INTER - DIVISIONAL TEACHING COMMISSION
International Union of History and Philosophy of Science

# HPS&ST Note

## July 2016

## # Introduction

This HPS&ST monthly note is sent direct to about 7,100 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 etc.) are welcome and should be sent direct to the editor: Michael R. Matthews, UNSW, m.matthews@unsw.edu.au .

## # Asian HPS&ST Conference, December 15-18, 2016, Pusan National University, South Korea.

*Chair*s: Hae-Ae Seo (Biology Education, PNU) & Youngmin Kim (Physics Education, PNU)

*Conference Theme*: ***Inquiry in Science and in Science Education: Historical, Philosophical and Pedagogical Dimensions***

*Pusan National University* is in Busan, South Korea's second largest city, located on the southern coast of the country with easy high-speed train and air connection to Seoul. The Conference will open on Thursday evening with a plenary lecture and welcoming reception in the evening and on Friday and Saturday for full day presentations. The Conference will close on Sunday at lunch time and a half-day excursion will be offered in the afternoon. A pre-conference research workshop on HPS and Education themes and methodologies will be organized for graduate students and junior scholars.

*Plenary Speakers include:*

**Darrell P. Rowbottom** is Professor and Head of Philosophy at Lingnan University, Hong Kong. He studied physics as an undergraduate (at Bristol), and history and philosophy of science (at the LSE) and philosophy (at Durham) thereafter. He subsequently held posts at several universities in the UK, including Bristol, Edinburgh, and Oxford. His current research focuses on general issues in the philosophy of science (e.g. scientific method, scientific realism, and scientific progress) and the philosophy of probability (e.g. intersubjective probability and measurement paradoxes).
He also has interests in epistemology, metaphysics, and the philosophy of education.

See:
**http://www.ln.edu.hk/philoso/staff/rowbottom/**

*Proposals* for individual papers (1,000 words) and symposia are due by: **September1, 2016**.

*Inquiries* to: Hae-Ae Seo (**haseo@pusan.ac.kr** )

*Conference website:* **http://asiahpsst2016.bolog.com/welcome.php**

## # DHST Young Scholars Prize (submission 31 August 2016)

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

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

Each Prize consists of a certificate, assistance with travel and accommodation expenditures to the 25th IUHPST/DHST Congress in Rio de Janeiro in July 2017 and a waiver of registration fee. The winner of a prize whose thesis is relative to Islamic science is also awarded the Ihsanoglu Prize given by ISAR Foundation.

Applications should be made online at:

**http://www.hpdst.gr/youngscholarsprize**

# IUHPST Essay Prize in History and Philosophy of Science (30 November 2016)

The International Union of History and Philosophy of Science and Technology (IUHPST) invites submissions for the first IUHPST Essay Prize in History and Philosophy of Science. This prize competition, planned to continue on a biennial basis, seeks to encourage fresh methodological thinking on the history and philosophy of science as an integrated discipline.

Entries in the form of an essay of 5,000–10,000 words in English are invited, addressing this year's prize question: **"What is the value of philosophy of science for history of science?"** All entries should contain original work that has not previously been published. For entries written originally in another language, an English translation should be submitted with an indication of the translator.

Entries will be judged on the following criteria, in addition to general academic quality: a direct engagement with this year's prize question, an effective integration of historical and philosophical perspectives, and the potential to provide methodological guidance for other researchers in the field.

The author of the winning entry will be invited to present the work at the 25th International Congress of History of Science and Technology in Rio de Janeiro (23-29 July 2017), and presenting at the Congress will be a condition of the award. (The presentation of the winning work will be considered a "non-paper-session activity," and will not interfere with the possibility of the winner also giving a standard paper at the Congress.)

The award will carry a cash prize of 1,000 U.S. dollars and, in addition, the cost of hotel accommodation for attending the Congress, though the Congress registration fee will not be waived.

