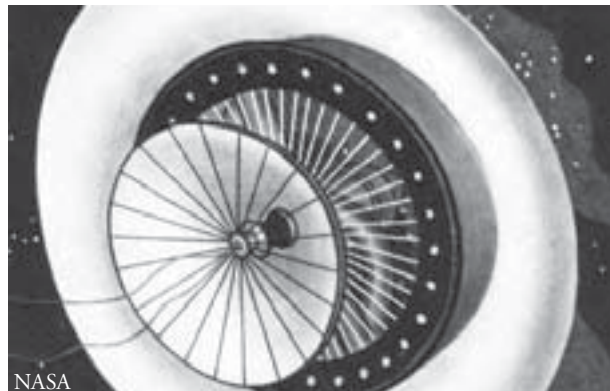
New Book Series: Science/Technology/Culture

This series seeks to publish engaging books that illuminate the role of science and technology in American life and culture. Although the series is open to a diverse range of approaches and encourages interdisciplinary scholarship, the editors are particularly interested in manuscripts and proposals that address issues such as: The ways in which history, culture, politics, and/or power shape scientific and technological processes and products; the production, consumption, and reappropriation of technological and scientific objects and ideas; the historical and cultural factors that influence technological and scientific "failure" and "success"; the impact of U. S.-produced science and technology at home and abroad; the unintended consequences of science and technology, within and beyond the United States. Further information: <http://www.umass.edu/umpress/series/scitech.htm>.

Editor Seeks Contributor for Historical Section in Chemical Risk/Safety Book

For over 40 years multi-lateral instruments have addressed the safety and dangers of chemicals on the world stage. Many international organizations, professional societies, and legal instruments are already in place to deal with chemicals management. A multi-authored book in preparation, *Global Collaborations in Managing Chemical and Environmental Risks* (Taylor and Francis) will review and analyze these efforts. A contributor is sought for the introductory section, which will set the historical context of chemical use, misuse, and control. This section will be about 25 printed pages. Send expressions of interest to the Editor-in-Chief, Philip Wexler, at wexlerp@mail.nih.gov. Chapter must be completed by May 1, 2009.

The HSS/NASA Fellowship in the History of Space Science



The History of Science Society Fellowship in the History of Space Science, supported by the National Aeronautics and Space Administration (NASA) History Division, funds a nine-month research project that is related to any aspect of the history of space science.

Eligibility

Applicants must possess a doctorate degree in history of science or in a closely related field, or be enrolled as a student in a doctoral degree-granting program and have completed all requirements for the Ph.D., except the dissertation, in history of science or a related field. Eligibility is not limited to U.S. citizens or residents. Deadline: Applications must be received by 3 March 2009.

Obligations of the Recipient

1. The recipient shall engage in space science research for nine months, normally August-May, but within the period from 1 July 2009 to 30 June 2010.
2. While receiving the stipend, the fellow shall devote his/her efforts largely to the research program.
3. The Fellow shall provide to the NASA History Office a copy of any publications that emerge from the research undertaken during the fellowship year.
4. The Fellow will be responsible for office space, equipment, and supplies.
5. The Fellow will be expected to present a paper or public lecture on the findings of the research.
6. The Fellow will write a report at the term's conclusion.
7. By accepting the fellowship, the recipient incurs no obligations to NASA or HSS as regards future publications.

Term and Stipend

The stipend is \$17,000 for a nine-month fellowship during the period 1 July 2009 to 30 June 2010. The starting and ending dates within that period are flexible. For further information and application form go to http://www.hssonline.org/about/society_NASAFellowship.html.

Travel Grants: XXIII International Congress of History of Science

Travel grants are available for graduate students, independent scholars and junior faculty to attend the XXIII International Congress of History of Science, 28 July - 2 August 2009, Ideas and Instruments in Social Context, Budapest, Hungary.

The National Science Foundation, in conjunction with a consortium comprised of members from HSS, PSA, SHOT, and 4S, has travel grants for graduate students, independent scholars, and junior scholars to participate in the quadrennial meeting of the International Union of the History and Philosophy of Science. Only those participating in the meeting may receive grants and priority will be given to graduate students and independent scholars and members of the four societies. The maximum award will be \$1200 U.S., to be used solely for travel expenses. Awards will be provided as a reimbursement for expenses upon receipt of an official travel reimbursement form, along with receipts. For reimbursement, air travel must be completed in accordance with NSF guidelines. All applications will be processed through the History of Science Society Executive Office. To apply, go to <http://www.hssonline.org> and click on the link for the Budapest grants. The travel grant deadline is 1 May 2009. For questions about the grants, contact info@hssonline.org.

To participate in the conference, submit an abstract using the abstract form available on the Congress Web site: <http://www.conferences.hu/ichs09> no later than 15 February 2009. (Only one paper per person). Notification of acceptance will be sent 15 March 2009. For further information, please consult the Congress Web site.

NEWSBRIEF

History of Meteorology 4 (2008) is now available at <http://www.meteohistory.org/2008historyofmeteorology4/>.

The second number of the *Museum History Journal* has now appeared. <http://www.lcoastpress.com/journal.php?id=6>.

The University of Notre Dame and Rome's Pontifical Gregorian University will hold a conference in March on evolution as part of the celebrations of the 150th anniversary of the publication *On the Origin of Species*.

IHPST November newsletter is now available: <http://www.ihpst.org/newsletters.html>.

Perrin Selcer (University of Pennsylvania) won the 2008 Burnham Award for his essay "The View from Everywhere: Disciplining Diversity in post-WWII International Social Science."

WGBH Boston Video and NOVA have produced three documentaries: ancient dinosaurs in the Arctic with *Arctic Dinosaurs: Warm-Blooded Creatures of the Cretaceous?*; the NASA space shuttle program and where it went wrong with *Columbia: Space Shuttle Disaster*; and *Alien from Earth: The Little People of Flores*.

MEMBER NEWS

Klaas van Berkel (University of Groningen) will be the next Erasmus Lecturer on the History and Civilization of the Netherlands and Flanders at Harvard University. He will teach at the Department of History of Science during the fall semester of the academic year 2009-2010.

H. Floris Cohen (University of Utrecht) won the Dutch Eureka Prize for *De herschepping van de wereld. Het ontstaan van de moderne natuurwetenschap verklaard (Recreation of the World: The Rise of Modern Science Explained)*. The prize was awarded for the best 2007 book to make science and scholarship accessible to a wide audience.

