

HPS&ST Note July 2017

Introduction

This HPS&ST monthly note is sent direct to about 7,400 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 science teaching lists. In one form or another 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 Piece, etc.) are welcome and should be sent direct to the editor: Michael R. Matthews, UNSW, m.matthews@unsw.edu.au.

2017 IHPST Biennial Conference

IHPST President's Report

As the new president of IHPST, I wish to take this opportunity to say a few words about the very successful IHPST 2017 in Ankara, Turkey. First, I would have to start with a very big thank you to our hosts. The local organizing committee had some tireless and dedicated leaders in Fatih Tasar, Gultiken Cakmakci, and Hasan Ozcan. Along with their formidable team of volunteers, the conference proceeded smoothly and seamlessly. To Dr. Prof Ayhan Yilmaz, Deputy Dean, who supported the conference from Haceteppe University, we owe a special thank you as well, and to Haceteppe Üniversitesi for hosting, and Gazi and Aksaray Üniversitesi for supporting the conference. The team in Turkey showed us the true meaning of hospitality. Teşekkür ederim!

For those of you who weren't able to join us, this was a smaller conference for our biennial meetings. For various reasons, many of you were not able to attend and you were missed. Nonetheless, the smaller group afforded conference participants an opportunity to more fully engage with one another. There were over 80 participants from 17 nations. From then-President, Zoubeida Dagher's opening keynote to Silke Ackermann (Oxford) leading us in her Springer Lecture on a journey of "Islamic Science" to Gurol Irzak (Sabanci University) challenging us in a discussion on trust in science, conference participants were challenged and engaged in and out. Details of conference can be found at website:

: http://ihpst2017.wixsite.com/biennial-conference

Inter-Divisional Teaching Commission
International Union of the History and Philosophy of Science
www.idtc-iuhps.com

From my perspective, it was a pleasure seeing all the early career scholars presenting and pushing themselves in research. The IHPST Biennial Conference generates a great deal of knowledge sharing and IHPST2017 did not fail. For those of you who are new to our community, welcome and I hope to see you at future meetings and in print in *Science and Education*, our official journal. And remember, one of the benefits of a membership is free access to the online format of our journal.

Ian Winchester (University of Calgary) received the second IHPST award for Life-time Contribution to the group. The first award, announced at the 2015 Rio de Janeiro conference, was given to Michael Matthews who was unable to attend the meeting, but who was able to receive it in person at the Ankara conference.

I wish to conclude by also thanking the past council for all their hard work. Peter Heering has just completed a six-year commitment (as president-elect, president, and past-president). Indeed, Peter gets to relax now and we hope he does knowing that all his hard work has very much contributed to IHPST's success. Zoubeida Dagher has led us with consistency through a bumpy period these last two years as president and we will depend on her insight over the next two years as she transitions to the role of past president. To the rest of the 2015-2017 Council, IHPST thanks you for all your dedicated and hard work.

Our organization is healthy and proof of that is the willingness of members to join Council and serve in various roles. I look forward to working with the 2017-2019 council (membership at ihpst.net) as we approach our next biennial meeting in Thessaloniki, Greece. The anticipated dates are August 20-24, 2019, but confirmation and more details will follow, however we look forward to working with Fanny Sereglou, the IHPST2019 conference chair (sereglou@eled.auth.gr) for our 15th conference.

In the meantime, should you have any questions or if you are interested in hosting a biennial or regional conference please feel free to contact me (president@ihpst.net). Feel free to follow us on Facebook or Twitter and sign up to get our newsletter. Details are on ihpst.net

Pierre Boulos President, IHPST president@ihpst.net

Some Photos



Farewell



Plenary lecture



Gürol Irzik launching Boğaziçi University Press Turkish translation of Michael R. Matthews Science Teaching: Contribution of HPS, Routledge, 2015

Aydin Sayili and the Turkish 5TL banknote: A First for Historians of Science

Conference co-chair, Fatih Tasar, drew the attention of the conference participants to the Turkish 5 lira banknote that has the distinction of being probably the only banknote in the world that features a historian of science. This is Aydin Sayili (1913-1993), who completed his schooling at Ankara High School in the late 1920s and sat for final school history exams which happened to be visited by President Ataturk. In questions and discussions with the school group Ataturk was so impressed with Sayili that he immediately arranged a scholarship for him to go to Harvard University to study history of science. This was consistent with Ataturk's promotion of science-based Enlightenment ideals in the new Turkish Republic. Sayili went to Harvard, and eventually completed his PhD in history of science, being both Harvard's and George Sarton's, first doctoral graduate in the subject.



Sayili returned to Turkey in the mid-1930s and became professor of history and of philosophy at Ankara University, eventually chairing both departments. He was the founder of Turkish HPS.

Turkish Politics

It is a difficult matter for an outsider to talk of current Turkish politics, the matter is complex and fraught. Nevertheless, some dialogue needs be opened, some things warrant saying. The political events over the past year, since the attempted military coup of July 15, 2016 and the following crackdown on liberals and academics by the Erdoğan government, depressed not only the spirit of numerous Turkish people, but also the conference attendance. In the days before the conference, the government flooded the streets around Taksin Square in Istanbul

with perhaps 2-3,000 police, most carrying machine guns, and scores of armoured vehicles, to prevent a scheduled Gay Pride march, a march that had been peacefully held for previous five years. (This writer, MRM, witnessed this within hours of his arrival in Turkey.)

At the same time, the government announced its intention to remove evolution from the nation's school science curriculum and to diminish the class-time spent on study of the science-committed, Enlightenment-aligned Mustafa Kemal Atatürk, the founder of modern Turkey. Atatürk's list of lasting national achievements included defeat of the invading armies of Greece, Italy, UK and France in the early 1920s, defeat of radical Islamic separatists, comprehensive educational reform (contributed to by John Dewey who Atatürk twice brought to the young republic as an advisor), first time compulsory education for girls, breaking the religious-test for appointment of state school teachers, democratic government with votes for women, creation of Turkey's first national bank with the purpose of keeping Turkish savings in Turkey for Turkish development rather than off-shore capitalist enrichment, separation of law from religion, separation of the Islamic Caliph from the Ottoman Sultanate and the ultimate abolition of the latter, national adoption of the metric system, and much more.

