HPS&ST Note

February 2018

Introduction

This HPS&ST monthly note is sent direct to about 7,450 individuals who directly or indirectly have expressed an interest in the contribution of history and philosophy of science to theoretical, curricular and pedagogical issues in science teaching, and/or interests in the promotion of innovative and more engaging and effective teaching of the history and philosophy of science. The note is sent on to different international and national HPS lists and international and national science teaching lists. In print or electronic form it has been published for 20+ years.

The note seeks to serve the diverse international community of HPS&ST scholars and teachers by disseminating information about events and publications that connect to concerns of the HPS&ST community.

Contributions to the note (publications, conferences, opinion pieces, etc.) are welcome and should be sent direct to the editor:

Michael R. Matthews, UNSW, m.matthews@unsw.edu.au.

The Note, along with RESOURCES, OBITUARIES, OPINION PIECES and more, are lodged at the website:

http://www.hpsst.com/

NARST Annual Conference, March 10-13, 2018, Strand 13 HPS&ST Sessions

The NARST annual conference is being held in Atlanta, March 10-13. Its Strand 13 is the specific HPS&ST Research strand of the conference.

Full details can be found at: https://www.narst.org/annualconference/2018conference.cfm

The strand sessions are:

History, Philosophy, Sociology, and Nature of Science Symposium – Creating a Polyphonic and Dialogic Process to Address the Issue of Science Mistrust and Misunderstanding

Presider: Sophia (Sun Kyung) Jeong, University of Georgia
Discussant: J. Oliver, University of Georgia

Presenters: Sophia (Sun Kyung) Jeong, University of Georgia; Gretchen P. King, University of Nebraska-Lincoln; David L. Pauli, University of Georgia; Cary W. Sell, University of Georgia; David P. Steele, University of Georgia; Daniel K. Capps, University of Georgia; David F. Jackson, University of Georgia; Logan M. Leslie, University of Georgia; J. Steve Oliver, University of Georgia; Deborah J. Tippins, University of Georgia.

History, Philosophy, Sociology, and Nature of Science Symposium – Practical Perspectives in Teaching and Learning Nature of Science

Presider: Kostas Kampourakis, University of Geneva

Discussant: Judith Lederman, Illinois Institute of Technology

Presenters: Kostas Kampourakis, University of Geneva; Fouad Abd-El-Khalick,

University of North Carolina, Chapel Hill; Judith S. Lederman, Illinois Institute of Technology; Norman G. Lederman, Illinois Institute of Technology; Michael Clough, Texas A&M University; William F. Mccomas, University of Arkansas; Sibel Erduran, University of Oxford; Ebru Kaya, Bogazici University; Busra Aksoz, Bogazici University; Selin Akgun, Bogazici University.

History, Philosophy, Sociology, and Nature of Science Literacy and Language

Presider: Valarie L. Akerson, Indiana University

Exploring Using Literacy to Teach about Nature of Science–Case Studies of Preservice Early Childhood Teachers, Valarie L. Akerson, Indiana University Banu Avsar Erumit, Indiana University Naime Elcan, Indiana

University Effects of Argumentation Instruction on Teachers' Conceptions of the Nature of Science, Meshach Mobolaji Ogunniyi, University of the Western Cape

Effects of Historical Story Telling on Student Understanding of NOS and Mendelian Genetics Cody T. Williams, Western Michigan University; David W. Rudge, Western Michigan University

Learning About the Unique Linguistic Characteristics of Scientific Texts Through Adapted Primary Literature (APL) Moriah Ariely, Weizmann Institute of Science; Zohar Livnat, Bar-Ilan University; Anat Yarden, Weizmann Institute of Science.

History, Philosophy, Sociology, and Nature of Science Poster Symposium – International Collaborative Investigation of High School Students' Understandings of Scientific Inquiry–A Follow Up Study

Presenters: Judith S. Lederman, Illinois Institute of Technology; Norman G. Lederman, Illinois Institute of Technology; Juan Jimenez, Illinois Institute of Technology; Selina L. Bartels, Concordia University Chicago; Cigdem Han Tosunoglu, Marmara University; Mark Akubo, Florida State University; Irene Neumann, Leibniz

Institute (IPN) Anne-Marie Hattingh, University of Cape Town; Cheng Liu, Beijing Normal University Christine V. McDonald, Griffith University; David Santibanez Gomez, Universidad Catholica Silva; Henriquez Enshan Liu, Beijing Normal University; Estella Blanquet, Universite de Bordeaux; Frauke Voitle, IPN – Leibniz Institute for Science and Mathematics Education; Gary Holliday, The University of Akron; Heba El-Deghaidy, American University in Cairo; Jari Lavonen, Univerisity of Helsinki; Jessica Leung, The University of Hong Kong; Jim Concannon, Westminster College; Naruho Fukuda, University of Tsukuba; Niwat Srisawasdi, Khon Kaen University; Ozgur Kivilcan Dogan, Marmara University; Patrick Brown, Fort Zumwalt School District; Rachel Mamlok-Naaman, Weizmann Institute of Science; Renee Schwartz, Georgia State University; Runaaz Sharma, Fiji National University; Serhat Irez, Marmara University; Shiang-Yao Liu, National Taiwan Normal University; Shu-Fen Lin, National Changhua University of Education; Xiao Huang, Zhejiang Normal University; Yaozhen Pan, Zhejiang International Studies University; Yovita Gwekwerere, Laurentain University.

History, Philosophy, Sociology, and Nature of Science Poster Session A

Case Study of a Year-long Science Internship to Teach Nature of Science, Cary W. Sell, University of Georgia; J. Steve Oliver, University of Georgia.

Change of Secondary Students' Perceptions of the Theory of Evolution after an Instructional Intervention that Include Nature of Science: Relevance, Acceptance and Understanding Issues, Beatriz Becerra, Pontificia Universidad Católica de Valparaíso; Alejandra Vegas, Pontificia Universidad Católica de Valparaíso; Kareen Norambuena, Pontificia Universidad Católica de Valparaíso; Hernan Cofre, Pontificia Universidad Católica de Valparaíso.

Fake News and Climate Change: Understanding the Framework, Amelia A. Brown, University of Tennessee, Knoxville; Barry Golden, University of Tennessee.

Mind the Gap: Combining Bachelards' Philosophy of Science and Chemistry Education in Theory and Practice, Mareike Frevert, University of Kassel; David S. Di

Fuccia, University of Kassel.

History, Philosophy, Sociology, and Nature of Science Poster Session B

Novel Method for Teaching the Difference and Relationship between Theories and Laws, Khadija E. Fouad, Appalachian State University; Kathryn L. Gray, Caldwell Early College High School.

The Influence of a History of Science Course on Jamaican Teachers' Nature of Science Conceptions, Sharon Bramwell-Lalor, The University of the West Indies.

Use of Schema Theory and Think Alouds to Study Knowledge Progression Patterns for Socioscientific Issues, Catherine L. Quinlan, Howard University.

What do K-12 Students Need to NoE? A Delphi Study into the Nature of Engineering Brian, Hartman, Walla Walla University; Randy L. Bell, Oregon State University.

Relationships between Changes in Teachers' Understanding of Scientific Inquiry and Nature of Science, Yue Li, Miami University; Sarah B. Woodruff, Miami University.

International Standards Documents' Inclusion of the Nature of Science: A Twenty Year Retrospective, Joanne K. Olson, Texas A&M University.

History, Philosophy, Sociology, and Nature of Science Promoting Teacher's and Student's NOE and NOS Engagement

Presider: Bridget K. Mulvey, Kent State University.

Scientific Practices in the Digital Age, Dina Tsybulsky, Tel Aviv University; Ilya Levin, Tel Aviv University.

K-8 Science and Mathematics Teachers' Nature of Engineering Understandings, Allison Antink-Meyer, Illinois State University; Anna Maria Arias, Illinois State University.

Developing a Questionnaire to Measure Students' Conceptions of the Nature of Technology, Katrin Vaino, University of Tartu; Toomas Vaino, University of Tartu; Miia Rannikmae, University of Tartu.

Adapting and Reflecting: Elementary Teachers' and Students' NOS Explorations Associated with a Professional Development Program, Bridget K. Mulvey, Kent State University; Lucy Kulbago, Kent State University; Eileen G. Merritt, West Arizona State University; Jennifer Chiu, University of Virginia; Randy L. Bell, Oregon State University.

History, Philosophy, Sociology, and Nature of Science Nature of Science and Preservice Teachers

Presider: Kamisah Osman, Universiti Kebangsaan.

Malaysia Preservice Special Education Teachers's Nature of Science Conceptions and Related Experiences, Mila Rosa L. Librea-Carden, Kent State University; Bridget K. Mulvey, Kent State University; Tanzimul Ferdous, Kent State University.

A Typology of Preservice Elementary School Teachers' Relationships with Scientific Experts, Audrey Groleau, Université du Québec à Trois-Rivières; Chantal Pouliot, Universite Laval.

From Traditional to Contemporary Aspects of NOS: Trainee Science Teachers' Perceptions on Economics and Entrepreneurship, Sila Kaya, University of Limerick; Naomi Birdthistle, Assoc. Prof Dr. Sibel Erduran, University of Oxford.

A Document Analysis of Online Curricula for Teaching Human Evolution in K-12 Science Education, Rebecca Hite, Texas Tech University; Kristopher J. Childs, Texas Tech University; Elizabeth Kirman, Texas Tech University.

History, Philosophy, Sociology, and Nature of Science Philosophy of Science/History of Science

Presider: Uygar Kanli, Gazi University.

Goethe's Conception of "Experiment as Mediator" and Implications for School Science Practical Work, Wonyong Park, Seoul National University; Jinwoong Song, Seoul National University.

