WIKIPEDIA AND THE HISTORY OF SCIENCE

Recently admitted to candidacy at Yale, Sage Ross is writing a dissertation on the history of molecular evolution. Beyond the humanistic study of science and technology, his passions are Wikipedia, photography and bonsai.

Historians of science greatly underestimate the popular demand for our work. An example: the "Albert Einstein" Wikipedia article, much of it the work of an anonymous graduate student, has probably been read more times in the last two years than all other recent writing on Einstein combined. (It averages about one hundred thousand views per day, according to recent estimates. That is, Einstein is one quarter as popular as Harry Potter and the Deathly Hallows, the most popular topic in the world as of November 2007. Like The Beatles, Einstein and Benjamin Franklin are more popular than Jesus; Darwin is not far behind.) Society will create narratives of science (or re-use the ones historians created generations ago) if we don't share the ones we've made. History of science content on Wikipedia, most of it created without reference to scholarly sources, is viewed millions of times each day.

As one of my colleagues put it, using historical scholarship to improve the public understanding of history has always been like "tilting at windmills." Historical myths like Columbus discovering that the Earth is round persist, even though historians have known them to be false for several generations. A closed loop of misinformation propagates from generation to generation, a seemingly insoluble problem. Myths about the flat earth, astrology, alchemy, the conflict between science and religion, Ptolemaic astronomy, and many other topics are doubly pernicious and recalcitrant because they are continually recruited to serve as foils for their modern counterparts. Understandably, many veterans of the traditional publishing world are pessimistic that significant changes in public (mis)perceptions of the history of science are possible, since these myths acquire their own momentum.

Wikipedia is changing the way the public uses and understands history. An example: because of the articles on "Flat Earth" and "Flat Earth mythology," I expect the popular idea that everyone before Columbus believed in a flat Earth will disappear within a generation. Not because everyone will read those articles, or any other myth-busting scholarship that makes its way onto Wikipedia, but because independent-minded students will correct their teachers. Television and film writers are drawing on Wikipedia for background (and fans are increasingly sensitive to sloppy treatment of easily-found information). And unlike so many of the venues that create and reinforce historical understanding, scholars can intervene in Wikipedia with little trouble.

Wikipedia's intellectual impact is not limited to irresponsible students and the nebulous general public.

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Notes from the Inside

With the 2007 annual meeting now in our rearview mirror, I would like to thank Marsha Richmond and Anita Guerrini for their stellar work as program co-chairs and also thank Marc Rothenberg for his much-appreciated help with local arrangements (in addition to chairing the Committee on Meetings and Programs). Their many hours of service led to a successful event, one that will be long remembered. I also do not want to forget the Executive Office staff: Virginia Hessels, Michal Meyer, Ivana Simic, and Matt White (and more than 20 graduate students) for their excellent execution of thousands of meeting details. I would have been lost without them.

The 2007 conference featured many highlights: Ted Porter’s distinguished lecture (which will be available as an audio stream on the HSS Web site) and Ken Alder’s introductory confession that he “loves” Ted’s work; talks by John Burnham and Vera Rubin for the Forum for the History of Human Sciences and the Forum for the History of Science in America, respectively; the formation of an interest group in the history of mathematics; and Tom Hankins (all 191 centimeters of him) escorting Maggie Oder (164 centimeters) around the dance floor at the society dinner in our own version of “Dancing with the Stars.”

We are already deep in planning for 2008. We will meet with PSA in Pittsburgh at the William Penn hotel (site of the 75th anniversary meeting for HSS). Program co-chairs Ted Porter and Ken Alder are working with PSA to create more interchange between our two groups. We will be trying something new for 2008: poster sessions. We hope that this format will allow for more participation and broaden research opportunities. The call for papers appears on page 5.

Thumbing through this issue of the Newsletter, careful readers will note something new: letters to the editor. Such letters are rare but gratifying not only because they demonstrate readers’ engagement, they also speak to our attempts to create a sense of community. I encourage you to send me a note about the Newsletter. Even if we cannot print them all, such missives will help us steer a course for future issues. I also hope that you will share this issue on alternative careers with graduate students so that they are aware of the many possibilities outside of the ivory tower.

Thank you for your membership in the HSS.

—Jay Malone
HSS Executive Director
Alternative Realities

Ph.D. in hand, David Attis jumped out of the academic pool and into the corporate sea. After eight years “out there” he reports back on how graduates in the history of science can make a life for themselves (and use their academic skills).

I always planned to become an academic. Since my sixth-grade report on Jean-Paul Sartre, all of my heroes have been intellectuals. I went straight from college to graduate school without a second thought. What else would I possibly do - get a job? Soon I was hard at work on the most important aspects of becoming a professor - exaggerating the small personal quirks that my students would one day imitate, watching impatiently the elbows on my jackets to wear through so that I might cover them with patches, and reading the Chronicle of Higher Education for the latest gossip about superstar academics as if it were US Weekly.

And then just before completing my dissertation, I had a crisis of faith. Perhaps it was the result of spending a year alone in a library eight time zones away from my fiancée. Perhaps it was the impending brutality of the academic job market. Perhaps it was the fact that nearing 30 years old I was still a student, living on a stipend and falling deeper into debt, while my less academically inclined friends were now moving into the ranks of middle management, earning respectable salaries and buying homes. I decided to try my luck at what academics refer to as “alternative careers” and everyone else just refers to as “careers.”

It was a turning point - not only because I questioned what had been central to my identity for well over a decade, but also because I knew there would be no going back. It’s hard enough to keep up with a discipline when you are engaged in full time teaching and research, but it’s impossible to do so in your spare time.

I had no idea what I wanted to do or even what I might be capable of doing. How many companies are looking for a historian of 19th-century mathematics? How many organizations need someone who has mastered the book cataloging system at Cambridge University? My faculty advisors were encouraging for the most part, but they had spent their entire professional lives in academia. Like the people who sent off Christopher Columbus, all they could do was to say, “Best of luck, watch out for the monsters!”

Thankfully the year was 1999, before the dot-com bubble burst. There simply were not enough MBAs to go around, and investment banks, consulting firms and other highflying companies were hiring Ph.D.s (the “bottom of the barrel” in their eyes) because they had no other options. I chose management consulting because it didn’t seem quite as much a sell out as investment banking. At least it had concrete business problems that needed solving. Presumably someone (a real someone, not just an investor) would be better off because of the work I would do. The consulting firms that I interviewed with didn’t seem to care that I had never worked in an office or solved an actual business problem. They just wanted to know my SAT scores and to verify that I could bluff my way through a case interview. And so a few months later I was advising the CEOs of major global corporations on what new products to launch, how to expand into global markets, and the best way to implement a new supply chain management system.

Since then I’ve had a number of different jobs. I moved from the general consulting practice at A.T. Kearney into their Global Business Policy Council, a unit that writes reports on globalization, foreign direct investment and the major trends impacting global business (“globaloney” as we liked to call it). Then I defected to the non-profit world and joined a non-partisan think tank called the Council on Competitiveness, working primarily on science and technology policy. I’m proud to say that President Bush recently signed into law legislation that we promoted – as a 501(c)(3) we don’t lobby, we “educate” – doubling the budget of the National Science Foundation over the next few years. So you have me to thank when you get your checks from the NSF. Recently, I started a new position at the Advisory Board Company, which is launching a new higher education consulting practice. So I may soon be exercising my management acumen on a college or university near you. I am happy to say that in my career outside of the academic world I have found intellectually challenging and interesting work, stimulating colleagues, and ideas that matter. I spend most of my time on research, writing and presenting my work to different audiences – not so different from life in a university in some ways.

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The academic world tends to define itself in contrast to the world around it — idealistic, disinterested, pure. That’s part of why it is so hard to leave academia for the world of business and politics, and why it is almost impossible to return.

There are many things that I miss about the academic life — the freedom to pursue the questions that most interest me, the time to investigate new ideas with a focus and depth that simply would not be tolerated outside of academia, and the camaraderie of a community of scholars engaged in the joint search for knowledge. But I don’t miss the flip side of all of these — the lingering sense of irrelevance, the obsession with minutiae, the personal isolation, the incestuousness of disciplinary politics, not to mention the rootlessness of the peripatetic academic life.

I am envious of my friends from graduate school who have become successful academics (though often at a personal cost I simply could not accept), and I still fantasize about turning my dissertation on the history of mathematics in Ireland into an international bestseller (before someone else beats me to it).

So in an effort to be useful, I offer below a few lessons that I have learned in my “alternative” career. I hope that they may inspire a few graduate students toiling away in basements or perhaps help a few academics to better understand the perspectives of those poor souls banished from the groves of academe.

It’s all about getting things done

Outside academia it’s not about what you know, or even who you know, it’s about what you can get done. Being able to solve a problem is more important than understanding it, and the first is not necessarily dependent on the second. That’s why the most successful people in business (and politics) are rarely those with the highest SAT scores or the longest bibliographies. You may not agree with what they do, but they do get things done.

On a related note, I have found that having left the world of academia, working with academic experts is a real pain. When you’re trying to solve a problem — in business or in policy — you need to go to the experts. But they have little interest in actually solving a problem. They live for problems. Their favorite activity is to “problematize.” They want to find more avenues for investigation while you want (need) to close them off and come to a quick conclusion. Like consumers of dental hygiene products, most consumers of ideas want something that they can use right now to get a job done — prove a point, win an argument, entertain an audience, get a soundbite, pass a bill, or seal a deal. Experts, those standard bearers of truth and objectivity, are often as much an obstacle to this as a help.

Market your skills, not your expertise

No one cares that you have a Ph.D. (or M.A.) in the history of science. Outside of universities and museums no one is desperately in need of an historian of science. Your entire world doesn’t even appear on most people’s radar screens. Frankly, most people don’t see the value of what you do. (Once, after describing my research on the history of mathematics, I had a Stanford law student ask me, “Why are you allowed to do that?”) I’m not suggesting a public-service campaign (“The History of Science — Making America Stronger Every Day”) but rather finding ways to demonstrate your skills to potential employers.

What employers care about are what historians of science like to call “tacit knowledge” — skills like research, writing, or communicating technical ideas. They think that most scientists are smarter than they are — so you’re best off if you can convince them that you understand science, but unlike the stereotypical egghead scientist you can actually communicate with real people. Historians of science become the bridge between the two cultures (i.e., the R&D division and the marketing department).

As the president of the Council on Competitiveness likes to say, “We need engineers who think like artists and artists who think like engineers.” Feel free to use that in your interview.

There’s no “I” in collaboration

In graduate school I learned that all texts are socially constructed. Since then I have learned that this process occurs not just in the subtle and covert ways that historians of science delight in uncovering, but in straightforward, concrete ways. Any business or policy report is the product of many hands and the outcome of a convoluted process of negotiation and often vociferous personal conflict. At first it felt very strange to me to give up ownership of a document, to allow others to insert their opinions and syntax and to leave intact phrases that pained my ear but had to be preserved to pacify a colleague. In graduate school, my work was my own.

Since I left academia, rather than writing essays or articles or books, I’ve created talking points, marketing brochures, PowerPoint presentations, and speeches, generally under someone else’s name or no name at all. This kind of work is messy, frustrating, and full of compromises. It rarely produces bold new ideas or sparkling prose, but it does produce language that people can agree on and get behind.