All of this places Atatürk among the most outstanding and meritorious politicians of the 20th century. One would think that the time spent on the study of the man, his milieu, his policies and achievements, might, if anything, be increased, not decreased. Few countries are so fortunate to have such a remarkable figure, both a visionary and an effective, practical politician, among their founders.

The Erdoğan government's imposition of martial law, its suppression of any dissent, its removal of evolution from classrooms, its strengthening of compulsory school religion (meaning Sunni Islam) classes where non-attendance is only allowed for students of a designated non-Muslim faith (atheism is not grounds for non-attendance), its roll-back of Atatürk study - typify its conservative social and political trajectory. Even Wikipedia has been disabled throughout the country, so Turkish people cannot even look up the Wikipedia entry for Ayden Sayili, much less for 'Peace Petition in Turkey'. To say that the country is gripped by a struggle between liberal, science-informed modernisation and conservative, fundamentalist religious reaction might be too simple, but something of the kind is being played out on the national stage, with significant European and international geo-political audience participation.

Of particular concern to academics, is the explicit and implicit tightening of control over what they teach; and the outright termination of employment of many of the 2,218 university staff who in January 2016 signed the 'Peace Petition' which called on the government to honour its own pre-election commitment to negotiation, instead of military campaigns, with Turkey's Kurdish population over their decades-old grievances. In part, the petition said: We ask the state to put an end to violence inflicted against citizens right now, we as academics and researchers of this country declare that we won't be a party to this crime and promise that we will sustain our stance in the presence of political parties, parliament and the international public.

The terminations have been done at the local level by individual university presidents. Honourably, a handful of university presidents have defied the wishes of the government. Just as was done by the honourable few universities in the USA during the 1950s McCarthy purges. On the other hand, for example, at Ankara University, in one department alone, seven

academics were fired and had their passports confiscated on account of signing the peace petition. Nationwide, the number fired by their own Deans and Presidents, including some well-known figures in science education, runs into the hundreds; and into the thousands if those who have been fired for reasons unrelated to the peace petition are counted.

In Sayili's time Turkish academic life was enhanced by Hitler's murderous racial policies in Germany and Austria. Many influential historians and philosophers of science, who were dismissed by German and Austrian universities, were welcomed by Atatürk and the young Turkish republic. Perhaps the most prominent was Hans Reichenbach who became the leader of the Vienna Circle colony in Turkey (see Gurol Irzik: 2011, 'Hans Reichenbach in Istanbul', *Synthese* 181 (1), 157-180). The contrast between Turkish universities of Sayili's time, and the craven, government-appeasing actions of current administrations, is lamentable. This sad situation has not received the degree of international condemnation that it warrants.

In Memoria: Robert Sonné Cohen (1923-2017)

On June 19th 2017, Robert Sonné Cohen passed away at age 94. Bob Cohen, as he was universally known, studied physics at Wesleyan University, and completed his PhD at Yale. After an appointment at Wesleyan University, he was from 1959 professor of physics and philosophy at Boston University, being at different times chair of each department. An obituary penned by Don Howard (Philosophy, Notre Dame) and Alisa Bokulich (Philosophy, Boston University) is available, with pics, on Boston University's Centre for Philosophy and History of Science web site: http://www.bu.edu/cphs/about/robert-cohen/.





Opening of the Robert S. Cohen Philosophy Library, Tsinghua University, Beijing, 2010. Established by the gift of Bob's 23,000-book library to the university

The seventeenth century philosopher-theologian-priest Marin Mersenne was the great 'networker' of his age. With a mail list of about 140, and by constant letter writing and exchanging communications he kept the diverse and scattered community of natural philosophers, astronomers, theologians, and mathematicians in contact with each other, and informed about the progress of each other's work. He defended Galileo and a number of other 'progressive' thinkers of the time. This informal grouping of scholars led, soon after his death, to the more formal Académie des Sciences in Paris and the Royal Society in London. Four hundred years later, in a transformed world, Bob Cohen might be thought of as a latter-day Mersenne. His authorship of so many papers and books, his editorship of 100s of collections, his convening of countless small and large meetings, his unfailing generosity and support of progressive and humanistic causes are all Mersenne-like.

Bob's address at the 50th anniversary of the BU Centre for HPS is on Youtube at: https://www.youtube.com/watch?v=tvd8YoPiL88. Along with so much else, it nicely catches his unrivalled modern-age Mersenne role in HPS studies.

Bob had a long interest in education, both broadly as a vehicle for social and cultural enhancement, and more specifically in supporting a more informed, authentic, and responsible science education. The former concern is elaborated in his:

Cohen, R.S.: 1955, 'On the Marxist Philosophy of Education'. In N.B. Henry (ed.) *Modern Philosophies and Education: The 54th Yearbook of the National Association for the Study of Education*, NSSE, Chicago, pp.175-214.

The latter concern in his:

Cohen, R.S.: 1964, 'Individuality and Common Purpose: The Philosophy of Science', *The Science Teacher* 31(4).

This paper was initially given as a plenary address to a meeting of the US Science Teachers Association. 'The largest audience I have ever had in my life', is how he described the occasion. The paper was published as the third of the 'Golden Oldies' series in *Science & Education*, 1994, 3(4), 393-407.

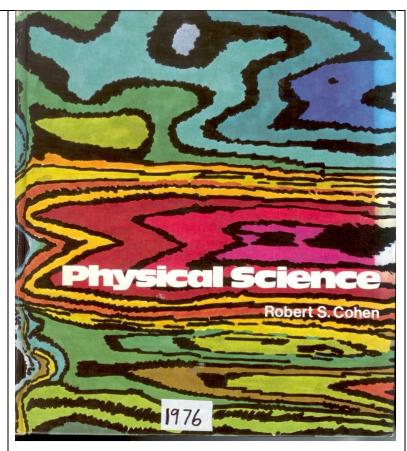
Understandably his education concerns and location in Boston led him, with his life-long friend, and fellow Wesleyan student, Gerald Holton, to engagement in the writing and trialling of the *Harvard Project Physics* course. Both Bob and Gerald Holton, a teenage refugee from Nazi Austria, later served as Trustees of Wesleyan University. Bob never forgot that Wesleyan, a former Methodist-controlled university, hired him, a Marxist, during the height of the disgraceful McCarthyist purges of US universities. Countless universities, including the biggest names, rolled over and abnegated their primary commitment to academic freedom and pursuit of knowledge.

