As I looked over the past year’s activities in preparation for this report, I was amazed by how very much had happened since our meeting in Boston in November 2013. In contrast to the usual feeling when attending a meeting and reviewing the prior meeting’s minutes, in Chicago we’re not simply picking up where we left off. Here’s just a brief synopsis of what has occurred in the life of HSS during the past year.

First, we continued to work with Andrew Searle on Strategic Planning, using the Drucker model. We had two retreats. One was at last year’s annual meeting, where we involved several groups of members in talking through our opportunities, challenges, and mission. Our business meeting in November 2013 was part of this process, and I was delighted to see so many HSS members participate and generate such great ideas. The second retreat was in Chicago, where over forty members gathered at the end of March to take our process to the next step. In the space of two intensive days, we collectively identified who it is we serve (our “customer” or constituent), and articulated our Society’s six overarching goals, namely, meetings, publications, professional development, broadening our reach, advocacy, and membership/governance. Committee-sized groups of HSS members (some who had already participated in strategic planning and some who were new) formed around each of these goals. These goal groups came up with the action steps that would enable us to realize those goals, and the Strategic Planning Committee then ranked those steps with an eye to priority, feasibility, and cost. The outcome was a Strategic Plan, presented to Council and approved by vote on Nov. 6, 2014. We now have a roadmap for what we’d like to continue, what we’d like to change, and what, resources permitting, we’d like to add. I should highlight that the continuing on track is more implicit than explicit in this roadmap, which emphasizes the changes in direction. That said, we remain committed to our core functions, namely keeping the things that are working brilliantly (with our annual meeting, publications, Executive Office, and governance) right on track.

Strategic Planning was not the only accomplishment of HSS in 2014. No less important, our Editorial Office was successfully moved to the Netherlands, which had
Save These Dates

- **2015** – San Francisco, California (November 19-22)
- **2016 3-Societies Meeting** – Edmonton, Alberta (June 22-25)
- **2016** – Atlanta, Georgia (November 3-6)
  - *Co-located meeting with PSA*
- **2017** – Toronto, Ontario (November 9-12)
- **2018** – Seattle, Washington (November 1-4)
  - *Co-located meeting with PSA*
- **2019** – Utrecht, The Netherlands (August)
a marvelous ceremonial launch in September 2014. I’m enormously impressed by the job that Floris Cohen is doing steering the ship, the quality and enthusiasm of his crew (especially our new Managing Editor Desiree Capel), their esprit de corps, and their plans to improve our publications. This coming year we will solicit tenders from publishers with an eye towards negotiating a press contract that better reflects the current market in academic publishing. Michael Magoulias, the Journals Director at University of Chicago Press, is clearly committed to our Society, as evidenced by his regular attendance at our meetings and at the Strategic Planning retreat. He presented us with an attractive new contract offer in March 2014, which we will now consider with others in due course. We are grateful that he been so dedicated to our publishing partnership.

On a third front, we have continued to raise money for our Elizabeth Paris Endowment for Socially Engaged History and Philosophy of Science, whose activities were kicked off at this year’s annual meeting, with the Thursday night Social Engagement Activities sponsored by JCSEPHS (our newest caucus) and the Paris Lecture on Sunday by Peter Galison. We’re just over the halfway point towards our endowment goal [Ed. Note: as of March 2015, we were at 75% of our goal]. Several members of Elizabeth Paris’s family attended the inaugural lecture at the Chicago Humanities Festival on 9 Nov 2014, and we were grateful for the chance to meet and thank them (especially Mike Paris, Elizabeth’s father) for their generous support of this venture. Plans are already in the works for an outreach event at our next annual meeting in San Francisco, in November 2015.

A fourth issue has occupied much of my time this year. During my term as President, I have been focusing on the importance of our international members and the global reach of our Society. I hosted a breakfast discussion at the annual meeting with those who attended from abroad. That morning about forty members offered valuable insights and suggestions on how we can better serve historians of science beyond the US. I’ve had many conversations on this issue with scholars in Europe, both at the MPI and at regional history of science meetings I’ve attended, in Lisbon (European Society for the History of Science) and Munich (Deutsche Gesellschaft für Geschichte der Medizin Naturwissenschaft und Technik). I was warmly welcomed at both meetings, giving an address of greetings to the German Society on behalf of HSS and speaking with the Council of ESHS about how our societies might collaborate and perhaps have a joint meeting. Needless to say, living in Berlin as President has made me more appreciative of both the visibility and value of HSS, and the challenge of bridging the distance to North America, both physically and psychologically.

So what lies ahead? Our most immediate task is to discern the next steps of our Strategic Planning process without losing sight of our day-to-day activities, most of which we’re doing well. If you haven’t already looked at the Strategic Plan yourself, please do, and let me know where and how you’d like to get involved. The level of member engagement in our Society, and the innovativeness, vision, and commitment showed by those who participated in crafting our Strategic Plan, are breathtaking. I am particularly grateful to Lynn Nyhart, who remained vitally involved in this effort even after her term as President had ended. I also wish to thank those members who joined the Strategic Planning Committee, March retreat, Goal Groups, or who helped in other ways. (View a full list of participants at http://hssonline.org/resources/publications/newsletter/july-2014-newsletter/july-2014-hss-strategic-planning-interim-report/#participants.)

Even as we try to realize our mission, organizationally and financially, we don’t want to quell the on-the-ground activity that makes this Society so vibrant and so fun. I’m enormously grateful for the front row seat that I’ve had this year! And mostly want to just say, Wow. Let’s hold onto the energy, if not quite the pace.
I have just returned from the annual meeting of the National Humanities Alliance and the NHA-sponsored Humanities Advocacy Day in Washington DC. Since we have identified advocacy as a priority in the HSS Strategic Plan (see Angela’s message above), I want to share with you some highlights from these events and the palpable excitement at NHA.

This excitement arises from a complete reorganization of NHA engineered by its director Stephen Kidd. Created in 1981, the NHA is an advocacy coalition dedicated to the advancement of humanities education, research, preservation, and public programs in the US. NHA receives support from more than one hundred national, state, and local member organizations and institutions, including scholarly and professional associations (HSS is a supporter).

Among the many initiatives at NHA is the Humanities Working Group for Community Impact, made possible by a grant from the Whiting Foundation. In developing their proposal for the Whiting Foundation, NHA identified over 35,000 humanities organizations in the US. NHA aims to promote interchange among these groups, among their publics, and among elected officials and thereby strengthen and expand support for the humanities by showcasing the impact that humanities organizations achieve at the local level. In a selected community for each state, the Initiative will gather representatives of organizations such as humanities councils, colleges, universities, museums, libraries, historical societies, and archives to identify the key issues facing their communities, and to explore the ways that humanities institutions can address these issues.

The highlight of the trip, though, was the opportunity to visit legislative aides on Capitol Hill and make the case for support of the humanities. Specifically, I asked for full funding levels for the National Endowment for the Humanities, for the National Historical Publications and Records Commission, for libraries and museums, for graduate students, for the Library of Congress and for the Minerva Research Initiative. My visits included senatorial offices for Indiana and Mississippi, as well as the office of my district’s congresswoman in the House of Representatives.

And here I would like to make a special plea to our members to forge a relationship with the science advisors in their representatives’ offices—but before you do so, please consult the excellent guide provided by the NHA: http://www.nhalliance.org/bm-doc/nha_advocacy_guide_2015.pdf. My congresswoman, who was elected in the Tea Party wave a few years ago, includes on her staff a young woman who holds a PhD in microbiology, and who is a product of AAAS’s science and technology policy fellowships. She and I discussed science, the interplay of science and the humanities, and the important questions that the humanities can answer and that the sciences cannot. I delighted in the visit and told her not to hesitate to call on me for help in understanding science’s historical context.

As many have said before, challenges, such as climate change, will not give way to engineered solutions. As historians of science we can offer these advisors the context that is so needed in these types of debates. We are best positioned to clarify the position stated recently by our own Naomi Oreskes, viz. that uncertainty is intrinsic to science but just because we don’t know everything, does not mean we know nothing. (See http://blog.heart.org/merchants-of-doubt-examines-science-versus-spin-on-issues-from-tobacco-to-global-warming/).

Finally, I would like to extend a special thank you to Vicky Harden, our Washington Representative, who attended the NHA meeting, as well as the Consortium of Social Science Associations’ meeting the week before. I deeply appreciate her advocacy efforts on behalf of the HSS and the discipline.

And thank you for your membership.

Jay Malone
Executive Director
About a month ago, in early March, *Isis* joined a myriad of other scholarly journals in adopting an on-line submission and tracking system. Called “Editorial Manager” (EM), the system is run by a company named Aries Systems, which currently serves over 5,800 journals. EM is fully supported by a dedicated team at the University of Chicago Press (UCP). Loads of editorial experience have gone into the making of the system, which has been thoroughly tested in everyday practice. For example, user conferences are regularly set up by Aries for keeping the system up-to-date and for eliminating reported bugs.