People trust numbers

Eighty-six percent of Americans will believe any statistic that you tell them. Actually I just made that up, but it sounds like it could be true. It has that quality of “truthiness,” as Stephen Colbert would say. Every historian of science now knows from a variety of great works on quantification and objectivity that statistical and quantitative arguments are highly compelling and often highly misleading. One thing that I’ve found is that even the most blatantly false statistics rarely get questioned (as long as they are delivered with an air of absolute authority). In academia, the knowledge that someone else is out there waiting to make a career out of catching your error keeps people honest. In a world of information overload and 10-second soundbites, truth is often secondary to effectiveness. From corporate boardrooms to the halls of Congress, people are happy to regurgitate canned statistics that have little basis in fact, as long as they sound compelling and support their argument. Historians of science are well positioned to play this game. Who better understands how a fact is created? It’s just a matter of making the switch from detached observer to engaged participant (and turning off that nagging feeling that you’re becoming part of the problem).
The value of the history of science translated into the language of corporate lobbyists.

**Everyone is “interested”**

We hear a lot these days about the evils of commercialization and the insidious role that multinational corporations, lobbyists and “corporate-backed think tanks” are playing in the destruction of politics, civil society, the university, etc. But corporations aren’t (all) evil. After all, Google’s motto is “Don’t be evil.” (And if you can’t trust Google, how will undergraduates ever complete their research papers?) The sociology of science taught me that everyone has interests, even those paragons of purity, the scientists. Frankly, most of the lobbyists that I have worked with over the past few years represent universities and scientific societies. Every national interest is someone’s special interest (and vice versa). The only way to increase federal spending on basic research (which just about everyone – with the possible exception of the Heritage Foundation – agrees is in the national interest) is to play the game as it currently exists. I wouldn’t be surprised if some small portion of your membership dues to HSS go to support lobbying on behalf of that most special of interests, the history of science. (“Making America Stronger Every Day,” remember.)

The academic world tends to define itself in contrast to the world around it – idealistic, disinterested, pure. That’s part of why it is so hard to leave academia for the world of business and politics, and why it is almost impossible to return. Yet we know that academics have always been engaged with business and politics. (Even Thales cornered the market on olive presses in expectation of a good harvest. Who’s to say he wouldn’t be a hedge fund manager today?) We watch with glee as our subjects build institutions, navigate the political system, or even get rich. Probably no other discipline is as well positioned to help people make sense of the changing nexus of science, technology, commerce and politics. And yet few people outside of the discipline read any of that great work. Maybe we need Galileo’s Guide to Social Networking, Kelvin’s Course on Commercialization, or Einstein’s Public Relations for Dummies. The lessons that I learned from the history of science are both practical and profound. It’s a shame that more people (like that Stanford law student) just don’t get it.

David Atts is a Senior Consultant at the Advisory Board Company in Washington, DC, where he does best-practices research for higher education institutions. Having made the leap from the ivory tower and survived, he is willing to offer sage advice to others contemplating a similar act of defenestration. He can be reached at david.attis@gmail.com.

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**HSS 2008 Annual Meeting:**

**Call for Papers**

**Pittsburgh, PA, USA**

**6-9 November 2008**

(Joint meeting with PSA)

The History of Science Society will hold its 2008 Annual Meeting in Pittsburgh, PA in the Omni William Penn hotel (site of the 1999 annual meeting). Proposals for sessions, contributed papers, and, for the first time, posters, must be submitted by 1 April 2008 to the History of Science Society’s Executive Office. Papers that are part of a session are due no later than 8 April 2008. Poster proposals must describe the visual material that will make up the poster. The HSS is also exploring the possibility of pre-circulated papers. Please contact the program chairs to discuss this. Electronic submissions are strongly encouraged – please go to http://www.hssonline.org after 1 January 2008.

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 at the 2006 or 2007 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 2008 program co-chairs are Ted Porter (UCLA) <tporter@history.ucla.edu> and Ken Alder (Northwestern University) <k-alder@northwestern.edu>.
As many readers of this *Newsletter* can likely attest, historians turn to Wikipedia for bits of insight into the vast swaths of history they don't know. It's a destination of first resort for things that don't matter enough to require scholarly literature — which for garden-variety historians and scholars in other fields, includes the whole of the history of science. While it may make only marginal headway towards the type of science-enlightened populace sought by so many failed public-education schemes of the past, Wikipedia's power should not be ignored.

The potential is great, but the reality will fall desperately short until scholars become involved with Wikipedia on a larger scale. Historical topics in the modern physical sciences, and to a lesser extent, technology, tend to have the strongest coverage (in terms of comprehensiveness, if not rigor). These are also the areas most dominated by practitioners, and Whiggish content is not uncommon; computer-savvy physical scientists and technologists are over-represented in the Wikipedia community. The histories of the biological sciences have high points (e.g., the biographies of Darwin and Wallace), but overall the coverage is spotty. The history of medicine is sparse, and the history of public health is almost non-existent on Wikipedia.

I became an historian of science because I thought, and still think, that the work of our discipline is more than just intellectually interesting. Garden-variety historians and non-historians need to know about the history of science to do better history and make better sense of the world around them. That is why I think we have a responsibility to engage with public discourse. We have a responsibility to make our work available, both physically and intellectually, to a general audience — a responsibility that cannot be met to any significant degree through modern academic publishing. We have a responsibility to engage with Wikipedia.

**Working on Wikipedia**

For me, tapping into the enthusiasm of talented history buffs and history-minded scientists has been the most rewarding part of working on Wikipedia. Since I started "WikiProject History of Science" in January 2006, 90 Wikipedians have joined the Wikipedia history of science community. There are a couple of anonymous graduate students; a couple more professional scholars, and a handful of others who studied or are studying the history of science or STS as undergraduates. Most of the participants are scientists and other enthusiastic laypeople.

For most historical topics on Wikipedia (the history of science being a partial exception), historians are the recognized authority. Wikipedia's rules and standards for sourcing, though not always met, explicitly support scholarly sources. Even on controversial topics, one sees little resistance once historical scholarship is brought to bear. Experts hold no special place as writers on Wikipedia, but scholars' edits will usually be treated with deference (and, occasionally, insightful suggestions and critiques) if added content is clearly traced to published secondary literature. When one finds poor coverage of a particular historical topic, it is almost always the case that no one with a deep understanding of the topic has worked on it, rather than earlier good work being corrupted.

At its best, editing Wikipedia involves a level of collaboration and feedback that is rare in academia, especially when scholars from different fields work on a common topic. More often, working on Wikipedia is like teaching a class full of students who are already passionate about the subject, a class that includes scientists, high school students, and others who have never been exposed to the perspectives of professional historians of science, and whom we would rarely meet in a classroom.

One concern about Wikipedia for many academics is that articles have no byline, no easy way to claim credit. But the "edit history" of each article reveals every change made; one can check, for example, that User:Ragesoss wrote most of the "History of biology" article. Unfortunately, Wikipedia's current reputation in the academy is worse even than blogging; the most talented graduate-student Wikipedians with whom I've worked hide their real-life identities online and conceal their online identities among colleagues, for fear of ruining job prospects.

Another concern is the gradual decay of high-quality prose and the accumulation of trivial detail, what Wikipedians call "edit creep." Others can and will change your work. However, while writing quality will wax and wane (and rarely retains the full coherence of single-authored prose), factual content supported by precise references is typically very stable. So myths dispelled on Wikipedia tend to stay dispelled. For those of you who would like to see Wikipedia's history of science coverage improve but are put off by the nitty-gritty of editing, there are low-investment ways to get involved. Many educators have reported success with Wikipedia classroom assignments; with the prospect of an audience of peers and strangers, students put more care into their work than they otherwise might. Wikipedia editing can also be a marvelous case study on the production and dissemination of knowledge (and will no doubt be a rich source for future academic work on "science in the vernacular" and the interplay between popular science and professional science). In the most effective assignments, students scout out holes in Wikipedia, then research, write, and post early drafts, and follow the fate of their work over several weeks or months. Biographies based on a single scholarly source make great self-contained topics, but term papers can also work well if planned properly to integrate with existing content. Members of "WikiProject Classroom coordination" (myself included) are available to help manage assignments and guide students through the editing process. If you have review papers or historiographical essays that might make good encyclopedia material and would otherwise go unpublished, I can help forge your work into Wikipedia content. Even just pointing out flaws on an article's discussion page is helpful (preferably with some pointers on what sources ought to be used). The rewards for working on Wikipedia are well worth the effort.

— By Sage Ross
LETTERS TO THE EDITOR

Just a compliment on the two remarkable “First Person” essays in the most recent Newsletter.

The pragmatic advice of Anthony Millevolte sensibly urges historians to make better contact with the communities of scientists who are actually interested in and knowledgeable about the content of science. This dovetailed nicely with the call for broader approaches in research issued by Laura Otis.

I would argue that the normative tendencies in “the discipline” that have made such notions anathema for many scholars in recent decades have led directly to the limited employment prospects for its practitioners that are so nicely documented in the employment survey, where we see 12 permanent positions, six in U.S. universities. History of science deserves a larger audience. Paying attention to these sensible remarks is one way that this could be achieved. I hope people will add these essays to the historiographic part of their course reading lists.

— Tom Archibald
Department of Mathematics, Simon Fraser University

MEMBER NEWS

Michele Aldrich and Alan Leviton have won the Gerald M. and Sue T. Friedman History of Geology Distinguished Service Award, presented by the Geological Society of America.

Eric Brown of Princeton University has won the student award in the history of geology division of the Geological Society of America.

Daniela Bleichmar (University of Southern California) was honored by Smithsonian Magazine as one of “America’s Young Innovators in the Arts and Sciences: 37 under 36.” She was also awarded the 2007 Jerry Stannard Memorial Award for her essay, “Books, Bodies, and Fields: Sixteenth-Century Transatlantic Encounters with New World Materia Medica.”

The University of Chicago Press has awarded the 2007 Susan Elizabeth Abrams Award to Vienna in the Age of Uncertainty, by Deborah R. Coen. The Abrams Prize committee, chaired by Andrew Warwick, found the work to exemplify the life and intellectual study of science.

Yves Gingras (Canada Research Chair in history and sociology of science in the department of History at Université du Québec à Montréal) received in October 2007 the Jacques-Rousseau prize for interdisciplinary award by ACFAS, l'Association francophone pour le savoir, an organization created in 1923 on the model of the BAAS.

Gerald Holton was awarded the 2008 Abraham Pais Prize for History of Physics “for his pioneering work in the history of physics, especially on Einstein and relativity. His writing, lecturing, and leadership of major educational projects introduced history of physics to a mass audience.”

Ken Taylor received the Mary C. Rabbitt Award in the History of Geology (for lifetime accomplishment as a scholar in the field) from the Geological Society of America. The award is presented annually by the GSA History of Geology Division to an individual for exceptional scholarly contributions of fundamental importance to our understanding of the history of the geological sciences.
University of Aarhus Interdisciplinary Network
The University of Aarhus has launched a new interdisciplinary network for science, technology and medicine studies. The network is constituted by more than 45 faculty members and about 20 Ph.D.-students throughout the university. All activities and events are open to anyone interested. For more information contact Peter C. Kjaergaard (idepck@hum.au.dk).

Victorian Studies to Mark Darwin's Birth and Origin of Species
In 2009 Victorian Studies will mark the bicentennial of Darwin's birth and the 150th anniversary of the On the Origin of Species with a special issue addressing the question, "Where is the study of Darwin and Darwinism in Victorian culture heading?" Please contact: Jonathan Smith, at jonsmith@umich.edu.