Angela Creager (Princeton University), **Richard Creath** (Arizona State University), and **David H. DeVorkin** (National Air and Space Museum) have been elected Fellows in the AAAS.

Thomas Stapleford (University of Notre Dame) has been awarded a fellowship as part of the American Academy of Arts and Sciences' Visiting Scholars Program. His project is titled "Home and Market: Women, Economics, and the Study of Consumption, 1910-1960," which describes how female economists working in universities and government agencies pursued the first, major empirical research on "household economics."

Laura Stark received the 2008 FHHS/JHBS John C. Burnham Early Career Award for her dissertation "Morality in Science: How Research is Evaluated in the Age of Human Subjects Regulation."

Alain Touwaide (Smithsonian Institution) has been elected as a Fellow in the AAAS for distinguished contributions to the understanding of ancient, medieval and early modern roots of the modern life sciences and especially for all that followed from knowledge of plants in antiquity.

In Memoriam

Marika Ainley died 26 September 2008. Born in 1937 in Hungary, Ainley studied industrial chemistry before moving to Canada, where she taught chemistry at Concordia University. She earned her Ph.D. in the history of science from McGill University in 1985. Ainley was principal of the Simone de Beauvoir Institute at Concordia University from 1991 to 1995. She then served as professor and chair of women's studies at the University of Northern British Columbia, and continued to teach until 2002. Her work focused on the history of Canadian women and scientific work.

John C. Greene, former president of the HSS, died on 12 November 2008. He was 91. Born 5 March 1917 in Indianapolis, Indiana, he was raised in South Dakota and received his Ph.D.



John C. Greene

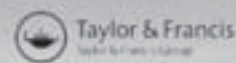
from Harvard in 1952, after serving in World War II. He spent most of his career (1968-1998) at the University of Connecticut, Storrs, where he taught the history of science. In addition to serving as President of the HSS (1975-76) he

also served as the Society's Secretary. In 2002, he received the Sarton Medal for a lifetime of scholarly achievement.

Michael S. Mahoney died 23 July 2008. Born in New York City on 30 June 1939, he received his Ph.D. from Princeton University in 1967. Mahoney divided his research and teaching between the development of the mathematical sciences from antiquity to 1700 and the recent history of computing and information technology. He was the author of "The Mathematical Career of Pierre de Fermat, 1601-1665"; a series of monographs on the mathematics of René Descartes, Isaac Barrow, Christiaan Huygens and Isaac Newton; and dozens of articles on the development of computer science and software engineering as new technical disciplines. Mahoney was a member of the History of Science Society, the Society for the History of Technology, and the Association for Computing Machinery.

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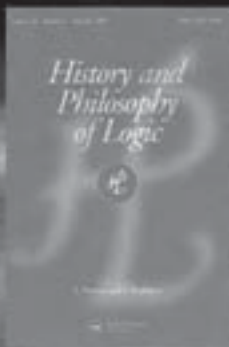


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RESTORING SCIENCE AS CULTURE IN PORTUGAL

Using the 27th Annual Conference of the Scientific Instrument Commission as a starting point, David Pantalony presses for the integration of scientific objects into a wider variety of cultural venues.

Portugal, once a country of explorers, is now for explorers – the cultural kind; and the history of science is emerging as an important part of this scene. At the opening session of the 2008 annual conference for the Scientific Instrument Commission (16-21 September) at the Museu de Ciência in Lisbon, Mário Soares, the former President of Portugal, addressed participants about the urgency to preserve scientific heritage; he was followed by the Rector of the University of Lisbon, who spoke eloquently about the Museu de Ciência's historic instrument collections, botanical gardens and natural history collections as a vital part of a developing cultural zone in Lisbon. It is rare to hear decision-makers talk about the history of science as a central part of the national and urban culture economy.

There was much anticipation for the 27th annual SIC conference. In recent years, scholars have been learning about remarkable collections of historic instruments in Lisbon, Porto, and Coimbra. The perfectly preserved, near-complete collection of nineteenth-century French instruments at the University of Coimbra (the reason I have visited there three times in the last four years) is one of the best snapshots of the Parisian precision trade outside of France. One finds its parallel in French paintings and decorative arts at Lisbon's renowned Gulbenkian Museum.



The "Gabinete de Física," dating from 1772 at the University of Coimbra (photo courtesy David Pantalony)



Outside the entrance to the Museu de Ciência, Lisbon, Portugal (photo from SIC Lisbon 2008 Web site)

What can we do with these collections? One answer is to encourage more integration into mixed-discipline exhibitions, programs and installations that raise unlikely connections and foster a new dialogue with the public about science.

With this kind of untapped potential, institutions across the country are in the midst of coordinating a national inventory of scientific collections. One of the leaders of this effort, Marta Lourenço, has studied the origins and present challenges of hundreds of university collections across Europe (including those in archaeology, fine arts, scientific instruments, medical, natural history etc.). She calls this vast network of neglected material knowledge, which has shaped and continues to shape Western civilization, the "dark matter" of our universities.¹

One outgrowth of this work in Portugal is a unique emphasis on preserving the original spaces related to these collections. The Museu de Ciência in Lisbon, formerly the Polytechnical University, has restored a 19th-century chemical laboratory with the original instruments, documents, laboratory benches, basins, fume hoods and an adjacent demonstration/lecture amphitheater. Within the same museum one finds a natural history collection from the 19th century; outside the building, part of the larger museum complex, one can wander through the historic botanical gardens of Lisbon that were once a research and teaching resource. Each collection offers parallel, comparative exploration into Portugal's past; each embodies an astoundingly preserved diversity. At the University of Coimbra, the oldest university in Portugal (1308), recently named a UNESCO world heritage center, a wide spectrum of the 18th century is similarly preserved in a baroque library, historic botanical gardens, the old physics faculty, and the former chemistry building and laboratory, which is now a

restored museum and education center. The physics faculty has a complete physical cabinet from the late eighteenth-century with instruments from London, Paris and local Portuguese makers, which remain in their original positions within the Brazilian wood cases. The University of Porto and other local collections are undertaking similar preservation projects.