Bob also published an excellent textbook for General Science: *Physical Science*, Holt, Rinehart & Winston, New York (1975). Something of Bob's own approach to science can be read in the book's Introduction:

Modern science developed along with the modern European and American world of nations, exploration, international commerce, great cities, widespread education, religious tolerance, factory production, massive warfare, and political democracy.

Science has all the marks of Western civilization: a great potential for good and also for evil and destruction. And yet, within itself, science can offer to men and women a model for understanding, modesty and independence.

Newton once wrote: 'if I have seen farther than others, it has been by standing on the shoulders of giants'. And later, Thomas Young: "Much as I venerate the name of Newton, I am not therefore obliged to believe he was infallible'.



These educational endeavours manifest Bob's basic Enlightenment commitment that science and philosophy need to be conducted together and learn from each other; and both need engage and dialogue with cultural beliefs and worldviews.

I went to Boston University forty years ago, in 1978 on my first sabbatical leave from UNSW. Bob, as Dean, then oversaw with Marx Wartofsky as Chairperson, one of the most dynamic and impressive Philosophy Departments in the USA, and perhaps for a good deal beyond the USA. Among its faculty were Abner Shimony, Marx Wartofsky, Alasdair McIntyre, Joseph Agassi, Michael Martin, Thomas McCarthy, John Findlay, Milic Capek, Peter Bertocci, John Lavely, Erazim Kohak, George Berry, Paul Sagal, Judson Webb, and younger faculty such as Elizabeth Rapaport and Jay Hullett. The full spectrum of philosophical positions, from Absolute Idealism to Christian Personalism, to Marxist Materialism were represented but mutual respect and appreciation permeated the department. There were political and philosophical differences aplenty, but all were united in a common commitment to decency, respect, and pursuit of the university academic vocation. Undoubtedly staff brought these commitments to the department, but Bob fostered them, and set the example from the top.

His approach to general philosophy was mirrored in his approach to philosophy of science. For Bob, and his scholarly partner and close friend Marx Wartofsky, philosophy of science needs to be informed by the best scientific practice, by close attention to the history of science, and by input from whatever other academic disciplines are willing to contribute, including Music, Art, Theology, Mathematics, Sociology, Psychology, and from cultural and social movements more broadly. Bob's commitment to 'Catholic' philosophy of science can be seen in the diverse authors, and the Tables of Contents, of the 300+ volumes of *Boston Studies in Philosophy of Science* of which he was general editor.

When I went to Boston University I had no reputation, no publications, and no PhD. The only point of contact was a letter of recommendation written by my philosophy teacher, Wallis Suchting, who Bob knew. Bob typed and posted long and detailed letters to me in Australia about how to organise housing, banking and everything else to make my arrival and early days easy. I had no profile at all, but was invited to Centre dinners and functions; Bob went out of his way to introduce me to staff, guest speakers and visitors to the Centre. This hospitality extended to being invited to visit his wife Robyn and himself at their summer house on Cape Cod. Needless to say, in doing all this there was absolutely nothing in it for him. As many have pointed out, this was not special behaviour; Bob supported most people with whom he had contact in the same manner; and did so for decade after decade after decade. The two graduate courses I attended in the 1978 semester - *Marxist Philosophy* with Bob and Marx Wartofsky, and *Philosophy of Science* with Abner Shimony – were to be of fundamental significance for my own intellectual development and scholarly career. Bob was a mentor, an exemplar, and a friend for me, and for hundreds of scholars around the world.

After the death of his first wife, Robyn, Bob was blessed to meet in Germany, and then have the companionship of Karin von Trotha. They married some few years ago. Karin shared not just Bob's final decade, but many of his own qualities.

Michael R. Matthews

Gerald Holton: Bob Cohen: At the Beginning

As other contributors to the Obituary Notices on Bob Cohen have correctly and amply recorded, Bob was a unique and altogether admirable person, as thinker, scholar, writer, teacher, mentor, educator, organizer, leader, family man, friend, and more. He was learned, wise, and fundamentally optimistic in the face of some cruel and undeserved setbacks. His contributions during his long life, in writings and institution building, will live far beyond those who knew him personally.

Yet there is one more aspect of Bob to celebrate—his early beginnings and the formation of his characteristic later aims and achievements. At it happened, I was lucky to get a glimpse of it. In fact, in the Fall of 1940, just a few months after having arrived in the USA as a refugee from war-torn Europe, I came to know Bob as my first (and longest) American friend, as fellow student and co-conspiritor—while both of us were still teen-agers, all those nearly 80 years ago.

So, let's open the time capsule.

Bob was at that point a sophomore student at Wesleyan University in Middletown, Connecticut, his major studies being physics and philosophy. I had arrived that year as a senior, interested in physics and the humanities. We both enjoyed life at the College, and eventually came to love that institution (so much so that decades later both he and I served on its Board of Trustees for many terms).

But in fact, during those student days, we both were in essential ways strangers in that little paradise. Wesleyan had only recently severed its ties to the Methodist Church that had founded it in the 1830s. The College's Christian Association still had a high standing. Attendance at chapel was encouraged. The dozen or so Fraternities (and of course sports) largely set the main tone of social life. As to politics, the great majority of students went to rallies for Wendell Willkie, who was running that year against FDR. As to World War II in Europe--which would spill over to America and expand in the following year, causing most of the students to be drafted—that was then still at most the subject of puzzled ignorance.

The saving side for Bob and me, however, was the very good liberal arts education available from excellent teachers. We may have first met in one of the physics courses, offered by the superb teacher/researcher/mentor Walter G. Cady, chair of his three-person physics department faculty. Or we may have first seen each other at the Physics Club, with its dozen undergrads and grad students.

Either way, on first meeting young Bob, he essentially looked and felt as he did later, throughout his life: bright, with a welcoming expression, eager to learn, open to anything serious (with a reserve of skepticism) or funny, and full of ideas and curiosity. I think it would have taken hard work for someone not to like Bob on first encounter, then and later.