Science & Education's Darwin Issue
The journal Science & Education will be publishing a special anniversary issue(s) to celebrate the 150th anniversary of the original publication of On the Origin of Species. Researchers working on areas related to Darwinism and evolution education are invited to contribute – a science education perspective is welcome but not necessary. Deadline is 31 December 2008. For further information: http://homepages.wmich.edu/~rudged/darwin.html.

Durham University Accepting Applications
Durham University's Department of Philosophy, Centre for the History of Medicine and Disease, and School for Health are now accepting applications for the 2008/09 class of their M.A. Program in the History and Philosophy of Science and Medicine. Additional information is available at: http://www.dur.ac.uk/hpsm.ma/.

New "Biomedicine on Display" Blog
The "Biomedicine on Display" blog focuses on the interface between contemporary history of medicine and the public engagement with biomedicine and biotechnology, particularly in museums, and it is the first institutional blog in the field. You can subscribe to 'Biomedicine on Display' news items at: http://www.corporeality.net/museion.

Situating Science Cluster
The Social Sciences and Humanities Research Council of Canada has awarded a $2.1 million Strategic Knowledge Cluster grant to "Situating Science: Cluster for the Humanist and Social Studies of Science." The seven-year "Situating Science" project will bring together philosophers, historians, sociologists and anthropologists along with scientists, journalists, museologists, and others, to study the influences that have shaped the field of science, and the influence that science has on our lives. More information on the Situating Science Cluster can be found at: www.situsci.ca.

University of Leeds Open Day
The History and Philosophy of Science (HPS) Division of the Department of Philosophy at the University of Leeds will be holding an Open Day on 1 February 2008, 11 a.m. to 4 p.m. For more information go to http://www.hps.leeds.ac.uk.

Encyclopedia of American Technology
ABC-CLIO is currently producing, under the editorship of Dr. Ed Pershey of the Western Reserve Historical Society, an Encyclopedia of American Technology. If you are interested in receiving more information and/or receiving the list of entries available, e-mail a copy of your c.v. to: Steven Danver at sdanver@abc-clio.com.

New Secretary-Treasurer for AAHM
Dr. Todd Savitt of East Carolina University has stepped down after more than nine years of service as Secretary-Treasurer of the American Association for the History of Medicine (AAHM). He has been replaced by Dr. Christopher Crenner, Associate Professor and Chair of History and Philosophy of Medicine at the University of Kansas Medical Center. Crenner’s research and teaching have focused chiefly on the history of American medicine from the 18th to the 20th centuries, with an emphasis on the development of scientific medical practice.

European Union Documents at Pittsburgh
The Delegation of the European Commission to the U.S., Washington, D.C. recently donated their entire library collection to the University Library System (ULS), University of Pittsburgh. Established in the early 1950s, this library received a complete collection of European Union (EU) official documents and publications. This 1952-2007 collection comprises the most extensive collection of EU documents and publications in North America. This collection includes: about 3,000 linear shelf-feet of paper publications and documents; 120 linear feet of microfiche; 650 linear shelf feet of "research files," which are folders of documents collected by subject. The collection is especially strong in the following: agricultural policy; competition policy; economic, financial and monetary affairs; employment policy; environmental policy; internal security; occupation health and safety; regional
development; research and development; external security; foreign aid; and foreign trade. Over the coming years, the ULS will digitize many documents from this collection and upload them onto its Archive of European Integration at http://aei.pitt.edu, which already contains over 3,600 EU documents. For information on the contents of, or access to, this collection, contact Phil Wilkin at pwilkin@pitt.edu.

Call for Physics Contributions to an Encyclopedia of Science and Technology
Contributions requested for a multi-volume encyclopedia on science and technology addressed to high school and junior college students. The editor is looking for essays that address the general topics of what is science, how is it done, who does it, and what is its relation to general societal issues. Essays on history or ethics – either within science itself, or on the relation between science and society – are welcome. Alvin M. Saperstein is looking for historians of physics who would be interested in writing such essays. Please contact him at: Newsletter of FPS, APS, Wayne State University, Detroit, MI 48202. E-mail: ams@physics.wayne.edu.

Call for Contributions: History of Aviculture
Contributors sought for an anthology about cultural and historical aspects of aviculture, i.e. a cultural history of keeping birds in captivity for pleasure, ornamental reasons, or various practical purposes. The book will bridge the disciplines of ethnology, history, cultural studies, natural history, and ornithology and is intended to benchmark the development of the subject for a broader audience. The maximum length of each chapter should not exceed 7,000 words (including bibliography). Deadline 1 July 2008. Contact Ingvar Svanberg at ingvar.svanberg@eurasia.

In Memoriam
Frederick Burkhardt died on 23 September 2007 at the age of 95. A long-time member of the HSS, Fred served as president of the American Council of Learned Societies from 1957 to 1974. He developed the ACLS’s programs, financial stability, and robust relationships with the academic world. On the scholarly front, Fred Burkhardt was the prime mover in launching the Darwin Correspondence project, and stayed active in the management and scholarship of the project until his death. In this he made a monumental contribution to the study of the history of biology.

James Cassedy, a longtime staff member of the History of Medicine Division of the National Library of Medicine. In the words of Elizabeth Fee, HMD Chief, “Jim was an eminent and highly productive historian of medicine as well as bibliographer/indexer extraordinaire, consummate professional, and delightful colleague.” Cassedy’s government service extended over more than a half century. He will be remembered best as the driving force behind HISTLINE and the printed volumes of the Bibliography of the History of Medicine.

William (Bill) Golden died on 7 October 2007. He was 97. Bill Golden was not only a life-time HSS member and supporter of the history of science, he was a central figure in American science. He is credited with creating the position of the White House science advisor and was an officer at the American Association for the Advancement of Science for three decades. His generosity toward science and science history will be long remembered.

NEWSBRIEF

The Papers of Joseph Henry received the 2007 Eugene S. Ferguson Prize for original reference works that support future scholarship in the history of technology.


Climate Ethics, a new academic Web blog, follows the ethical dimensions of climate change issues in policy making. Subscribe at http://climateethics.org.

The Charles Babbage Institute's new blog is located at http://blog.lib.umn.edu/horow021/cbi. CBI is an archives and research center at the University of Minnesota dedicated to preserving the history of information technology and promoting and conducting research in the field.


Keith Wailoo, Martin Luther King Professor of History at Rutgers University, has been elected to the Institute of Medicine, one of four learned academies that advise the government on scientific matters. Wailoo, a historian of health and medicine, has helped shape new understandings of disease, politics, and culture in America.

On Being an Independent Historian

After a slow start, Pamela O. Long made a successful academic career outside the university system. Here, she discusses ways and means of being an historian without a university paycheck.

There are plenty of us out here, so it seems reasonable that we should claim some cultural space beyond the usually unspoken designation of those who have failed to get an academic job. In my view, being an independent historian is not only possible (both economically and intellectually), but should more often be considered a legitimate alternative to being a historian in the academy. In our profession, a tenure-track job and thereafter, tenure, is taken to be virtually an absolute measure of success. Certainly, I have not been immune and at various times have applied to tenure-track academic positions, all of which were offered to better candidates.

There are other humanist and creative disciplines though, for which the position one holds is not the key indicator of success. Rather it is the work that one does. Take artists and writers. Many of them have academic jobs, but many do not. The measure of their success is usually based on what they paint or what they write. It would be good for our profession to move a bit closer to this focus on the work as opposed to the position. Unlike say, scientists, who need expensive equipment and virtually never work alone, most historians, like novelists, are able to work by themselves without permanent institutional ties.

An important issue for all historians is how to find the conditions to do excellent, original, or even ground-breaking historical scholarship at a reasonable rate of productivity. An academic position can certainly provide such conditions, but, as we all know, it may also provide just the opposite. I suggest, and my own experience proves, that it is possible to craft a reasonable alternative as an independent historian. And of course that crafting includes the necessity of achieving a basic income.

After I received my Ph.D., I was definitely a slow starter in terms of publications. I had a post-doctoral fellowship and a one-year teaching position, and had revised my dissertation into a book. When the manuscript was rejected by the first press I sent it to, I decided it was awful and never sent it out again. (I was clueless.) Initially, I didn't have better luck with a long article I had written. Five years after I received my Ph.D., I did not have a single publication. I have been making up for lost time ever since.

In those early postdoctoral years, my partner and I and our infant daughter moved from Manhattan to Washington, and I found what seemed to be the perfect job for me – a permanent half-time position (with benefits) as a literary examiner in the U.S. Copyright Office at the Library of Congress. I worked four hours a day at my job, walked across the street to my study facility in the L.C. and worked on my own research for two hours before going home to spend time with my daughter.

During this time, I decided that since I was a complete failure at being a historian (no one would have disputed this), I was free to do whatever kind of history I wanted to do in the way I wanted to do it, no matter what anyone thought about it. I recall how liberating this conclusion was, how it freed me from all kinds of imagined constraints as I plunged into my new work that concerned craft knowledge and craft transmission in premodern Europe. This was the ground on which I built all my subsequent work. In one of my favorite movies, My Architect, about the architect Louis Kahn, an interviewee was asked about Kahn’s failure (probably because he was Jewish) to get many commissions in Philadelphia. The respondent said something to the effect that one should never regret such negative circumstances in hindsight – that they may constitute in fact the very basis on which a person does his or her best work. Although I have not yet made my trek to Bangladesh to see Kahn’s superb masterwork, I take this comment to heart. It was certainly true of my own circumstances.

Key events furthered my own work. No matter how many publications I accumulate, I will always remember when my first article on the Vitruvian commentary tradition was accepted at a peer-reviewed journal, the process overseen by a diligent editor who had read the manuscript carefully and seemed to truly appreciate it. No matter how many grants and fellowships I receive, I will always remember my first NSF grant in 1987, which I viewed as a miraculous event. Both circumstances gave me hope in the real world. I happily quit my tenured job at Copyright to take the NSF grant and a chance to work on my research full time.

Over the years I have constructed a patchwork of grants and fellowships, contract work, and visiting teaching positions. Along with my partner, who is also self-employed, we have constructed a perfectly satisfactory middle-class (by no means wealthy) life in which his contribution has always been...
I decided to never again teach an adjunct course — meaning a course for which I was paid $2,000-3,000 with no benefits — and I never have. My private slogan became: “For McDonald’s wages, I work at McDonald’s.”

Every scholar has his or her own way of working. Despite my best intentions, I often am working on three or four major projects at the same time. Being an independent historian allows me to do this and also maintain reasonable productivity. I have also taken on complex tasks that I could not have managed as an academic. One has been the co-directorship of the Michael of Rhodes project, a forthcoming (MIT Press) three-volume edition of a fascinating manuscript written by a man who began his career in 1401 as an oarsman on a Venetian galley.

An on-going project consists of research for a book about engineering in a 30-year period in sixteenth-century Rome. My approach is to read entire 30-year runs of particular types of archival records — time consuming, but I have made many discoveries thereby. It’s doable because I can apply for grants every year without waiting for sabbaticals.

I read widely in a way that would simply not be possible if I had an academic position. When I’m at home (not on a research trip), I get up whenever I feel like it, usually at five or six in the morning, make coffee, and read for two or three hours before I start writing or go to the library. I find this reading and thinking essential to the work I do.