Two Testing Rounds
Of course, each journal has its own specific way of dealing with manuscripts, and much of the functionality of EM is superfluous for *Isis*. This became readily apparent when Tim Harper, a UCP employee with EM expertise, visited our Utrecht office for two enlightening summer days. So as not to bother our authors, referees, and book reviewers with needless questions and pointless menus, we decided to subject the preliminary version, prepared by Tim, to a severe testing round. To that end, I devised various scenarios, full of things that in practice may go wrong, so as to find out how the system would respond. Our first testing round involved all of us at the Editorial Office, along with half a dozen MA students who are enrolled in our local History and Philosophy of Science program, all of them members of a newly created group called Horus. (Horus is comprised of Dutch or Flemish MA and PhD students with an interest in the editorial process and publication practice of *Isis*.) For two weeks we submitted and refereed fake manuscripts and also invited and uploaded imagined book reviews. We also made an effort to simulate real life situations by neglecting to submit the accompanying figures, or by submitting a manuscript to *Isis* that was already under consideration elsewhere, or by failing to reply to a message at all, or whatever else occurred to us by way of a conceivable deviation from the ideal workflow. This first test round yielded quite a number of change requests, most of which Tim Harper could implement in the EM version for *Isis*.

However, book reviews form a special kind of submission type. EM was not created for this kind of material, but we nevertheless tested the system quite extensively to see if we could find a way to work with EM for all of our submissions. In December I devised a second test round, with a view to finding out how the modified version of EM-for-*Isis* would work for both manuscripts and book reviews. This time not only the Horus students helped us with the testing, but also colleagues of the *Isis* staff and even one assistant’s parents. Just ahead of the Christmas break we managed to finalize this second test round.

In January, we were lucky to receive Tim Harper at our office once again. This visit sufficed to resolve a final set of problems, but in the meantime we had come to the conclusion that EM is fine for handling manuscripts but not really adequate for the mass of book reviews that *Isis* regularly publishes. So we will continue to use a simple and elegant system already set up at the start of our
Utrecht activities by one of the two book review assistants, Noortje Jacobs. Not until a book review has gone through Joan Vandegrift’s manuscript editing process and is ready to be published, will the Isis staff upload it into EM.

Editorial Manager For Authors, Referees, And Book Reviewers

Until EM was launched, all correspondence and submissions of manuscripts and book reviews had been done by e-mail. This is the easiest way of communicating, but it fails to keep track of who is working on which submission and when it needs to be returned. We also needed a system to keep contact information of all people involved up to date, thus replacing a database that had become obsolete. All of this communicating and tracking is now being done either through EM or through the book review system set up by Noortje.

What does this mean for you as an author, referee, or book reviewer?

For book reviewers, things more or less remain the same. We send the invitation to review a book using EM, so that we have your contact information stored in a safe place. You will receive a regular e-mail in your mailbox to which you can respond to by clicking either a link “Accept” or a link “Decline.” If (as we always hope) you accept, you will be asked either to confirm or to provide a regular address to which we can send the book. If you decline, you will be invited to suggest the name or names of other suitable reviewers.

Manuscript authors and referees will find their respective guidelines on the Isis website (http://www.press.uchicago.edu/ucp/journals/journal/isis.html) and also on https://www.editorialmanager.com/isis/.

As an author, if you want to submit a manuscript and you do not yet have an account for EM, you register first, simply by entering your first and last name and your e-mail address. An account name and password, which you may always change as you see fit, will immediately be sent to you by e-mail, so that you can log in to EM as an “author.” Once you select “Submit new manuscript,” a few easy steps will take you through the submission process. None of the information entered will get lost if for whatever reason you have to interrupt the procedure. Once you have successfully uploaded your manuscript, the system will confirm receipt.

For referees, if you are not already registered in EM, we will do it for you. You will receive an e-mail invitation to review a manuscript, together with your username and password (both of which are invisible to us). That message also contains a link to accept and a link to decline to review the manuscript. The “Decline” link brings you to a window where you may state why you are declining and/or suggestions for other suitable referees. If you agree to review the manuscript, the “Accept” link takes you directly to EM, where you will find the manuscript and where, at a later stage, you can upload your report.

Please rest assured that you can always retrieve your username and/or password by clicking the “Send Username/Password” button on the EM homepage.

As you are reading this, we have been working with EM for about a month. EM brings Isis even further into the 21st century, and it helps us make our office more environmentally-friendly and almost paperless. Above all, EM facilitates the whole manuscript refereeing process and generates a solid database for manuscripts, book reviews, and people information. Since many other journals use EM, you may already be familiar with the system. Please rest assured that, if you run into any trouble at all or if you have any questions, you may always send an e-mail message to the Isis Editorial Office (IsisJournal@uu.nl). We will be happy to assist you.

Desiree Capel
Managing Editor Isis
On 16 January 2015, scholars, former students, friends, and family members packed the Asian/Pacific Room at the Oregon State University Memorial Union to honor Mary Jo Nye, Horning Professor in the Humanities emerita at Oregon State University. The “Mary Jo Fest” included a day-long conference, a festive reception at Special Collections at OSU’s Valley Library, and much extramural merriment.

Current Horning Professor Anita Guerrini organized the day, with lots of help from OSU staff members Bob Peckyno and Dwanee Howard, as well as the Horning Endowment, the OSU School of History, Philosophy, and Religion, and external funders. The six speakers at the conference reflected Mary Jo’s research interests in the history of chemistry and physical science and in the philosophy of science, and included two of her former students. Each speaker had an hour, and discussion was lively. The day began with Alan Rocke (Case Western University) on “The ‘Indifferent Hypothesis’ Redux: The Dilemmas of Pierre Duhem,” which explored Duhem’s opposition to atomic theory. Personal, political, and philosophical motivations, as well as Duhem’s fervent Catholicism, all played roles in his arguments against atomism, and Rocke noted the difference in this period between chemical and physical understandings of atoms, and the influence of Duhem’s chemical ideas on his philosophy of science.

Leandra Swanner (Arizona State University) received an MA in History of Science at OSU with Mary Jo Nye, and completed a PhD at Harvard. In “Mountains of Controversy: Colonialism, Environmentalism, and Modern American Astronomy,” she discussed the history of the astronomical observatories atop Mauna Kea in Hawai‘i as an example of “big science” and its reception. The conflict between native Hawaiians and astronomers over the siting of big telescopes on Mauna Kea led to a redefinition of the moral imperatives of astronomy and the marketing of astronomy to the public as an “environmentally friendly” science. The conflict forced scientists to come down off the mountain to meet the public and justify their science.

In “Arnošt Kolman against His Generation: The Dark Angel of the Social Construction of Science,” Michael Gordin (Princeton University) turned to the multiethnic Habsburg milieu that produced many of the most significant figures in twentieth-century history and philosophy of science (including Michael Polanyi, subject of Mary Jo Nye’s Michael Polanyi and His Generation). Born in Prague a year after Polanyi, Kolman turned east to Moscow rather than west. His significance, argued Gordin, lay less in his philosophy than in his life. Like Woody Allen’s Zelig, Kolman showed up for significant events such as the 1931 London conference where Boris Hessen gave his famous Marxist interpretation of Newtonian physics (Kolman spied on Hessen) and the Stalinist show trials of the late 1930s that claimed Hessen and...
Nikolai Bukharin. Late in life, Kolman became a dissident and defected to Sweden.

Marsha Richmond (Wayne State University) studied with Mary Jo Nye as an undergraduate at the University of Oklahoma and later received a PhD in History and Philosophy of Science at Indiana University. Richmond also recalled *Michael Polanyi and His Generation* and the value of thinking in terms of generations in “Women as Public Scientists: Rachel Carson, Charlotte Auerbach, and Genetics in the Atomic Age.” Carson and Auerbach, near contemporaries, both worked on genetics. Auerbach’s 1956 *Genetics in the Atomic Age*, like Carson’s *Silent Spring* (1962), reached directly to the public to explain the unintended results of scientific and technological change. Richmond argued that their gender was a factor in the effectiveness of their message, noting that both Auerbach and Carson made a point of speaking to women’s groups.

Carsten Reinhardt (Chemical Heritage Foundation) turned to more recent science in “The Dynamics of NMR in Biochemistry and Molecular Biology.” Reinhardt (who can also claim to be Mary Jo’s student, since she served on the committee for his *habilitation*) compared two methods employed for finding the structure of biological molecules: the older method of x-ray crystallography, and the newer nuclear magnetic resonance spectroscopy, or NMR. He found that each of these techniques developed in specific institutional environments, noting particularly the influence of industry funding in the 1960s and 70s, which favored NMR.

The last talk of the day returned once more to Polanyi, with philosopher Alan Richardson (University of British Columbia) and “Neither an Accusation nor a Confession: Michael Polanyi, Hans Reichenbach, and the Political History of Philosophy of Science.” Polanyi, Reichenbach, and Rudolf Carnap, all born in 1891, were equally disillusioned with what they perceived as the failure of the Enlightenment project after the outbreak of the Great War. Richardson argued that each in his own way attempted therefore to revise Kant, recognizing that the increase in scientific knowledge had not in fact led to an increase in either rationality or morality.

The papers from the conference will be published as a festschrift for Mary Jo Nye in the form of a special issue of an academic journal.

About the Author
Anita Guerrini is the Horning Professor of the Humanities and Professor of History at Oregon State University
“Students are sparked by novelty. Think of Einstein and Edison; think of Da Vinci and Newton. The whole history of science is full of genius and ingenuity, of thinking outside the box. Our job is to help students get to that point.”

I heard this from a K-12 science teacher. In August 2014 I helped facilitate a two-week development workshop for K-12 educators in Elkhart, Indiana. I met wonderful teachers impassioned by the possibilities of science education, wrestling with the challenges of the new standards now debated throughout the US, and eager to engage hearts and minds in the study of nature. And many of these teachers believed that past examples of ingenuity should inspire how we teach science. Sometimes I am so convinced by jeremiads on the humanities’ sorry state in today’s economic landscape that statements of this sort catch me by surprise. Suspend judgment for a moment on the words “genius” and “ingenuity.” Such motivations imply a deeper point: that the history of science shows us how to teach science.