More hidden then was in Bob a certain degree of adventurousness and shrewdness, which I came to admire as I caught some signals of it. Take one of the great puzzles for me at Wesleyan at that time: Where were the women? Wesleyan students were all boys. Not one woman in the faculty of the 20 or so departments. None among the heads of the administration, or on the Board of Trustees. "Girls" came to the Campus only briefly, on special occasions such as the expensive Big Band dances (all well dressed, mostly well behaved). Or as special treats, such as the unforgettable meeting that year of the Wesleyan Debating Club; its opponents had come from Mount Holyoke College. On the docket: "Resolved: A Woman's Place is in the Home".

Of course I could not afford a "date" while at Wesleyan. But Bob, by some miracle, had frequent visits from a bright and endearing young lady, named Robin. The two seemed happy and much attracted to each other. Moreover, Bob knew how, for their meetings, to get away from Wesleyan, an institution that from its beginning by design was for "rustication" and isolation. For Bob had a car! A sweet little open one, with a rumble seat in back. As the two lovebirds sat in front while we were roaming through the countryside, by invitation I sat in back, amazed at my luck to be with them, and aware that nothing like it could have happened to me back in Vienna.

At some point that year, Bob and I discovered the mere beginnings of our common life-long passions: to write and publish books. Somehow we were contacted by the Schaum Publishing Company. It asked us to write for them an *Outline of Physics*. That joint book actually

happened, as did our much desired pay-off from the publisher: \$ 50.- each! Not bad at the time, at least for me, who never before in America had such riches at hand.

Finally: with Bob's passing just at this disturbing political turn in our Nation's history, his type of person, so precious for all who knew him and benefitted from him, has been, for so many, receding as an indisputable role model: an intellectual who got great things done, and who was also a dedicated fighter for justice and dignity for all.

It is that much more important for all of us to celebrate Bob's life.

Education Papers at the Division of the History of Science & Technology (DHST) 25th International Congress, Rio de Janeiro, Brazil, 23 to 29 July 2017

The Interdivisional Teaching Commission (IDTC) of the DHST & DLMPS is sponsoring two symposia at the DHST Rio Congress. The first is on Innovative and Engaging Pedagogy in HPS teaching; the second is on using history of science in the teaching of science. Additionally, there is another symposium in the programme on the utilisation of history in science teaching.

Innovative and Engaging Pedagogy in History of Science, Technology and Medicine

Designing a history of physics course at the University of Copenhagen: dilemmas, expectations and learning outcomes

Ricardo Karam, University of Copenhagen, Denmark

Teaching history of science in the elementary school Suseli de Paula Vissicaro & Silvia Fernanda de Mendonça Figueirôa, UNICAMP, Brazil

Reading and writing historical narratives in science education to discuss the construction of scientific knowledge

Andreia Guerra and Hermann Schiffer, CEFET-RJ, Brazil

How much history of science research can secondary school students do? Huiyi Wu, Needham Research Institute, University of Cambridge, UK

History of science and education: interdisciplinary approaches Maria Helena Roxo Beltran, Pontifical Catholic University of São Paulo, Brazil

Writing, acting and engaging with historical scientific controversies

Bernardo J Oliveira, Verona Segantini and Marina Fonseca, Universidade Federal de Minas Gerais, Brazil

From written words to abstract concepts: teaching medical history through text analysis. Jaime E. Bortz, Department of Public Health and Medical Humanities, Buenos Aires University, Brazil

Teaching history of science, technology and medicine in an interdisciplinary programme Yolanda Eraso, Oxford Brookes University, United Kingdom.

Learning history of medicine with Voicethread Graham Mooney, Johns Hopkins University, USA.

Teaching the History of Computer Technology with Art and Artifacts Dov Lungu, York University, Canada

The effect of historical case-studies in the teaching and learning mathematics Gustavo Morales, Erika Ortiz and Matias Saracho, National University of Cordo, Argentina

Interdisciplinary Teaching of mathematics, computer sciences, natural sciences, and technology courses at the University of Stuttgart

Andreas Haka, University of Stuttgart, Germany

Innovative teaching of global warming: history, science and politics Richard Staley, University of Cambridge, UK

Myths about Africa's scientific legacy: Rigour throughout history and contemporary epistemic advantages

Helen Lauer, University of Dar es Salaam, Tanzania

*Innovative teaching of computational metaphysics*Christoph Benzmüller, Freie Universität Berlin, Germany.

Teaching the Scientific Heritage of Croatia–Faustus Verantius Vanja Flegar and Marijana Borić, Croatian Academy of Sciences and Arts, Department for the History and Philosophy of Science

A project seminar creating a website and books about the history of Stuttgart University Campus

Klaus Hentschel, University of Stuttgart, Germany.

Re-create experiments from history: inform the future from the past Elizabeth Cavicchi, MIT, USA

Using History in Science Education

'Modes of Rationality' in the History of Science for Science Education Agustín Adúriz-Bravo, Universidad de Buenos Aires

Modeling Newton's Lunar Precession Problem and its Role in Understanding "Scientific" Method

Pierre J. Boulos, University of Windsor

Acting on Curiosity, Voicing Questions: in developing as investigators, Learners break new ground in understanding science, history and ourselves

Elizabeth Cavicchi Edgerton Center MIT

Could History of Science improve discussions of scientific practices in science teaching?

Andreia Guerra, Cristiano Moura, Tania Camel

The employment of hydrogen gas as a fuel in three different historical moments: scientific contends and nature of science applied in teacher education.