Promoting Teachers' Understanding about the NOS through The Activity of Eratosthenes' Measurement of Earth's Circumference, Gizem Sivrikaya, Ankara University; Uygar Kanli, Gazi University; Yasemin Ozdem-Yilmaz, Gaziosmanpasa University; Fitnat Koseoglu, Gazi University.

Scientific Explanation in Science Education: A Critical Review of Literature, Sahar Alameh, University of Illinois, Urbana-Champaign; Fouad Abd-El-Khalick, University of North Carolina, Chapel Hill.

Non-science Majors' Development of NOS Understandings during a Historically Contextualized Introductory Undergraduate Geology Course, Glenn Dolphin, University of Calgary.

History, Philosophy, Sociology, and Nature of Science Scientific Inquiry and Nature of Science

Presider: Dawnne M. LePretre, Illinois Institute of Technology-MSED.

Using Students' Exemplar Responses from NOS and SI Survey Instruments as an Explicit and Reflective Approach for Developing Teachers' Understanding of Nature of Science and Scientific Inquiry, Jennifer C. Parrish, University of Northern Colorado; Grant E. Gardner, Middle Tennessee State University.

A Sample of Turkish Middle School Students' Views of Nature of Scientific Inquiry, Esra Capkinoglu, Independent Researcher; Gulsen Leblebicioglu, Abant Izzet Baysal

University; Duygu Metin, Bozok University; Renee S. Schwartz, Georgia State University; Ismail Berkyurek.

Ninth/Tenth versus Eleventh/Twelfth Graders' Views About Scientific Inquiry, James P. Concannon, Westminster College; Patrick Brown, Ft. Zumwalt; Norman G. Lederman, Illinois Institute of Technology; Judith S. Lederman, Illinois Institute of Technology.

The Strange Case of "the Scientific Method" Revisited: NGSS's Impact on References in Practitioner Journals, Daniel Z. Meyer, Illinois College.

History, Philosophy, Sociology, and Nature of Science Scientific Literacy

Presider: Jacob Pleasants, Iowa State University

The Relationship Between Biology Teachers' Understanding of the Nature of Science and the Understanding and Acceptance of the Theory of Evolution, Hernan Cofre, Pontificia Universidad Católica de Valparaíso; Beatriz Becerra, Pontificia Universidad Católica de Valparaíso; Emilia Cuevas, Pontificia Universidad Católica de Valparaíso; Claudia Vergara, Alberto Hurtado University; David Santibáñez, Universidad Católica; Silva Henriquez Juan Jimenez, Illinois Institute of Technology. Tuesday, March 13, 2018

Scientific Literacy or Scientific Proficiency? Covenants as Mitigating-Circles in Educational Standards Development, Silvia Lizette Ramos de Robles, Centro Universitario de Ciencias Biológicas y Agropecuarias; Alejandro J. Gallard, Georgia Southern University; Katie Brkich, Georgia Southern University; Wesley Pitts, City University of New York, Lehman College.

Understanding Activism and Scientific Literacy, Jill Birren, Marquette University; Jennifer Gaul-Stout, Marquette University.

"Even a Monk can Become a Scientist:" Dialectical Discourse at a Tibetan Buddhist Monastery, Meena M. Balgopal, Colorado State University; Nicole M. Gerardo,

Emory University.

History, Philosophy, Sociology, and Nature of Science Socioscientific Issues

Presider: Brendan E. Callahan, Kennesaw State University

In Search of Socioscientific Perspective Taking: Empirical Refinement of a TheoreticallyDerived Construct, Sami Kahn, Ohio University; Sarah Cross, Ohio University.

Teachers' Pedagogical Content Knowledge For Socioscientific Issues, Cigdem Han Tosunoglu, Marmara University; Serhat Irez, Marmara University.

Place-based Contentious Environmental SSI Instruction and Students' NOS Understanding, Compassion, and Pro-Environmental Engagement, Ben C. Herman, University of Missouri.

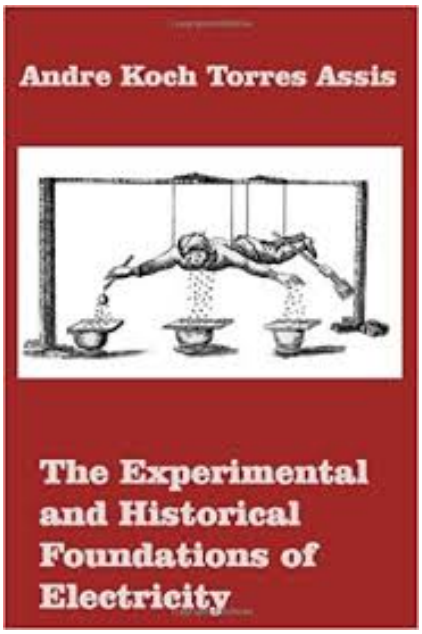
Discourse Analysis of an Online SSI Discussion, Brendan E. Callahan, Kennesaw State University; Michael Dias, Kennesaw State University; Jen S. Dail, Kennesaw State University; Joy Brookshire, Kennesaw State University.

Experimental and Historical Foundations of Electricity: Downloadable Book

The book describes the main experiments and discoveries in the history of electricity. It begins with the amber effect, which is analogous to the usual experiment of attracting small pieces of paper with a plastic ruler rubbed in hair.

This work explains how to build several instruments: versorium, electric pendulum, electroscope and charge collectors. We discuss electric attraction and repulsion, positive and negative charges, and the ACR mechanism (attraction, communication of electricity, and repulsion). The book analyzes the concepts of conductors and insulators, together with the main differences in the behaviours of these two kinds of substances.

Historical aspects are presented, together with relevant quotations related to electricity from some of the main early scientists like Gilbert, Guericke, Du Fay, Aepinus, Newton, Kelvin, etc. All experiments are clearly described and performed with simple and cheap materials, easily accessible. These experiments lead to clear concepts, definitions, and laws describing these phenomena.



The book presents a detailed analysis of the work of Stephen Gray (1666-1736), the great British scientist who discovered conductors and insulators, together with some of their main properties. A large bibliography is included at the end of the work.

Videos of experiments inspired by this book have been made in Italian by Pietro Cerreta of the organization ScienzaViva (available here) and in German by Derk Frerichs and Stephan Pfeiler (available here).

The book may be downloaded in English here. The printed book in English, Portuguese, Russian and Italian can be ordered through Amazon and AIF, respectively.

Andre Koch Torres Assis
Email: assis@ifi.unicamp.br
Institute of Physics
University of Campinas
13083-859 Campinas, SP
Brazil

Homepage: http://www.ifi.unicamp.br/~assis

3rd International Conference on the History of Physics under the auspices of the European Physical Society and 4th Early-Career Conference for Historians in the Physical Sciences of the American Institute of Physics, 17-21 October 2018, Donostia-San Sebastian, Spain

2018 marks the 50th anniversary of the creation of the European Physical Society (EPS). In this context, and following the success of two previous meetings in Cambridge (United Kingdom) and Pöllau (Austria), we are happy to announce the Third International Conference on the History of Physics, under the auspices of the EPS, which will take place in Donostia/San Sebastian (Spain) in October 17-21, 2018.

The main goal of the conference is to provide a forum where historians of physics and physicists meet to reflect on the importance of the history of science for the development of contemporary physics, not only in its conceptual evolution but also at the institutional, organizational and educational levels; as well as to promote the contribution of practicing physicists to the highly professionalised discipline of the history of physics. On this occasion, this exchange will be enhanced by the joint celebration of the conference of early-career historians of physics, a bi-annual event sponsored by the History Center of the American Institute of Physics.

The organizing committee welcomes abstracts of no more than 500 words for 20 minutes' oral presentations and/or posters on any subject related to the history of physics including geophysics, space physics, biophysics, physical chemistry etc.

Please send abstracts here by March 15th, 2018, including the following information:

Title, abstract, author, institutional affiliation, oral and/or poster format and early-career stage (if applicable).*

Further information: http://www.ehu.eus/ehusfera/hopdss2018/

4th Latin American Conference of the International History, Philosophy and Science Teaching Group (IHPST-LA), September 3 to 5, 2018, Federal University of ABC, UFABC, Santo André, Brazil

After 8 years from the 1st Latin American Conference, in Maresias (SP), and 3 years from the 13th Biennial Conference of the IHPST, in Rio de Janeiro (RJ), Brazil will host again a group meeting. In three days of intense discussion, we seek to promote a wide debate among historians, educators, teachers and others on the relation between history, philosophy, sociology and science teaching.

There will be three kinds of submission of proposal: oral communication, poster and thematic symposia. Proposals may be submitted in Portuguese, Spanish or English.

Submission of proposals (all categories): from February 19 to March 30
Early registration deadline: June 3

If you have any doubts and suggestions, send an e-mail to ihpstla2018@gmail.com

Complete version of CFP: http://www.brenoam.com/ihpstla-2018-en.

Opinion Page

The Intellectual War on Science: It's wreaking havoc in universities and jeopardizing the progress of research

Steven Pinker, Harvard University

A version of this essay appeared in the *Chronicle of Higher Education*, February 13, 2018.

The waging of a "war on science" by right-wing know-nothings has become part of the conventional wisdom of the intelligentsia. Even some Republican stalwarts have come to disparage the GOP as "the party of stupid." Republican legislators have engaged in spectacles of inanity, such as when Sen. James Inhofe, chair of the Committee on Environment and Public Works, brought a snowball to the Senate floor in 2015 to dispute the fact of global warming, and when Rep. Lamar Smith, chair of the House Committee on Science, Space, and Technology, pulled quotes out of context from peer-reviewed grants of the National Science Foundation so he could mock them (for example, "How does the federal government justify spending over $220,000 to study animal photos in *National Geographic*?").