Most surprising to me was how the history of science is used to spark creativity and cultivate talent. No doubt, I shouldn’t have been surprised. The public hopes and dreams of our societies have been tied to progress in science, technology, and engineering for a long time. If there is one repeated goal of the new education standards affecting US education (pick any one), it is to encourage a generation of self-starting creative entrepreneurs, poised to adapt to challenges we cannot yet imagine. No wonder, then, that educators turn to past examples of ingenuity to prepare for the future.

But I was surprised. Why? Chiefly because for decades the history of science as a profession has turned away from hagiographies of intellectual derring-do. The first and deepest lesson we teach graduate students in the history of science is to avoid presentism and its cognate fixation on the Genius who anticipated our own enlightened view of things. In graduate school I learned an arsenal of machinery designed to erode the mystery of insight into the dust of social, material, and textual sources. Galileo’s showy originality is no longer the mysterious product of a Platonic, heroic je ne sais quoi, but a wonderful—and comprehensible—combination of skills and resources: courtly sprezzatura, the rich culture of mathematical practitioners, artist and craft communities in the Venetian Arsenal, and friends in high places. As historians, we learn to explain genius. Just as early modern textual scholars eroded the prophetic identity of Hermes Trismegistus as a Pre-Socratic sage by finely sifting his late antique language, we dissolve the very notion of genius in our rich acid of historical analysis.

My professional senses have been so finely pointed against presentism that yet another assault on the history of Great Men seems like so much mumbling of pious verities. I agree, of course; judging alchemists and Aristotelians by our own standards stops us from understanding them. But need I say it again? The thought has become so much a part of my intellectual furniture it often seems boring to repeat, let alone worthwhile. I suspect I’m not the only one.

“Just think: only five hundred years ago, we all thought the earth was flat. Then there was Copernicus.” The speaker went on to encourage teachers to create rich pedagogical environments that keep students actively searching out novelty, to think “outside the box.” The classroom should be a hothouse for genius, a seedbed for ideas from nowhere.
Cultivating Genius in the K-12 Classroom, cont.

There’s the little myth, and then the big one. The little one is simple enough, and we spend enough time simply correcting the nineteenth-century misinformation of medieval bookmen too backwards, too deeply wedded to authority, to imagine beyond a flat earth. The big myth makes Copernicus a lone genius whose insight emerged in a complete vacuum—it comes with a partner myth, that those who disbelieved Copernicanism for the next hundred years did so because they were stupid or wicked. Not because Copernicanism came with insufficient evidence, as historians of science have come to see. And the myth of Copernicus as genius is so powerful precisely for the same reasons it is dangerous: it is the starting point for the most innovation-centered teaching in North American classrooms.

If you are a member of HSS from outside of North America, perhaps you can tell me whether science teachers elsewhere are similarly motivated by caricatures of past science. What strikes me about the US context is a curious invisibility of science history. Vast sums have been spent on new and revised science education standards. Some of those standards do assert the value of the “social context” of science and engineering, or of the links between “arts” and STEM disciplines. If you live in the US, check out the standards your state is adopting. You will find little on past science that might give vague assertions of “science in context” concrete specificity—such as historians of science might offer.

Let me make two observations. The first is that our deep contextualizing and methodologically sensitive readings of past science haven’t been read very far afield. Our hard-won account of scientific creativity has not been received. Why don’t science teachers know about it? It helps no one to blame the science teachers themselves. Could it be our fault, for keeping our insights to ourselves, within the guild? Could Steven Pinker be right to indict academics for “academese”?

The second observation is that what we have to say could matter a great deal. That is, if the cutting edge of K-12 education is based on bad histories of science, then what could good histories of science offer? The task of warning against presentism may have grown wearying. Or maybe we made a poor job of it to begin with. Either way, if false images of historical ingenuity drive our teachers, we still have a job to do.

About the Author
Richard Oosterhoff earned his PhD from the University of Notre Dame and is at Cambridge as a postdoctoral research fellow on a five-year European Research Council-funded project: Genius before Romanticism: Ingenuity in Early Art and Science. See www.crassh.cam.ac.uk/programmes/genius-before-romanticism
Whither the Humanities in the Era of Transformative Science and Technology?

by Xaq Frohlich, KAIST’s Graduate School of Science and Technology Policy

Having listened to participants at the 3rd World Humanities Forum (WHF) in Daejeon, South Korea, I’m inclined to play on a famous line by Mark Twain: Reports of the humanities’ death have been greatly exaggerated. The theme of the conference was “Humanities in the Era of Transformative Science and Technology,” a subject arising from the ongoing concern about whether the humanities is fighting a losing battle and how to give it a greater voice. Two keynote speakers described the relationship between the sciences and the humanities in notably different ways. Chang-Rae Lee, novelist and professor of literature at Princeton, described them as distinct domains, asking the question whether, of the two, the humanities is less relevant today. Peter Galison, professor of the history of science at Harvard, on the other hand, characterized the two as being part of a common enterprise, both offering complementary tools for tackling technological issues that cut across disciplines and raise core human questions.

Following Chang-Rae Lee’s talk I was struck by how we in the humanities are avid consumers of the products of science and technology. We use our mobile phones like everyone else. We surf the Internet and draw on Facebook to connect with friends and even colleagues. We see how these products transform our lives and are transforming our professions. Perhaps we have been less successful, however, in making it clear how scientists and engineers (and policymakers) have been regular consumers of the products of our work. I taught humanities at a science and engineering school while earning my PhD at MIT, and I am now once again teaching science and technology policy at KAIST, South Korea’s flagship science and engineering school. From these experiences it is easy for me to see how the interaction between the sciences and humanities is not a one-way street. But it is only recently, in the face of growing policy debates about the funding of higher education and the place of the seemingly less profitable disciplines, namely the humanities, that I have begun to catalogue the ways that I see the humanities contributing to core concerns in the sciences and engineering professions, and to society more broadly.

One such area is in imagination and creativity. Science and engineering schools encourage young scientists and engineers to develop their creative thought processes, including the ability to formulate their own problems and novel ways to solve them. This is one reason why the Fine Arts are significant at MIT and why literature courses are often the most popular classes. (MIT students are avid science fiction readers.) Where better to test the possible, to imagine the impossible, than in the world of fiction? My own parents, both scientists, regularly draw insights from their love of literature. Language and literature courses offer more than just solid writing skills—though scientists and engineers need these, too—such courses offer opportunities for creative exploration and self-articulation.

A less obvious field for cultivating imagination is history, which is usually associated with preserving the past and, by extension, outdated ideas. I routinely tout history’s functional value for preserving institutional memory, a tool for looking to directions in the past to help predict the way forward. But history is also an excellent opportunity for a kind of study abroad—to travel in time, instead of space, to a different culture. As with science fiction, students can consider hard-to-imagine counterfactuals, or think about older notions of the spread of disease or ownership of property in contrast to those that we take for granted today. The value of these experiments in creativity and imagining other worlds is clear. In literature it serves as inspiration. How many inventions of today started as science fiction marvels of yesterday? A knowledge of history improves scientists’ and engineers’ abilities to anticipate difficult-to-foresee, and thereby avoidable, technological resistances, crises, and failures.

Continued on Page 12
Whither the Humanities, cont.

Another area where the humanities have much to offer the sciences is on questions of responsibility and ethics. Here philosophy and anthropology have strong traditions, such as in the power of logical reasoning to test out ideas and build consensus, or the social heuristics in “breaching experiments” or “going native” for examining our assumptions about who is “us” versus “them.” Different fields in the humanities offer different sets of tools to develop our moral nature and elevate it to reasoned analysis. One line that particularly resonated for me in Chang-Rae Lee’s speech was the humanities’ power to “cultivate solidarity with the other.” To read a novel is to share another person’s worldview. To study other cultures is to know them and potentially question one’s own suppositions and cultural biases. In the humanities, students can take these cross-cultural journeys independent of utilitarian problem-solving or a narrow focus on “the outcomes.” This allows students to open up to those cultures, to “the other,” even when doing so tests students’ core values. Put another way, the humanities are good at encouraging moral imagination, to anticipate viewpoints that differ from one’s own and respect them. This is a central part of critical thinking and also a central quality of good leadership.

Given that there is a clear need for cultivating these humanistic values in scientific and engineering leaders, another question that resurfaced at the WHF might prove more complicated: how do we go about bringing the humanities back to the sciences (if indeed it ever left)? Peter Galison noted, in his Q&A session that successive technoscientific crises have brought scientists, engineers, and policymakers back to the table. Many are quite interested in cooperating with, and incorporating ideas from, the humanities and social sciences because the problems they face are not limited to one domain or the other.

One arena for building ties between the two is in the higher-education curriculum. When C.P. Snow wrote about the emergence of the “Two Cultures” of the sciences and the humanities 55 years ago, he saw it as a natural, yet dangerous outgrowth of the modern tendency towards specialization. Policymakers here in Korea have recently become interested in promoting the “creative economy.” This mostly appears to mean wedding business acumen (entrepreneurship) to science and engineering innovation, but it has also included experimentation with “convergence sciences,” “transformative research,” or “cultural technology,” all different ways of identifying new fields that seek to foster innovation by blending humanistic techniques with science and technology. This has led to a lively debate in Korea’s “Academy,” a debate that surfaced at the WHF, over whether the goal of reuniting the Two Cultures should be integration, creating new fields that blend the Two Cultures, or a more modest project of simply connecting them by having them consult on important, shared issues.