These Portuguese initiatives served as an appropriate backdrop for the annual SIC activities (talks, workshops, several museum and collection visits), with an increasing emphasis on integration into a broader historical and public audience. One repeated conference theme, owing to Portugal's strength in this area, was instruments and their spaces. There were several talks about instruments and architecture and their interactions in a wider historical context. There were also talks about innovative and ambitious preservation projects, including descriptions of little-known collections and museums in Brazil. There were many new faces, such as an installation artist who has gathered information from collections world-wide to produce a photographic installation piece of historic samples of Iceland Spar.² One talk about a relatively familiar instrument demonstrated the shift within the SIC to novel interpretations and themes. Debbie Douglas of the MIT Museum has been creating an exhibit on their recently-acquired Keuffel & Esser slide rule collection. The exhibit will not be an old-fashioned tale of slide rules, how they worked and their impact on science; rather, it will be a cultural exploration of this scientific icon, which, along with browline glasses and slim ties were part of the standard MIT uniform in the 1950s and 60s.

What can we do with these collections? One answer is to encourage more integration into mixed-discipline exhibitions, programs and installations that raise unlikely connections and foster a new dialogue with the public about science. Historic instruments are not just a strange sub-specialty within the history of science, but have the potential to play a larger public role and become part of other discussions about life and society. The basic theme of how we need to explore and size-up our

surroundings, for example, followed me throughout the week of the conference. On a trip to the Centro de Arte Moderna at the Gulbenkian Foundation, I visited Susana Anáguas's installation "Northless" which featured a wall-size video projection of an inchworm (family name – Geometridae or "earth measurers") struggling to find its way in an unfamiliar environment. Two other walls displayed a video of a continuously rotating radar antenna and a panel filled with hundreds of randomly fluctuating magnetic compasses. A day later, on the roof of Lisbon's Museu de Ciência, as several colleagues and I fumbled with and learned to operate replicas of Kamals, astrolabes, Jacob's staffs, and quadrants with the help of José Pereira, a retired officer of the Portuguese Navy, I felt like

we were acting out the human section of Anáguas's installation, unexpected partners with radar systems, inchworms and navigators of all stripes. A visit to the Maritime Museum

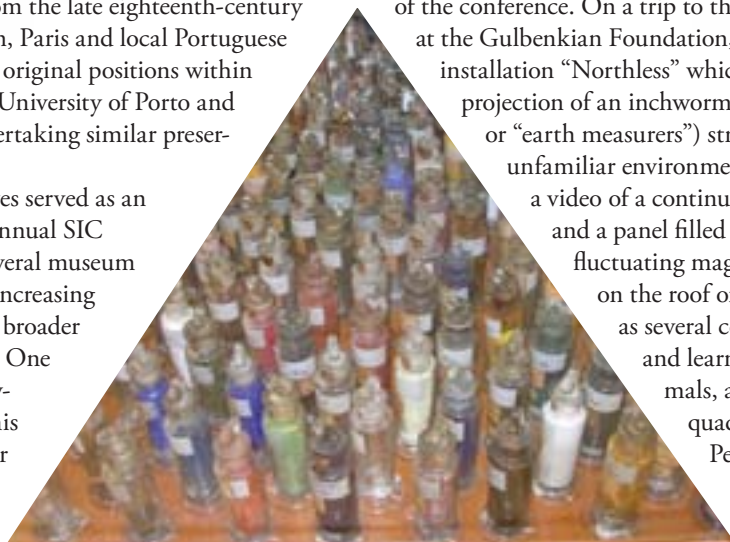
provided the full breadth of this quintessential Portuguese activity, in all its instrumental, nautical and colonial manifestations. Could these diverse but related experiences be brought together into an unofficial city-wide exhibition? There is something about the dense and diverse cultural landscape of Lisbon that produces these kinds of connections. I look forward to seeing how their collections develop, and how they integrate further into the city's culture zone.

David Pantalony is Curator of Physical Sciences and Medicine at the Canada Science and Technology Museum.

For information on the conference, visit: <http://chcul.fc.ul.pt/sic2008/>.

1. "Between Two Worlds: The Distinct Nature and Contemporary Significance of University Museums and Collections in Europe," Ph.D. dissertation, Conservatoire National des Arts et Métiers, Paris October, 2005, Marta C. Lourenço, <http://webpages.fc.ul.pt/~mclourenco/>

2. See Toril Johannessen's "In Search of Iceland Spar," at <http://www.toriljohannessen.no/>



Multi-colored chemical samples in the collection at the Parada Leitão Museum, Institute Superior de Engenharia do Porto, Portugal (photo courtesy David Pantalony)



Costantino Sigismondi of the University of Rome at a navigation workshop on the roof of the Museu de Ciência. Participants lined up their sites overlooking historic Lisbon and the Tagus river. (Photo from SIC Lisbon 2008 Web site)

SPENCER WEART AND HIS HISTORY OF SCIENCE

For a historian, Spencer Weart has a surprising tendency to focus on the issues of today. His work spans sunspots and global warming, archives and education, modern physics and nuclear fears. Director of the Center for History of Physics at the American Institute of Physics, he will retire in January 2009 after a 35-year career at the AIP.

Weart's own career took him from doing physics to understanding the cultural resonances of nuclear technologies and to a sweeping survey of the history of climate change. After a Ph.D. in astrophysics from the University of Colorado and a post-doctoral stint in solar physics at Caltech, NASA offered Weart a job building a solar telescope, which he turned down (just as well, he notes, as the solar telescope was delayed for 30 years). Weart was faced with either finding a physics position outside the unpromising field of solar physics or returning to school. He chose Berkeley and the history of science. "What the hell, I always enjoyed doing history," says Weart. "I took a chance and it worked out. I was born in 1942, so I could afford to take a few years and slip in before the baby boomers started filling the job market."

The first sign of his changed circumstances was the loss of access to the machine tools and screws of the physics department's stock room, and thus an inability to fix his bike. Of more importance were the cultural differences. "In physics, departments doors are always open; in history departments, doors are closed." Roger Hahn, one of Weart's teachers at Berkeley, described it to him thus: "In physics, different lines of inquiry attract one another; in history they repel one another." Despite some cooperative history of science work, including a statistics project with John Heilbron and Paul Forman, Weart says the cooperative spirit of the physics community does not adapt well to history of science.