Francisco Aparecido Cardeira, Thaís Cyrino de Mello Forato, Hélio Elael Bonini Viana, Universidade Federal de São Paulo – UNIFESP -

Teaching Chemistry in the Deutsches Museum: Between the alchemist's dungeon and hightech chemistry

Susanne Rehn-Taube, Deutsches Museum, Museumsinsel 1, 80538 München, Germany

Is there a "good or bad" History of Science to Science teaching? A case study based on Arabic Medieval Science

Ana Paula Bispo da Silva, State University of Paraiba, Winston Gomes Schmiedecke, Federal Institute of Education, Science and Technology of São Paulo

New Histories of Science Education

Science for grownups: historical landscapes of adult STEM learning in the postwar United States

Karen Rader (Virginia Commonwealth University)

Fairs, Olympiads and the Fostering of Scientific Elites: Youth Science Competitions in Sweden during the Cold War (19571989)

Daniel Lövheim (Stockholm University, department of Education)

Grant Stories: A Historical Perspective on Extramural Funding Practices for Indigenous Education and Research Methodologies in STEM

Jessica C. Venable (McAllister & Quinn)

The Problem of History in Chemical Education: The "Nature of Science" as Contested Space John C. Powers (Virginia Commonwealth University)

Imaginative Biology: an online resource providing a new approach to Science Education Daniel GamitoMarques, (NOVA University of Lisbon)

Teaching historical practice practically – understanding science culturally Peter Heering (EuropaUniversität Flensburg, Germany)

Popular Genres of Science Education and the Normative Uses of History of Science in the post National Science Foundation Era in the United States

Katherine Pandora (University of Oklahoma)

More information, and full congress programme, is available at: http://www.ichst2017.sbhc.org.br/

Science and Cultural Content Knowledge: Gratis Article Download

On the occasion of the ICHST Congress in Rio, Springer have provided free downloads of a sample of history-related articles, one of which is the following:

Galili, I.: 2012, 'Promotion of Cultural Content Knowledge Through the Use of the History and Philosophy of Science', *Science & Education* **21**(9), 1283-1316.

Igal Galili has been a regular contributor to *Science & Education* journal and to IHPST conferences for almost 20 years. The article can be freely downloaded until August 20 at:

https://link.springer.com/article/10.1007/s11191-011-9376-x?wt_mc=10.CON1172.ICHST_VI_Art08

Elements in the Philosophy of Biology, Cambridge University Press, Book Series

Michael Ruse (Philosophy, Florida State University) and Grant Ramsey (KU Leuven, in Belgium) have been contracted to co-edit a section on the philosophy of biology in the Cambridge University Press *Elements* series. The section will have thirty books in all, ten to appear each year. It is hoped to publish the first tranche by the time of the joint HSS-PSA meeting (November 1-3, 2018, Seattle.

Contributors: Year One

Alan Love, University of Minnesota, Twin Cities: "Evolution and Development"
Betty Smocovitis, University of Florida: "The Place of Botany in Evolutionary Biology"
Derek Turner, Connecticut College: "Realism and the Paleontological Record"
Jay Odenbaugh, Lewis & Clark College: "Models in Ecology"
Lisa Lloyd, Indiana University, Bloomington: "Adaptation"
Michael Ruse, Florida State University: "The Darwinian Revolution: Revisiting the PopperKuhn Controversy Fifty Years On"
Richard A. Richards, University of Alabama: "The Biology of Art"

Sebastien Dutreuil, Max Plank Institute: "Philosophy of the Earth Sciences" Alex Rosenberg, Duke University: "Reductionism in Biology"

Contributors: Year Two

Cailin O'Connor, University of California, Irvine: "Game Theory and Ethics"
Eva Jablonka, Tel Aviv University, Israel: "Inheritance systems and the extended synthesis"
Helen De Cruz, Oxford Brookes University: "Religion and the Challenge of Evolution"
Jun Otsuka, Kobe University: "Mathematical issues in population genetics"
Robert Brandon and Dan McShea, Duke University: "Drift and complexity in biological systems"

Kim Sterelny, Australian National University: "Culture and Cooperation" Grant Ramsey, Leuven University: "Human nature"

For further information about the series, contact Michael Ruse mruse@fsu.edu

Opinion Page:

Invitation to Submit

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 Inter-Divisional Teaching Commission web site (http://www.idtc-iuhps.com/).

The opinions do not, of course, represent any official position of the IDTC or the two divisions (DLMPS and DHST) it serves.

Previous HPS&ST Note Opinion Pieces (at http://www.idtc-iuhps.com/opinion.html

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

Nicholas Maxwell, University College London, *The Crisis of Our Times and What to do About It.*

Eric Scerri, UCLA, Bringing Science Down to Earth

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?

Recent HPS&ST Research Articles

Transversal: International Journal for the Historiography of Science (2017, N. 2)

Dossier Pierre Duhem: Pierre Duhem's Philosophy and History of Science

The European Physical Journal H (2017, Vol. 42, N. 2)

Special issue: The Renaissance of Einstein's Theory of Gravitation

Foundations of Science (2017, Vol. 22, N. 2)

Special Issue: The Art of Living with Technology

Archila, P. A. (2017) Using Drama to Promote Argumentation in Science Education. *Science & Education*, 26(3/4), 345-375. doi:10.1007/s11191-017-9901-7 online first

Jamieson, A.& Radick, G. (2017). Genetic Determinism in the Genetics Curriculum: An Exploratory Study of the Effects of Mendelian and Weldonian Emphase. *Science & Education*, 1-30. doi:10.1007/s11191-017-9900-8 online first

Laudisa, F. (2017) Is Science Really What Naturalism Says it is?. *Kairos. Journal of Philosophy & Science*. 18(1), 1-30. DOI: https://doi.org/10.1515/kjps-2017-0001

Østergaard, E. (2017) Earth at Rest: Aesthetic Experience and Students' Grounding in

Science Education. Science & Education, 1-26. doi:10.1007/s11191-017-9906-2 online first

Wiltsche, H. A. (2017). Mechanics Lost: Husserl's Galileo and Ihde's Telescope. *Husserl Studies*, 33(2), 149-173. DOI: 10.1007/s10743-016-9204-x

Recent HPS&ST Related Books

Allchin, Douglas (2017). Sacred Bovines: The Ironies of Misplaced Assumptions in Biology. Oxford: Oxford University Press. ISBN: 9780190490362

"Some assumptions about biology are so deeply rooted in our thinking that they seem beyond question. These concepts - expressed in playful jargon - are our sacred bovines. With a light-hearted spirit, Douglas Allchin sets out to challenge many of these common beliefs about science and life. Allchin draws on fascinating insights from science to illustrate the ironies in many widespread beliefs. Be prepared to challenge the notion that male and female are fixed natural categories. Or that evolution implies cutthroat competition in human society. Or that we struggle against a fundamental immoral nature. Or that genes establish our identity. Or that science progresses through rare leaps of genius. Or that politics and emotions inevitably taint good science. Sacred Bovines revels in revelations about the nature of science. Reflecting on the many errors in commonly accepted, everyday ideas also fosters creative thinking. How do we challenge assumptions? How do we think outside the box? The many examples here provide inspiration and guidance, further elaborated in a retrospective epilogue. An additional "Afterword for Teachers" highlights how the essays can foster learning about the nature of science and describes some practical classroom strategies." (From the Publisher)