My field of Science and Technology Studies (STS) might, at first glance, look like a model for such integration. Historians, anthropologists, philosophers, sociologists, and, yes, scientists, look at science and technology as culture, seeking to bridge the divide by showing how technical practices are also human endeavors. However, few in STS would ask that the various disciplines be reduced to a study of science. Science is but only one cultural institution important to understanding the human condition. The larger world of the humanities has much to say about science, even if it draws from religion, labor, art or other areas of modern living.

My more modest proposal is simply that humanities literacy should be an integral part of a science and engineering education, just as science and math literacy should be an integral part of the humanities. This could take the form of an integrative curriculum, classes that look at historical episodes in science or the literary imaginations of technology. However, such integration should require students to reach beyond their comfort zone and take classes in different disciplines, following a broad liberal arts tradition. In doing so, they gain alternative competencies, which they may or may not choose to draw upon when working in
their chosen fields. A similar argument could be made for encouraging workshops and exchanges across the “Two Cultures” at a more senior level in higher education or in policy circles. Adding voices from the humanities when setting policy would add to the diversity of viewpoints, reducing the likelihood of unanticipated backlashes. If this sounds radical, consider that during World War II, anthropologist Margaret Mead was called upon to serve on various wartime technical committees because anthropologists had resources and knowledge about other cultures that scientists, engineers, and policymakers did not. Most tech companies today seem to understand this. I have friends in anthropology who were hired by Google, Yahoo, and Apple, because these companies know that understanding the human-machine interface means understanding humans.

A second way that we in the humanities can find fertile ground in the “Era of Science and Technology” would be to meet the public halfway. I’ve been struck over the years with how my students have already been grappling with many of the issues that we in the humanities are trained to explore and unpack; it’s just that their cultural reservoirs for thinking about such issues are coming from pop culture. How many of my engineering students in the US grew up on Star Trek: The Next Generation, and found the moral conundrums and social issues explored there—many are simply classical works in the humanities repackaged for a futuristic television show—formative in how they think about the ethics of their own research? How many times have I argued that Logan’s Run (1976) or, more recently, The Island (2005) are just modern day versions of issues first explored in Thomas More’s Utopia, or have used Gattaca (1997) to raise ethical questions about DNA technologies, questions more poignantly explored in Brave New World?

Yes, as Marshall McLuhan famously said, the medium is the message, but new media also need messages, and we in the humanities are well positioned to deliver quality content for these new technological platforms. The humanities at its best reflects deep reading and careful reflection. It is perhaps because of this that pop culture has at times appeared an anathema to it. The 140 character limit of Twitter, or everyone’s “15 minutes of fame” in pop art, do not lend themselves to deep thinking. Chang-Rae Lee observed the obvious when he stated that a small display screen and a focus on expediency and convenience results in shorter text, less nuance, and, by extension, a diminishing quality of language. For Lee, the language arts should be a face-to-face “contact sport” because we are “analog creatures.”

But this shouldn’t mean that we shirk from the digital. Many of my peers are discovering that social media provide a useful way to increase their audiences. Alex Wellerstein, for example, writes a blog “Restricted Data” on nuclear secrets. A simulation atomic bomb test app NUKEAPP that he developed drew an extraordinary audience, over 6 million people by his last estimate, clearly more than his peer-reviewed publications ever could attract. Perhaps more importantly, his exchanges with the public opened up new perspectives on his research. The more diverse readership viewed his subject differently than scholars do. Others, like William Turkel, are experimenting with digital history “hacks,” taking public history online and rethinking ways of analyzing and visualizing data with digital tools. By engaging these online platforms, I believe we can raise the level of conversation in ways that are urgently needed.

In my science and technology policy classes, I can see my students, many of them coming from science and engineering backgrounds, struggling with humanities texts. The other day one student lamented: “The author is so critical,” he said, “so effective at exposing the serious problems of a particular policy, yet he doesn’t offer alternatives or a positive message.” I took this complaint to heart. Critical thinking tends to be, well, critical. In policy, the market craves simple answers. But in the larger world, there are rarely simple answers. When in 2005 a group of anthropologists published Why America’s Top Pundits Are Wrong: Anthropologists Talk Back, they did so with a
simple premise: why are we letting overconfident, thin analysis and pat observations scare us away from policy discussions? There is rarely a technical fix that is merely technical, and often technical fixes gloss over the more compelling, albeit complicated social fixes. Science and engineering students often come to the humanities looking for answers, but walk away from us with more questions. As I have strived to make my research in the humanities relevant to science and technology policymakers, I have had to grapple with their demand for answers and actions, even though I can see problems more readily than answers. It is the classic dilemma illustrated in the Bhagavad Gita, the paralyzing hesitation of weighing all the costs of one’s actions, balanced against the duty and imperative to act. Yet we need scientists and engineers who don’t just “do and die,” but also “question why.”

It sometimes feels like “relevance” in the humanities is a four-letter word. Many of my peers are equally wary of words like “utility” or “real-world applications.” Historians groan at what looks like “Whig history” marshaled as a justification for some present-day purpose or agenda. Yet, walking away from the 3rd WHF, I found myself thinking, what are the products of the humanities that scientists and engineers consume? When the first transatlantic cable was laid, the first telephone wire to connect the US and Europe, many believed it to be the end of war and conflict because the faster exchange of information would somehow solve miscommunication, which was believed to be at the root of conflict. Two World Wars have disabused us of this notion. In his speech, Chang-Rae Lee bemoaned the flood of information brought by new communication technologies, noting that there is a difference between consumption of information and comprehension of it. Information on social platforms is just stimulation, but to make it knowledge requires something else. We in the humanities have many tools to offer an Era of Transformative Science and Technology, tools that encourage people to question, to doubt, to wonder, and to marvel, but perhaps most importantly, to comprehend.

About the Author

Xaq Frohlich is an Assistant Research Professor at the Korea Advanced Institute of Science and Technology’s (KAIST) Graduate School of Science and Technology Policy. He has a PhD (2011) from MIT and is currently working on a book on FDA nutrition labeling, which explores the history of nutrition science, food regulation, and changing cultural norms about food, diet, and health in 20th-century America.
Every four years the 3-Societies Meeting brings together three organizations dedicated to the study of the history of science, technology, and medicine: the History of Science Society, the British Society for the History of Science, and the Canadian Society for the History and Philosophy of Science. 2016 will mark the Eighth Joint Meeting of the BSHS, CSHPS, and the HSS, this time in Canada at the University of Alberta in Edmonton, Canada. We are also in conversation with the European History of Science Society, which might join us in due course.

We are very excited to welcome you all to the University of Alberta. Located in Edmonton, the capital of the province of Alberta, the University of Alberta is home to almost 40,000 undergraduate and graduate students. It is one of the top 5 Canadian universities and ranks among the top 100 universities worldwide. The University of Alberta has more than 200 undergraduate programs and 170 graduate programs across 18 faculties. Scholars engaged in the study of the history, philosophy, and sociology of science, technology, and medicine are located within the Departments of History and Classics; Philosophy; Sociology; Economics; and in the Science, Technology, and Society Program, and the Faculty of Medicine. The University of Alberta has also been home to one of the nodes of the Situating Science research project funded by a Social Sciences and Humanities Research Council of Canada Strategic Knowledge Cluster grant.

The 3-Societies Meeting will be held on the main Campus of the University of Alberta, situated on the edge of the North Saskatchewan River Valley across the river from downtown Edmonton. June is an ideal time for this conference, when you will be able to experience the abundant green space on campus at its best with average daily temperatures of 20C (68F) and almost 17 hours of daylight. The Light Rail Transit (LRT) station located at the heart of the campus provides quick and easy transportation across the river to downtown dining, shopping, arts, and entertainment venues including the Francis Winspear Centre for Music, the Citadel Theatre, and the Art Gallery of Alberta. The University of Alberta is also located a short 20 minute walk from historic Whyte Avenue with its many restaurants and bars, coffee shops, and boutique stores. West Edmonton Mall, a world famous shopping and entertainment complex located in the west end of the city is also easily accessible via transit from the University of Alberta as is the 124 Street district, a 10-block area which is home to restaurants, boutique shops, and art galleries.

Centrally located in the province of Alberta, the city of Edmonton (with a population of more than 1 million) offers a number of advantages and attractions for the conference and extra-program events. The conference events will be held just steps away from Edmonton’s river valley park system—a 7400-hectare (18,286 acres) interconnected ribbon of urban parks on both sides of the North Saskatchewan River. Conference participants can enjoy walking in the river valley during breaks.

Continued on Page 16
or take advantage of the park systems’ many amenities including guided Segway tours and Edmonton’s four municipal golf courses during their stay in the city. Edmonton is also known as “Festival City” and events which occur during late June include The Works Art & Design Festival located in and throughout Edmonton’s city center; Improvoganza- a celebration of improvisational comedy, and music held at the Citadel Theatre in downtown Edmonton; the Edmonton International Jazz Festival where internationally-recognized artists perform in venues throughout the city; the Freewill Shakespeare Festival where the works of the immortal bard are performed outdoors in Hawrelak Park, which is located a short drive from the University of Alberta; and the Vocal Arts Festival, which features some of Canada’s finest emerging artists and is held in the Timms Centre for the Arts on the main campus of the University of Alberta a 10-minute walk from the conference venue. Its location also makes Edmonton an ideal base for conference delegates who wish to explore the history and natural beauty of the province of Alberta either before or after the meeting. The Rocky Mountains including Jasper and Banff National Parks as well as the Royal Tyrell Museum and its world-famous collection of dinosaur fossils are all located within a half-day’s travel of the city. The drives to Jasper (3.5 hours), Banff (4 hours), and Drumheller (3 hours) are easy and along major roads. For those who do not desire to rent a vehicle, SunDog Tours offers a shuttle from the Edmonton International Airport to Jasper National Parks and a variety of sightseeing tours. Train travel to Jasper is also available through Via Rail and the Rocky Mountaineer.