One historically useful aspect of his background is the general physical knowledge Weart brings to subjects such as climate science. "Beyond that, physics encourages you to generalize and to look for evidence – to test and not to fool yourself, so you can come out with general conclusions without getting carried away." This approach helped Weart in *Nuclear Fear: A History of Images* (1988), a psychosocial and sociological analysis of the irrational components of human relationships with nuclear energy. "It's quite extraordinary how many hooks latch on to very deep things – monsters and mad scientists and the end of the world, death rays and life rays and weapons."

Weart expected his work on climate change (*The Discovery of Global Warming*, 2003, updated 2008) to provide similar hooks, but found little. Despite the Cold War's end, nuclear fear – now, via terrorism – remains potent (a second, up-to-date edition of *Nuclear Fear* will appear in 2010). "If you take away the nuclear aspect, it is not clear that 9/11 would have had anything like the impact it did have. Weapons of mass destruc-

tion are supposed to include nuclear, biological and chemical, but biological and chemical weapons are not weapons of mass destruction, they're weapons of mass mortality." Studies of Google hits on linked words such as "terrorist" and "nuclear" compared with "terrorist" and "poison" give much greater numbers to the former.

Global warming is not completely bereft of deep symbolism. "It's not by accident that the rising sea level – which isn't going to affect most people in the present century – is nevertheless the one people talk about the most. The city being flooded has a deep, old resonance." Weart is both amused and bemused by the choice of the polar bear as global warming's iconic image – a completely fearless land predator that regards humans as nothing but food. "To most people global warming affects polar bears and, maybe, the inhabitants of Pacific Islands."

Weart's research has taken him beyond the history of science and physics. Sparked by his work on radicals and nuclear opponents for *Nuclear Fear*, Weart began to wonder about the term "better red than dead," and its ideological implication that communist countries did not war against each other. "By the 1970s we knew that communist countries went to war with one another, so that was a false thing to say, and of course democracies fight each other, too... then I stopped to think: when do democracies ever go to war with one another?"

While teaching part-time at Princeton, Weart buttonholed other historians to ask if they knew of any warring democracies. They all shook their heads. A year later he found a small group of political scientists studying the topic, with Michael Doyle, one of the pioneers, working in the political science department at Princeton. "Talk about the ghettoization of scholarly fields," Weart says, adding that when he gave seminars on what became his book – *Never at War: Why Democracies Will Not Fight One Another* (1998) – he was introduced not as a historian doing political science, but as a physicist doing political science. "That sounded far more prestigious to the political scientists."

Weart joined the Center for History of Physics in 1974. "It was fun to go up to any great physicist with a tape recorder and say, 'tell me all about your life.' Scientists are underappreciated; they get Nobel Prizes but that doesn't mean their grandchildren ask them, 'What did you do grandpa?'"

The History Center, established in 1965 and developed by Charles Weiner and Joan Warnow, was created by physicists with a dual motive: to preserve their history and to publicize it, so that, as Weart says, "the public would appreciate them more."

"There was a kind of leverage model: we would save the material, scholars would use it to write books, journalists and teachers would read them, and they would be presented to students. Then the Internet came along and we could skip all that and go directly to the public."

Physicists remain a major audience, and while much of the History Center's funding comes directly through the AIP, individual physicists will also donate money. "Physicists don't take an instrumental attitude; they just think history is a good thing and that the memory of what they did and what their teachers and their colleagues did should not be lost." And physicists on the whole, says Weart, are fascinated by their own history. "Physics' impact on humans thinking about their place in the universe has been profound; there is a tradition of having a deep engagement with religious questions. Darwinism engages with the Bible, but not in deeper religious questions – Spinoza's questions – to the same extent as physics."

Yet no one is calling for Newtonianism to be banned in schools. Not so fast, says Weart. "The anti-Darwinists range from people who don't like the idea that we're descended from apes and the struggle for survival to Young Earth creationists. These people have a lot of trouble with astronomers, geologists, and with the whole range of physical sciences. You hear controversies over the age of the Grand Canyon and over radioactive dating; these are *sub rosa* battles being fought out over Darwinian evolution, but if, for some reason, people were able to teach pure Creationism, they would very quickly find themselves in conflict with the entire physical science community."

Weart's online work on global warming for the History Center (<http://www.aip.org/history/climate>) dwarfs his book on the subject. "Probably more people read the Web site – or at least visit it – in a week than have ever read the book. I get e-mail responses from people saying, 'I find your site useful for giving me arguments to use against skeptics'; or 'the historical approach gives me a good insight into the science'; or 'you're nuts; don't you realize that carbon dioxide is heavier than air, it settles down to the surface and can't possibly be causing the greenhouse effect.'" At approximately 450,000 words, the site is a scholarly work with thousands of footnotes, references, and hyperlinks between essays, the latter especially useful since many of the researchers in climate science remained unaware of each other's work until recently.

His science background gives Weart the ballast to go beyond historical discussion and into the rapids of political activism. In a personal note on the global warming section of the Center for History's Web site, he wrote:

"In short: individuals can and should do two things (as I have done). Cut back your greenhouse gas emissions. And at appropriate times let your political representatives know that your vote will be swayed by their actual activity – not meaningless lip service – to push for serious action against global warming."

Plenty of work remains to be done in the history of physics; even internalism is not tapped out, believes Weart, though



Spencer Weart (photo courtesy Sage Ross)

opportunities are limited. While a barely dug field awaits historians of some recent physics, the sheer technical difficulty is overwhelming. "If you do know enough about particle theory and string theory to write it up, no one can understand it except string theorists; even the average physicist can't." Other fields within physics – such as cosmology – are less technically difficult and can be mined by historians of science, but Weart adds that journalists, rather than historians, dominate. Solid state physics has also been neglected, probably, says Weart, "because it doesn't have the philosophical resonance of quantum mechanics and relativity. It doesn't have the fascination that can interest you, and interest your students, and be written up for the general public."

Apart from continuing to work on the History Center's Web site, Weart's future includes travel, preferably to places not already overrun with tourists and development. "When my father was born there were about a billion people; when I was born there were maybe three billion, there are six billion now. This has been a driving force behind a lot of my work – the great historic changes we're involved in now. We can't support nine billion people in the style to which we ought to be accustomed. The choices are fairly simple in how the population comes down: we can do it rationally through birth control and through living frugally, or we can kill each other through nuclear war or trashing our environment.