Every scholar has his or her own trajectory and I’m not suggesting that mine could or should be followed by anyone else. But I have discovered that independent scholarship is not just a default position, but a real alternative. We independent historians are in many places working away, often within constraints economic and otherwise, to be sure, but also free of the often onerous restrictions imposed by routine academic employment. Like the work of many painters and poets, my work (in this case historical scholarship) is at the very heart and center of my intellectual and creative life. I actually spend all my time doing it. What could be better than having work that you absolutely love to do, and the chance to actually do it, all day every day?

— Pamela O. Long

Lightman and Weldon Renewed

In 2007, the Committee on Publications (CoP) had the very pleasurable and illuminating tasks of evaluating Society Editor, Bernie Lightman, and Bibliographer, Stephen Weldon, for renewal as Society Editor and Society Bibliographer, respectively. This occasioned visits both to the Isis editorial offices at York University in September 2006 and to the offices of the Bibliographer at the University of Oklahoma in Norman in January of 2007.

At York, members of CoP met with the members of the Isis editorial team and with key administrators to evaluate Lightman’s work as Society Editor, his leadership capabilities, and his creative efforts relative to HSS publications. CoP found — not at all to its surprise — that Lightman has assembled a team that works like a well-oiled machine in processing the manuscripts and books for review and in producing the high-quality, intellectually rigorous journal that all of us look forward to reading quarterly. CoP also heard from all administrative quarters of the importance of Isis to the research and educational goals of the university and of Lightman’s role in creating and maintaining an intellectual and pedagogical focus for the history of science on campus and beyond. CoP’s interviews with other interested parties off campus further confirmed the esteem in which Lightman and his work as Society Editor are held. The “high quality” of Isis was repeatedly underscored as was the congenial working environment Lightman promotes. One person perhaps said it best: “I don’t think I could ask for a better colleague to work with than Bernie Lightman.”

In Norman, members of CoP discovered, again not at all to its surprise, a smoothly functioning bibliographic operation under Weldon’s direction. Interviews with members of Weldon’s staff, members of the History of Science Department of which Weldon is a part, and University administrators revealed strong support for Weldon’s work and appreciation of the prestige that the Current Bibliography brings to the Oklahoma campus. Weldon’s organizational skills and his sheer tenacity in ferreting out sources impressed everyone. Weldon and his team are succeeding in bringing the CB back to the magic 4,000-entries-per-year level, established by John Neu, that allows all of us to keep up not only with our individual subspecialities but also with the field as a whole.

The renewals of both Lightman and Weldon — for second five-year terms — received the unanimous approval of CoP, the Executive Committee, and Council of the Society. Please join the members of CoP in congratulating Bernie and Stephen for their jobs very well done for all of us in the Society and in the profession!

— Karen Hunger Parshall
Chair, CoP
When was your program established and how has it developed since its inception?

Our undergraduate program was established in 1993 with the founding of the Department of Philosophy and History of Science at the University of Athens. We began to admit students in the academic year of 1994-1995. The number of students we accept every year has remained stable (100 undergraduate and 25 graduate students), but the number of faculty has expanded considerably. There are currently 25 faculty members whose research areas include history, philosophy, history of science, philosophy of science, and cognitive science. History of Science and Technology comprises one of the three divisions of the Department, the others being in Philosophy and Philosophy of Science and in Cognitive Science. Those who work on history of science and technology are:

- Theodore Arabatzis (19th- and 20th-century physical sciences)
- Jean Christianidis (Greek mathematics)
- Dimitris Dialetis (ancient mathematics and astronomy)
- Konstantinos Dimitracopoulos (logic)
- Stavros Dracopoulos (history of economic thought)
- Konstantinos Gavroglu (19th- and 20th-century physical sciences)
- George Gotsis (history of social sciences)
- Katerina Ierodiakonou (ancient science and philosophy)
- Manolis Patiniotis (18th-century and modern Greek science)
- Telis Tymas (20th-century technology)

Furthermore, we are in the process of hiring another historian of the physical sciences.

Our department has been successful in obtaining funds from the European Union, the European Science Foundation, the Greek Secretariat for Research and Development, as well as from private sources.

Every year some of the graduates of our program decide to pursue post-graduate study and research in history of science. Some of our best students have been admitted to top foreign institutions (e.g., Cambridge, Imperial College, Oxford, Leeds), as well as to our own graduate program in history and philosophy of science and technology. This program is a joint program of our HPS Department and the Department of Applied Mathematical and Physical Sciences at the National Technical University of Athens.

Some of our colleagues from the National Technical University also specialize in history of science:

- Michalis Assimakopoulos (science and technology studies)
- Vassilis Karasmanis (ancient science and philosophy)
- Yannis Milios (economic thought)
- Maria Renetzi (20th-century physical sciences, gender & science)

What are the comprehensive exam fields?

Our Masters program takes two years. Our graduate students have to complete the following course requirements: a course on logic; five graduate courses, at least one of which has to be in philosophy of science, one in history of science and one in history of philosophy; four research seminars; they are also required to write a Master's thesis.

What are the faculty, program, and resource strengths?

Our program is also strong in philosophy of science, covering general philosophy of science as well as the philosophy of specific sciences (physics, chemistry, economics, and psychology), and in cognitive science (cognitive psychology and neuroscience).

Our library is strong in recent literature on history and philosophy of science. We have also access to a wide variety of digital sources. Among those particularly noteworthy is Hellenomnimon: A digital library of Greek books and manuscripts on natural philosophy from 1600 to 1821. This library has been developed by our Laboratory for the Electronic Processing of Historical Archives (www.phs.uoa.gr/dlab). For further information see http://www.lib.uoa.gr/hellenomnimon/. Furthermore, many of the faculty members are active in the editorial board of Neusis, the only journal in the history and philosophy of science published in Greek. Neusis has been published twice a year since 1995.

What are some recent doctoral dissertations that have been produced by graduating students?

- Yiannis Antoniou, "Engineers and Engineering Studies in Greece in the 19th and early 20th Century"
- Christiana Christopoulou, "Robert Boyle's Investigations of Cold"
- Filippos Fournarakis, "A New Interpretation of Greek Geometrical Analysis"
- Nikos Kanderakis, "A History of the Concept of Work"
- Elena Maniati, "The History of Pharmaceutical Chemistry in the University of Athens"
- Sotiris Papaharisis, "Early Greek Mathematica"
- Manolis Patiniotis, "The Appropriation of Newtonian Natural Philosophy by Greek Scholars in the 18th Century"
- Stathis Veltos, "Chemists as Historians in the 19th Century"
- Pantelis Venardos "The Problem of Capillarity from Laplace to van der Waals"

Further information about our program can be found at:
When was your program established and how has it developed since its inception?

The origin of UCSB's Program in the History of Science, Technology, and Medicine stretches back to 1965 and the arrival on campus of the historian of technology, Carroll W. Pursell, Jr., who had claimed his Ph.D at UC Berkeley in 1962 under A. Hunter Dupree. Lawrence Badash, a historian of the physical sciences mentored by Yale University's Derek de Sola Price, arrived the next year. Badash devoted his considerable energies to the history of science and taught classes from antiquity to the present. Pursell, who in 1989 moved on to lead history of technology activities at Case Western Reserve University, taught history of technology and engaged in public historical activities while at UCSB. Badash retired in 2002, and both mentored several dissertations, including those of the consulting historian and UCSB lecturer, Peter Neushul, and Professors Zuoyue Wang of California State University, Pomona; Lynne Stark and Elizabeth Hodes of Santa Barbara City College; and Jacob Hamblin of Clemson University.

Current Program members and their topics and areas of expertise include: Anita Guerrini (Early Modern and Enlightenment Europe, anatomy, emergent diseases, and human experimentation), Michael A. Osborne (Modern Europe, imperialism, biology, medicine), W. Patrick McCray (Cold War science and technology, emerging technologies), and Gabriela Soto Laveaga (Modern Latin America, race, and bio-prospecting). Strongly enhancing Program activities are Chicano Studies Professor Gerardo V. Aldana (indigenous science and culture in Latin America), and Program lecturers Peter Neushul (American technology), Peter Westwick (recent technology and the physical sciences), and Gregory Graves (American environmental history).

What are the comprehensive exam fields?

The Program is one of more than a dozen Ph.D. tracks within the department of history. Students must complete three research seminars: one on ancient science; one on the Scientific Revolution; one on the specialized historiography of HSTM; and one course on modern medicine, science, or technology. Three written comprehensive examinations of three hours each, followed by an oral examination on these and a fourth field (often external to the history department), and competence in one foreign language, and an acceptable dissertation prospectus, complete the transition to ABD status, which most students complete in three years or less.

What are the faculty, program, and resource strengths?

Our programmatic strengths lie in the Early Modern and Modern eras, principally in the history of health and healing, American technology and physical science, environmental topics, and the sciences of Europe and Latin America. Program faculty support graduate students from a number of external grants, including the National Science Foundation, the National Endowment for the Humanities, the California Institute of Regenerative Medicine, and the Templeton Foundation. This is in addition to university and department fellowships and funding.

UCSB is ideal for graduate students who seek an entrepreneurial academic environment with historical interests in the post-Renaissance era. The Program and history department are also appropriate for those students seeking to develop the skills to teach the "bread and butter" survey classes of many history departments: U.S., European, World, Latin American, or environmental topics in addition to history of science, technology, and medicine. The Program's profile is an interdisciplinary one, and students make frequent use of funding and intellectual opportunities offered by the Center for Early Modern Studies, the Center for Nanotechnology in Society, and the Center for Cold War Studies and International History.

UCSB is a medium-sized campus where five faculty members have won Nobel prizes in the last nine years. We strive to provide students with substantial individual attention. Graduate students select programs for diverse reasons and while the social character of ours is difficult to characterize, one former student recalls deciding on graduate study in the history of science because his major professor wore sandals and shorts to his initial interview. That same student received two job offers upon graduation, and has recently been seen in a tie, as well as a wet suit, but not simultaneously. Badash organized many "death marches" for faculty and students, meaning hikes of several miles and indefinite duration, usually in the Santa Barbara front country but also on the Pacific Crest Trail. One now tenured and prize-winning graduate remembers learning more history of science while hiking and during informal activities with professors than he did in class, and a current tenured professor at an unnamed institution was so caught up in the Gaia hypothesis that the hiking group she led missed a crucial turn and hiked several additional but memorable miles. That we followed her lead and continued discussing our own intellectual imperatives of Darwin, the importance of kelp in military technology, and Newton's true derivation of the inverse square law is indicative of the possibilities of graduate study here.

(Continued on p. 21)
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Reptionism, we often think, is a conservative Christian preoccupation. In the United States, young-earth creationists insist that the universe and all life were created in six days about six thousand years ago. There is also the newer intelligent design movement, which is a potent source of pressure on science education. Christian-flavored anti-evolutionary thought has a worldwide constituency, surfacing in Canada, Britain, Poland, Australia, Africa, Russia, and elsewhere. Still, attempts to promote "creation-science" and intelligent design as alternatives to mainstream science seem especially strong in the United States.

Muslim populations, however, provide a countereample to this picture. Indeed, Islam has been the world religion that has proved most resistant to Darwinian evolution. Creationist distortions of science enjoy considerable support among modern Muslims. Among devout Muslim intellectuals, antievolutionary views are not fringe ideas but mainstream options. And Islamic versions of creationism have enjoyed official support to a degree that is the envy of American creationists. In many ways, the world's most successful creationists are those who rise up to defend Islam, not Christianity.