Yet a contempt for science is neither new, lowbrow, nor confined to the political right. In his famous 1959 lecture "The Two Cultures and the Scientific Revolution," C.P. Snow commented on the disdain for science among educated Britons and called for a greater integration of science into intellectual life. In response to this overture, the literary critic F.R. Leavis wrote a rebuttal in 1962 that was so

vituperative *The Spectator* had to ask Snow to
promise not to sue for libel if they published the work.

The highbrow war on science continues to this day, with flak not just from fossil-fuel-funded politicians and religious fundamentalists but also from our most adored intellectuals and in our most august institutions of higher learning. Magazines that are ostensibly dedicated to ideas confine themselves to those arising in politics and the arts, with scant attention to new ideas emerging from science, with the exception of politicized issues like climate change (and regular attacks on a sin called "scientism"). Just as pernicious is the treatment of science in the liberal-arts curricula of many universities. Students can graduate with only a trifling exposure to science, and what they do learn is often designed to poison them against it.

The most frequently assigned book on science in universities (aside from a popular biology textbook) is Thomas Kuhn's *The Structure of Scientific Revolutions*. That 1962 classic is commonly interpreted as showing that science does not converge on the truth but merely busies itself with solving puzzles before lurching to some new paradigm that renders its previous theories obsolete; indeed, unintelligible. Though Kuhn himself disavowed that nihilist interpretation, it has become the conventional wisdom among many intellectuals. A critic from a major magazine once explained to me that the art world no longer considers whether works of art are "beautiful" for the same reason that scientists no longer consider whether theories are "true." He seemed genuinely surprised when I corrected him.

The historian of science David Wootton has remarked on the mores of his own field: "In the years since Snow's lecture the two-cultures problem has deepened; history of science, far from serving as a bridge between the arts and sciences, nowadays offers the scientists a picture of themselves that most of them cannot recognize." That is because many historians of science consider it naïve to treat science as the pursuit of true explanations of the world. The result is like a report of a basketball game by a dance critic who is not allowed to say that the players are trying to throw the ball through the hoop.

Many scholars in "science studies" devote their careers to recondite analyses of how

the whole institution is just a pretext for oppression. An example is a 2016 article on the world's most pressing challenge, titled "Glaciers, Gender, and Science: A Feminist Glaciology Framework for Global Environmental Change Research," which sought to generate a "robust analysis of gender, power, and epistemologies in dynamic social-ecological systems, thereby leading to more just and equitable science and human-ice interactions."

Students can graduate with only a trifling exposure to science, and what they do learn is often designed to poison them against it. More insidious than the ferreting out of ever more cryptic forms of racism and sexism is a demonization campaign that impugns science (together with the rest of the Enlightenment) for crimes that are as old as civilization, including racism, slavery, conquest, and genocide.

This was a major theme of the Critical Theory of the Frankfurt School, the quasi-Marxist movement originated by Theodor Adorno and Max Horkheimer, who proclaimed that "the fully enlightened earth radiates disaster triumphant." It also figures in the works of postmodernist theorists such as Michel Foucault, who argued that the Holocaust was the inevitable culmination of a "bio-politics" that began with the Enlightenment, when science and rational governance exerted increasing power over people's lives. In a similar vein, the sociologist Zygmunt Bauman blamed the Holocaust on the Enlightenment ideal to "remake the society, force it to conform to an overall, scientifically conceived plan."

In this twisted narrative, the Nazis themselves are somehow let off the hook ("It's modernity's fault!"). Though Critical Theory and postmodernism avoid "scientistic" methods such as quantification and systematic chronology, the facts suggest that they have the history backwards. Genocide and autocracy were ubiquitous in premodern times, and they decreased, not increased, as science and liberal Enlightenment values became increasingly influential after World War II.

To be sure, science has often been pressed into the support of deplorable political movements. It is essential, of course, to understand that history, and legitimate to pass judgment on scientists, just like any historical figures, for their roles in it. Yet the qualities that we prize in humanities scholars – context, nuance, his-

torical depth – often leave them when the opportunity arises to prosecute a campaign against their academic rivals. Science is commonly blamed for intellectual movements that had a pseudoscientific patina, though the historical roots of those movements ran deep and wide.

"Scientific racism," the theory that races fall into a hierarchy of mental sophistication with Northern Europeans at the top, is a prime example. It was popular in the decades flanking the turn of the 20th century, apparently supported by craniometry and mental testing, before being discredited in the middle of the 20th century by better science and by the horrors of Nazism. Yet to pin ideological racism on science, in particular on the theory of evolution, is bad intellectual history. Racist beliefs have been omnipresent across history and regions of the world. Slavery has been practiced by every major civilization and was commonly rationalized by the belief that enslaved peoples were inherently suited to servitude, often by God's design. Statements from ancient Greek and medieval Arab writers about the biological inferiority of Africans would curdle your blood, and Cicero's opinion of Britons was not much more charitable.

More to the point, the intellectualized racism that infected the West in the 19th century was the brainchild not of science but of the humanities: history, philology, classics, and mythology. In 1853, Arthur de Gobineau, a fiction writer and amateur historian, published his cockamamie theory that a race of virile white men, the Aryans, spilled out of an ancient homeland and spread a heroic warrior civilization across Eurasia, diverging into the Persians, Hittites, Homeric Greeks, and Vedic Hindus, and later into the Vikings, Goths, and other Germanic tribes. (The speck of reality in this story is that these tribes spoke languages that fell into a single family, Indo-European.) Everything went downhill when the Aryans interbred with inferior conquered peoples, diluting their greatness and causing them to degenerate into the effete, decadent, soulless, bourgeois, commercial cultures that the Romantics were always whingeing about. It was a small step to fuse this fairy tale with German Romantic nationalism and anti-Semitism: The Teutonic *Volk* were the heirs of the Aryans, the Jews a mongrel race of Asiatics. Gobineau's ideas were eaten up by Richard Wagner (whose operas were held to be re-creations of the ori-

ginal Aryan myths) and by Wagner's son-in-law Houston Stewart Chamberlain (a philosopher who wrote that Jews polluted Teutonic civilization with capitalism, liberal humanism, and sterile science). From them the ideas reached Hitler, who called Chamberlain his "spiritual father."

Science played little role in this chain of influence. Pointedly, Gobineau, Chamberlain, and Hitler *rejected* Darwin's theory of evolution, particularly the idea that all humans had gradually evolved from apes, which was incompatible with their Romantic theory of race and with the older folk and religious notions from which it had emerged. According to these widespread beliefs, races were separate species; they were fitted to civilizations with different levels of sophistication; and they would degenerate if they mixed. Darwin argued that humans are closely related members of a single species with a common ancestry, that all peoples have "savage" origins, that the mental capacities of all races are virtually the same, and that the races blend into one another with no harm from interbreeding. The University of Chicago historian Robert Richards, who traced Hitler's influences, ended his book titled *Was Hitler a Darwinian?* (a common claim among creationists) with "The only reasonable answer to the question …is a very loud and unequivocal No."

I mention the limited role of science in so-called scientific racism not to absolve the scientists (many of whom were indeed active or complicit) but because the movement deserves a deeper and more contextualized understanding than its current role as anti-science propaganda. Misunderstandings of Darwin gave scientific racism a boost, but it sprang from the religious, artistic, intellectual, and political beliefs of its era. If we think scientific racism is not just unfashionable but mistaken, it is because of the better historical and scientific understanding we enjoy today.

Recriminations over the nature of science are by no means a relic of the "science wars" of the 1980s and 1990s – when scientists and humanities scholars clashed over the nature of scientific truth – but continue to shape the role of science in universities. When Harvard reformed its general-education requirement in 2006-7, the preliminary report of the task force introduced the teaching of science without any mention of its place in human knowledge: "Science and technology directly

affect our students in many ways, both positive and negative: they have led to life-saving medicines, the internet, more efficient energy storage, and digital entertainment; they also have shepherded nuclear weapons, biological warfare agents, electronic eavesdropping, and damage to the environment."

Well, yes, and I suppose one could say that architecture has produced both museums and gas chambers, and that classical music both stimulates economic activity and inspired the Nazis. But this strange equivocation between the utilitarian and the nefarious was not applied to other disciplines, and the statement gave no indication that we might have good reasons to prefer understanding and know-how to ignorance and superstition.

Does the demonization of science in the liberal arts matter? It does, for a number of reasons. Though many talented students hurtle along pre-med or engineering tracks from the day they set foot on campus, many others are unsure of what they want to do with their lives and take their cues from professors and advisers. What happens to those who are taught that science is just another narrative like religion and myth, that it lurches from revolution to revolution without making progress, and that it is a rationalization of racism, sexism, and genocide? I've seen the answer: Some of them figure, "If that's what science is, I might as well make money!" Four years later, their brainpower is applied to thinking up algorithms that allow hedge funds to act on financial information a few milliseconds faster, rather than to finding new treatments for Alzheimer's disease or technologies for carbon capture and storage.

The stigmatization of science is also jeopardizing the progress of science itself. Today anyone who wants to do research on human beings, even an interview on political opinions or a questionnaire about irregular verbs, must prove to a committee that he or she is not Josef Mengele. Though research subjects obviously must be protected from exploitation and harm, the institutional-review bureaucracy has swollen far beyond this mission. Its critics have pointed out that it has become a menace to free speech, a weapon that fanatics can use to shut up people whose opinions they don't like, and a red-tape dispenser that bogs down research while failing to protect, and sometimes harming, patients and research subjects.

Jonathan Moss, a medical researcher who had developed a new class of drugs and was drafted into chairing the research-review board at the University of Chicago, said in a convocation address, "I ask you to consider three medical miracles we take for granted: X-rays, cardiac catheterization, and general anesthesia. I contend all three would be stillborn if we tried to deliver them in 2005." The same observation has been made about insulin, burn treatments, and other lifesavers.