"It's too late to go back to hoeing the fields; the only way through this is with better science, including nanotechnology and genetic engineering. The human race is still going to be around 500,000 years from now, but the state of the human race is going to depend on whether we mobilize scientific research and technology in the next 50 to 100 years. I think history of science has a role to play by showing scientists and the public how this enterprise works, warts and all." History of science, says Weart, must be part of the R&D of the business of scientific research.

– by Michal Meyer

WHERE IS HISTORY IN THE SCIENCE CLASSROOM?

Michelle Klosterman, Alumni Graduate Fellow at the University of Florida, is a doctoral candidate in science education researching mass media use in the secondary science classroom.

Few secondary and post-secondary science educators would claim that science is the only discipline students need to understand science. Without reading skills or some knowledge of history, science content alone is insufficient for understanding the larger discipline of science. This makes it all the more remarkable that science teachers fail to incorporate other subjects into their yearly curricula. This failure takes on added significance when one considers that the history of science is at the foundation of U.S. national and state recommendations for science teaching. Unfortunately, teachers often lack the knowledge, ability, or resources to integrate history into secondary science curricula.¹

History in Science Education in the United States

In 1985, the American Association for the Advancement of Science (AAAS) sponsored a panel comprised primarily of scientists and post-secondary science educators who developed Project 2061, its goal being to encourage national reform in science education in the United States. The subsequent publication of *Science for All Americans* outlined their recommendations and included goals for incorporating history into science education. The reasoning was two-fold. First, “generalizations about how the scientific enterprise operates would be empty without concrete examples,” and second, “some episodes in the history of the scientific endeavor are of surpassing significance to our cultural heritage.”²

Following *Science for All Americans*, the National Research Council, a group developed and funded primarily by the National Science Foundation and the U.S. Department of Education, published the *National Science Education Standards* (1996), which still serves today as the primary document guiding instruction in secondary science classrooms in the United States. The *National Science Education Standards* (NSES) closely mirror the recommendations of the AAAS and reiterate that 10 historical events stand out as culturally significant and should be taught in secondary science classrooms. Additionally, students learn to appreciate that science is a human endeavor and that anyone can practice science. The *Standards’* rationale is that “the introduction of historical examples will help students see the scientific enterprise as more philosophical, social, and human.”³

In light of the national calls for science educational reform and with the implementation of the *No Child Left Behind Act of 2001*, every state in the U.S. was required to develop standards for teaching in all subject areas. In science, this was translated as adapting the NSES to develop a set of state standards for science teaching.

Although the NSES echoed the recommendations outlined by the AAAS, individual states were left to interpret those recommendations as deemed appropriate by each state. This resulted in highly variant views of the importance of history in science classrooms. For example, some states only address science, technology, and society from the context of today’s society, completely disregarding the historical perspectives surrounding the development of science. These discordant interpretations of national standards have perpetuated the divide between science and the other disciplines.

The Challenges

Why don’t teachers themselves adopt the NSES or the *Benchmarks for Scientific Literacy* guidelines rather than their own state standards? By doing this on a national level, science would at last be taught as an interdisciplinary subject rather than as a discrete body of knowledge.

First is the issue of time. A regular school year in the U.S. lasts 180 days. Within that day, a secondary teacher sees a student in his or her class for an average of 45 minutes. In reality, 45 minutes translates into 35 minutes of instructional time once classroom management and review strategies are considered. Further, many hours are spent on school events such as pep rallies, safety drills, science and art fairs, athletics, and so on.

In some states, science teachers are required to teach a minimum of 60 benchmarks for physical science compared to 129 benchmarks for life science. While that may seem like a simple task, the diversity of students in a secondary classroom and the limited amount of class instructional time make those numbers overwhelming.

A lingering issue is how thoroughly each benchmark must be taught, since the requirement to meet accountability standards – as measured by state assessment measures – haunts teachers. Not surprisingly, a teacher trying to cover each of the benchmarks in limited instructional time might resist including instruction on the history of science, especially since the history of science may only be tested every two to three years on the state exam.

While time is the biggest issue for teachers, student motivation also presents a challenge.⁴ Students come to science classes expecting to learn basic concepts – not the history behind the concepts. The AAAS recommends that “schools should pick the most important concepts and skills to emphasize

If teachers are expected to incorporate history into science instruction, then teacher-preparation programs should require a history of science component. Furthermore, teacher-preparation programs should provide instruction on how teachers can infuse history into the science curriculum.

so that they can concentrate on the quality of understanding rather than on the quantity of information presented.”⁵ Including instruction on the history of science is one way to improve the quality, but the AAAS fails to recognize that teachers face the daily challenge of convincing students of the importance of quality. That is, assuming the teachers themselves have the

resources and knowledge to invest in the quality of understanding.

The last obstacle, physical and intellectual resources, may be the least understood and most undervalued challenge facing teachers. Teachers can only teach what they know. Not only is it rare for a science text to offer historical contexts, undergraduate and graduate teacher-preparation programs in the United States typically ignore the history of science. Ironically, the history of *education* is a staple in teacher-preparation programs, but not the history of *science* in secondary science education programs.

What now?

Despite these constraints, there are national reports, national standards, and even some state standards that mandate that history be incorporated into science. Recommendations on how this could be done vary from general suggestions by the AAAS to more specific strategies recommended by the National Research Council (NRC).

The AAAS strategies include concentrating on the collection and use of evidence, de-emphasizing the memorization of scientific facts, and using team approaches for exploring science. Each of these suggestions are expected to offer a context for science knowledge and help students “develop a sense of how science really happens...of the growth of scientific ideas, of the twists and turns on the way to our current understanding of such ideas, of the roles played by different investigators and commentators, and of the interplay between evidence and theory over time.”⁶

The AAAS’ suggestions for incorporating history into science education are clearer in *Benchmarks for Scientific Literacy* and extend beyond suggestions aimed only at classroom teachers. *Benchmarks* advises teachers to use historical case studies, biographies, and films in science instruction. It also suggests that “...science and history textbooks will need to be modified to include the history of science.”⁷

Not surprisingly, the *NSES* suggestions resemble those of the AAAS, including case studies, historical vignettes, short stories, and videos. Through these media, “teachers can introduce interesting historical examples of women and men who have made contributions to science.”⁸

Unfortunately, such vague suggestions underscore why many individual states have difficulty adapting the *NSES* to state guidelines and why teachers find it difficult to incorporate history into science instruction. The issue of disconnected disciplines is more systemic and requires changes that begin with teacher preparation programs.