Muslim thinkers first encountered evolution in the late nineteenth century, in the context of efforts to import Western knowledge. For example, both Arabs and Turks in the decaying Ottoman Empire looked toward Europe for the latest and the best of modern science, and when Darwinian ideas attracted attention, evolution became a matter for debate among Muslims. A handful of intellectuals embraced evolution wholeheartedly. These, however, belonged to a very small, secularist, radically Western-oriented minority. Indeed, such intellectuals did not care much about biology; they took Darwinian ideas to be part of nineteenth-century materialism and celebrated evolution as a prime example of how science could overcome ossified religious ways of thinking.

Most Muslim thinkers were more cautious. While positive toward technology and other forms of useful knowledge, they were also deeply concerned about limiting European influence on their local cultures. Encountering Darwinian ideas as part of a materialist critique of supernatural beliefs, devout Muslims rejected evolution as an impious philosophy. Traditional religious scholars did not need to learn much to denounce the "Darwin hypothesis," but more reform-minded intellectuals also responded negatively. For example, Jamal al-Din al-Afghani, one of the leading figures in early Islamic modernism, had nothing but praise for science, and using European science to revive Islamic intellectual life was an important theme in his proposals for reform in Muslim lands. Nevertheless, he attacked evolution as an absurdity that was unacceptable to Muslims.

So the initial reaction to Darwinian evolution among Muslim thinkers did not go further than a superficial response, whether in the form of enthusiasm among the very few or more widespread rejection. Evolution did not penetrate into popular consciousness. And even those devout intellectuals who felt a need for a more modern apologetic for traditional beliefs rarely paid evolution much attention. Said Nursi, the most important religious thinker in early twentieth-century Turkey, was typical in this regard. Throughout his career, Nursi tried to develop a modern but orthodox Muslim response to Western intellectual influences, including Western science. Writing on what he saw as the materialist mistakes incorporated into science, Nursi included denunciations of evolutionary thinking. But his attacks on evolution never went into any great depth; he was more preoccupied with classical Muslim philosophical themes such as showing how natural causality was a deeply flawed concept.

Until recently, Muslim discomfort with evolution rarely went beyond assertions of
incompatibility between Darwinian biology and traditional Islam. Muslim countries became exposed to secular political ideas and harbored westernizing intellectuals, but scientific matters such as evolution did not take center stage in heated debates about achieving culturally authentic forms of modernity. Public science education tended to focus on physical and applied science. And since evolution did not become a major theme in education, it did not provoke a conservative reaction. With limited penetration of Darwinian ideas, there was no constituency for a creationist movement that went beyond religious affirmations of special creation and distrust of ideas with materialist connotations. In particular, conservative Muslims felt no need for a creationist pseudoscience proclaiming that science, when done properly, supports traditional beliefs about nature and its creator.

This picture of somewhat passive resistance to evolution has, however, been changing. In conditions where conservative Muslims have been strongly challenged by local westernizers or otherwise been exposed to modern scientific views of nature in public education, low-key resistance to evolution has had an opportunity to develop into affirmations of creationist pseudoscience.

The example of Turkey is most illuminating, as Turkey has been the most Western-oriented among Muslim countries, and has recently taken the lead in Islamic creationism. The Turkish Revolution of the 1920s and 1930s established an official secularism, removed overt religious influences on education, and inserted evolution into the curriculum. This did not immediately lead to creationist activity; in any case, the Turkish state exerted much control over cultural life. Popular resistance to state-imposed secularization included distrust of evolution, but evolution remained a relatively small offense against religion in an educational system that promoted privatization of religious sentiment.

Until recent decades, Turkey presented a picture of grudging but gradual secularization. There was little creationist literature of note, and anti-evolutionary activity was confined to the subculture of a strictly observant, self-consciously orthodox minority. Some popular religious movements explicitly opposed evolution; the most significant was the Nur movement inspired by the writings of Said Nursi. In keeping with their modernizing, pro-technology outlook, adherents of the Nur movement were attracted to claims that modern science affirmed traditional Muslim beliefs. Evolution remained unacceptable, and literature inspired by the Nur movement regularly charged evolution with being non-scientific as well as offensive to true religion. Little of this, however, drew attention from the secular elites who dominated most public culture.

In the 1970s, political Islam started to gain strength in Turkey as well as the rest of the Muslim world. Evolution became a minor culture war item, as a way for Islamists to demonstrate opposition to secular life without taking the risk of naming official secularism as a target. But creationism came into its own only in the mid 1980s, when in the aftermath of a short period of military dictatorship, religious conservatives gained control of the Turkish Ministry of Education. These conservative Muslims thought evolutionary ideas were morally corrosive, yet they found themselves in an environment where science commanded significant cognitive authority. So they needed a way to suggest that evolution was a fraudulent, scientifically dubious idea. They found the resources they needed in American "scientific creationism," and invoked Christian creationists in a curious mirror image of the way Turkish secularists regularly relied on Western scientific authorities. While the Muslims downplayed some features of popular American creationism such as a young earth and flood geology, they adopted the bulk of the anti-evolutionary debating points developed by their Christian counterparts. Indeed, the Ministry of Education had many instances of creation-science literature officially translated and made available to high school teachers and libraries. Since this mid-80s breakthrough, Turkish textbooks have often contained anti-Darwinian or explicitly creationist material. The creationist paragraphs have disappeared in the infrequent occasions when secularist parties have shared power and reappeared when Islamists returned to government. At present a moderate Islamist party sympathetic to creationist views holds power. This party won another overwhelming electoral victory in 2007, and it looks like conservative Muslim concerns will continue to influence Turkish science and education policy for the foreseeable future.

The constituency for creationism is not traditionalists but modern people, even though creationists typically affirm conservative doctines and traditional beliefs. It is precisely because many devout Muslims want to take their place in the modern world, where mastering technology is the key to success, that creationists fashion a pseudoscience that promises to harmonize science and their religious convictions. For example, the ever-popular Nur movement has been and continues to be instrumental in the development of Islamic creationism in Turkey. And social scientists have emphasized the modern character of the Nur movement. Such movements are especially notable for their enthusiasm for technology and embrace of capitalism. Nur adherents do not depart from traditional doctrines, but their leadership structure and modes of religious participation are decidedly non-traditional.
The constituency for creationism is not traditionalists but modern people, even though creationists typically affirm conservative doctrines and traditional beliefs.

This, in fact, is an important difference between Islamic and Christian creationism. In Turkey and in other Muslim countries, anti-evolutionary views find plenty of elite support, including among academic theologians and scientists. In North America and Europe, the more sophisticated intelligent design variety of creationism exists on the fringes of intellectual life. In the Muslim world, ideas similar to intelligent design tend to be respectable intellectual options. Indeed, intelligent design itself has begun to attract attention in Turkey. Many intelligent design books have been translated, and in 2007 the local government of Istanbul sponsored public meetings promoting intelligent design.

The last 10 years has seen a deepening of the popular appeal of Turkish creationism. Moreover, Turkish creationism has attained an international influence. The central figure in this development is Harun Yahya, a pseudonym that serves as a brand name for an ubiquitous, well-funded, and media-intensive form of creationism. In content, there is nothing new in the Yahya material: scientifically negligible arguments and outright distortions often copied from Christian anti-evolution literature, presented with a conservative Muslim emphasis. The range and production quality of this material, however, is impressive. Large numbers of glossy books, magazines, videos, Web sites, and public events make Yahya’s simple, intuitively appealing creationism available to a large public. None of this material focuses on a conservative Muslim subculture; from its presentation style to its use of everyday language, Yahya material is designed to be marketed to ordinary, modern Muslims who need not be attracted to strictly observant varieties of Islam. Furthermore, Yahya material is artificially cheap, and is often distributed free of cost. Clearly the Yahya enterprise has considerable financial backing, though the source of these funds remains unknown.

Turkish scientists have tried to counter such popular creationism, but in the public arena, the creationists have clearly won the day. Building on their success in Turkey, the Yahya brand of creationists have more recently gone global. Today, Yahya publications are available in languages spoken by Muslim populations all over the world. Yahya books are prominently displayed in Islamic bookstores in London, used in classrooms in Pakistan, promoted by speaking tours in Indonesia. Very recently, as a publicist stunt, the Yahya organization mailed copies of a volume of a typically lavish produced encyclopedia called Atlas of Creation to scientists and educators in Europe and North America, drawing media attention outside of Muslim circles. We now have a global variety of Islamic creationism that goes beyond long-standing Muslim resistance to a Darwinian conception of life. Many modern Muslims are attracted to claims that Darwinian evolution is scientifically false, and that science, properly done, supports Quranic notions of special creation.

Muslims hold a variety of views on evolution; Yahya-style creationists do not speak for all. Some Muslim thinkers accept evolution in the sense of descent with modification, provided that this evolution is explicitly divinely guided. Even such comparative liberals, however, almost always reject the Darwinian, naturalistic view of evolution that is current in natural science. Human evolution meets with particularly strong rejection. Indeed, it is safe to say that most committed Muslims take naturalistic evolution to be religiously unacceptable. Most would consider the evolution of complex life forms through natural mechanisms alone, without the visible direction of a divine intelligence, to be an intellectual absurdity. The Harun Yahya material has no scholarly standing whatsoever. But more sophisticated anti-evolution views have wide currency among serious Muslim intellectuals, including very well-known Western-based scholars of Islam such as Seyyed Hossein Nasr.

Moreover, in the Muslim world, defenders of Darwinian evolution suffer from an extra handicap due to their association with political secularism. Especially in the last few decades, secularism has been increasingly discredited as an alien cultural imposition, a tool of despot regimes, and the ideology of westernized elites who have lost touch with the pious bulk of Muslim populations. In European history, the development of popular democracy included an anticlerical element, so that developments favoring science, secularism and democracy have often reinforced one another. In Muslim populations, however, anti-evolution sentiments usually belong to political moderates and democratic forces more than to stereotypical militants. Indeed, the recent trend has been that in Muslim lands, more democracy has meant increased religious populism, less political secularism, and a tension between democracy and elite institutions such as science.

We should expect that creationism will continue to enjoy a strong following in Muslim populations. The prospects for a Western-style accommodation between science and religion, where each have their separate cultural spheres, are doubtful. Culturally and politically, conservative interpretations of Islam are very strong, and conservative Muslims see little reason to back off from their ideal of religion at least distantly regulating all aspects of life. The notion that revelation must condition how we understand the world remains a dominant, though not exclusive, theme in Muslim intellectual life. All this may change, as this is a time of experimentation and rapid religious change for Muslims. Political Islam, for example, may yet fail, especially in its promise to make Muslims equal players in the realm of technology-driven development. Conservative failure could create more space for theologically more liberal versions of Islam and for the autonomy of science. But at least in the short term, the Islamic world will continue to harbor very serious tensions between science and religion.

Taner Edis is associate professor of physics at Truman State University, Kirksville, MO, USA. His most recent book is An Illusion of Harmony: Science and Religion in Islam (Prometheus Books, 2007).
HSS 2007 Prizes

In this issue we profile two prize winners. For a complete list of winners see page 25.

Kaiser Wins the Pfizer
HSS’s Prestigious Book Award Goes to David Kaiser

The intersection between theoretical physics and visual culture provided David Kaiser with an opportunity to write a book that speaks to the kind of people who often don’t speak to each other: historians, philosophers, sociologists, scientists, and even art historians. "Philosophy of science cares about representation and theory change; sociology about training and making cohorts. For history of science, one way to understand the daily practice of modern physics is by looking at tools and how they are used. We’ve been doing that with physical tools, but not with paper and pencil tools.”