The hobbling of research is not just a symptom of bureaucratic mission creep. It is actually rationalized by many bioethicists. These theoreticians think up reasons that informed and consenting adults should be forbidden to take part in treatments that help them and others while harming no one. They use nebulous rubrics like "dignity," "sacredness," and "social justice." They try to sow panic about advances in biomedical research with far-fetched analogies to nuclear weapons and Nazi atrocities, science-fiction dystopias like *Brave New World* and *Gattaca*, and freak-show scenarios like armies of cloned Hitlers, people selling their eyeballs on eBay, and warehouses of zombies to supply people with spare organs. The University of Oxford philosopher Julian Savulescu has exposed the low standards of reasoning behind these arguments and has pointed out why "bioethical" obstructionism can be unethical: "To delay by 1 year the development of a treatment that cures a lethal disease that kills 100,000 people per year is to be responsible for the deaths of those 100,000 people, even if you never see them."

Ultimately the greatest payoff of instilling an appreciation of science is for *everyone* to think more scientifically. Cognitive psychologists have shown that humans are vulnerable to crippling biases and fallacies. Movements that aim to work around those biases and to spread scientific sophistication – data journalism, Bayesian forecasting, evidence-based medicine and policy, real-time violence monitoring, effective altruism – have a vast potential to enhance human welfare. But an appreciation of their value has been slow to penetrate the culture.

I asked my doctor whether the nutritional supplement he had recommended for my knee pain would really be effective. He replied, "Some of my patients say it works for them." A business-school colleague shared this assessment of the corporate world: "I have observed many smart people who have little idea of how to

logically think through a problem, who infer causation from a correlation, and who use anecdotes as evidence far beyond the predictability warranted." A colleague who uses quantitative tools to study war, peace, and human security describes the United Nations as an "evidence-free zone":

The higher reaches of the UN are not unlike anti-science humanities programs. Most people at the top are lawyers and liberal-arts graduates. The only parts of the Secretariat that have anything resembling a research culture have little prestige or influence. Few of the top officials in the UN understood qualifying statements as basic as "on average" and "other things being equal." So if we were talking about risk probabilities for conflict onsets, you could be sure that Sir Archibald Prendergast III or some other luminary would offer a dismissive, "It's not like that in Burkina Faso."

Resisters to scientific thinking often object that some things just can't be quantified. Yet unless they are willing to speak only of issues that are black or white and to forswear using the words *more*, *less*, *better*, and *worse* (and, for that matter, the suffix *-er*), they are making claims that are inherently quantitative. If they veto the possibility of putting numbers to those claims, they are saying, "Trust my intuition." But if there's one thing we know about cognition, it's that people (including experts) are arrogantly overconfident about their intuition.

In 1954, Paul Meehl stunned his fellow psychologists by showing that simple actuarial formulas outperform expert judgment in predicting psychiatric classifications, suicide attempts, school and job performance, lies, crime, medical diagnoses, and pretty much any other outcome in which accuracy can be judged at all. His conclusion about the superiority of statistical to intuitive judgment is now recognized as one of the most robust findings in the history of psychology.

Data, of course, cannot solve problems by themselves. All the money in the world could not pay for randomized controlled trials to settle every question that occurs to us. Human beings will always be in the loop to decide which data to gather and how to analyze and interpret them. The first attempts to quantify a concept are always crude, and even the best ones allow probabilistic rather than perfect un-

derstanding. Nonetheless, social scientists have laid out criteria for evaluating and improving measurements, and the critical comparison is not whether a measure is perfect but whether it is better than the judgment of an expert, critic, interviewer, clinician, judge, or maven. That turns out to be a low bar.

Many humanities scholars are receptive to insights from science. But the highbrow police proclaim that they may not indulge such curiosity. Because the cultures of politics and journalism are largely innocent of the scientific mind-set, questions with major consequences for life and death are answered by methods that we know lead to error, such as anecdotes, headlines, rhetoric, and what engineers call HiPPO (highest-paid person's opinion). Many dangerous misconceptions arise from this statistical obtuseness. People think that crime and war are spinning out of control, though homicides and battle deaths are going down, not up. They think that Islamist terrorism is a major risk to life and limb, though the danger is less than that from wasps and bees. They think that *isis* threatens the existence or survival of the United States, though terrorist movements rarely achieve any of their strategic aims.

The dataphobic mind-set ("It's not like that in Burkina Faso") can lead to real tragedy. Many political commentators can recall a failure of peacekeeping forces (such as in Bosnia in 1995) and conclude that they are a waste of money and manpower. But when a peacekeeping force is successful, nothing photogenic happens, and it fails to make the news. In her book *Does Peacekeeping Work?* (Princeton University Press, 2008), the Columbia University political scientist Virginia Page Fortna addressed the question in her title with the methods of science rather than headlines, and found that the answer is "a clear and resounding yes." Knowing the results of these analyses could make the difference between an international organization's helping to bring peace to a country and letting it fester in civil war.

Take another life-or-death political question. Do campaigns of nonviolent resistance work? Many people believe that Gandhi and King just got lucky: Their movements tugged at the heartstrings of enlightened democracies at opportune moments, but everywhere else, oppressed people need violence to get out from under a dictator's boot. The political scientists Erica Chenoweth and Maria J. Stephan as-

sembled a data set of political-resistance movements across the world between 1900 and 2006 and discovered that three-quarters of the nonviolent resistance movements succeeded, compared with only a third of the violent ones. Gandhi and King were right, but without data, you would never know it.

Though the urge to join a violent insurgent or terrorist group may owe more to male bonding than to just-war theory, most of the combatants probably believe that if they want to bring about a better world, they have no choice but to kill people. Would anything change if everyone knew that violent strategies were not just immoral but ineffectual? It's not that I think we should airdrop crates of Chenoweth and Stephan's book into conflict zones. But leaders of radical groups are often highly educated, and even the cannon fodder often have had some college and absorb the conventional wisdom about the need for revolutionary violence. What would happen over the long run if a standard college curriculum devoted less attention to the writings of Karl Marx and Frantz Fanon and more to quantitative analyses of political violence?

One of the greatest potential contributions of modern science may be a deeper integration with the humanities. By all accounts, the humanities are in trouble. University programs are downsizing; the next generation of scholars is un- or underemployed; morale is sinking; students are staying away.

No thinking person should be indifferent to our society's disinvestment in the humanities. A society without historical scholarship is like a person without memory: deluded, confused, easily exploited. Philosophy grows out of the recognition that clarity and logic don't come easily to us, and that we're better off when our thinking is refined and deepened. The arts are one of the things that make life worth living, enriching human experience with beauty and insight. Criticism is itself an art that magnifies the appreciation and enjoyment of great works. Knowledge in these domains is hard won and needs constant enriching and updating as the times change.

Diagnoses of the malaise of the humanities rightly point to anti-intellectual trends in our culture and to the commercialization of universities. But an honest appraisal

would have to acknowledge that some of the damage is self-inflicted. The humanities have yet to recover from the disaster of postmodernism, with its defiant obscurantism, self-refuting relativism, and suffocating political correctness. Many of its luminaries – Nietzsche, Heidegger, Foucault, Lacan, Derrida, the Critical Theorists – are morose cultural pessimists who declare that modernity is odious, all statements are paradoxical, works of art are tools of oppression, liberal democracy is the same as fascism, and Western civilization is circling the drain.

With such a cheery view of the world, it's not surprising that the humanities often have trouble defining a progressive agenda for their own enterprise. Several college presidents and provosts have lamented to me that when a scientist comes into their office, it's to announce some exciting new research opportunity and demand the resources to pursue it. When a humanities scholar drops by, it's to plead for respect for the way things have always been done.

To be sure, there is no replacement for the close reading, thick description, and deep immersion that erudite scholars can apply to individual works. But must these be the only paths to understanding? A consilience with science offers the humanities many possibilities for new insight. Art, culture, and society are products of human brains. They originate in our faculties of perception, thought, and emotion, and they accumulate and spread through the epidemiological dynamics by which one person affects others. Shouldn't we be curious to understand these connections by tearing down academic silos and mining the sciences for insights about human nature that could illuminate culture and society? Both sides would win. The humanities would enjoy more of the explanatory depth of the sciences, as well as a forward-looking agenda that could attract ambitious young talent (not to mention appeal to deans and donors). The sciences could challenge their theories with the natural experiments and ecologically valid phenomena that have been so richly characterized by humanities scholars.

In some fields, this consilience is a *fait accompli*. Archaeology has grown from a branch of art history to a high-tech science. The philosophy of mind shades into mathematical logic, computer science, cognitive science, and neuroscience. Linguistics combines philological scholarship on the history of words and grammatical

constructions with laboratory studies of speech, mathematical models of grammar, and the computerized analysis of large corpora of writing and conversation.

Comparable opportunities beckon in political theory, the visual arts, musicology, and literature, deepening John Dryden's insight that a work of fiction is "a just and lively image of human nature, representing its passions and humours, and the changes of fortune to which it is subject, for the delight and instruction of mankind." And though many concerns in the humanities are best appreciated with traditional narrative criticism, some raise empirical questions that can be informed by data. The advent of data science applied to books, periodicals, correspondence, and musical scores has inaugurated the digital humanities, whose potential is limited only by the imagination.

The promise of a unification of knowledge can be fulfilled only if knowledge flows in all directions. Some of the scholars who have recoiled from scientists' forays into explaining art are correct that these explanations have been, by their standards, shallow and simplistic. All the more reason for them to reach out and combine their erudition about individual works and genres with scientific insight into human emotions and aesthetic responses. Better still, universities could train a new generation of scholars who are fluent in each of the two cultures.