Using my own experience as an example, I was never required to enroll in a history of science class in either my undergraduate career in engineering or in my graduate career in science education. It was not until my postgraduate degree that I *elected* to take such a course. If teachers are expected to incorporate history into science instruction, then teacher-preparation programs should require a history of science component. Furthermore, teacher-preparation programs should provide instruction on *how* teachers can infuse history into the science curriculum.

The reality remains that current accountability trends require American teachers to address each of their state benchmarks, which (although inadequately) include some reference to the history or philosophy of science. Yet, until more practical methods of incorporating history in science instruction are offered, and possibly even required, we will lose the true conceptual understanding of science, the scientific enterprise, and the significance (or insignificance) of our cultural heritage.

1. Monk, M. & Osborne, M. (1997). “Placing the history and philosophy of science on the curriculum: A model for the development of pedagogy,” *Science Education*, 81(4), 405-424.
2. AAAS, *Science for All Americans* (New York: Oxford University Press, 1994), p. 145.
3. NRC, *National Science Education Standards* (Washington, D.C.: National Academy of Sciences, 1996), p.170.
4. Sadler, T.D. (2006). “I won’t last three weeks”: Preservice science teachers reflect on their student-teaching experiences. *Journal of Science Teacher Education*, 17(3), 217-241.
5. *Science for All Americans*, p. 198.
6. *Science for All Americans*, p. 201.
7. AAAS. *Benchmarks for scientific literacy*, (New York: Oxford University Press., 1993), p.4.
8. *National Science Education Standards*, p.6.

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FUTURE MEETINGS

Call for Papers

Southern HoST Meeting,

3-5 April 2009, Virginia Commonwealth University, Richmond, VA. Contact Karen Rader or John Powers: karader@vcu.edu, jcpowers@vcu.edu. Deadline: 1 February 2009. <http://www.has.vcu.edu/sts/>.

BSHS Annual Conference.

2-5 July 2009, University of Leicester, England. Abstract deadline: 23 January 2009. <http://www.bsbs.org.uk/bsbs/conferences/index.html>. Inquiries: bsbsLeicester2009@bsbs.org.uk.

Animals and Society: Minding

Animals. 13-18 July, 2009, Newcastle, Australia. Panel submission deadline: 15 January 2009. Abstract deadline: 30 January 2009. <http://www.mindinganimals.com>.

Religious Responses to

Darwinism, 1859-2009. 15-18 July, 2009, Oxford, England. Abstract deadline: 16 February 2009. <http://users.ox.ac.uk/~theo0038/Conferenceinfo/General.html>.

Ideas and Instruments in Social

Context, International Union of History and Philosophy of Science XXIII International Congress of History of Science and Technology, Budapest, Hungary, 28 July - 2 August 2009. Deadline for submissions 15 February 2009. <http://www.conferences.hu/ichs09/>. (See p. 8 for more information.)

IEEE Conference on the

History of Technical Societies, Philadelphia, USA, 5-7 August 2009. Proposals due 13 March 2009. <http://www.ieee.org/go/historyconference>.

Emanuel Swedenborg,

Stockholm, Sweden, 7-9 June 2010. Abstract deadline: 31 January 2009. Send to Maria.Asp@kva.se.

Upcoming Conferences

Evolution – the Experience, Melbourne, Australia, 8-13 February 2009. <http://evolution09.com.au/index.php>.

Evolution and Religion:

Towards a History of an Evolving Relationship, Clemson University, Clemson, SC, 13-15 February 2009. Contact Dawn M. Digrius at ddigriu@clemson.edu.

Darwin's Reach: A Celebration

of Darwin's Legacy Across Academic Disciplines. Hofstra University, 12-14 March 2009. http://www.hofstra.edu/Community/culctr/culctr_events_darwin.html.

Integrated History and

Philosophy of Science Conference, 12-15 March 2009, University of Notre Dame, South Bend, IN. <http://www.nd.edu/~andhps>.

Nature in International

History: ConIH 9, 13-14 March 2009, Harvard University, Cambridge, MA. <http://www.fas.harvard.edu/~conih>.

AAG Conference: Modest

Witnesses: Fieldwork, Indigenous Knowledges, and Truth-Making, 22-27 March 2009, Las Vegas, NV. <http://www.aag.org/annualmeetings/2009/index.htm>.

British Society for Literature

and Science, 27-29 March 2009, University of Reading, England.

International Network for

the History of Hospitals Fifth International Conference: Hospitals and Communities. 1 April 2009, Barcelona, Spain.

Climate Change Science,

Environmental Challenges, and Cultural Anxiety: Historical Perspectives. 1-4 April 2009, Colby College, Waterville, ME.

MAASA Conference: Identities

and Technoculture, 3-4 April 2009, Iowa City, IA. http://www.theasa.net/events/item/call_for_papers_identities_and_technocultures/.

Unintended Consequences:

Hagley Fellows Conference, 4 April 2009, Hagley Museum and Library, Wilmington, Delaware.

Animals: Past, Present and

Future, 16-18 April 2009, Michigan State University, East Lansing, Michigan. <http://lymanbriggs.msu.edu/animals>.

Instruction, Amusement and

Spectacle: Popular Shows and Exhibitions 1800-1914, 16-18 April 2009, University of Exeter, England. <http://www.sall.ex.ac.uk/conferences/victorian-shows.html>.

SSHM Postgraduate

Conference: Medicine and Healthcare: History and Context, 16-18 April 2009, University College, Dublin.

The following announcements have been edited for space. For full descriptions and the latest announcements, please visit our Web site (<http://www.bssonline.org>). The Society does not assume responsibility for the accuracy of any item; interested persons should verify all details. Those who wish to publish a future meeting/job/grant announcement should send an electronic version of the posting to newsletter@bssonline.org.

AAHM 82nd Annual Meeting.

Cleveland, OH, 23-26 April 2009. <http://histmed.org>.

Science, Technology and the

Humanities: A New Synthesis, 24-25 April 2009, Stevens Institute of Technology, Hoboken, New Jersey.

Ports, Forts and Sports: Maritime Economy, Defense and Recreation through Time and across Space, California Maritime Academy in Vallejo, California, 14-17 May 2009. <http://www.nasoh.org>.