Other strong entries will also be considered for presentation at the Congress. In order to ensure this consideration, entrants should submit the entry also as an individual paper proposal for the Congress by the deadline of 30 November 2016, following the standard instructions:
**http://www.ichst2017.sbhc.org.br/conteudo/view?ID_CONTEUDO=259**

Entries for this essay prize are invited from anyone, without restriction of age, nationality or academic status. Co-authored work will be considered, but if the winning entry is a co-authored work the cash prize and accommodation subsidy would need to be shared out among the authors.

This prize is administered by the Joint Commission, whose remit is to make links between the work of the two Divisions of the IUHPST: the DHST (Division of History of Science and Technology) and the DLMPST (Division of Logic, Methodology and Philosophy of Science and Technology). For further information about IUHPST, see **http://iuhps.net**.

Entries for the prize competition should be submitted in pdf format by e-mail to the Chair of the Joint Commission, Prof. Hasok Chang, Department of History and Philosophy of Science, University of Cambridge hc372@cam.ac.uk. Any queries should also be directed to him. The deadline for submission is 30 November 2016.

## # Opinions and Suggestions

**Philip A. Sullivan:** ***What is wrong with Mathematics Teaching in Ontario?***

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 sentences 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.

The first such piece, by Gregory Radick of Leeds University on taking history seriously when teaching genetics, was published in the June HPS&ST Note.

The second contribution is by Philip Sullivan of the University of Toronto on 'The Teaching of Mathematics in Ontario Public Schools'. The piece is a submission to the Ontario Ministry of Education. His focus is the inadequate teaching of mathematics, but as is well known comparable concerns have been expressed in many countries about the teaching of science.

**Abstract**: This article reviews literature from academic and other sources on problems in mathematics education for North American school grades K-12. It is shown that, especially for the critical grades K-6, the dominant educators' ideas are controversial, being subject to strong criticism by other educators, by mathematicians, by cognitive psychologists, and by other concerned professionals. This extends to characterization of the subject matter of mathematics as well as to both curriculum and teaching practices. Aspects of the Ministry of Ontario's curriculum and advisory literature are discussed. The author concludes that, in view of Ontario school children's poor showing on international tests, detailed reviews of curriculum structure, of textbooks, of teaching practices and of evaluation methods are all needed. Two recent critiques of U.S. mathematics education are used to suggest a path for reform.

See: **HERE**

## # Vale: Andreas (Andrew) Quale 1938-2016

[Svein Sjøberg, professor (em) in science education, Oslo University, Norway]

Andrew Quale has passed away, at the age of 78, after having fought cancer for the past ten years. His first name was Andreas in Norwegian, but since he spent formative years in Australia, where his father worked as an engineer for large post-war hydropower construction works, most colleagues abroad know him under the name Andrew.

I came to know Andrew when I was in the final year of my physics class at school. He was five years older than me, and a student at the University in Oslo. He came as a substitute teacher when our physics teacher was on sick leave. I loved physics from my reading of many books, and had at a young age decided that I would become physicist myself. But I found school physics increasingly dull and boring, overloaded with firm facts, and always giving correct answers to questions nobody had asked.

The few lessons we had with Andrew restored my interest in physics as an intellectual as well as philosophical challenge. So I stuck to my plans to study physics, assuming that the physics I would meet at the university would be full of fascination and challenging ideas and with social, cultural and philosophical perspectives and implications.
(These expectations were not met, actually, but that is another story. But I became a physicist anyway.)

Andrew's PhD from 1974 was "On the Dynamics of Gravity and Matter Fields", related to Einstein's theory of general relativity. For many, this sounds very narrow and special. But when he talked about it, he managed to present the physics and its implications in thought-provoking ways. Andrew had also studied Russian, and had tough discussion with Soviet scholars. He told us about the reception of the relativity theory in the Soviet Union, and the many phases in the responses. Some issues were obviously related to the facts that Einstein was German, and also a Jew. More important was the alleged conflict between Einstein's theory and Marxism. Andrew's presentations of conflict like these placed physics as something different than the textbook version: sterile, clean and objective, and outside society, history, culture and conflicts.