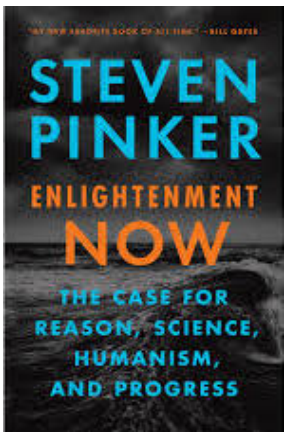
Although in my experience many artists and humanities scholars are receptive to insights from science, the policemen of highbrow culture proclaim that they may not indulge such curiosity. In a dismissive review in *The New Yorker* of a book by the literary scholar Jonathan Gottschall on the evolution of the narrative instinct, Adam Gopnik writes, "The interesting questions about stories …are not about what makes a taste for them 'universal,' but what makes the good ones so different from the dull ones. …This is a case, as with women's fashion, where the subtle, 'surface' differences are actually the *whole* of the subject." But in appreciating literature, must connoisseurship really be the whole of the subject? An inquisitive spirit might also be curious about the recurring ways in which minds separated by culture and era deal with the timeless conundrums of human existence.

In 1782, Thomas Paine extolled the cosmopolitan virtues of science:

> Science, the partisan of no country, but the beneficent patroness of all, has liberally opened a temple where all may meet. Her influence on the mind, like the sun on the chilled earth, has long been preparing it for higher cultivation and further improvement. The philosopher of one country sees not an enemy in the philosopher of another: he takes his seat in the temple of science, and asks not who sits beside him.

What he wrote about the physical landscape applies as well to the landscape of knowledge. In this and other ways, the spirit of science is the spirit of the Enlightenment.

Steven Pinker is a professor of psychology at Harvard University, and author, most recently, of *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress* (Viking), from which this essay is adapted.



Invitation to Submit Opinion Piece

In order to make better educational use of the wide geographical and disciplinary reach of this HPS&ST Note, invitations are extended for readers to contribute opinion or position pieces or suggestions about any aspect of the past, present or future of HPS&ST studies.

Contributions can be sent direct to editor. Ideally, they might be pieces that are already on the web, in which case a few paragraphs introduction, with link to web site can be sent, or else the pieces will be put on the web with a link given in the Note.

They will be archived in the OPINION folder at the HPS&ST web site:

http://www.hpsst.com/.

Previous HPS&ST Note Opinion Pieces at http://www.hpsst.com/

Michael Ruse, Philosophy Department, Florida State University, Does Life Have Meaning? Or is it Self-Deception at Best and Terrifyingly Absurd at Worst? (January 2017).

Mario Bunge, Philosophy Department, McGill University, In Defence of Scientism (December 2017).

Susan Haack, Philosophy and Law Departments, University of Miami, The Future of Philosophy, the Seduction of Scientism (November 2017).

Nicholas Maxwell, University College London, What's Wrong with HPS and What Needs be Done to Put it Right? (June 2017).

Heinz W. Drodste, An Interview with Mario Bunge (May 2017).

Nicholas Maxwell, University College London, The Crisis of Our Times and What to do About It (April 2017).

Eric Scerri, UCLA, Bringing Science Down to Earth, (March 2017).

Robert Nola, University of Auckland, Fake News in the Post-Truth World, (February 2017).

Michael D. Higgins, President of Ireland, The Need to Teach Philosophy in Schools (December 2016).

Philip A. Sullivan, University of Toronto, What is wrong with Mathematics Teaching in Ontario? (July 2016).

Gregory Radick, Leeds University, How Mendel's legacy holds back the teaching of science (June 2016).

Matthew Stanley, New York University, Why Should Physicists Study History?

Memorial Service: Robert Sonné Cohen, April 14, Boston University

> The family, friends and colleagues of Robert Sonné Cohen (February 18, 1923-June 19, 2017) invite readers of the HPS&ST Note to a memorial celebration of his life and work.
>
> April 14, 2018, 2pm-4pm, Boston University, George Sherman Union, Terrace Lounge, 775 Commonwealth Avenue, Boston, MA 02215
>
> If you plan to attend, please RSVP to:
>
> RobertSCohenMemorial@gmail.com
>
> but please feel free to come even if you have not done so.

An Obituary for Robert S. Cohen, detailing some of this immense scholarly and tangible contributions to the international HPS community can be read here.

Recent HPS&ST Research Articles

Buzzoni, M. (2018) Pierre Duhem and Ernst Mach on Thought Experiments. *HOPOS: The Journal of the International Society for the History of Philosophy of Science*. doi:10.1086/695720 online first

Egan, M. (2018) Survival Science: Crisis Disciplines and the Shock of the Environment in the 1970s. *Centaurus*, 1-14. doi:10.1111/1600-0498.12149 online first

Heymann, M. (2018) 1970s: Turn of an Era in the History of Science? *Centaurus*, 1-9. doi:10.1111/1600-0498.12146 online first

Lee, E.A. & Brown, M.J. (2018). Connecting Inquiry and Values in Science Education: An Approach Based on John Dewey's Philosophy. *Science & Education*, 1-17. doi:10.1007/s11191-017-9952-9 online first

Maxwell, N. (2017) Can universities save us from disaster?, *On the Horizon* 25(2), 115-130. (download free here)

Pavuk, A. (2018), The American Association for the Advancement of Science committee on evolution and the Scopes trial: race, eugenics and public science in the U.S.A. *Historical Research*, 91: 137?159. doi:10.1111/1468-2281.12208

Pence, C. H. (2018) Sir John F. W. Herschel and Charles Darwin: Nineteenth-Century Science and Its Methodology. *HOPOS: The Journal of the International Society for the History of Philosophy of Science*. doi:10.1086/695719 online first

Schickore, J. (2018) Larry Laudan?s Typology for Historical Methodology and the Historical and Experimental Turns in Philosophy of Science. *HOPOS: The Journal of the International Society for the History of Philosophy of Science*. doi:10.1086/695696 online first

Zahle, J. (2018) Values and Data Collection in Social Research. *Philosophy of Science*, 83(1), 144-163. doi:10.1086/694770

Recent HPS&ST Related Books

Boscarino, Giuseppe (2017) *The Mystery of Archimedes. The Tradition of Italic Thought of Science*. Aracne: Rome. ISBN:978-88-255-0120-9

> "Since always Archimedes has attracted the attention and admiration of scholars and general public for his genius that has served to knowledge increase with practical applications for the benefits of the society. The works of Archimedes, even with last discoveries, give still points of inspiration for modern activity in Science and particularly in Mechanical Engineering when referring to machine design and developments from theoretical speculation. This book by Giuseppe Boscarino is a brilliant synthesis of the several perspectives from which Archimedes and his work can be evaluated both for historical merits and modern inspiration. The multiple views of the book content can help to fully understand not only the specific values of Archimedes in his polyhedral merits, but even to give a clear discussion on how machine designs both as results and means of Science developments, can be considered fundamental for the growth of human society. The approach in this book is well fitted in the scopes of this book series on History of Machines that is aimed to collect contributions to explain the machine developments not only in term of technical aspects but more appropriately as combined with the impacts and influences that machines have determined and motivated. The readers will surely appreciate the content of the book with its panoramic presentation of a historic, philosophical, epistemological,and technical studies on the values of Archimedes with still modern sources of interest." Marco Ceccarelli, author of the preface)

More information available here.

Bruno, G. Anthony & Rutherford, A.C. (Eds.) (2018) *Skepticism Historical and*

Contemporary Inquiries. Oxford, UK: Routledge. ISBN: 9781138285224

> "Skepticism is one of the most enduring and profound of philosophical problems. With its roots in Plato and the Sceptics to Descartes, Hume, Kant and Wittgenstein, skepticism presents a challenge that every philosopher must reckon with. In this outstanding collection philosophers engage with skepticism in five clear sections: the philosophical history of skepticism in Greek, Cartesian and Kantian thought; the nature and limits of certainty; the possibility of knowledge and related problems such as perception and the debates between objective knowledge and constructivism; the transcendental method as a response to skepticism and the challenge of naturalism; overcoming the skeptical challenge." (From the Publisher)

More information available here.

Caglar, Kaya, Aysel, İlker, Yorulmaz, Yilmaz İlker (Eds.) (2018) *Talks on Education, Art, and Philosophy*. Wilmington, DE: Vernon Press. ISBN: 978-1-62273-362-0

> "The main purpose of this book is to contribute to the intellectual assets of the scholars working in the fields of science, education, fine arts, and humanities. In this regard, this work combines different studies in the fields mentioned above. The very first chapter discusses teaching profession in favor of professionalism and sacredness. The second chapter focuses on foreign experts' opinions about the structure of Turkish education system. The following chapter deals with the repercussions of recent Turkish education policies. The fourth chapter presents a provocative debate on the underestimation of scientific theories. The subsequent chapter deeply analyzes the role of the political power on state theatres in Turkey. The relationship between society and art discussed through the theater has been examined in terms of

the relationship between the individual and art through automatism movement in the sixth chapter. The last chapter intends to make a connection between meliorism and other conceptual themes like optimism and messianism. Hopefully, reading this work will be an inspirational experience for curious scholars." (From the Publisher)

More information available here.

Celenza, Christopher S. (2018) *The Intellectual World of the Italian Renaissance: Language, Philosophy, and the Search for Meaning*. Cambridge, UK: CUP. ISBN: 9781107003620

"In this book, Christopher Celenza provides an intellectual history of the Italian Renaissance during the long fifteenth century, from c.1350?1525. His book fills a bibliographic gap between Petrarch and Machiavelli and offers clear case studies of contemporary luminaries, including Leonardo Bruni, Poggio Bracciolini, Lorenzo Valla, Marsilio Ficino, Angelo Poliziano, and Pietro Bembo. Integrating sources in Italian and Latin, Celenza focuses on the linked issues of language and philosophy. He also examines the conditions in which Renaissance intellectuals operated in an era before the invention of printing, analyzing reading strategies and showing how texts were consulted, and how new ideas were generated as a result of conversations, both oral and epistolary. The result is a volume that offers a new view on both the history of philosophy and Italian Renaissance intellectual life. It will serve as a key resource for students and scholars of early modern Italian humanism and culture." (From the Publishers)

More information available here.