European Spring School of History of Science and Popularization: "Radioactivity in the Public Sphere," 21-23 May 2009, Menorca, Spain.

GTG Annual Conference, 22-24 May 2009, Hochschule für Gestaltung, Offenbach am Main, Germany.

CSHPS Annual Conference, 26-28 May, 2009, Carleton University, Ottawa. <http://www.fedcan.ca/>.

Economic and Biological Interactions in Pre-Industrial Europe from the 13th to the 18th Centuries. Prato, Italy, 26-30 May 2009. <http://www.istitutodati.it/temi/htm/temi41.htm>.

Convivencia: Representations,

Knowledge and Identities, Madrid, Spain, 28-30 May 2009. <http://convivencia2009@mpiwg-berlin.mpg.de>.

The Johns Hopkins University, Fifth Laboratory

History Conference, 4-5 June 2009, Baltimore, MD USA. Contact: Stuart W. Leslie at swleslie@jhu.edu.

Women Of Science, Women In Science: Figures And Representations 18th Century to Present. 4-6 June 2009, Grenoble, France. <http://www.h-net.org/announce/show.cgi?ID=161149>.

Romantic Disorder: Predisciplinarity and the Divisions of Knowledge 1750-1850, London, 18-20 June 2009. <http://www.bbk>.

ac.uk/eh/research/research_conferences/romantic_disorder/.

AHS: The Changing Face of

Agriculture and the Rural Landscape, 18-20 June 2009, University of Arkansas at Little Rock, Arkansas.

The International Margaret Cavendish Society's Conference

Oregon State University, Corvallis, OR, 18-21 June 2009.

Cheiron, 25-28 June 2009

Penn State University, University Park, PA.

ISHPSSB Biennial Meeting,

12-16 July 2009, Brisbane, Australia. <http://www.ishpssb.org/meeting.html>.

Alexander von Humboldt, 2009: Travels Between Europe and the Americas.

Freie Universität Berlin, 27-31 July 2009. <http://www.humboldtconference2009.de>.

The 36th International conference on Hume's Philosophy, Halifax, Nova Scotia, Canada, 2-6 August 2009. <http://myweb.dal.ca/nbrett/humePage.HTML>.

International Congress

of Ethnobotany, 21-24 September 2009, San Carlos de Bariloche, Argentina.

Astronomy and its Instruments

Before and After Galileo,

28 September - 3 October 2009, Venice. http://web.oapd.inaf.it/venice2009/second_announcement.pdf.

HSS Annual Conference.

18-22 November 2009. Phoenix, AZ, USA.

150 Years of Evolution?

Darwin's Impact on the Humanities. San Diego State University, 20 November 2009. <http://cal.sdsu.edu/darwin/callpapers.htm>.

HSS Annual Conference. 4-

7 November 2010, Montreal, Canada. Joint meeting with PSA.

PSA Biennial Meeting, 4-6

November, 2010, Montreal, Canada. Joint meeting with HSS.

The John J. Reilly Center for Science, Technology and Values (University of Notre Dame) is searching for a Managing Director of the Center. The Center engages in interdisciplinary education, research, and outreach at the interface of science and technology with the humanities and social sciences. Please send a cover letter, c.v., and three letters of recommendation to: Gerald McKeeney, Director, John J. Reilly Center for Science, Technology, and Values, 305 O'Shaughnessy Hall, University of Notre Dame, Notre Dame, IN 46556. Review of applications will continue until the position is filled. Further information: <http://www.nd.edu/~hps/>.

The California Institute of Technology, in collaboration with the **Huntington Library**, invites applications for the annual Eleanor Searle Visiting Professor in the field of history of science. The position is for a full academic year (September 2009 – June 2010). This is a half-time teaching position (two one-quarter courses) at Caltech and a half-time research position at the Huntington Library. All applicants must currently hold a Ph.D. and a full-time tenure-track appointment at another university. Please include a statement detailing the research you wish to carry out at the Huntington Library, send a c.v., a recent sample of writing, copies of teaching evaluations, and a list of references. Applications will be accepted until the position is filled. Contact Sabrina Boschetti, administrative assistant for the Eleanor Searle Visiting Professorship, Division of the Humanities and Social Sciences, MC 228-77, California Institute of Technology, Pasadena, CA 91125. Further Information: <http://www.caltech.edu/>.

Request for HSS Prize Nominations

(most deadlines are 1 April)

To nominate books and articles, send name of author, publisher, title, and date of publication and prize category to info@hssonline.org.

Nathan Reingold Prize (formerly known as the Schuman Prize) for the best graduate-student essay (deadline 1 June).

Margaret W. Rossiter History of Women in Science Prize for the best book on women in the history of science (Books published from 2005 to 2008 are eligible).

Joseph H. Hazen Education Prize for exceptional educational activities in the history of science.

Watson Davis and Helen Miles Davis Prize for the best book in history of science intended for a broad audience, published 2006-2008.

Pfizer Prize for the best book aimed at a scholarly audience in history of science, published 2006-2008.

Sarton Medal for exceptional scholarship over a lifetime. Send c.v. of nominee and 2 letters of (deadline 1 February).

Grants, Fellowships, and Prizes

The CHF Beckman Center Visiting Scholar Program: <http://www.chemheritage.org> or e-mail: travelgrants@chemheritage.org.

The H. Richard Tyler Award for research at the AAN Rare Books Collection at the Bernard Becker Medical Library in St. Louis, MO. Applications: <http://www.aan.com/awards>.

The University of Oklahoma: The Andrew W. Mellon Travel Fellowship Program. E-mail: kmagruder@ou.edu or mogilvie@ou.edu. <http://libraries.ou.edu/etc/histsci/mellon.asp>.

Grants in Aid for History of Modern Physics. Deadlines: 15 April, 15 November. <http://www.aip.org/history/>.

INA Grant-in-Aid Program for research at the Vanderbilt University Medical Center Archives, Nashville, Tennessee. Deadlines: 1 March, 1 June, 1 September, 1 December. Applications to: INA Grant-in-Aid Program, c/o CIMP Central. Office, 1608 17th Avenue South, Nashville, TN, 37212.

Scientific Instrument Society Research Grants. Application forms and details available at <http://www.sis.org.uak/grants.htm>.

California Institute of Technology Grants-in-Aid. Applications reviewed 1 January, 1

April, 1 July, and 1 October each year. <http://archives.caltech.edu>.