We are putting together a joint program committee of the Three Societies to ensure that we will have a lively and engaging program. Calls for papers will probably go out in early fall. The Three Societies conference is a chance to get together in a more relaxed, campus environment, and I hope you will all consider attending. You will not be disappointed. For more information contact: threesocieties2016@ualberta.ca.
Learned Societies and Open Access
by Steven Wheatley, American Council of Learned Societies

Let’s begin with a story from when the research university was still new. William Rainey Harper, the first president of the University of Chicago aggressively recruited “star faculty” with inventive blandishments. The president was known to promise a wavering scholar that he (almost always a “he” in those days) could serve as editor of not one but two new journals that the university presses would publish: one a journal for academic specialists and a second for the general public.¹ This strategy soon proved to be fiscally unsustainable, but we can admire the twin goals of building both scholarly rigor and public enlightenment.

The new research university, together with the modern learned society created at the same time, posited a new paradigm of research that strove for both social and pedagogical utility and restructured the university and its allied systems, including scholarly communication, to serve those ends. In 2015, it seems that so much of their great project is up for grabs. Of particular concern is the future of the scholarly journal in radically changed technological, policy, and social environment.

Today, the executive directors and presidents of humanities learned societies must ask: To what question is Open Access the answer? They see two separate dimensions of the Open Access movement. First, it is a policy prescription aiming to cure an instance of market-failure in the system of scholarly communication. At the end of the twentieth century, commercial for-profit publishers realized that the economic structure of academic publishing was premised on a third party payer. Faculty expected their university libraries to subscribe to leading journals without regard to cost. With little price resistance from the payer, subscription prices went up steadily and library budgets were overtaxed. The Open Access movement was a treatment for the fever of predatory pricing. This problem emerged in the sciences and proposed solutions assumed the environment of scientific research and publishing. But journals published by societies in the humanities and interpretive social sciences are not part of this policy problem and the solutions proposed do not fit our domain.

There is, however, a second, more normative, dimension of Open Access. It is a vision of scholarly and cultural commonwealth more equal than that we enjoy today, a vision wherein the greater accessibility of scholarship increases its consumption, transmission, and, ultimately, production. This vision is integral to the basic conception of the modern American learned society and, therefore, society leaders in the humanities and adjacent social sciences are exploring how it might be approached without getting waist deep in a Big Muddy of red ink that would imperil their journals and perhaps even the associations themselves.

Most of learned societies in the humanities have roughly the same business model: a three-legged stool of membership dues, conference registration and exhibition revenues, and publications. Publications are mostly journals, although some also issue monographs and reference sources. Almost all societies live close to the margin of their operating income. Their modest reserves could not sustain them for very long without other revenue.

Each leg of this business model is very uncertain now. Society leaders worry about membership in relation to the changing demographics of the faculty and the declining portion of the teaching force on the tenure track. Attendance at conferences and meetings is affected by the vagaries of airline fares and the decline in university budgets for travel. All societies are looking for other means of revenue and new means of strengthening the basic value proposition they present to potential members.

Most society publications make money, but not a lot. One study of eight journals in the humanities and social sciences found that, in 2007, they had about $6.9 million in costs and $8.4 million in revenue. So that would come to less than

Learned Societies and Open Access, cont.

$200,000 per journal if the costs and revenues were distributed equally.²

Subscriptions to journals in the humanities and interpretive social sciences are cheap. The price of college/university subscriptions to *Isis* varies from $427 to $989 depending on the institution’s size. To speak loosely but concisely, the prices of humanities journals are “decimal dust” compared to the cost of many STEM subscriptions.

For most humanities journals, subscription revenue from institutions and individuals roughly equals costs, so that their surplus comes largely from advertising and royalties. Most of this surplus goes back into the societies. This return is money the scholarly system pays itself to maintain systems of peer-review essential to scholarly integrity and intellectual advance. This is money well-spent.

So, to what question is Open Access to humanities journals the answer? Is it the answer to the strains on library budgets? Absolutely not. Humanities journals are what the Faculty Advisory Council to the Harvard Library describes as “sustainably priced.”³ I would suggest that it takes a fairly absolutist, Manichean lens to suggest that any price is a predatory price.

Could Gold Open Access, the author-pays model, work in the humanities? It could, if the humanities had more gold, but we don’t. Last year, ACLS awarded more than $15 million in fellowships and grants, but if recipients of our fellowship used their stipends to pay Article Processing Fees of say, $2,500/article, they would be trading publication costs for research time. The same equation would apply to awards from other national fellowship granting organizations. Something will be left uncovered if the blanket of humanities research support is pulled to cover author publication costs.

As the American Historical Association noted, if the author-pays models were adopted widely in the humanities it would increase the already problematic level of inequality in academia. Wealthy institutions might pay the fees for their faculty, but scholars at most colleges and universities could not expect such support. Also, of course, articles form only a fraction of the pages of humanities journals, with many pages devoted to book reviews. Would article processing fees need to bear the cost of that portion of the publication?

But is Open Access the answer to how a learned society accomplishes its mission? It can be an answer, but only if the society still has the means to accomplish its ends after instituting some form of Open Access. Our member societies are experimenting with different adaptations of OA. Many allow authors of articles to retain rights to post their work on their own website, in institutional repositories, or with ungated links to the journal itself. The Latin American Studies Association has taken a geographical approach to the question: its journal and publications are open access to Latin American IP addresses, while subscribers elsewhere pay fees. Some societies with several publications are experimenting with an Open Access regime of some journals while maintaining the subscription revenues of others.

Can learned societies in the humanities pull off William Rainey Harper’s trick? Can they have the means to identify, celebrate and publish scholarly excellence while also promoting the broadest circulation of new knowledge? I am optimistic that they will, but much experimentation and adaptation will be required. Let us hope they do, for learned societies, with their open membership and democratic governance, provide one of the most powerful solvents for the growing stratification in US higher education.

About the Author

Steve Wheatley is Vice President of the American Council of Learned Societies. This article is a version of the talk that he gave on a panel on open access at the HSS Chicago Meeting, 7 Nov 2014.

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Member News

Rima D. Apple, PhD was recently named Professor Extraordinarius, at the Institute for Gender Studies, at UNISA (University of South Africa), Pretoria, South Africa.

Carlo Artemi has published a paper titled “Citizen Criminology: An Example from a (Very) Strange Italy-Vatican Case” in *Humanities and Social Sciences*, Vol. 2, No. 6, 2014, pp. 206-210. He reports that this paper is probably the first, or one of the first, in the world to present criminological implications of Citizen Science. The reference is to the very mysterious case of Emanuela Orlandi’s disappearance.

Alexandra Bacopoulos-Viau has been awarded the 2014 Forum for the History of the Human Sciences Dissertation Prize for “Scripting the Mind: Automatic Writing in France, 1857–1930,” University of Cambridge, 2013. Dr. Bacopoulos-Viau, is now a postdoc in the Department of History at NYU.


Sarah Bridger’s (California Polytechnic State University) new book *Scientists at War: The Ethics of Cold War Weapons Research* (Harvard University Press) is coming out April 6. For more details http://www.hup.harvard.edu/catalog.php?isbn=9780674736825

Luis Campos (University of New Mexico) has published a new book with the University of Chicago Press. *Radium and the Secret of Life* recovers a forgotten history of the connections between radioactivity and the life sciences in the early 20th century, highlighting how provocative metaphors linking radium and life ultimately led to key biological insights into the origin of life, the nature of heredity, and the nature and structure of the gene.


Ruth Schwartz Cowan retired from the University of Pennsylvania in 2012. She is now engaged in a multi-year project (with Dan Kevles and Peter Westwick) to write the sesquicentennial history of the National Academy of Sciences/National Research Council. She is also preparing (with Matthew Hersch) a second, expanded edition of her textbook, *A Social History of American Technology*.

Will Deringer, currently of the Columbia Society of Fellows in the Humanities, will begin a position as Assistant Professor in the Program in Science, Technology & Society at MIT this fall.


Alice Dreger (Professor of Clinical Medical Humanities and Bioethics, Feinberg School of Medicine, Northwestern University) has published *Galileo's Middle Finger: Heretics, Activists, and the Search for Justice in Science* (Penguin Press, 2015).
Robert Marc Friedman (Oslo) is writing a new play in connection with the hundredth anniversary of the general theory of relativity. “Transcendence” will open at The English Theater-Berlin/International Performing Arts Center in November, having received funding from the Berlin Hauptstadtkulturfonds. Initiative for the project came from Jürgen Renn (Max Planck Institute for History of Science), who is also collaborating on the project. Staged readings of a preliminary draft were to be held at the Baltimore meeting of the American Physical Society, 12 April (http://meetings.aps.org/Meeting/APR15/Session/P20), and at the CUNY Grad Center program in science and the arts in New York on 14 April 2015 at 6:30 PM, Science Center, Room 4102, The Graduate Center of CUNY, 365 Fifth Avenue, Manhattan. Both events are open to the public.