More information at: https://global.oup.com/academic/product/sacred-bovines-9780190490362?cc=pt&lang=en&#

Bar-Am, Nimrod, Gattei, Stefano (2017) Encouraging Openness: Essays for Joseph Agassi on the Occasion of His 90th Birthday. In *Boston Studies in the Philosophy and History of Science*, Vol. 325. Dordrecht: Springer. ISBN: 978-3-319-57669-5 (online)

"This volume features forty-two essays written in honor of Joseph Agassi [e.g. Mario Bunge, Why Don't Scientists Respect Philosophers?; Christopher R. Donohue, Joseph Agassi from Metaphysics to Politics; Michael R. Matthews, Feng Shui: An Overlooked Topic for Critical Rationalists] It explores the work and legacy of this influential philosopher, an exciting and challenging advocate of critical rationalism. Throughout six decades of stupendous intellectual activity, Agassi called attention to rationality as the very starting point of every notable philosophical way of life.

"The essays present Agassi's own views on critical rationalism. They also develop and expand upon his work in new and provocative ways. The authors include Agassi's most notable pupils, friends, and colleagues. Overall, their contributions challenge the received view on a variety of issues concerning science, religion, and education.

"Readers will find well-reasoned arguments on such topics as the secular problem of evil, religion and critical thinking, liberal democratic educational communities, democracy and constitutionalism, and capitalism at a crossroad." (From the Publisher)

More information at:

http://www.springer.com/gp/book/9783319576688?wt mc=ThirdParty.SpringerLink.3.EPR653.About eBook

Becker, Barbara J. (2017) *Unravelling Starlight: William and Margaret Huggins and the Rise of the New Astronomy*. Cambridge, UK: Cambridge University Press. ISBN: 9781316644171

"Challenging traditional accounts of the origins of astrophysics, this book presents the first scholarly biography of nineteenth-century English amateur astronomer William Huggins (1824–1910). A pioneer in adapting the spectroscope to new astronomical purposes, William Huggins rose to scientific prominence in London and transformed professional astronomy to become a principal founder of the new science of astrophysics. The author re-examines his life and career, exploring unpublished notebooks, correspondence and research projects to expose the boldness of this scientific entrepreneur. While Sir William Huggins is the main focus of the book, the involvement of Lady Margaret Lindsay Huggins (1848–1915) in her husband's research is examined, where it may have been previously overlooked or obscured. Written in an engaging style, this book has broad appeal and will be valuable to scientists, students and anyone interested in the history of astronomy." (from the Publisher)

More information at: https://tinyurl.com/y7f9yzgt

Floyd, Juliet, Bokulich, Alisa (Eds.) (2017) *Philosophical Explorations of the Legacy of Alan Turing*. Dordrecht: Springer.

"This volume presents an historical and philosophical revisiting of the foundational character of Turing's conceptual contributions and assesses the impact of the work of Alan Turing on the history and philosophy of science. Written by experts from a variety of disciplines, the book draws out the continuing significance of Turing's work. The centennial of Turing's birth in 2012 led to the highly celebrated "Alan Turing Year", which stimulated a world-wide cooperative, interdisciplinary revisiting of his life and work. Turing is widely regarded as one of the most important scientists of the twentieth century: He is the father of artificial intelligence, resolver of Hilbert's famous Entscheidungsproblem, and a code breaker who helped solve the Enigma code. His work revolutionized the very architecture of science by way of the results he obtained in logic, probability and recursion theory, morphogenesis, the foundations of cognitive psychology, mathematics, and cryptography. Many of Turing's breakthroughs were stimulated by his deep reflections on fundamental philosophical issues. Hence it is fitting that there be a volume dedicated to the philosophical impact of his work. One important strand of Turing's work is his analysis of the concept of computability, which has unquestionably come to play a central conceptual role in nearly every branch of knowledge and engineering." (From the publisher)

More information at: http://www.springer.com/gp/book/9783319532783#aboutBook

Kampourakis, Kostas (2017) *Making Sense of Genes*. Cambridge, MA: Cambridge University Press. online ISBN: 9781316422939

"Kampourakis provides an excellent critical analysis of the genetic discourse at the intersection of science and the public, based on the latest scientific findings from genomics and systems biology. The book fills an important gap in the literature in terms of the balance it keeps between accessibility and scientific rigour. It calls for a change in the ways students and the public are told what genes are and what they do, and it does so with compelling persuasiveness. A must-read, packed with convincing empirical material, for educators, journalists and academics who are critical of the usual 'gene for' talk, but do not want to give

up on the fascinating insights that the science of genetics provides." By Staffan Müller-Wille - University of Exeter

"A beautifully and lucidly written book of great insights ... I have not seen in one volume such clear analysis of the nuanced view of the 'gene' ... A valuable book that gives genes a new and accurate meaning and does justice to understanding genetics in a non-reductive [manner] through a systems approach. The clarity, precision and insights are wonderful." By Sheldon Krimsky - Tufts University, Massachusetts

"There is a vast and curious mismatch between what biological science has discovered by empirical investigations on the mechanisms of heredity and the understanding of what appears to be the central concept, that of the gene. Despite careful attempts to show both the nature and the significance of this gap, the scientific media, and public perceptions of the concept, persistently follow a successfully popularized view that is not justified by what we now know. Kampourakis' book is an excellent attempt to correct the situation ... by bringing impressive scholastic skills to tackle the problem, the author has in my view made a very major contribution. The book deserves very wide attention." By Denis Noble - University of Oxford

- "... an extremely intellectual and erudite treatment of the history and meaning of genes and genomes. The book is half hard-core genetics and half provocative and fascinating philosophy of science ... cogently written, highly informative and genuinely thought-provoking." By John Avise University of California
- "... it is really marvelous: very clearly written, very thoughtfully structured and marvellously sensitive to the needs of the reader, especially in providing 'take-home message' summaries just when and where they are most welcome. I especially admired the way the author consistently manages to help the reader dial down expectations when faced with hype about genetic tests and the latest 'gene for' discoveries." By Gregory Radick University of Leeds

More information in: https://www.genetics/making-sense-genes?format=PB#contentsTabAnchor and at: https://www.youtube.com/watch?v=ut0UBQJqqbg

Mößner, Nicola, Nordmann, Alfred (Eds.) (2017). *Reasoning in Measurement*. Abingdon, UK: Routledge.