Friends of the University of Wisconsin – Madison Library, Grants-in-Aid. Applications due 1 February of any year. <http://giving.library.wisc.edu/friends/grant-in-aid.shtml>.

APS's Franklin Research Grants. Deadlines: 1 October/1 December; notification February/April. <http://www.amphilsoc.org>.

Andrew W. Mellon Foundation Research Fellowships at the Needham Research Institute, Cambridge, U.K. <http://www.nri.org.uk/>.


2009 Jerry Stannard Memorial Award encourages research by young scholars in the pre-1700 fields of the history of materia medica, medicinal botany, pharmacy, folklore of drug therapy, and the bibliography of these areas. Correspondence to Victor Bailey at vbailey@ku.edu.

The Bakken Library and Museum in Minneapolis offers travel grants for research in its collection of books, journals, manuscripts, prints, and instruments. The next application deadline is 20 February 2009. Contact: Elizabeth Ihrig; e-mail Ihrig@thebakken.org, <http://www.thebakken.org>.

The Forum for History of Human Science invites submissions for the 2009 John C. Burnham Early Career Award (for scholars, including graduate students, without a tenured position and not more than seven years past the Ph.D.) Unpublished manuscripts dealing with any aspect of the history of the human sciences are welcome. E-mail manuscript and curriculum vitae (PDF format) by 15 June 2009, to weidman@fas.harvard.edu. Further information @ <http://www.fhhs.org>.

The Forum for History of Human Science awards a prize for the best recent (2006-2008) article on some aspect of the history of the human sciences. Deadline: 15 June 2009. E-mail PDF version of the article to weidman@fas.harvard.edu; or mail three copies to Nadine Weidman, Secretary of FHHS, 138 Woburn St., Medford MA 02155 Further information: <http://www.fhhs.org>.

The Science Museum, London, offers two research internships to students. Applicants may propose any theme which sheds light on the museum's collections. The bursary is £1,000 per month for up to three months. Send c.v., cover letter, and the names and addresses of two academic referees. Deadline is 23 January 2009. Send to: Peter J. T. Morris, Head of Research, Science Museum, London SW7 2DD. Further information, e-mail Peter Morris at peter.morris@mmsi.ac.uk.



Massachusetts, USA

Worcester Polytechnic Institute

Head, Department of Humanities and Arts

Worcester Polytechnic Institute (WPI) invites applications and nominations for the position of Head of the Humanities and Arts Department. The university seeks an individual with proven excellence in teaching, scholarship, and leadership in administration, including the ability to work creatively across departments and disciplines in curricular innovations and resource acquisition. Potential candidates must have an earned doctorate or equivalent terminal degree in a discipline currently represented in the Humanities and Arts Department and a record of scholarly and professional achievement appropriate for appointment with tenure at the senior level in one of these areas. WPI is eager to hear from women and underrepresented minorities concerning this position.

The new head will have opportunities to direct program growth, as WPI intends to expand its curricular offerings in humanities and arts, particularly in areas where they interact with science, technology, and new media. WPI recently created an innovative major in Interactive Media and Game Development with Humanities and Arts taking a lead role. The university has also established a new Bachelor of Arts degree. A major in Liberal Arts and Engineering has been approved, and the department is considering further programs.

The department includes 26 tenured and tenure-track faculty members in the fields of art including digital media and the history of art and architecture, English including drama/theatre, modern languages (German and Spanish), music, history including history of science/technology, philosophy/religion, and writing and rhetoric. The duties of the department head include taking a lead role in developing new programs, hiring and nurturing new faculty, managing personnel matters and departmental budgets, representing the department's interest to the administration, and overseeing as well as participating in departmental teaching, research, and program development.

WPI, the nation's third-oldest private technological university, currently enrolls 3,150 undergraduates and 1,300 part-time and full-time graduate students. Its innovative project-based undergraduate program, the WPI Plan, offers students a flexible and academically challenging alternative to conventional science and engineering curricula. All WPI undergraduates complete a sequence of five courses in the humanities and arts, followed by a culminating seminar or practicum. In addition, the Humanities and Arts Department offers a major and minor. Students and faculty have opportunities to participate in twenty off-campus project centers and more than a dozen international exchanges, including language programs in German and Spanish. Please visit the web site www.wpi.edu/+HUA for more information about WPI and the department.

Situated in Worcester, the WPI campus is close to many of the city's major cultural attractions, including the American Antiquarian Society, the Worcester Art Museum, local theaters and poetry venues, and several major music performance halls. Forty miles west of Boston, Worcester offers access to the diverse cultural resources of New England, and provides opportunities for urban, suburban, or rural living.

Applications received before **January 15th, 2009** will receive a full reading. Review of applications will continue **until the position is filled**.

Candidates should submit a letter of application and current resume through WPI's Human Resources website (linked to the Humanities and Arts website at www.wpi.edu/+HUA) and make arrangements for us to receive three letters of reference. These letters of reference should be sent to **Arthur C. Heinricher, Humanities and Arts Head Search Committee, Office of Human Resources 100 Institute Road, Worcester, MA 01609-2280**. Questions may also be directed to the search committee through **Nancy Hickman, HUAsearch@wpi.edu**.

To enrich education through diversity, WPI is an affirmative action, equal opportunity employer and especially encourages minorities and women to apply

The HSS Bibliographer's Fund

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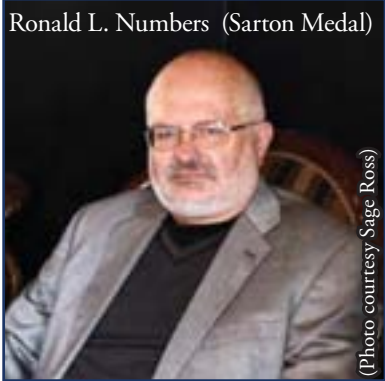
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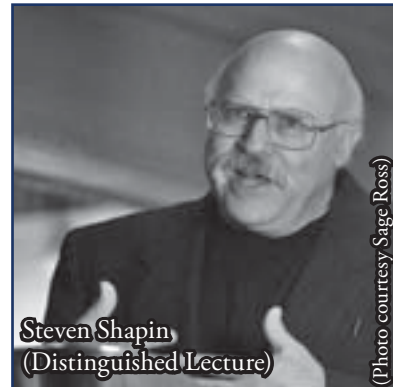


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