Crawford, Dorothy H. (2018) *Deadly Companions: How Microbes Shaped our History.* Oxford: OUP. ISBN: 9780198815440

"Ever since we started huddling together in communities, the story of human history has been inextricably entwined with the story of microbes. They have evolved and spread amongst us, shaping our culture through infection, disease, and pandemic. At the same time, our changing human culture has itself influenced the evolutionary path of microbes. Dorothy H. Crawford here shows that one cannot be truly understood without the other.

Beginning with a dramatic account of the SARS pandemic at the start of the 21st century, she takes us back in time to follow the interlinked history of microbes and man, taking an up-to-date look at ancient plagues and epidemics, and identifying key changes in the way humans have lived - such as our move from hunter-gatherer to farmer to city-dweller – which made us vulnerable to microbe attack.

Showing how we live our lives today – with increasing crowding and air travel – puts us once again at risk, Crawford asks whether we might ever conquer microbes completely, or whether we need to take a more microbe-centric view of the world. Among the possible answers, one thing becomes clear: that for generations to come, our deadly companions will continue to shape human history."

More information available here.

Crossland, Rachel (2018) *Modernist Physics: Waves, Particles, and Relativities in the Writings of Virginia Woolf and D. H. Lawrence*. Oxford: OUP. ISBN: 9780198815976

"Modernist Physics takes as its focus the ideas associated with three scientific papers published by Albert Einstein in 1905, considering the dissemination of those ideas both within and beyond the scientific field, and exploring the manifestation of similar ideas in the literary works of Virginia Woolf and D.H. Lawrence. Drawing on Gillian Beer's suggestion that literature and science 'share the moment's discourse',

> Modernist Physics seeks both to combine and to distinguish between the two standard approaches within the field of literature and science: direct influence and the zeitgeist." (From the publisher)

More information available here.

Determann, Jorg Matthias (2017) *Space Science and the Arab World: Astronauts, Observatories and Nationalism in the Middle East*. London: I.B. Tauris. ISBN: 9781788310147

> "When Sultan bin Salman left Earth on the shuttle Discovery in 1985, he became the first Arab, first Muslim and first member of a royal family in space. Twenty-five years later, the discovery of a planet 500 light-years away by the Qatar Exoplanet Survey - subsequently named 'Qatar-Ib' - was evidence of the cutting-edge space science projects taking place across the Middle East.
>
> "This book identifies the individuals, institutions and national ideologies that enabled Arab astronomers and researchers to gain support for space exploration when Middle East governments lacked interest. Jorg Matthias Determann shows that the conquest of space became associated with national prestige, security, economic growth and the idea of an 'Arab renaissance' more generally. Equally important to success were the international collaborations: to benefit from American and Soviet expertise and technology, Arab scientists and officials had to commit to global governance of space and the common interests of humanity. Challenging the view that the golden age of Arabic science and cosmopolitanism was situated in the medieval period, Determann tells the story of the new discoveries and scientific collaborations taking place from the nineteenth century to the present day. An innovative contribution to Middle East Studies and History of Science, the book will also cater to increased business, media and political interest in the Arab space industry." (From the Publisher)

More information available here.

Dori, Yehudit Judy, Mevarech, Zemira R., Baker, Dale R. (Eds.) (2018) *Cognition, Metacognition, and Culture in STEM Education: Learning, Teaching and Assessment*. Springer: Dordrecht. ISBN 978-3-319-66659-4

> "This book addresses the point of intersection between cognition, metacognition, and culture in learning and teaching Science, Technology, Engineering, and Mathematics (STEM). We explore theoretical background and cutting-edge research about how various forms of cognitive and metacognitive instruction may enhance learning and thinking in STEM classrooms from K-12 to university and in different cultures and countries.
>
> "Over the past several years, STEM education research has witnessed rapid growth, attracting considerable interest among scholars and educators. The book provides an updated collection of studies about cognition, metacognition and culture in the four STEM domains. The field of research, cognition and metacognition in STEM education still suffers from ambiguity in meanings of key concepts that various researchers use. This book is organized according to a unique manner: Each chapter features one of the four STEM domains and one of the three themes–cognition, metacognition, and culture–and defines key concepts. This matrix-type organization opens a new path to knowledge in STEM education and facilitates its understanding. The discussion at the end of the book integrates these definitions for analyzing and mapping the STEM education research." (From the publisher)

More information available here.

Frumer, Yulia (2018) *Making Time: Astronomical Time Measurement in Tokugawa Japan*. Chicago, IL: The University of Chicago Press. ISBN: 9780226516448

> "Brace yourself for a most thought-provoking journey through time in premodern Japan. This book forces historians of science and technology to think more deeply about what they think they already know about modernity and time practices before and while the global system of commerce and exchange tightened its grip in the nineteenth century. Historically brilliant and beautifully written, Frumer unfolds how and why astronomical time-space relationships came to matter in Tokugawa and Meiji scientific minds and public life. I literally felt the ambiguities of time come to life in her rich account, in relative and absolute terms. One emerges from reading it inspired and positively provoked, realizing the lived truth of Einstein's theory: time indeed flows at different rates for different systems." – Dagmar Schäfer, Max Planck Institute for the History of Science, Berlin

More information available here.

Gaukroger, Stephen (2018) *The Natural and the Human: Science and the Shaping of Modernity, 1739-1841*. Oxford: OUP. ISBN: 9780198801603

> "The scope of Gaukroger's project is immense. His scholarship draws on primary sources in at least four languages, and extensive secondary commentary, much of it recent. Gaukroger typically proceeds by a focus on a few key individuals and their works as central nodes in developing this story–Descartes, Newton, Leibniz, Locke, Hume, Diderot, Gibbon, Mandeville, Herder, Kant, Hegel, Strauss, Feuerbach–around which he weaves a larger narrative The copious footnotes (yes, footnotes, not annoying endnotes), typically citing the most recent scholarship and the key primary sources relevant to the discussion, direct the reader to more detailed studies which he has synthesized in depth I find it deeply refreshing to read the effort of a single individual with wide and deep scholarly learning to deal with such a complex array of issues from a coherent organizing perspective." - Phillip R. Sloan,

Notre Dame Philosophical Reviews

More information available here.

Goldstein, Amanda Jo (2017) *Sweet Science: Romantic Materialism and The New Logics of Life*. Chicago, IL: The University of Chicago Press. ISBN: 9780226458441

> "Today we do not expect poems to carry scientifically valid information. But it was not always so. In *Sweet Science*, Amanda Jo Goldstein returns to the beginnings of the division of labor between literature and science to recover a tradition of Romantic life writing for which poetry was a privileged technique of empirical inquiry.
>
> "Goldstein puts apparently literary projects, such as William Blake's poetry of embryogenesis, Goethe's journals *On Morphology*, and Percy Shelley's "poetry of life," back into conversation with the openly poetic life sciences of Erasmus Darwin, J. G. Herder, Jean-Baptiste Lamarck, and Étienne Geoffroy Saint-Hilaire. Such poetic sciences, Goldstein argues, share in reviving Lucretius's De rerum natura to advance a view of biological life as neither self-organized nor autonomous, but rather dependent on the collaborative and symbolic processes that give it viable and recognizable form. They summon *De rerum natura* for a logic of life resistant to the vitalist stress on self-authorizing power and to make a monumental case for poetry's role in the perception and communication of empirical realities. The first dedicated study of this mortal and materialist dimension of Romantic biopoetics, *Sweet Science* opens a through-line between Enlightenment materialisms of nature and Marx's coming historical materialism." (From the Publisher)

More information available here.

Jackson, Roland (2018) *The Ascent of John Tyndall: Victorian Scientist, Mountaineer, and Public Intellectual*. Oxford: OUP. ISBN: 9780198788959

> "Roland Jackson paints a picture of an individual at the heart of Victorian science and society. (…) He presents Tyndall as a complex personality, full of contrasts, with his intense sense of duty, his deep love of poetry, his generosity to friends and his combativeness, his persistent ill-health alongside great physical stamina driving him to his mountaineering feats. Drawing on Tyndall's letters and journals for this first major biography of Tyndall since 1945, Jackson explores the legacy of a man who aroused strong opinions, strong loyalties, and strong enmities throughout his life." (From the Publisher)

More information available here.

Author's blog: https://www.rolandjackson.co.uk/the-ascent-of-john-tyndall

Nothaft, C. Philipp E. (2018) *Scandalous Error: Calendar Reform and Calendrical Astronomy in Medieval Europe*. Oxford: OUP. ISBN: 9780198799559

> "Scandalous Error is the first comprehensive study of the medieval literature devoted to the calendar problem and its cultural and scientific contexts. It examines how the importance of ordering liturgical time by means of a calendar that comprised both solar and lunar components posed a technical-astronomical problem to medieval society and details the often sophisticated ways in which computists and churchmen reacted to this challenge. By drawing attention to the numerous connecting paths that existed between calendars and mathematical astronomy between the Fall of Rome and the end of the fifteenth century, the volume offers substantial new insights on the place of exact science in medieval culture." (From the publisher)

More information available here.