Kaiser won the 2007 Pfizer Prize for Drawing Theories Apart: The Dispersion of Feynman Diagrams in Postwar Physics (University of Chicago Press, 2005). The distant origins of the book lie in his reading of Martin Rudwick’s classic 1976 paper as a second-year physics undergraduate at Dartmouth College. “The Emergence of a Visual Language for Geology, 1760-1840” helped introduce knowledge of the visual to history of science. “It did an amazing job in showing how an image can go from being seen as a useful model to depict the world, to being taken as real in a way that its founders did not intend,” says Kaiser. “In the very beginning of the article, Rudwick says that this sort of thing never happens in the mathematical and physical sciences, but that they are important for the geological sciences. Naomi Oreskes said to me: ‘Is that true?’ I said: ‘What about Feynman diagrams?’ Being a gifted teacher, she replied, ‘Well, what about them!’ (Naomi knows all about ‘teachable moments.’) Thirteen years later, when my book came out, I tried to give her my answer.”

As a high school student, Kaiser was fascinated by popular science writing and the stories of the great scientists. Those stories led him to study and do physics. Joseph Harris, Kaiser’s undergraduate physics advisor – and the kind of person who kept analyses of Italian post-modern fiction on his desk alongside the latest physics journals – sent him off to meet Naomi Oreskes and Rich Kremer, and told him that such people actually made a living as historians of science. Oreskes and Kremer quickly taught Kaiser that history meant much more than the heroic narratives of the popular science genre. Moreover, Oreskes’ example of an historian of science with Ph.D.s in both history and science, and who maintained strong links to her scientific field of geology, gave Kaiser the confidence to do his Ph.D.s in parallel (he applied to three institutions six times). These days Kaiser has dual appointments in the Program in Science, Technology & Society and in the Department of Physics at the Massachusetts Institute of Technology. “In addition to its own rewards,” says Kaiser, “physics research keeps certain skills sharp that I want to draw on in my historical work.”

Drawing Theories Apart focuses on the mostly informal means of training and teaching in postwar physics and why that was so crucial to getting Feynman diagrams into circulation. Kaiser’s main history advisor in graduate school, Peter Galison, had honed a focus on the daily routines and practices of laboratory life, which helped Kaiser think about theoretical tools such as Feynman diagrams. Kaiser’s first take on an art-historical approach to the diagrams emerged in a term paper he wrote for one of his other advisors, Mario Biagioli. Sam Schweber, Kaiser’s third advisor, was the resident expert on both the physics and history of quantum field theory, out of which Feynman diagrams emerged. Other insights, says Kaiser, came from Andy Warwick and Kathy Olesko, who had both championed pedagogy and training as crucial lenses for understanding how sciences change and develop.

A Ph.D. in physics may have helped clarify some of the technical details, but Kaiser also had to grapple with topics from McCarthyism to art theory. In the last chapter, Kaiser explicitly addresses the art historical theme of why certain pictorial styles persist. “We take for granted linear perspective, yet most art historians will say that it’s a useful artifice and that the style has a history; it had to be accepted and normalized before it became second nature. That was what I was grappling with in Feynman diagrams. They were rejected by physics leaders in the strongest of terms, yet were soon taken up to understand how the world works, and then attributed a realism that neither the innovators nor their first audience recognized or intended.” Kaiser sees a certain irony in the fact that the same theoretical lens used to analyze Renaissance styles and methods of painting is also applied to Feynman’s minimalist line drawings. “Art historians often describe these lush styles of depictions and debate why this or that style persists. But these are beautiful objects of art, not stick figure drawings. I thought art historians would gag on my using their ways of making sense of things. Yet some art historians, like James Elkins, were excited; they felt that mundane or non-artistic images needed to be studied, too.”

Reaching his audience, whether scientists, historians of science, or art historians, is important to Kaiser. In the belief that art historians would not read a book on theoretical physics, Kaiser published his art history argument first in Representations.

(Continued next page)
The book, says Kaiser, almost never came out. At the first press, the book languished for many months with no formal decision, until he was advised to try other presses. After then submitting to the second press, this publisher in turn told him that the book could only be expected to sell 250 copies at most and that it was “too creative and original for us to publish.”

“I didn’t include the technical physics parts. Representations told me, ‘We think it’s great, now take all the physics out.’ I thought I had. That was a good lesson in audience.’ Kaiser also goes beyond the strictly academic community in his writings for American Scientist and Scientific American. Story is important for these formats, says Kaiser, though there is a growing realization amongst the magazine editors that history can play an important part in the narratives. “Some of these editors are working hard to get critical perspectives as to why certain things happened and to get beyond the old-style grand heroic tales, and are eager for more writing with historical content.” Deciding what to include and, even more critical, what to leave out is a challenge. “It forces me to ask what is important — and it’s often not the picky debates between scientists or scholars — and to also ask whether this would be of interest to more than 10 people. The trick is in how to get across some of the insights that we as a scholarly community have worked so hard for in a format with no footnotes and short wordcounts. It’s a fun challenge.”

Despite the book being solicited by two different publishers, publishing at a time of university press cut backs and shrinking library budgets proved difficult. The book, says Kaiser, almost never came out. At the first press, the book languished for many months with no formal decision, until he was advised to try other presses. After then submitting to the second press, this publisher in turn told him that the book could only be expected to sell 250 copies at most and that it was “too creative and original for us to publish.” “I was starting to sweat; I had been strung along for 20 months,” says Kaiser, “and I needed a book contract to keep my job.” Then Christie Henry from University of Chicago Press called and offered the book a home. “I did my best to pretend on the phone, to say ‘Thanks, I’ll think about it,’ rather than blurting out, ‘Thank God.’” Kaiser offered the “too creative” rejection letter as an advertising blurb for the back cover of the book, but UCP demurred. Though Kaiser laughs about the situation now, at the time it was anything but amusing. “It was pretty serious, and a common story for many friends at my career stage — not always with a happy ending. It’s harder for presses to take a risk on first-time authors, especially in a small field like ours. It speaks to larger themes in the tenure-track process — many tenure decision-makers wrote their first books in a time of plenty, now we are publishing in times of famine, and I often sense a disconnect, with these people not realizing how hard it can be to get published.”

Kaiser is now in the middle of a new book about physics and the cold war and the more formal processes of making physicists. “Post-World War II physics grew faster than any other field in terms of graduate enrollments. This book takes the graduate enrollment curve as a leitmotif — why did people want so many physicists, what did the students want out of a job in physics, and how did people respond in classrooms?”

— By Michal Meyer

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**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 2008.

**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 2008 to 30 June 2009.
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 2008 to 30 June 2009. The starting and ending dates within that period are flexible.

For further information and application form go to [http://www.hssonline.org/about/society_NASA_Fellowship.html](http://www.hssonline.org/about/society_NASA_Fellowship.html).
Old Age, Rats, and Diets: Hyung Wook Park Wins the Reingold Prize

Hyung Wook Park's initial questions about the absence of old animals and people in scientific research led him to the farmyards of 1930s and 1940s America and the origins of gerontology. Park, who received the 2007 Nathan Reingold Prize for ""The Thin Rats Bury the Fat Rats: Animal Husbandry, Caloric Restriction, and the Making of a Cross-Disciplinary Research Project,"' studied biology for his undergraduate degree at Yonsei University in Seoul. He then made the switch to history of science for his Master's degree, specializing, naturally, in the history of biology, specifically the work of Frank Macfarlane Burnet, who won a Nobel Prize in physiology in 1960.

"I wondered why he did not study old age. Later, I found scientists and physicians have an enormous interest in the young - pediatrics is a strong medical field in which a lot of money and personnel and resources are concentrated. I wondered why people are not interested in the later parts of life and I found that there is a social prejudice against old age, which reflects in the choice of scientific subjects. Younger people and younger organisms such as mice and rats are subjects in various research programs, but not older rats and mice and people. I think ageism is an important social phenomenon that needs to be studied. If race, gender, and class are important in history of science, why not age? That was my primary question."

After moving to the Ph.D. Program at the University of Minnesota in 2003 as a student of Sally Gregory Kohlstedt and John Eyler, Park studied this problem more deeply. He found a large interdisciplinary scientific field focused on gerontology as well as a national institute of aging within the National Institutes of Heath. That led to further questions: "I wondered what the social and cultural factors were in this growth of gerontology."

What began as an investigation into the research on human aging ended up in the farmyard. "Most historians think that the discourse of ageism focuses on human aging, but McCay was trying to increase the longevity of farm animals such as cows and chickens." McCay's interests as a professor of animal husbandry at Cornell University lay in animal aging. His experiments on caloric restrictions with rats produced skinny, young-looking rats. It is here, says Park, that interdisciplinarity became critical. Was the difference in outward appearance real, or did the thin rat just look young? "It was important to find out if that rat was really young in terms of brain, metabolism, and the ability to communicate, and for that McCay needed other specialties than animal husbandry. Many other fields such as biochemistry, physiology, psychology, and pharmacology came to study caloric restrictions and longevity and the field gradually became larger and larger."

As he examined the character of gerontology as a field and found a key player in Clive McCay, who helped bring gerontology into the scientific fold in the 1930s and 1940s. "What's really interesting is that he promoted research on caloric intake and longevity. I also realized that the discourse on caloric research is now everywhere -- how reducing caloric intake probably increases longevity. I thought it could be interesting to study the history of that research which begins with McCay."

What began as an investigation into the research on human aging ended up in the farmyard. "Most historians think that the discourse of ageism focuses on human aging, but McCay was trying to increase the longevity of farm animals such as cows and chickens." McCay's interests as a professor of animal husbandry at Cornell University lay in animal aging. His experiments on caloric restrictions with rats produced skinny, young-looking rats. It is here, says Park, that interdisciplinarity became critical. Was the difference in outward appearance real, or did the thin rat just look young? "It was important to find out if that rat was really young in terms of brain, metabolism, and the ability to communicate, and for that McCay needed other specialties than animal husbandry. Many other fields such as biochemistry, physiology, psychology, and pharmacology came to study caloric restrictions and longevity and the field gradually became larger and larger." - By Michal Meyer

Request for 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 article on women in the history of science (Articles published from 2004 to 2007 are eligible).
Joseph H. Hazen Education Prize for exceptional educational activities in the history of science.
Sarton Medal for exceptional scholarship over a lifetime (deadline 1 February).
Conference Commentary

Columbia History of Science Group: 25th Annual Meeting

In a tradition dating back 25 years, the Columbia History of Science Group held its annual meeting last March at the Friday Harbor Marine Laboratories in northern Washington. About 75 people were drawn by the prospect of stimulating presentations, great food, scenic diversions, and the opportunity to catch up with peers from across the continent and meet new colleagues. This year the participants enjoyed a Friday evening keynote address by Keith Benson, one of the founding members of CHSG, on the role of place—geographical and social—in understanding the modern history of marine biology. The Saturday presentations included a good mix of papers, from graduate students to junior and senior faculty, and covered a wide array of topics. The many interesting topics included Jim Evans’ analysis of an ancient ivory sundial and Kalil Oldham’s new interpretation of 19th-century German mathematical physics and the nature of electricity. The history of the life sciences was represented by various papers, including Rachel Koroloff’s examination of the Russian naturalist Krasheninnikov, Tulley Long’s study of William McElroy’s influence on the transformation of biology at John Hopkins during the middle of the 20th century, and Hyung Wook Park’s discussion of the role of ‘aged rats’ in studies on caloric restriction and longevity.