Anita Guerrini (Oregon State University) has been elected a Corresponding Member of the International Academy of the History of Science. Her book, The Courtiers’ Anatomists: Animals and Humans in Louis XIV’s Paris will be published in May by the University of Chicago Press.

Cassandra Hatton has been named Director, History of Science & Technology, a department which she founded, at Bonhams auction house in New York. Bonhams had its inaugural history of science sale last fall, which was a huge success, and included the record-breaking sale of an Apple-1 computer for $905,000. Hatton has many exciting things in store for the department, one of which includes the sale of the recently discovered Alan Turing manuscript, which will take place on 13 April in New York.

Joel Howell (Historian and Professor of Internal Medicine, University of Michigan) has co-authored an article with a cardiologist and musicologist titled “The Heartfelt Music of Ludwig van Beethoven” (Perspectives in Biology and Medicine, Volume 57, Number 2, Spring 2014, pp. 285-294) in which they argue that some of the rhythms in Beethoven’s music might be related to abnormal cardiac rhythms in his own body. The article has been featured on Science Daily, The Telegraph, and Huffington Post.

The film based on the book Merchants of Doubt (by Naomi Oreskes, Harvard University, and Erik Conway, NASA Jet Propulsion Laboratory) was released in theaters in March 2015.

Alisha Rankin (Assistant Professor of History, Tufts University) has been awarded a 2014-15 Charles A. Ryskamp and Frederick Burkhardt Fellowship from the American Council of Learned Societies to work on her book The Poison Trials: Antidotes and Experiment in Early Modern Europe.

Joy Rankin will receive her PhD from Yale University in May 2015 and begin a tenure-track assistant professorship at Michigan State University in 2016, jointly appointed between Lyman Briggs College (in the History, Philosophy, and Sociology of Science) and James Madison College (in Social Relations and Policy). In addition to completing her dissertation, Personal Computing before Personal Computers, she has also been advising two documentary films on the history of computing. They are The Birth of BASIC, directed by Bob Drake (https://www.youtube.com/watch?v=WYPnjSoDrqw) and The Queen of Code directed by Gillian Jacobs (http://fivethirtyeight.com/features/the-queen-of-code/).

She has been awarded a postdoctoral fellowship as a Visiting Scholar at the American Academy of Arts and Sciences (in Cambridge, MA) for 2015-16, and will spend the year at the Academy working on her book manuscript before assuming her responsibilities at Michigan State.
Naomi Rogers (Yale University) has been promoted to full Professor of the History of Medicine at Yale, where she teaches medical students and residents in the School of Medicine, and undergraduate and graduate students in the Program in the History of Science and Medicine, in Women’s, Gender, and Sexuality Studies, and in History. Her book *Polio Wars: Sister Kenny and the Golden Age of American Medicine* (Oxford University Press, 2014) has been awarded the 2014 Lavinia L. Dock Award by the American Association for the History of Nursing.

Rachael Rosner (Independent Scholar) will spend the fall of 2015 as an Erikson Scholar at the Erikson Institute of the Austen Riggs Foundation to continue research on her book project, *In Beck’s Basement*.


Conevery Bolton Valencius is now Associate Professor in the Department of History at University of Massachusetts Boston, with affiliation also in the UMB School for the Environment. Her recent book *The Lost History of the New Madrid Earthquakes* (University of Chicago Press, 2013) came out in paperback in March 2015.

Long-time HSS member George E. Webb will be retiring as Professor of History at Tennessee Tech University this summer. He hopes to pursue his many research projects and soon return to his native desert Southwest.

Nadine Weidman (Harvard University and Boston College) has been appointed incoming editor of the journal *History of Psychology*. The journal welcomes submissions on all aspects of the psy-sciences, broadly construed, and on their interrelationships with the many contexts within which they have emerged and been practiced. Proposals for special issues are also welcome. For more information, see [http://www.apa.org/pubs/journals/HOP/index.aspx](http://www.apa.org/pubs/journals/HOP/index.aspx)

Professor Dr. Christoph Meinel (University of Regensburg, Germany) is the recipient of the 2015 HIST Award of the Division of the History of Chemistry of the American Chemical Society. This award, which is the successor to the Dexter Award (1956-2001) and the Sydney M. Edelstein Award (2002-2009), will be presented at the American Chemical Society in Boston in August 2015. Dr. Meinel was born on November 28, 1949 in Dresden, Germany. He earned the qualification “Diplom-Chemiker” from the University of Marburg in 1974; all his subsequent historical work reflects his deep knowledge of the underlying chemistry. He continued his education at Marburg in the history of science and graduated in 1977 with a PhD. His doctoral dissertation was on the history of chemistry at Marburg, an extensive subject subsequently published as a major monograph. He continued in the history of chemistry as a postdoctoral fellow with Maurice Crosland at the University of Kent at Canterbury, then returned to the University of Marburg, earning habilitation at the University of Hamburg in 1987. After a year as Fellow at the Berlin Institute for Advanced Study, he was appointed to a full professorship at the University of Regensburg in 1990, where he continued until his retirement in 2015. Christoph spent two periods in the United States, as a visiting professor at Smith College and as a research associate at the Center for the History
Christoph Meinel is a member of the Deutsche Akademie der Naturforscher Leopoldina and a member of the Académie Internationale d’Histoire des Sciences in Paris. He has served as president of the German Society for the History of Science, and was the founding president of the International Commission on the History of Modern Chemistry. From 1990 through 1997 and again since 2014 he chairs the History Division of the German Chemical Society (GDCh) and is editor of the Division’s journal *Mitteilungen*.

Dr. Meinel’s extensive body of historical work has earned him a position at the center of the international community of historians of chemistry. His research interests include the emergence of chemistry as a discipline, its social history, communication and publication networks. He has also published on various aspects of early modern natural philosophy.

Such a rich career in the history of chemistry has been recognized by many honors: the Gmelin-Beilstein Memorial Medal of the German Chemical Society, the Alexandre Koyré Medal of the International Academy of the History of Science, and the Liebig-Wöhler Friendship Prize of the Göttingen Museum of Chemistry. The History Division of the American Chemical Society is honored to join the European societies in awarding Professor Meinel the HIST Prize.

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**INTERNATIONAL UNION OF THE HISTORY AND PHILOSOPHY OF SCIENCE AND TECHNOLOGY/ Division Of History Of Science And Technology (IUHPST/DHST) 2017 DHST Prize For Young Scholars**

**Scheme**

The International Union of the History and Philosophy of Science and Technology, Division of History of Science and Technology (IUHPST/DHST) invites submissions for the fourth DHST Prize for Young Scholars, to be presented in 2017. Initiated at the 22nd International Congress of History of Science in 2005 held in Beijing, the DHST Prize is awarded by the IUHPST/DHST every four years to up to five young historians of science and technology for outstanding doctoral dissertations, completed within the last four years.

The 2017 DHST Prize will not specify distinct categories, but the entries must be on the history of science or technology in any part of the world. The Award Committee will endeavor to maintain the broadest coverage of subjects, geographical areas, chronology and civilizations (African, American, Asian, Islamic, Western and Ancient Civilisations, and others not included in the above list).

Each Prize consists of a certificate, assistance with travel and accommodation expenditures to the IUHPST/DHST Congress in Rio de Janeiro in August 2017 and a waiver of registration fee.

**Award Committee**

The Committee is comprised of the DHST President, Vice-Presidents, Secretary General, and distinguished specialists in specific fields.

**Competition Calendar**

Submission deadline: 31 August 2016  
Qualification examination and preliminary selection: September 2016  
Award Committee online meeting: October-November 2016  
Approval by DHST Council: December 2016  
Award Ceremony: August 2017

**Conditions and Application**

**Eligibility:** Applicants must have a doctoral degree in the history of science, or technology awarded no earlier than July 2012.

**Language:** Any dissertation in a language other than English must be accompanied by a detailed summary in English of no more than 20 pages.

**Application procedure:** Applicants must submit online at [http://hpdst.gr/youngscholarsprize](http://hpdst.gr/youngscholarsprize) where they can also find procedural details.
In Memoriam

David Lindberg
15 November 1935 – 6 January 2015

David Lindberg, age 79, died at Covenant Oaks Memory Care on 6 Jan 2015, after a long, arduous journey with Alzheimer’s disease. He was born in Minneapolis, Minn., on 15 Nov 1935, to Milton and Elizabeth (MacKinney) Lindberg. His degrees include Wheaton College, BA-Physics; Northwestern University, MS-Physics; and a PhD from Indiana University in the History and Philosophy of Science. After teaching for two years at the University of Michigan, Dave joined the UW in 1967 as a professor in the History of Science department, where he spent the rest of his career until he retired in 2001. During his career he received many writing, teaching, and service awards; lectured frequently in the United States and abroad; edited encyclopedic works; and authored many articles and books on medieval history, and science and religion, including his *Beginnings of Western Science*, which has been translated into seven languages. He was devoted to his colleagues, department, and the UW, also teaching in the Integrated Liberal Studies program, and serving as director of the Institute for Research in the Humanities. He most loved teaching undergraduates and working individually with graduate students. Dave was also a member of the History of Science Society, serving as its president. He spent a year with his family at the Institute for Advanced Studies, in Princeton, and another as a member of St. Edmund Hall and Trinity College in Oxford. He was also a Fellow at the Rockefeller Center in Bellagio, Italy.

The family is planning a celebration of life in the spring. Online condolences may be made at www.gundersonfh.com.