Paul, Diane B., Stenhouse, John, Spencer, Hamish G. (Eds.) (2018) *Eugenics at the Edges of Empire*. New York, NY: Palgrave Macmillan. ISBN: 978-3-319-64686-2

> This volume explores the history of eugenics in four Dominions of the British Empire: New Zealand, Australia, Canada, and South Africa. These self-governing colonies reshaped ideas absorbed from the metropole in accord with local conditions and ideals. Compared to Britain (and the US, Germany, and Scandinavia), their orientation was generally less hereditarian and more populist and agrarian. It also reflected the view that these young and enterprising societies could potentially show Britain the way – if they were protected from internal and external threat. This volume contributes to the increasingly comparative and international literature on the history of eugenics and to several ongoing historiographic debates, especially around issues of race. As white-settler societies, questions related to racial mixing and purity were inescapable, and a notable contribution of this volume is its attention to Indigenous populations, both as targets and on occasion agents of eugenic ideology.

More information available here.

de Regt, Henk W. (2017) *Understanding Scientific Understanding*. Oxford: OUP. ISBN: 9780190652913

> "This is a superb book on the timely topic of understanding by one of its main commentators and leading scholars over the years. It constitutes a thorough, intricate, detailed and well-argued development of the original and very fertile position of the author on the topic. It would be recommended reading for anyone with an interest in the topic, and it is likely to become one of the key references in this area over the years." – Mauricio Suarez, Complutense University of Madrid

> "This book – which creatively synthesizes two decades of his work into an elegant and provocative account of scientific understanding – is a much anticipated and welcome addition to the literature …De Regt's discussion of the aims of science helps to rekindle an interesting topic in general philosophy of science that has languished for some time. Additionally, de Regt's rereading of the history of physics with intelligibility and understanding at the forefront highlights underappreciated connections between different physicists' approaches to theory construction. Finally, de Regt threads the needle between empiricism, which denigrates the epistemic importance of understanding, and realism, which tethers understanding to accurate representations of nature's workings …All told, de Regt's book provides a novel and productive framework for interpreting many aspects of scientific practice." – Kareem Khalifa, Notre Dame Philosophical Reviews

More information available here.

Ryan, Michael J. (2018) *A Taste for the Beautiful: The Evolution of Attraction*. Princeton, NJ: Princeton University Press. ISBN: 9781400889150

> "Written by a distinguished scientist and filled with fascinating stories, this book presents the revelation that, for very good evolutionary reasons, beauty is in the mind, as well as the eye, of the beholder." – Peter R. Grant, coauthor of *40 Years of Evolution: Darwin's Finches on Daphne Major Island*

> "This lovely book delves into the origins and perception of beauty–sensations that generate specific reward responses in the brain. Ranging from neurobiology to behavior and psychology, Mike Ryan seamlessly integrates animal and human data. He also describes how science works, which is more important now than ever." – John Endler,

Deakin University, Australia

> "We say 'beauty is in the eye of the beholder.' Turns out, beauty is in the brain. The brain decides what strikes us as beautiful. This book raises and answers an astonishing set of questions: What is the perception called beauty? How did our brains acquire it? On what basis do our brains inform us about what is beautiful? And why does a peacock's tail seem beautiful to both a peahen and a person? This is a profound, often amazing, book. It's, well, beautiful." – Carl Safina, author of *Beyond Words: What Animals Think and Feel*

More information available here.

Smith, Pamela H., Meyers, Amy R. W. & Cook, Harold J. (Eds.) (2017) *Ways of Making and Knowing: The Material Culture of Empirical Knowledge*. Chicago, IL: The University of Chicago Press. ISBN: 9781941792117

> "Although craftspeople and artists often work with natural materials, the notion that making art can constitute a means of knowing nature is a novel one. This book, with contributions from historians of science, medicine, art, and material culture, shows that the histories of science and art are not simply histories of concepts or styles, but histories of the making and using of objects to understand the world. An examination of material practices makes it clear that the methods of the artisan represent a process of knowledge making that involves extensive experimentation and observation that parallel similar processes in the sciences. Ways of Making and Knowing offers a comprehensive and interdisciplinary history of the ways in which human beings have sought out, discovered, and preserved their own knowledge of the world around them; it has only been through material and human interaction with (and manipulation of) nature that we have come to understand it." (From the Publisher)

More information available here.

Stengers, Isabelle (2018) *Another Science is Possible: A Manifesto for Slow Science*. (Stephen Muecke, Trans.) Chichester, UK: Wiley. ISBN: 978-1-509-52184-5

> "Like fast food, fast science is quickly prepared, not particularly good, and it clogs up the system. Efforts to tackle our most pressing issues have been stymied by conflict within the scientific community and mixed messages symptomatic of a rushed approach. What is more, scientific research is being shaped by the bubbles and crashes associated with economic speculation and the market. A focus on conformism, competitiveness, opportunism and flexibility has made it extremely difficult to present cases of failure to the public, for fear that it will lose confidence in science altogether.
>
> "In this bold new book, distinguished philosopher Isabelle Stengers shows that research is deeply intertwined with broader social interests, which means that science cannot race ahead in isolation but must learn instead to slow down. Stengers offers a path to an alternative science, arguing that researchers should stop seeing themselves as the 'thinking, rational brain of humanity' and refuse to allow their expertise to be used to shut down the concerns of the public, or to spread the belief that scientific progress is inevitable and will resolve all of society's problems. Rather, science must engage openly and honestly with an intelligent public and be clear about the kind of knowledge it is capable of producing.
>
> "This timely and accessible book will be of great interest to students, scholars and policymakers in a wide range of fields, as well anyone concerned with the role of science and its future. (From the Publishers)

More information available here.

Zammito, John H. (2017) *The Gestation of German Biology: Philosophy and Physiology From Stahl To Schelling*. Chicago, IL: The University of Chicago Press. ISBN: 9780226520797

> "The emergence of biology as a distinct science in the eighteenth century has long been a subject of scholarly controversy. Michel Foucault, on the one hand, argued that its appearance only after 1800 represented a fundamental rupture with the natural history that preceded it, marking the beginnings of modernity. Ernst Mayr, on the other hand, insisted that even the word 'biology' was unclear in its meaning as late as 1800, and that the field itself was essentially prospective well into the 1800s.
>
> "In *The Gestation of German Biology*, historian of ideas John Zammito presents a different version of the emergence of the field, one that takes on both Foucault and Mayr and emphasizes the scientific progress throughout the eighteenth century that led to the recognition of the need for a special science. The embrace of the term biology around 1800, Zammito shows, was the culmination of a convergence between natural history and human physiology that led to the development of comparative physiology and morphology–the foundations of biology. Magisterial in scope, Zammito's book offers nothing less than a revisionist history of the field, with which anyone interested in the origins of biology will have to contend." (From the Publisher)

More information here.

Zammito, John H. (2004) *A Nice Derangement of Epistemes: Post-Positivism in The Study of Science from Quine to Latour*. Chicago, IL: The University of Chicago Press. ISBN: 9780226978628

> "Since the 1950s, many philosophers of science have attacked positivism–the theory that scientific knowledge is grounded in objective reality.

> Reconstructing the history of these critiques, John H. Zammito argues that while so-called postpositivist theories of science are very often invoked, they actually provide little support for fashionable postmodern approaches to science studies.
>
> "Zammito shows how problems that Quine and Kuhn saw in the philosophy of the natural sciences inspired a turn to the philosophy of language for resolution. This linguistic turn led to claims that science needs to be situated in both historical and social contexts, but the claims of recent 'science studies' only deepened the philosophical quandary. In essence, Zammito argues that none of the problems with positivism provides the slightest justification for denigrating empirical inquiry and scientific practice, delivering quite a blow to the 'discipline' postmodern science studies.
>
> "Filling a gap in scholarship to date, A Nice Derangement of Epistemes will appeal to historians, philosophers, philosophers of science, and the broader scientific community." (From the Publisher)

More information available here.

Authors of HPS&ST-related papers and books are invited to bring them to attention of the Note's assistant editors, Paulo Maurício at paulo.asterix@gmail.com or Nathan Oseroff at nathanoseroff@gmail.com for inclusion in these sections.

Coming HPS&ST Related Conferences

March 10-13, 2018, NARST annual conference, Atlanta, USA.
Details at: http://www.narst.org/

March 15-16, 2018, Natural Kinds: Language and Metaphysics, Complutense University of Madrid, Spain.
Inquiries to: Javier Cumpa: jcarteseros@ucm.es

March 22-26, 2018, Philosophy of Education Society (USA), Annual Conference, Chicago.
Details at: https://www.philosophyofeducation.org/conference.

March 23-24, 2018, Joint Meeting of the South Carolina Society for Philosophy and the North Carolina Philosophical Society, Winthrop University (Rock Hill, SC), USA.
Inquiries to: dholiday@coastal.edu

March 23-24, 2018, Midsouth Philosophy Conference, Rhodes College, Memphis, TN, US.
Details at: https://sites.google.com/a/lclark.edu/midsouth/mpc/mupc

March 30-31, 2018, Sixty Years of an Idea: Peter Winch's The Idea of a Social Science after more than Half a Century, University of Pécs, Hungary
More information: Dr. Akos Sivado, akos.sivado@gmail.com
Deadline: 1st December

April 3-6, 2018, "Science, Imagination and Wonder: Robert Grosseteste and His Legacy" Pembroke College, Oxford, UK
More information at: https://ordered-universe.com/oxford-conference/
And, Seb Falk sldf2@CAM.AC.UK

April 4-6, 2018, BSHS Postgraduate Conference 2018, Centre for the History of Science, Technology and Medicine (CHSTM), University of Manchester, UK.
Details at: http://www.bshs.org.uk/conferences/postgraduate-conference

April 6-7, 2018, Humanities for STEM: Using Archives to Bridge the Two Culture Divide, NYU Tandon School of Engineering in Brooklyn, NY.
Inquiries: humanitiesforSTEMsymposium@nyu.edu

April 6-7, 2018, Learning from Empirical Approaches to HPS. Center for Philosophy of Science, University of Pittsburgh, Pittsburgh, PA, USA
More information available here.