Geographies of Nineteenth-Century Science

In late July over 40 delegates from Auckland to Finland came together at the Institute of Geography, University of Edinburgh, for this interdisciplinary meeting. After settling into accommodation situated beneath the stunning backdrop of Arthur’s Seat, we began with a plenary address by Bernie Lightman, which mapped the London geographies of scientific investigations and performances, and argued for thinking of spaces as historical actors themselves. The ensuing discussion brought into focus what would become key themes of the conference: ideas of scale; the disaggregating and critiquing of physical “site” and psychological “space”; the importance of dynamic rather than fixed spatial relationships; and also whether we were really talking about “geographies” at all—was it rather class, or cultural politics that was under discussion?

Over the next three days an array of academics presented on fields and fairy-lights, eyes and ears, Cornwall and coconuts. Being organized as a single stream of talks made for a sustained conversation, and several common topics emerged. Travel and mapping loomed large: we journeyed by steam ship, carriage and foot, to Irish lecture-halls, Africa lakes, Devonshire rock-pools, and Ceylonese coasts and mountains, and heard how books themselves traversed the English Channel. The practices of observation and display provided another nexus of attention, be it in museums or cabinets, on hillsides, or as reified in herbaria sheets. A different kind of display, that of a fearlessness about electricity, was on show at the Vanderbilt fancy ball. Ideas of communication were key to other papers, which highlighted the importance of disciplined speech, audiences and back-stage bodies for successful lectures and performances.

Outside the main program of presentations, the time scheduled for self-led tours of second-hand bookshops unearthed a rare copy of Tyndall’s “Belfast Address,” leading to an unseemly struggle between several well-known historians of science.

We might not have come to any conclusions about what constituted a “geography of knowledge,” but it was wonderful for so many scholars of 19th-century science to be in the same space, the meaning of which term is sure to be long debated by all who attended. And that is thanks to Charlie Withers, David Livingstone, and Rebekah Higgitt for organizing such a stimulating meeting.

—By Melanie Keene, University of Cambridge

HST Database Access

The Isis Bibliography from 1975 to the present is available online with OCLC. Members of the Society may access the History of Science, Technology, and Medicine Database (HSTM) through the HSS homepage at http://hssonline.org (click on the link “Teaching and Research”). Authorization is “100322459” and Password is “DAWN*SKXP.”
John Walbridge is Professor of Near Eastern Languages and Cultures at Indiana University. He is working on Shirazi's synthesis of the philosophical foundations of Galenic medicine.

I am studying the philosophical issues identified by medieval Islamic medical scientists. Islamic medicine is mainly based on Galen, whose thought had a strong philosophical component. Since Islamic philosophers were often also physicians, medicine must have influenced their philosophical thought, but the philosophical foundations of Galenic medicine as developed in the medieval Islamic world are not well understood.

Galenic medicine was one of the three major systems for understanding the natural world transmitted from the Greeks to the Muslims. The other two were an eclectic Aristotelianism and a complex of occult sciences that I am not concerned with here.

The relationship between Galenic medicine and Aristotelianism is not simple. It is easy to assume that Aristotelian philosophy deals with the universe and science as a whole while Galenic medicine applies Aristotelian science to health and the body. This is not exactly true. The Galenic texts commonly studied included discussions of epistemology in a medical context – in particular, the relationship between theory and empirical experience in diagnosis and treatment – and discussions of the nature of the living body and its components that sometimes verge into the metaphysical. There were also extensive discussions of causation and physical processes in general. Galen mentions Aristotle's four causes, for example, but in practice uses a rather different theory of causation. Another complication is that Galen does not draw only from Aristotle – he is more directly the heir of the Hellenistic philosophers and is one of our most important sources for the physical doctrines of the Stoics.

It seems probable then that Islamic writers on Galenic medicine also dealt with philosophical themes in their writings on the foundations of medicine. My particular concern is with those who were both philosophers and physicians or who wrote significantly on the theoretical aspects of medicine. Superficial indications are easy to find; Avicenna often used medical examples in his philosophical works. The physician and philosopher Rhazes wrote a book entitled *Doubts about Galen*, in which he took issue with Galen on various philosophical and medical doctrines. Averroes wrote analytical summaries of Galen's standard works, as he had done for Aristotle's.

The following are the medical/philosophical issues I am concerned with: rationalism and empiricism in medical research and diagnosis; causation of health and disease; medical evidence, particularly signs and symptoms; the physical and metaphysical nature of non-sensible medical entities, such as the humors.

In the current project, I will be working on a huge and comprehensive unpublished commentary on the first book – the theoretical portions – of Avicenna's *Canon of Medicine* written by the Iranian scientist and philosopher Qutb al-Din Shirazi (1236–1310). In the introduction, he writes proudly of having tracked down all the significant earlier commentaries on the *Canon*, along with much other material. He lists these sources and refers to them in the body of the commentary. Since Shirazi is writing at what seems to be the end of the creative period of Islamic medicine and since Shirazi was a scientist of great distinction, this seems an excellent vehicle to understand the nature of the relationship between philosophy and medicine in the high Islamic middle ages.

I will be working in Istanbul where authoritative manuscripts of this work are preserved along with manuscripts used by Shirazi.

Program Profile: UCSB (continued from p. 13)

Finally, Santa Barbara has touched us all; some current Program members and students have taken to swimming together, learning the finer points of water polo (if only from the pool deck), roasting fish on the beach, and surfing. Thanks to the entrepreneurial energies of Drs. Westwick and Neushul (who teach a new course this spring on the history, technology, and cultures of surfing), the Friday pod of history of science surfers is likely to continue, and our Program is the first unit in university history to teach sports history in a serious fashion. None of us, however, allow social activities to kick sand in our keyboards.

What are some recent dissertations that have been produced by graduating students?

Current graduate students work on a wide range of topics, including the search for extra-terrestrial intelligence; alternative medicine in the Early American Republic; regionalism and American science; eugenics; modern ecology and field studies; religion and science in the space age; early American pharmacology; and disability, religion, and medicine. Dissertations completed in the last three years include:

- Benjamin C. Zulueta (2004), *"Brains at a Bargain: Refugee Chinese Intellectuals, American Science, and the Cold War of the Classrooms"*
- Evan Wiellers (2005), *"Science, Medicine, and Criollo Culture in Late-Colonial New Spain (Mexico)"*
- Eric Boyle (2007), *"The Boundaries of Medicine: Redefining Therapeutic Orthodoxy in an Age of Reform"*
The National Institutes of Health Office of History seeks a full-time Archivist to work with colleagues in history, museum studies, and social studies of science (Bachelor's Degree required). For a full position description, including compensation range & benefits, please consult Job Announcement #OD-08-228548-DE, available on USAJOBS.gov. E-mail: Robert Martenson martensen@mail.nih.gov. Web: http://history.nih.gov/. Deadline is 15 January 2008.

The Chemical Heritage Foundation has an opening for a program manager in its Center for Contemporary History and Policy located in Philadelphia's historic district. Web site: http://www.chemheritage.org. Applications will be accepted until the position is filled.

The Johns Hopkins University seeks an Assistant Professor (tenure track) in early modern science starting 1 July 2008. Area of specialization is open within the history of science and technology from the High Middle Ages to the Enlightenment. Ph.D. should be completed by June 2008. Applications will be accepted until 15 January 2008. Contact Sharon Kingsland. E-mail: sharonjhu.edu.

Post-Docs
The Center for the Humanities at Carnegie Mellon University is offering a one-year fellowship in conjunction with its yearlong program entitled "Moving Diagrams-Diagramming Motion." Candidates should have completed their doctorate no later than September 2005, and preference will be given to those who have at least three years full-time teaching experience. Go to http://www. hss.cmu.edu/humanitiescenter/Fellowship.html for further information and application instructions. Application deadline: 18 January 2008.

The Science in Human Culture Program (SHC) at Northwestern University invites applications for a two-year postdoctoral fel-

Grants, Fellowships, and Prizes

The CHF Beckman Center Visiting Scholar Program: http://www. chemheritage.org or e-mail: travel-grants@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: kmgruder@ou.edu or mogilvile@ ou.edu. Web site: http://libraryou. ou.edu/erc/histsci/mellon.asp.

Grants in Aid for History of Modern Physics. Apply to: Spencer Weart, Center for History of Physics, American Institute of Physics. E-mail: sweart@ aip.org. 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. Send applications to: INA Grant-in-Aid Program, c/o CINP Central Office, 1608 17th Avenue South, Nashville, TN, 37212.


The Bakken Library and Museum in Minneapolis offers Visiting Research Fellowships and Research Travel Grants. The next deadline is February 15, 2008. E-mail ihlir@ thebakken.org. Web site: http://www.thebakken.org.


Digital Media & Learning Competition (HASTEC). The Humanities, Arts and Sciences Technologi


California Institute of Technology Grants-in-Aid. Applications reviewed 1 January, 1 April, 1 July, and 1 October each year. http://archives.caltech.edu.


The California Institute of Technology and the Francis Bacon Foundation requests nominations for the Francis Bacon Award in the history of science, the history of technology, or historically-engaged philosophy of science. Contact Lisa Keppel at (626) 395-3609.


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. Deadline 3 March 2008. http://www.hssonline.org/about/ society_NASA Fellowship.html.


The Lawrence Memorial Fund invites nominations for the 2008 Lawrence Memorial Award. The annual award is given to a doctoral candidate for travel in support of dissertation research in systematic botany or horticulture, or the history of the plant sciences. Deadline: 1 May 2008. For more information: http://lhubor.andrew. cmu.edu/H1BD/Services/Law rence.shtml.
Call for Papers

Annual Meeting Canadian Society for History and Philosophy of Mathematics.

Proposal deadline: 1 February 2008. 4-5 September 2008, Eden Project & University of Exeter (Cornwall Campus), U.K. Contact Timothy Cooper, T.Cooper@exeter.ac.uk.


Upcoming Conferences

Fourth International Conference on Technology, Knowledge and Society. 18-20 January 2008, Northeastern University, Boston, USA.


Imagining Outer Space, 1900-2000. 6-9 February 2008, Universitäet Bielefeld, Germany.

AAAS Annual Meeting: Science and Technology from a Global Perspective. 14-18 February 2008, Boston, MA, USA.


Mephistos Graduate Student Conference. 4-6 April 2008, University of Texas - Austin. http://studentorgs.utexas.edu/mephistos/.


Annual Meeting of the Agricultural History Society. 19-21 June 2008, University of Nevada at Reno, Reno, NV, USA.


(Re)constructing the Aging Body: Western Medical Cultures and Gender 1600-2000. Johannes Gutenberg-University, Mainz, Germany, 26-28 September, 2008. Melke Wolf: wolfin@uni-mainz.de.


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

Economic and Biological Interactions in Pre-Industrial Europe from the 13th to the 18th Centuries. Prato, Italy, 26-30 May 2009, http://www.istitutodatini.it/temi1htm/temi41.htm.