Adapted from the obituary at: http://host.madison.com/news/local/obituaries/lindberg-david/article_8f8625b5-18bb-512e-92f6-cfa9d385f7ff.html#ixzz3UZgiM9q0

L. Pearce Williams
8 September 1927 – 8 February 2015

L. Pearce Williams, professor emeritus in the History of Science at Cornell University, died 8 Feb 2015, at Cayuga Medical Center in Ithaca, NY, at the age of 87. A tall and imposing figure, he reveled in the teaching of both the history of science and the history of Western Civilization, and enjoyed giving his presentation, “The Notorious Note-Taking Lecture,” to students entering the university during his years as a chair professor at Cornell.

Pearce enrolled at Cornell University in 1944 as a chemical engineer, but immediately left for a year’s service in the US Navy. Upon his return to the university, he found his lifelong passion for history of science through a required course taught by the late Henri Guerlac. Pearce graduated from Cornell with honors with a BA in 1949, and then pursued a PhD at Cornell, which he completed in 1952. He taught at Yale and the University of Delaware, and was delighted to return to teach at his alma mater in 1960. His biography of Michael Faraday won the Pfizer Prize.

A memorial service will be held later in the year; time and place will be forthcoming. In lieu of flowers, donations may be made to Pearce’s second home: The Division of Rare and Manuscript Collections, Carl A. Kroch Library, Cornell University, Ithaca, NY 14853.

Adapted from the obituary at: http://www.legacy.com/obituaries/theithacajournal/obituary.aspx?pid=174095125#sthash.ZRYene6A.dpuf
Minutes of the HSS 2014 Business Meeting
9 November, Westin Michigan Avenue, Chicago IL

Officers attending: Angela Creager (President), Janet Browne (Vice President), Floris Cohen (Editor), Adam Apt (Treasurer), Marsha Richmond (Secretary), and Jay Malone (Executive Director)

Meeting called to order at 8:37 a.m.

President’s Welcome (Angela Creager)
[For more extensive comments please see Angela’s President’s Report on page 1.]

Welcome and thank you for coming. There has been a lot happening in HSS over the last year. Last year’s meeting included an informal retreat to brainstorm about strategic planning. In March we had a formal retreat with 40 members of the Society participating; this resulted in the creation of 6 goals. This meeting was followed by a further process of deliberation by different task groups about how best to implement these goals over the summer. The Strategic Plan, which has now been approved by Council, is now available and we welcome feedback.

Another important development was the transfer of the Editorial Office to Utrecht in The Netherlands. This has gone very well, and she thanked members of the Isis Editorial Office who are present. This coming year we will be negotiating a new publishing contract. This is not prompted by our being dissatisfied with the University of Chicago Press, but because they extended us a new offer. We will, however, be reviewing the offers of other presses to assess the value of our journal.

We are also instituting the new Elizabeth Paris Memorial Lecture, which will be given by Peter Galison this afternoon as part of the Chicago Humanities Festival. We are half way over meeting our Paris endowment goals, and Angela welcomes those who would like to contribute.

Angela particularly welcomes international members to the meeting. Yesterday she held an international breakfast, which went very well.

What lies ahead is discerning the next steps in our strategic planning process. As we move towards implementation, she does not want to lose the momentum we gained in the active year-long process. She recommended that members look over the Strategic Plan and find an activity that interests them and volunteer. Also, she encouraged everyone to invite friends, colleagues, and graduate students to join HSS if they have not done so already. Think about supporting the Society financially. Of course, you already do so through your membership and attendance of the annual meeting. But there also issues HSS works on that need extra funding, and if there are activities you care about, please consider donating to the Society.

Secretary’s Report (Marsha Richmond)
Approval of Minutes (Copies of the Business Meeting Minutes from 2013 are available at www.hssonline.org/Meeting/ and a few paper copies were distributed). There was a motion to approve the 2013 Minutes, which was seconded and approved. [Note from April 2015: the 2013 Business Meeting Minutes are now at http://hssonline.org/wp-content/uploads/2014/07/HSS_Business_Meeting_Minutes_Fall2013.pdf]

Executive Director’s Report (Jay Malone)
Jay is pleased to see so many in attendance [ca. 50 total]. He is grateful for all the volunteers who contributed to the Strategic Plan, especially the Leadership Team, Lynn Nyhart and Angela Creager. He also is particularly grateful to HSS workers Greg Macklem and Jessica Baron, whose activities have made a dramatic improvement in the operation of the Society.

Here are some highlights from the past year:
• Mike Sokal (HSS delegate to the American Council of Learned Societies) has put together a wonderful report on the activities of the ACLS, which you may be interested in reading. It can be found at http://hssonline.org/about/groups/ under the ACLS link.

Continued on Page 25
• HSS will no longer be organizing the biennial conferences of PSA. But we will still be meeting with them.

• We have now approved an anti-harassment statement, and we will be working on framing its implementation.

Discussion: Is there a temporary structure or Ombudsman who can handle any complaints in the interim?
Jay: We haven’t done so yet, but that seems reasonable.

Editor’s Report (H. Floris Cohen)
Floris is beginning to settle into his new position, which is no longer a dream but is increasingly real. None of this would be possible without the support of the Descartes Centre, and he particularly thanked Bert Theunissen. The Office is also supported by the Museum Boerhaave (Dutch National Museum for the History of Science and Medicine) and the Huygens Institute for the History of the Netherlands.

He particularly welcomes fostering the international focus of HSS.

The July HSS Newsletter had a short piece on the Utrecht office operations. For three months there were piles of manuscripts, books, and file boxes, and the staff found it necessary to develop a process of handling them. After a lot of work, the three able assistants—the Managing Editor Desiree Capel and the two book review editors, Eric Jorink and Ad Maas—have done a wonderful job of getting the Editorial Office up and running.

They are planning to introduce Editorial Manager as the online system accepting manuscript and book review submissions by January or February. Isis will also have a new cover in March 2015. This issue will not have a Focus section, but future issues will. He is planning to entertain proposals discussing future directions of the history of science.

Treasurer’s Report (Adam Apt)
The primary news is that the Society is in good financial condition. The Executive Office has been thrifty in their operating budget and every year it somehow manages to pull out a surplus. The stock market has been healthy, and our endowment is presently a little over $3.3 million. However, now that we will no longer be receiving funds from PSA, we will have to review our operations. PSA funding has in the past been around 5% of our annual budget. Also, the Strategic Plan implementation will involve extra expenditures. We may need to launch a capital campaign to increase the endowment in the future, but these conversations are just beginning. So, in short, in the next few years the HSS budget will face a few new challenges.

There are copies of the Society’s financial report available. Payments from the University of Chicago Press are 50% of our budget. We also draw on our endowment. He aims for the draw on the endowment to be under 4% each year, and so far we have been able to meet this goal. Another difference is that the Editorial Office in Utrecht costs less than we were previously paying when the office was at York University. Our new relationship with the Descartes Centre to host the Editorial Office benefits the Society.

He thanked the Finance Committee for their work.

Discussion: Has the Society developed a financial analysis of what will be required to carry out the Strategic Plan?
Adam: Not yet; this will probably take around six months.
How do we account for in-kind contributions?
Adam: This is almost exclusively coming from Notre Dame, which houses the Executive Office. In terms of our tax status, it may be necessary to do an accounting of the in-kind inflow and outflow. Thus it may be necessary in the future to account for the Descartes Centre’s in-kind contributions.
Jay: Our IRS 990 reporting each year also tries to account for volunteer activities.
Adam: We are not in any kind of crisis, but we...
are looking forward to our centennial celebration in 2024. We want to make sure the Society is stable enough to accomplish all the goals it has set for itself.

**Committee Reports** (Synopses by Jay Malone)

Electronic copies of the various committee reports are available (look for the Business Meeting link)

**Committee on Honors and Prizes:** Please encourage graduate students who presented at the conference to submit their paper for the Reingold Prize. Also, encourage nominations for the Hazen and Sarton Prizes.

**Committee on Meetings and Program:** Sue Lederer and Florence Hsia are the Program Co-Chairs for 2015. Brian Dolan and Dorothy Porter (University of California, San Francisco) will be helping with local arrangements. There will be some changes to the program organization next year. Jay encourages members to fill out the post-meeting surveys, which tell us what does and does not work well.

**Committee on Education:** The committee is exploring holding special sessions for high school teachers at our annual meeting.

**Committee on Research and the Profession:** CoRP’s activities are being re-evaluated as part of our Strategic Plan.

**Joint Caucus for Socially Engaged Philosophers and Historians of Science:** Dawn Digrius, co-chair, described the committee’s activities, which included over a dozen tables at the opening reception devoted to strategies for engaging the public, the media, and others.

**HSS at Work:** Carin Berkowitz noted that they hosted a networking event on Friday night, and a noon-time roundtable session. This is the group’s second year and activities have already been robust.

**Women's Caucus:** Constance Clark (co-chair) mentioned how supportive the Society has been for the Caucus’s activities. She appreciates the fact that Bernie Lightman and Floris Cohen have attended the Caucus’s past two meetings to provide information about publishing in *Isis*.

**Graduate and Early Career Caucus:** Attendance at the GECC event this year attracted a lot of energy.

**Discussion:** Jane wanted to thank all the officers and volunteers of the Society, who have devoted much time and made many valuable contributions.

**New Business**

Presentation of the new HSS Strategic Plan [the final Plan can be found on the Society’s front page at hssonline.org]. Angela solicited questions and comments.

**Bill Summers:** Some members are involved in scientific societies that have historical groups. The Strategic Plan does not seem to include these. Is this intentional?

**Angela:** No, it’s an oversight and we will be refashioning this. Jay noted, for example, how important interaction with the International Union for the History and Philosophy of Science is.