April 12-14, 2018, BSHP Conference 2018: Habit in The History of Philosophy. University of Durham, UK.
More information at: http://www.bshp.org.uk/confevents/annualc

April 18-20, 2018, Evolution and Moral Epistemology, Utrecht University, The Netherlands.
More information at: http://www.evoethics.com/evolution-and-moral-epistemology-2018.html

April 19-20, 2018, Research Workshop on Science, Technology, Society (STS)/History, Technology, Society (HTS): Bioeconomy, Biotechnology, Medical Technologies. National and Kapodistrian University of Athens, Athens, Greece.
Details at: http://old.phs.uoa.gr/hst/files/2nd_CfP_STS_HTS_Workshop.pdf

April 26, 2018, Graduate Philosophy Conference, Department of Philosophy, National Taiwan University.
More information at: http://ntu-graduate-philosophy-conference.webnode.tw/

May 3-4, 2018, 7th Annual University of Calgary Graduate Philosophy Conference. University of Calgary, Alberta, Canada.
Details at: https://ucalgarygradconference.wordpress.com/

May 10-11, 2018, 2nd International Conference on Bioethics in the New Age of Science, Szeged, Hungary.
Details at: http://www.bnas2018.org/

May 12-13, UK Antiquarian Horological Society, annual meeting, Keele University, Staffordshire.
Details at: www.ahsoc.org/events/annual-meeting/

May 16-18, 2018, V Colombian Conference on Logic, Epistemology and Philosophy of Science (PHILOGICA V), Villa de Leyva, Colombia
Details available here.

May 17-18, 2018, Philosophy of Biology at the Mountains (POBAM), University of

Utah, Salt Lake City, US.
Details at: https://sites.google.com/view/pobam/home

May 17-20, 2018, The 8th Annual Values in Medicine, Science, and Technology Conference. The University of Texas at Dallas, Richardson, Texas, USA
Details at: http://www.utdallas.edu/c4v/2018-conference/

May 18-20, 2018, 46th annual meeting of the Society for Exact Philosophy. University of Connecticut, USA
More information at: http://www.phil.ufl.edu/SEP/meeting/2018/index.html

May 23-25, 2018, Workshop on Explanation and Understanding. Ghent University
More information at: http://www.lrr.ugent.be/explanationunderstanding/

May 24-26, 2018, 4th International Workshop on Historical Epistemology: Historical epistemology and the disunities of the sciences. Université Paris 1 Panthéon-Sorbonne
More information at: https://episthist.hypotheses.org/1016

May 31, June 1, 2018, Is Religion Natural?, Centre for Ethics and the Centre Pieter Gillis, University of Antwerp (Belgium)
Inquiries with Esther Kroeker: esther.kroeker@uantwerpen.be.

June 1-2, 2018, Fake Knowledge, Department of Philosophy, University of Cologne, Germany.
More information: Dr. Amy Flowerree (aflowerr@uni-koeln.de) Abstract submission: March 15, 2018.

June 4-6, 2018, Consortium for Socially Relevant Philosophy of/in Science and Engineering (SRPoiSE) 4th Conference, Academy of Medicine at Georgia Tech, Atlanta, USA
Details at: http://srpoise2018.weebly.com

June 4-7, 2018, Canadian Philosophical Association: 2018 Annual Congress. Montreal, Quebec, Canada

More information at: https://www.acpcpa.ca/cpages/home-page

June 7-8, 2018, The Spirit of Inquiry in the Age of Jefferson. American Philosophical Society, Philadelphia.
Details at: https://www.amphilsoc.org/spirit-inquiry-age-jefferson

June 11-13, 2018, Models of Explanation. 11th Munich-Sydney-Tilburg/Turin (MuST) Conference in Philosophy of Science. University of Turin.
Details at: https://modelsofexplanation.wordpress.com/

June 14-15, 2018, Explanatory Power. A workshop in the DACH project: Inferentialism, Bayesianism, and Scientific Explanation. University of Geneva.
More information at: http://www.unige.ch/lettres/philo/files/1114/9917/0204/Explanatory_Power.pdf
Inquiries to: lorenzo.casini@unige.ch

June 14-16, 2018, Phenomenological Approaches to Physics Historical and Philosophical Perspectives, University of Graz, Austria
Details at: http://phenphysics.weebly.com/

June 18-20, 2018, Society of European Philosophy and Forum for European Philosophy Annual Conference, University of Essex, UK.
More information available here.

June 18-20, 2018, 5th Annual Conference of the International Association for the Philosophy of Time (IAPT), Seoul, South Korea.
More information at: https://iapt5seoul.weebly.com/

June 22-23, 2018, Computational Modelling in Philosophy (CMP). Munich Center for Mathematical Philosophy (MCMP) - LMU Munich.
Details at: https://tinyurl.com/y9tpvq9m

June 27-29, 2018, Reconceiving Cognition, Antwerp, Belgium
More information at: https://www.uantwerpen.be/en/rg/filop/reconceiving/

June 27-29, 2018, Measurement at the Crossroads. University Paris Diderot, France.

Details at: https://measurement2018.sciencesconf.org/

June 29-July 1, 2018, Annual Conference of the Society for Applied Philosophy. Utrecht, The Netherlands.
More information available here.

June 30-July 2, 2018, 7th SPSP Congress, Ghent University, Belgium
Details, Erik Weber, Erik.Weber@UGent.be.

July 3-6, 2018, 9th Conference of the International Society for the Study of Argumentation (ISSA), University of Amsterdam, The Netherlands
Details at: https://www.conftool.net/issa2018/

July 4-6, 2018, VIIème Congrès de la Société de Philosophie des Sciences, Nantes, France.
Details at: https://congressps.sciencesconf.org/resource/page/id/1

July 5-7, 2018, The Evolution of Knowledge. &HPS7: Integrated History and Philosophy of Science, 7th conference. Leibniz Universität Hannover, Hannover, Germany
Inquiries to: Uljana Feest feest@philos.uni-hannover.de
Or, Ohad Parnes oparnes@mpiwg-berlin.mpg.de

July 9-12, 2018, HOPOS 2018 International Conference, Groningen, the Netherlands
Details at: http://www.hopos2018.nl/

July 16-18, 2018, Annual Conference of the International Society for the Philosophy of Chemistry (ISPC). Department of Philosophy, University of Bristol, UK
Inquiries to gb0859@bristol.ac.uk
More information at: https://sites.google.com/site/socphilchem/

July 17-19, 2018, Eight International Conference on Language, Culture and Mind.
Venue: Denison University in Granville, Ohio, USA.

Details at: https://conferences.denison.edu/lcm8/

July 17-21, 2018, International Committee for the History of Technology, 45th symposium, Jean Monnet University, Saint-étienne, France.
Further information at: http://www.icohtec.org/annual-meeting-2018.html

July 19-27, 2018, 2018 Summer Institute; From Biological Practice to Scientific Metaphysics. Taipei, Taiwan
Details at: http://biological-practice-to-metaphysics.org/summer-institutes/2018-east-asia

July 23 – 27, 2018, The 2018 Conference on Artificial Life (ALIFE 2018), Tokyo, Japan.
Details at: http://2018.alife.org/

July 29 – August 2, 2018, 25th Biennial Conference in Chemical Education, University of Notre Dame, Notre Dame, IN, USA.
Details at: http://bcce2018.org/Default.html

August 5-11, 2018, 41st International Wittgenstein Symposium. Kirchberg am Wechsel, Austria.
Details at: http://www.alws.at/index.php/symposium/view/call_for_papers/

August 22-24, 2018, Society for the Metaphysics of Science (4th Annual Conference), Milan, Italy.
Further information: Christina Conroy at c.conroy@moreheadstate.edu

August 29 – September 1, 2018, Society for Social Studies of Science – Transnational STS, Sydney, Australia
Details at: http://www.4sonline.org/item/4s_sydney_18_announced

September 3-5, 2018, 4th Latin American Conference of the International History, Philosophy and Science Teaching Group (IHPST-LA), Federal University of ABC, UFABC, Santo André, Brazil
Information at: http://www.brenoam.com/ihpstla-2018-en.

September 14-17, 2018, European Society for the History of Science Biennial Con-

ference and British Society for History of Science annual conference, 'Unity and Disunity', University College London's Institute of Education, London, UK
More information at: http://eshs2018.uk/index.php/call-for-papers/
For further details please contact the Programme Co-ordinator, Frank James: fjames@ri.ac.uk.

September 17-20, 2018, Tenth international conference (GAP.10) of the German Society for Analytic Philosophy (GAP), Cologne, Germany
More information at: https://gap10.de/en/

September 26-28, 2018, Deuxième colloque de la SFHSH - Histoire des sciences humaines et sociales. Paris, France.
Details at: https://sfhsh.hypotheses.org/1018

October 2-6, 2018, XIII International Ontology Congress: Physics and Ontology. San Sebastian (University of the Basque Country) and Barcelona Autonomous University of Barcelona, Spain.
Details at: http://www.ontologia.info/

October 17-21, 2018, 3rd International Conference on the History of Physics under the auspices of the European Physical Society, Donostia-San Sebastian (Spain)
Details at: http://www.ehu.eus/ehusfera/hopdss2018/

November 1-4, 2018, 26th Biannual Meeting of Philosophy of Science Association, Seattle, Washington.
More information at: http://philsci.org/psa-biennial-meeting/psa2018-contact-information.html

November 13-16, 2018, IX conference of the Spanish Society of Logic, Methodology and Philosophy of Science (SLMFCE), Madrid, Spain.
More information at: http://www.solofici.org/congreso2018/

November 23-28, 2018, East Asian Science Education Association (EASE) annual conference, National Dong Hwa University, Hualien Taiwan.
Details at: http://new.theease.org/conference2018.php