HSS Annual Conference. 18-22 November 2009, Phoenix, AZ, USA.
By the middle of the 1860s it had become understood that the fixed dark lines seen in the spectrum of the sun were due both to solar and atmospheric absorption. As early as 1833 David Brewster noticed that certain lines were darker when viewed towards the horizon compared to directly overhead and in 1845 W. A. Miller mentioned that "...a singular appearance accidentally presented itself to me the other day. I was examining the spectrum of the diffused daylight towards the evening when a violent thunder-shower came on; lines not before visible were distinctly apparent, and a group in the brightest part of the spectrum between D and E, though nearer to the former line, became very evident, increasing in distinctness with the violence of the shower; as the rain passed away they again faded and disappeared." 4 Jules Janssen confirmed Miller's observation in 1864 and then traveled to the summit of the Faulhorn, in the Bernese Alps, where he convinced himself that these lines were substantially weaker when observed at high altitude. He then made observations across Lake Geneva, over a distance of 21 km, using a large wood fire as a continuum light source and found the lines to be darker and more pronounced when observed over water. Finally, in 1866, he confirmed the features due to water vapor by making observations in a 37 meter length of pipe filled with steam. 5 Gladstone seems to have anticipated the value of these observations in his 1868 review of the subject in which he concludes "No one can tell what secrets lie hid in these atmospheric lines, but to us it seems that by their careful and systematic observation the 'Message from the Stars' which has taught us so much may be rivalled in practical importance by a 'Message from the Sky.'" 6

Charles Piazzi Smyth, Astronomer Royal of Scotland, observed the water vapor bands in the red region of the sky spectrum as early as 1872 and eventually proposed, in the 22 July 1875 issue of Nature, that observations of these lines could be used to predict rainfall. While enduring a long period of rain in Paris he observed that a strong dark line appeared to the red side of the D line in the spectrum of the sky while his barometer was "uninfluenced in its serene height and steadiness." 7 Smyth, a quintessential Victorian scientist who deeply enjoyed the scrupulous pleasures of scientific inquiry, was particularly interested in communicating spectral information clearly in graphical form. His plots of rainband spectra are interesting early examples of attempts to represent intensity as a function of wavelength (in his case always given in British inches, a unit which he considered to be divinely inspired). Figure 2 shows a portion of one of his plates of rainband spectra, published in 1877. 8 It is interesting to compare his attempt at graphical representation of the darkness of the lines with the shading used in Capron's lithograph.

Figure 3

GRACE'S NEW DIRECT VISION SPECTROSCOPE.

Mr. JOHN BROWNING begs to direct attention to the advantages of this very powerful, portable, and efficient Instrument, which will divide the Sodium lines or the D lines in the Solar Spectrum, and show the Rain-Band as Separate Lines; it is provided with a fine motion focusing arrangement, and it is applicable to every purpose for which a Direct Vision Spectroscope can be used.

Price in Morocco Leather Case, £3 8s. 6d.

JOHN BROWNING,
Optical and Physical Instrument Maker to H.M. Government.
63, STRAND, LONDON, W.C.

The instrument maker John Browning soon issued several special pocket spectroscopes designed specifically to show the rainband and marketed them as useful tools for the prediction of rain. The top-of-the-line model shown here, the "Grace's Spectroscope," was issued in 1884 and sold for about $473 in today's currency. His competitors, Adam Hilger, The London Spectroscope Co., S. C. Tisley & Co. and John J. Griffin & Sons, among others, also began to advertise rainband instruments. Although a following of devotees emerged, a great deal of controversy developed over the reliability of the method. During the late 1870s and throughout the 1880s, many letters were exchanged in Nature, the London Times, and various meteorological journals arguing on both sides of the issue, sometimes very entertainingly. Capron, one of Smyth's most devoted followers, published his "Plea for the Rainband" in 1881 and then, feeling that the issue was settled in his favor, "The Rainband Vindicated" in 1885. With Browning's exuberant marketing and the enthusiasm of Capron, Smyth and Cory, who published How to Foretell the Weather with the Pocket Spectroscope in 1884, interest was sustained through the end of the century. From this distance, I doubt that any of us can fully appreciate the genuine novelty of these pocket spectroscopic observations to the curious Victorians. The colorful solar spectrum with its several dozen delicate dark absorption lines makes a fascinating image and the idea that it communicates knowledge about the composition of...
the stars and the earth’s atmosphere was undoubtedly compelling. Browning even sold a small spectroscope to be worn as a charm, in gilt or nickeled finish.

Since the eye is a notoriously inaccurate estimator of light intensity and without any fixed scale by which to make comparisons, all such visual observations were highly subjective and unreliable. The fundamental idea of rainband spectroscopy was sound but the technology of the period was simply insufficient to the task. The history of rainband spectroscopy has been well summarized by Austin and Peterson.10

Today, the spectral features of water vapor are routinely used for the monitoring of atmospheric moisture. In fact, water vapor is an important greenhouse gas and its distribution and concentration in the atmosphere is critical to atmospheric models as well as to weather forecasting. The water vapor bands which Smyth and his colleagues observed were weak O-H stretching modes of the water molecule which have only in recent years been studied in detail.11 The band which he favored, near 592 nm (0.00002331 inches), actually consists of about 203 separate lines, part of the 5vH2O vibrational band. No longer limited to the human eye as a detector, we now use much stronger transitions in other regions of the spectrum.

— Ben Smith

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University of Florida
E-mail: busmith@ufl.edu

References Cited

4 Miller, W. A., “Experiments and observations on some cases of lines in the prismatic spectrum produced by the passage of light through coloured vapours and gases, and from certain coloured flames,” Philosophical Magazine, III, 27, p. 85, August, 1845.

Complete List of 2007 Prize Winners

Sarton Medal: Martin Rudwick, emeritus, Cambridge University.


Joseph H. Hazen Education Prize: Joe Cain, Senior Lecturer in the History and Philosophy of Biology in the Department of Science and Technology Studies, University College London.


Joan Vandegrift, Isis Manuscript Editor, was recognized for her many years of editorial excellence.

For more information on this year’s prizewinners go to: http://hssonline.org/about/society_awards2007.html.
Enter Gary Hardcastle, New PSA Executive Secretary

On 1 January 2008, it was my privilege to succeed George Gale as Executive Secretary of the Philosophy of Science Association, an office he has deftly executed since 1995, when he replaced the equally skilled Peter Asquith. It is inviting, and it certainly seems appropriate, to introduce myself to the HSS by offering a bit of history. And while I’ll say something about how I came to the position of Executive Secretary of the PSA, the PSA’s own history is, I assure you, far more interesting. Two quick points: the abbreviated PSA history that follows is indebted almost entirely to the research and insights of my colleague, Heather Douglas. Second, the history is abbreviated not only because of space limitations, but because there is as yet no detailed history of the PSA from which to draw. Such a history might well make an excellent dissertation topic.

The Philosophy of Science Association was first mentioned in the last number of the Journal of Philosophy of 1933, in which the nascent journal, Philosophy of Science, was welcomed as the “chief external expression” of the Association. The first number of Philosophy of Science would appear in January 1934 (and thus 2009 will mark 75 years of its continuous publication). As this suggests, the PSA, like the HSS, started life as a subscription society. And like the HSS, the PSA evolved to become, in time, the premiere professional organization for its respective members, philosophers of science.

This evolution is reflected, in part, by the drafting of the PSA’s first by-laws in 1946, which (slightly revised) were published in its journal in 1948. The “objects of the Association,” those By-Laws stated, “are the furthering of the study and discussion of the subject of philosophy of science, broadly interpreted, and the encouragement of practical consequences which may flow therefrom of benefit to scientists and philosophers in particular and to men of good will in general” (Philosophy of Science 15(2), p. 176). Affirming the intended close relationship with scientists (who were ubiquitous in the journal’s early editorial boards and on its pages), these By-Laws officially affiliated the PSA with the American Association for the Advancement of Science. Indeed, the PSA met nearly every December from 1946 through the early 1960s under the aegis of Section L of the AAAS, and there can be little doubt that the real locus of its evolution in this period were the many conferences and symposia it sponsored or co-sponsored under these auspices with other societies, including the American Philosophical Association, the Institute for the Unity of Science, and the History of Science Society.

The decline and eventual demise of the PSA’s association with the AAAS – by 1964 the PSA is no longer listed as a participating organization – was related in part, no doubt, to the fact that the AAAS meetings were in late December, the same month as the annual meetings of the Eastern Division of the American Philosophical Association. But the decay of this relationship may also be related to the version of the By-Laws the Association adopted in 1957 and published in 1959, by-laws which might be read as attempting to establish the philosophy of science as a more insulated profession, rather than, say, a nexus for thought and discussion among philosophers, scientists, and an engaged public. In the 1957 by-laws, for example, the PSA describes its objects as the “furthering of studies and free discussion from diverse standpoints in the field of philosophy of science, and the publishing of a periodical devoted to such studies in this field” (Philosophy of Science 26(1), p. 63). The PSA’s current by-laws, adopted upon the PSA’s incorporation in 1975, contain much of this statement verbatim.

Although the philosophy of science grew as a profession in the 1960s, the PSA did not meet during the mid-1960s, until, that is, 1968, when under the impetus of its president, Adolf Grunbaum, the PSA held the first of its biennial meetings, which have continued to the present. In fact, the 21st Annual Meeting of the PSA in 2008, to be held jointly with the Annual Meeting of the HSS, will mark not only 40 years of biennial meetings of the PSA but a return to Pittsburgh, the location of that very first biennial meeting in 1968. And here a word about my own history is appropriate, since it was at a joint meeting of the PSA, HSS, 4S, and SHOT in Pittsburgh in 1986 that I, as an undergraduate at the University of Pittsburgh majoring in history and philosophy of science, first encountered not just the PSA but the international community of philosophers, historians, sociologists, and scientists committed to understanding science. It was a formative intellectual experience, and I remain struck, as I was then, by the vibrancy and diversity of our collective interests and energies, and by the many ways our efforts can and should be brought to bear on the scientific issues that all people face. So as the Executive Secretary of the PSA, one of my most important aims is to keep that vibrancy, particularly as it is reflected in the PSA’s interaction with societies like the HSS, not merely alive, but thriving.

— By Gary Hardcastle

Gary Hardcastle meets with Jay Malone (and alligator) on the University of Florida campus to discuss the HSS/PSA relationship. (Photo courtesy Jay Malone)

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Of the dozens of visually observed spectra that were published in the 19th century, J. Rand Capron's plate of the "rainband" spectrum is surely one of the most attractive. Initially it appeared only in monochrome in Symon's *Monthly Meteorological Magazine* but was eventually reproduced in color by John Browning in the 2nd edition of his popular handbook, *How to work with the Spectroscope.* It shows Fraunhofer's solar lines, A - F, with the so-called rainband just to the red side of the D lines, increasing in darkness from top to bottom. Nearly everyone knows that the pair of lines at D are due to sodium absorbing in the sun's photosphere. Lines A and B are due to oxygen, C and F are caused by hydrogen. Line E is a mix of unresolved iron and calcium lines. For a while, reference was made to "Big A" or "Little b" and more letters were added. It wasn't long before they gave up using letters. A solar atlas of 1966 lists about 24,000 lines. These six spectra are supposed to illustrate the appearance of the solar spectrum as viewed through atmospheres containing increasing amounts of water vapor. The caption for spectrum No. 6, for example, reads "Spectrum seen July 6th, 1881. Rain-band everywhere, and exceptionally strong, stretching nearly half way between C and D. Whole spectrum darkened and obscured." Late in the 19th century, the rainband was the subject of a small frenzy of interest in the possibility of remote detection of water vapor in the atmosphere and the prediction of rain. It represents the earliest attempt to apply spectroscopy to atmospheric remote sensing and meteorology.

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