Such experiences were probably also formative for Andrew when he much later became interested in constructivism, and even wrote a book on *Radical Constructivism: A Relativist Epistemic Approach to Science Education* (2008). He insisted on being a constructivist, but he was also a person with sense for rationality and indeed objectivity. He was also an atheist and humanist, but with the greatest respect for all sorts of beliefs.

Andrew did not pursue a further career in physics research, but went into teaching. He held several positions, and also widened his field to include the use of information technology at a very early stage of this development. When he came into teacher education at Oslo University in 1995, we became colleagues until he retired. After that we were even closer friends.

Andrew was a real renaissance person, with an open mind and with nearly encyclopedic repertoire of science, culture, philosophy, art and music. When he passed away after years' of struggle against his cancer, he was working with new articles, and he studied Italian language. He had an urge to see his physics in a wider context, as a cultural product of the human mind. These values were also entrenched in his teaching and his relationship with colleagues and other people. Being tall and strong, he also talked with a strong voice. But he

was nevertheless a good listener, always interested in other people's experiences and points of view. He made friends everywhere.

In addition to his impact on the local, Norwegian scene, he became an active participant in international fora. He was particularly at home in the environment related to HPS&ST, for history, philosophy, sociology and science teaching, where he met colleagues with similar interests, values and commitments. He had close friends in many countries. Many will remember Andrew as a most interesting, kind and always engaged person. He will be missed.

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[Michael R. Matthews, School of Education, UNSW, Australia]

It was a great pleasure for me and for many other international scholars to meet Andreas at numerous biennial IHPST conferences where he was always an engaging and keenly interested contributor to the programme and to conference social life. We talked education, philosophy and about his high school experience in Australia, where he came with his family in the 1950s and was a border at Canberra Grammar School. Canberra was the nation's capital but then not much more than a big country town; in a wide, brown, flat, monolingual land. He found that 'football' was played with an oval ball, it was called 'rugby', and although a big boy, he never mastered the techniques of this foreign game. The contrast with his native mountainous, multilingual, soccer-playing Norway could not have been more stark.

And when he came to Australia for his school reunion we had most enjoyable meals and conversations shared with fellow IHPST and UNSW colleague Peter Slezak. Both of us shared Andreas' views on the need for education to convey something of the 'big picture' of science and its connections to culture, society and philosophy; and for science education to foster a scientific outlook or orientation to natural and social questions. And we agreed that for all of this, teachers having knowledge of and interest in HPS was essential. We had of course, animated discussion about constructivism, a topic on which Peter and I had opposite opinions to Andreas, some of mine having been laid out in a critical review of his *Radical Constructivism* book. But such scholarly disagreement did not intrude on our friendship and warm email exchanges.

During my long period of editorship of *Science & Education* many authors benefited from Andreas' anonymous informed and diligent reviewing of their manuscripts, all of which were done on time and with no need for 'reminders'. And I was pleased to be able to publish three of Andreas' own papers in the journal:

Quale, A.: 2002, 'The Role of Metaphor in Scientific Epistemology: A Constructivist Perspective and Consequences for Science Education', *Science & Education* 11(5), 423-441.
Quale, A.: 2007, 'Radical Constructivism and the Sin of Relativism', *Science & Education* 16(3-5), 231-266.
Quale, A.: 2011, 'On the Role of Mathematics in Physics', *Science & Education* 20(7-8), 609-624.

## # Recent HPS&ST -Related Research Articles

Abd-El-Khalick, F. et al. (2016) A longitudinal analysis of the extent and manner of representations of nature of science in U.S. high school biology and physics textbooks. *Journal of Research in Science Teaching*, 1-39. doi: 10.1002/tea.21339 online first.