"This collection offers a new understanding of the epistemology of measurement. The interdisciplinary volume explores how measurements are produced, for example, in astronomy and seismology, in studies of human sexuality and ecology, in brain imaging and intelligence testing. It considers photography as a measurement technology and Henry David Thoreau's poetic measures as closing the gap between mind and world.

"By focusing on measurements as the hard-won results of conceptual as well as technical operations, the authors of the book no longer presuppose that measurement is always and exclusively a means of representing some feature of a target object or entity. Measurement also provides knowledge about the degree to which things have been standardized or harmonized – it is an indicator of how closely human practices are attuned to each other and the world" (From the Publisher)

 $\label{lem:more information in: https://www.routledge.com/Reasoning-in-Measurement/Mossner-Nordmann/p/book/9781848936027$

Morgan, Daniel Patrick (2017) *Astral Science in Early China: Observation, Sagehood and Society*. Cambridge, UK: Cambridge University Press. ISBN: 9781107139022

"Challenging monolithic modern narratives about 'Chinese science', Daniel Patrick Morgan examines the astral sciences in China c.221 BCE–750 CE as a study in the disunities of scientific cultures and the narratives by which ancients and moderns alike have fought to instil them with a sense of unity. The book focuses on four unifying 'legends' recounted by contemporary subjects: the first two, redolent of antiquity, are the 'observing of signs' and 'granting of seasons' by ancient sage kings; and the other two, redolent of modernity, involve the pursuit of 'accuracy' and historical 'accumulation' to this end. Juxtaposing legend with the messy realities of practice, Morgan reveals how such narratives were told, imagined, and reimagined in response to evolving tensions. He argues that, whether or not 'empiricism' and 'progress' are real, we must consider the real effects of such narratives as believed in and acted upon in the history of astronomy in China.

More information at: https://tinyurl.com/y9ymobuu

Rose, Deborah Bird, Dooren, Thom van & Chrulew, Matthew (Eds.) (2017) *Extinction Studies: Stories of Time, Death, and Generations*. New York, NY: Columbia University Press. ISBN: 9780231178815

"Extinction Studies focuses on the entangled ecological and social dimensions of extinction, exploring the ways in which extinction catastrophically interrupts life-giving processes of time, death, and generations. The volume opens up important philosophical questions about our place in, and obligations to, a more-than-human world. Drawing on fieldwork, philosophy, literature, history, and a range of other perspectives, each of the chapters in this book tells a unique extinction story that explores what extinction is, what it means, why it matters—and to whom." (From the publisher)

More information at: https://cup.columbia.edu/book/extinction-studies/9780231178815

Authors of HPS&ST-related papers and books are most welcome to bring them to attention of the Note's assistant editor, Paulo Maurício at paulo.asterix@gmail.com for inclusion in these sections.

Coming HPS&ST Related Conferences

July 23-29, 2017, 25th International Congress of History of Science, and Technology (ICHST), Rio de Janeiro, Brazil.

Details at: http://www.ichst2017.sbhc.org.br/site/capa

August 5-7, 2017, Quo Vadis Selective Scientific Realism?, Durham University, UK Details at: http://community.dur.ac.uk/evaluating.realism/events.html

August 24-26, 2017, European Workshops on Philosophical Practice, Mazuri, Poland Details at: http://mazury2017.pl/

August 29-2, 2017, 11th International Conference on the History of Chemistry (11th ICHC) Trondheim, Norway

Details at: http://www.ntnu.edu/11ichc

September 6-9, 2017, European Philosophy of Science Association (EPSA17), UK, University of Exeter.

Details: http://www.philsci.eu/epsa17

September 7-8, 2017, Editors and the Editing of Scientific Periodicals: Constructing

Knowledge and Identity in the Late Eighteenth and Nineteenth Centuries. Institute of Intellectual History, University of St Andrews

Inquiries: Dr Aileen Fyfe akf@st-andrews.ac.uk

September 7-10, 2017, 8th Tensions of Europe Conference Athens, Greece.

Details at: http://8toe2017.phs.uoa.gr/

September 11-12, 2017, 'Trading Companies and Travel Literature', University of Kent, Medway Campus

Details at: https://hakluytsymposium2017.wordpress.com/

September 12 – 14, 2017, Thinking about Space and Time: 100 Years of Applying and Interpreting General Relativity, Bern, Switzerland.

Details at: http://www.philosophie.unibe.ch/news/spacetime2017/index_eng.html

September 13-16, 2017, British Society for the History of Medicine Congress, Surgeons' Hall, Edinburgh, UK.

Details at: http://bshm.org.uk/

September 14-16, 2017, Joseph Banks: Science, Culture and Exploration, London Details at: http://www.rmg.co.uk/work-services/what-we-do/learning-partnerships/joseph-banks-science-culture-and-remaking-indo-pacific-world

September 18-20, 2017, Mathematics and Mechanics in the Newtonian Age: historical and philosophical questions, University of Sevilla, Institute of Mathematics Details at: https://gecomat1216.wordpress.com/

September 19-20, 2017, Get real!: Realism as a goal for the sciences and for HPS, University of Leeds, UK.

Inquiries: Polina Merkulova at pr15pm@leeds.ac.uk

September 21-23, 2017, The 20th International Conference on Conceptual History University of Oslo, Norway.