**Peggy Aldrich:** Strongly suggests re-wording Objective 3.2 concerning “the stigma….” Suggested that it be replaced with “encourages career options inside and outside the academy.” Angela will take such an amendment to Council.

**Robert Fox:** Making contact with the science community needs to be stressed. He lives this every day as a historian editing a history journal within a science society. The history of science as seen by Fellows of the Royal Society is not quite the same as we see the discipline, and this needs to be finessed very carefully.

**Angela:** Scientific societies are a target audience for our own outreach. But another consideration is that they should be included in our activities.
Minutes of the HSS 2014 Business Meeting, cont.

The Strategic Plan should include “learned and scientific societies.”

Dawn: We should use “engagement” rather than “outreach.”

Luis Campos: Goal 2: Almost everything mentioned in this goal is digital, and while this is exciting at this moment, there are other activities that should also be included.

Angela: Members of this group noted that we need to do more in digital publication, but of course we also want to encourage maintaining what we do well, like our print publications.

Lynn Nyhart: This is simply a document that has a limited lifetime. It isn’t written in stone, but is a plan that lays out where we need to get to for the next two years.

Michael Sokal: 1.1.A and 1.1.B seem mutually opposed. Is this a big or a small society? We shouldn’t take for granted that we are a small society.

Angela: We think they work together in this way. If we have more than 10 concurrent sessions, members are not happy. But in B, we might have more people participating in sessions rather than 3 giving 20-minute papers. Also, we need to make sure that our experimentation is working. If we change the annual meeting structure and it’s not satisfactory, then we will rethink how we can implement it differently. That is, we can abandon particular activities. This is where the feedback of members will be especially important. Historians are peculiarly unable to handle change, but we are going to have to think creatively.

Jane Maienschein: Will we post it online and invite members to provide feedback?

Angela: We will try to include a robust feedback mechanism.

Cornelis Schilt: There are goals. Is there a timeframe for when and how these are to be met?

Angela: We will have to figure out the sequence and see how they work out. Some things don’t require much funding and so can be implemented more quickly.

Marc Rothenberg: Cost projections are to the Society rather than to the individuals. Making the meeting longer makes it more expensive to members. Has there been any considerations about this?

Angela: No, we didn’t think precisely in those terms.

Zuoyue Wang: We have members who travel all over the world. It would be good to involve them in promoting the HSS and for these members to connect with each other.

Motion to adjourn. Seconded and approved. Meeting adjourned at 9:36 a.m.

Electronic copies of the various committee reports are available (look for the Business Meeting link).
Conference at The Huntington Library

Beyond the Copernican Revolution: New Narratives in Early Modern Science

12 June 2015 (Friday), 9:30 a.m.–5 p.m.

The Copernican Revolution in astronomy has long been regarded as a central theme in the transformation of the sciences in the early modern period. Leading experts on the history of science explore the relevance of this and other narrative frameworks for understanding scientific developments in the era. $25. Registration: researchconference@huntington.org or 626-405-3432. The schedule and registration form will be available after 1 May.

Islam’s Response to Science’s Big Questions

Prof. Ekmeleddin Ihsanoglu, the former Secretary General of Organization of Islamic Countries (OIC) and a noted thinker and scholar of Islam and science will serve as the Chair of the Muslim-Science.com Task Force Meeting on Islam’s Response to Science’s Big Questions. The Task Force is sponsored by the Templeton Foundation and hosted by the Turkish Society of the History of Science. Muslim-Science.com will formally release the report of the Task Force in July 2015 and seek to work with partners to advance this important discourse within the Islamic World.


Special Issue of Centaurus

A new issue of Centaurus, edited by Ida Stamhuis, called “Contemporary Russian Scholarship on History of Science in Russia” has been published. All six authors belong or belonged to the Institute for the History of Science and Technology: three to the main establishment in Moscow and three to the branch in St. Petersburg. The introduction by Dimitri Bayuk focuses on the history of this institute, which was located only one block from the Red Square (see picture).

The other papers discuss a variety of Russian topics: early research on insect pests in the Russian empire (1830-1840) by Marina Loskutova, forestry experimental stations (1870s) by Anastasia Fedotova, the institutionalization of physical anthropology by Galina Krivosheina (1870s), public initiatives in agricultural science in Russia around 1900 by Olga Elina and the geneticist Nikolai Vavilov in the years of ‘Stalin’s revolution from above’ (1929-1932) by Eduard Kolchinsky.


Although all the authors are scholars working in Russia, experts from many countries were involved as referees and advisors. The aim of this issue is to present contemporary Russian scholarship in the history of science to a wider international audience in the hope of enhancing mutual understanding.
History of Science Society Newsletter

NEWS FROM THE PROFESSION, CONT.

The Case of the Missing Einstein Blackboard

David R. Topper, University of Winnipeg

I am working on a project on all the pictures involving Einstein and a blackboard. There are three cases where the blackboard itself was preserved: Fukuoka, Japan, 1922, Nottingham, UK, 1930, and Oxford, UK, 1931. The two in England are well known and accessible to visitors. The one in Fukuoka is only known through one photograph in the book by Kenji Sugimoto, Albert Einstein: A Photographic Biography (New York: Schocken Books, 1987 in German, English trans. 1989), where it is reported that the blackboard is “preserved” in a high school in Fukuoka. All my efforts to track down the physical place of this artefact have come up empty handed. The following link contains a picture of the blackboard: http://aas.org/posts/news/2015/03/report-unjapan-workshop-space-weather

Recently I have been aided in my effort to find the blackboard by Professor Hans J. Haubold, Professor of Theoretical Astrophysics, UN Office for Outer Space Affairs, Vienna International Centre, who is a frequent traveler to Japan. He has made contact with Japanese scientists and officials in this endeavour. The following is a message to me.

Today I got the email from Kyushu University saying that they are not able to locate the Einstein/Ishiwara Blackboard. Particularly they interviewed a number of old professors who should have at least taken note of such a blackboard, say, in the past forty to fifty years. Nobody was able to recall the existence of such a blackboard. So for the time being it remains a mystery as you mentioned in past emails.

At a recent UN/Japan workshop at Kyushu University, Hans raised the question of the missing blackboard, but nobody knew anything about where it is or where it may be. Here is a link to the workshop: http://www.unoosa.org/oosa/en/SAP/act2015/japan/index.html.

Hans and I continue on this quest.

The following is from a draft of my unpublished manuscript for a book on the topic of Einstein and blackboards. It is a paragraph on what I know about the blackboard.

After the Kyoto lecture on December 14, 1922, Einstein’s next lecture was on December 24, 1922, where he gave a 4-hour lecture to about 3000 listeners “On the Special and General Principles of Relativity,” at the Hakata Daibaku Theatre in Fukuoka, Hakata being a district of Fukuoka. A photograph of the blackboard is reproduced in the book by Kenji Sugimoto (1989, p. 81). The diagrams are by Einstein, but the Japanese explanation is by Jun Ishiwara, who was his translator and interpreter throughout the trip. The Image Credit for the picture in the back of Sugimoto’s book is, Eiji Ishitobi, Fukuoka, Japan, but attempts to find this person have failed. Sugimoto says that the blackboard is preserved in a high school (presumably) in Fukuoka. But attempts to find this site have also failed. Sugimoto died in 2006 before I began this quest. All reproductions of this picture that I have found are copies of the photo in Sugimoto’s book; there seem to be no independent photographs of this blackboard except that found in Kenji Sugimoto, Albert Einstein: A Photographic Biography (New York: Schocken Books, 1989).

If anyone in the Society can provide any information about this blackboard, it would be very greatly appreciated. David Topper (d.topper@uwinnipeg.ca)
An Invitation from Studies in History and Philosophy of Science

Throughout its history, the journal Studies in History and Philosophy of Science has been a home to integrated studies of history, philosophy, sociology, and allied disciplines in connection with the sciences. Our conception of the field, reflected in our editorial policy, is highly pluralistic: HPS has always been a broad tent, and we welcome excellent scholarship in history of science in its many forms, including work on the historiography of the sciences and the sciences in relation to gender, culture, society, and the arts.

With the growth of first-rate work in the history of science overwhelming the capacities of some traditional, historical venues for publication, perhaps now is a good time to remind members of the history of science community that SHPS is keen to receive the fruits of your research. Please consider us for your submissions, and remember that in addition to SHPS, there are also two sister journals focusing on the modern physical sciences (from the mid/late-nineteenth century) and the biological sciences respectively:

- Studies in History and Philosophy of Science
- Studies in History and Philosophy of Modern Physics
- Studies in History and Philosophy of Biological and Biomedical Sciences

Sincerely, on behalf of the team at Studies,
Anjan Chakravartty, Editor in Chief

Dissertations on the History of Science and Medicine

The latest batch of doctoral dissertations, harvested from the issues 75-09 A and B of Dissertation Abstracts and pertaining to the broad scope of history of science and medicine can be found at [http://www.hsls.pitt.edu/histmed/dissertations/](http://www.hsls.pitt.edu/histmed/dissertations/).

Please note that ProQuest has altered how they put out their individual issues. No longer do they correlate to one month, so the dating is more random. Thus titles will range from 2015—yes they have some 2015 dates—back into the late 1990s.

For this issue the University of Southern California dumped the past 75+ years’ worth of their doctoral dissertations so you may find some older—some much older—dissertation titles. Please share this information with your colleagues and students.

We are grateful to Jonathon Erlen (University of Pittsburgh) for compiling this list.