Arteaga, J. S. (2016). Biological Discourses on Human Races and Scientific Racism in Brazil (1832–1911). *Journal of the History of Biology*, 1-48. doi: 10.1007/s10739-016-9445-8

Cheong, Y. W. (2016). An Analysis of the Ontological Causal Relation in Physics and Its Educational Implications. *Science & Education*, 1-18. doi: 10.1007/s11191-016-9835-5 online first

Hamlin, C. (2016) The Pedagogical Roots of the History of Science: Revisiting the Vision of James Bryant Conant. *Isis, 107*(2), 282-308. doi: 10.1086/687217

Myers, J. Y., Abd-El-Khalick, F. (2016). "A ton of faith in science!" nature and role of assumptions in, and ideas about, science and epistemology generated upon watching a sci-fi film. *Journal of Research in Science Teaching*, 1-29. doi: 10.1002/tea.21324 online first

Pérez, E. Valls, B. P. (2016) Bohr and Ehrenfest: transformations and correspondences in the early 1920s. *The European Physical Journal H*, *41*(2), 93-136.

Špelda, Daniel (2016). Veritas filia temporis: The origins of the idea of scientific progress. *Annals of Science*, 1-17. doi: 10.1080/00033790.2016.1178804 Online first.

Zudini, V., Zuccheri, L. (2016). The Contribution of Ernst Mach to Embodied Cognition and Mathematics Education. *Science & Education*, 1-19. doi: 10.1007/s11191-016-9833-7 online first

Walls, L. (2016). Awakening a dialogue: A critical race theory analysis of U.S. nature of science research from 1967 to 2013. *Journal of Research in Science Teaching, 1-25.* doi: 10.1002/tea.21266 online first.

## # Recent HPS&ST Related Books

Banks, Erik (2016). *The Realistic Empiricism of Mach, James, and Russel: Neutral Monism Reconceived*. Cambridge, MA: Cambridge University Press

> "In the early twentieth century, Ernst Mach, William James, and Bertrand Russell founded a philosophical and scientific movement known as 'neutral monism', based on the view that minds and physical objects are constructed out of elements or events which are neither mental nor physical, but neutral between the two. This movement offers a unified scientific outlook which includes sensations in human experience and events in the world of physics under one roof. In this book Erik C. Banks discusses this important movement as a whole for the first time. He explores the ways in which the three philosophers can be connected, and applies their ideas to contemporary problems in the philosophy of mind and the philosophy of science - in particular the relation of sensations to brain processes, and the problem of constructing extended bodies in space and time from particular events and causal relations." (From the Publisher)
> More information at: http://tinyurl.com/ztfx3f3

Conniff, Richard (2016). *House of Lost Worlds: Dinosaurs, Dynasties, and the Story of Life on Earth*. New Heaven, CT: Yale University Press.

"This fascinating book tells the story of how one museum changed ideas about dinosaurs, dynasties, and even the story of life on earth. The Yale Peabody Museum of Natural History, now celebrating its 150th anniversary, has remade the way we see the world. Delving into the museum's storied and colorful past, award-winning author Richard Conniff introduces a cast of bold explorers, roughneck bone hunters, and visionary scientists. Some became famous for wresting Brontosaurus, Triceratops, and other dinosaurs from the earth, others pioneered the introduction of science education in North America, and still others rediscovered the long-buried glory of Machu Picchu.
In this lively tale of events, achievements, and scandals from throughout the museum's history. Readers will encounter renowned paleontologist O. C. Marsh who engaged in ferocious combat with his "Bone Wars" rival Edward Drinker Cope, as well as dozens of other intriguing characters. Nearly 100 color images portray important figures in the Peabody's history and special objects from the museum's 13-million-item collections. For anyone with an interest in exploring, understanding, and protecting the natural world, this book will deliver abundant delights." (From the Publisher)

More information at: http://yalebooks.com/book/9780300211634/house-lost-worlds

Gillett, Carl (2016). *Reduction and Emergence in Science and Philosophy*. Cambridge, MA: Cambridge University Press.