Details at: https://tinyurl.com/jkycxg3

September 20-22, 2017, The Sixth Conference of the European Network for the Philosophy of the Social Sciences (ENPOSS), Kraków, Poland

Details at: http://uekwww.uek.krakow.pl/pl/uczelnia/wydzialy/wydzial-gospodarki-i-administracji-publicznej/wydzial/katedry/katedra-filozofii/enposs-2017.html

September 22-24, 2017, Contemplating Science, Medicine, and Technology: Past and Present Challenges, University of Münster, Germany Inquiries to: Philipp Osten p.osten@uke.de

September 28-30, 2017, The Making of the Humanities VI, University of Oxford, Somerville College, UK

Details at: http://www.historyofhumanities.org/

October 2-3, 2017, Metaphysics after the 'Scientific Revolution' (1687-1781), University of Bucharest, Institute for Research in the Humanities and the Faculty of Philosophy Details at: https://irhunibuc.wordpress.com/cfa-metaphysics-after-the-scientific-revolution-1687-1781-october-2-3-2017/

October 5-6, 2017, Bridging the Gap: Scientific Imagination Meets Aesthetic Imagination. Centre for Philosophy of Natural and Social Science, London School of Economics and Political Science

Inquiries: Dr Fiora Salis f.salis@lse.ac.uk

October 19, 2017, International symposium: Unix in Europe: between innovation, diffusion and heritage. Conservatoire National des Arts et Métiers, Paris, France Details: camille.paloque-berges@cnam.fr or loic.petitgirard@cnam.fr

October 13-14, 2017, On Growth and form centenary Conference, University of Dundee and University of St Andrews, UK.

- Details at: https://www.ongrowthandform.org/2017/03/07/centenary-conference- call-for-papers/
- October 13-15, 2017, Workshop for the History of Environment, Agriculture, Technology & Science (WHEATS), University at Albany, History Department

Details at: https://wheats2017.wordpress.com/

October 24-28, 2017, Masterclass on Galileo's Methods of Investigation and Discovery, IRH-ICUB, University of Bucharest

Details at: humanities@icub.unibuc.ro

October 26-27, 2017, Making sense of data in the sciences, Leibniz University, Hannover, Germany

Details at: https://dataintensivescience.wordpress.com/

- October 30-31, 2017, The Structure of Scientific Revolutions, Durham University, UK. Details at: http://community.dur.ac.uk/evaluating.realism/events.html
- November 1-3, 2017, Contours of The Future: Technology and Innovation in Cultural Context, Peter the Great Saint-Petersburg Polytechnic University, Saint-Petersburg,

Deadline: short abstract up to 150 words by 1 July 2017. Contact information: Natalia Nikiforova futurecontour@gmail.com

- November 2-4, 2017, Novembertagung on the History of Mathematics 2017. Theme: "Tools for research in mathematics, history and philosophy", Brussels, Belgium. Details at: http://css.au.dk/arrangementer/27th-novembertagung-on-the-historyof-mathematics/
- November 9-12, 2017, Annual Meeting of The History of Science Society (HSS), Toronto,

Details at: https://hssonline.org/meetings/2017-hss-annual-meeting/2017-annualmeeting-call-for-papers/

- November, 17-18, 2017, 40th History of Technology Conference: Colors in Technology Technology of Colors, Klostergut Paradies, Schlatt, Switzerland Contact: Franziska Eggimann at: franziska.eggimann@georgfischer.com
- November 23-24, 2017, Workshop Vaccines: Values, Present and Past, Uppsala University. Details at: http://medicalborders.se/

Contact: Morag Ramsey, morag.ramsey@idehist.uu.se

November 23-24, 2017, ESA History Project, Padua, Italy

Inquiries: young.spacehistory@esa.int

November 30-1, 2017, Funding bodies and late modern science. Utrecht University, Cultural History Research Group and Descartes Centre.

Abstracts of 300 words should be submitted by 15 June 2017 and can be send to Pieter Huistra at p.a.huistra@uu.nl or Noortje Jacobs at Noortje.jacobs@maastrichtuniversity.nl.

December 7–9, 2017, Genealogies of Knowledge I: Translating Political and Scientific Thought across Time and Space, Manchester, UK

Details at: http://genealogiesofknowledge.net/2016/11/23/genealogies-knowledge-itranslating-political-scientific-thought-across-time-space/

December 20-22, 21st Amsterdam Colloquium, Amsterdam, The Netherlands

Details at: http://events.illc.uva.nl/AC/AC2017/Call for Papers/

January 5-8, 2018, Episteme 7, biennial conference, Homi Bhabha Centre for Science Education, Mumbai, India,

Details at: http://www.hbcse.tifr.res.in/episteme

January 15-17,2018, 7th International Conference on The History of Medicine in Southeast Asia (HOMSEA), Ventiane, Lao People's Democratic Republic.

- Inquiries: james.dunk@sydney.edu.au
- February 8-10, 2018, 4th Conference of the Public Philosophy Network: 'Understanding Impact'. University of North Texas
 - Details at: https://philosophyimpact.org/ppn2018/
- February 14-17, 2018, Robots in Society Robophilosophy 2018: "Envisioning Robots in Society—Politics, Power, and Public Space" at University of Vienna, Austria Details at: http://conferences.au.dk/robo-philosophy/
- March 8-10, 2018, New College Conference on Medieval & Renaissance Studies, Sarasota, Florida.
 - Details at: http://www.newcollegeconference.org/cfp
- March 10-13, 2018, NARST annual conference, Atlanta, USA Details at: http://www.narst.org/
- March 15-17, 2018, Models and Simulations 8, University of South Carolina, USA For inquiries: Brandon Boesch boeschb@gmail.com Deadline: 15 September 2017
- March 30-April 1, 2018, 13th Maghrebrian Colloquium on the History of Arabic Mathematics, Tunis City
 - Information from Mahdi Abdeljaouad mahdi.abdeljaouad@gmail.com
- 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 18-22, 2018, A Matter of Life and Death: Spaces for Healing in the Premodern Era Society of Architectural Historians Annual Meeting, St. Paul, MN. Contact: Mohammad Gharipour (mohammad@gatech.edu) or Stuart W. Leslie (swleslie@jhu.edu)
- June 7-10, 2018, Learning by the Book: Manuals and Handbooks in the History of Knowledge, Princeton University

 Contact: creager@princeton.edu or mathias.grote@hu-berlin.de

 deadline for abstracts: July 15th, 2017
- June 16-26, 2018, The 6th UNILOG World Congress and School on Universal Logic Details at: http://www.uni-log.org
- June 30 July 2, 2018, 7th SPSP Congress, Ghent University, Belgium Details, Erik Weber, **Erik.Weber@UGent.be**
- November 21-23, 2018, Fourth Asian HPS&ST Conference, National Dong Hwa University, Hualien, Taiwan.
 - Details from: Dr Chia-Ling Chiang, clchiang@mail.ndhu.edu.tw