"Grand debates over reduction and emergence are playing out across the sciences, but these debates have reached a stalemate, with both sides declaring victory on empirical grounds. In this book, Carl Gillett provides new theoretical frameworks with which to understand these debates, illuminating both the novel positions of scientific reductionists and emergentists and the recent empirical advances that drive these new views. Gillett also highlights the flaws in existing philosophical frameworks and reorients the discussion to reflect the new scientific advances and issues, including the nature of 'parts' and 'wholes', the character of aggregation, and thus the continuity of nature itself. Most importantly, Gillett shows how disputes about concrete scientific cases are empirically resolvable and hence how we can break the scientific stalemate. Including a detailed glossary of key terms, this volume will be valuable for researchers and advanced students of the philosophy of science and metaphysics, and scientific researchers working in the area." (From the publisher)

More information at: http://tinyurl.com/gm9ropo

Gillispie, Charles Coulston (2016). *The Edge of Objectivity: An Essay in the History of Scientific Ideas.* Princeton. NJ: Princeton University Press (New Edition with a new introduction by Theodore M. Porter).

"Originally published in 1960, The Edge of Objectivity helped to establish the history of science as a full-fledged academic discipline. In the mid-1950s, a young professor at Princeton named Charles Gillispie began teaching Humanities 304, one of the first undergraduate courses offered anywhere in the world on the history of science. From Galileo's analysis of motion to theories of evolution and relativity, Gillispie introduces key concepts, individuals, and themes. The Edge of Objectivity arose out of this course.
It must have been a lively class. The Edge of Objectivity is pointed, opinionated, and selective. Even at six hundred pages, the book is, as the title suggests, an essay. Gillispie is unafraid to rate Mendel higher than Darwin, Maxwell above Faraday. Full of wry turns of phrase, the book effectively captures people and places. And throughout the book, Gillispie pushes an argument. He views science as the progressive development of more objective, detached, mathematical ways of viewing the world, and he orchestrates his characters and ideas around this theme.

This edition of Charles Coulston Gillispie's landmark book introduces a new generation of readers to his provocative and enlightening account of the advancement of scientific thought over the course of four centuries. Since the original publication of The Edge of Objectivity, historians of science have focused increasingly on the social context of science rather than its internal dynamics, and they have frequently viewed science more as a threatening instance of power than as an accumulation of knowledge. Nevertheless, Gillispie's book remains a sophisticated, fast-moving, idiosyncratic account of the development of scientific ideas over four hundred years, by one of the founding intellects in the history of science.
Featuring a new foreword by Theodore Porter, who places the work in its intellectual context and the development of the field, this edition of The Edge of Objectivity is a monumental work by one of the founding intellects of the history of science" (From the Publisher)

More information at: http://press.princeton.edu/titles/10869.html

Hentschel, Klaus (2014). *Visual Cultures of Science and Technology - A Comparative History*. London: Oxford University Press

"First effort at a historiographic synthesis of decades worth of micro-studies on visual science cultures. Comparative approach - discerns recurrent patterns of emergence, development, change and transfer. In-depth discussion of selected examples provides deep insight into scientific, technical and medical practices from the early-modern period to the late 20th century. Profusely illustrated with examples of all kinds of visual representations in science, technology and medicine, ranging from technical drawings to graphs, early MRI images and PET" (From the publisher)

More information at: http://tinyurl.com/go2uv75

Hentschel, Klaus, Zhu, Ning Yan (2016). *Gustav Robert Kirchhoff's Treatise "On the Theory of Light Rays" (1882) English Translation, Analysis and Commentary*. London: World Scientific.

"The 1882 paper by the mathematical physicist Gustav Robert Kirchhoff on diffraction theory is still being discussed to this day, but has never been translated into English. This volume contains the first English translation of the Kirchhoff treatise, as well as background and commentary on it. Included are a biographical introduction to Kirchhoff's life, an analysis of the reception to Kirchhoff's paper through the ages, a discussion on why Kirchhoff's theory manages to produce accurate predictions in spite of being "wrong", and views on the theory as well as its predecessor and subsequent developments. This anthology will make all English-speaking scientists, engineers, historians, and interested laymen aware of the great fecundity of Kirchhoff's thought and historical context." (From the Publishers)

More information at: http://www.worldscientific.com/worldscibooks/10.1142/10211

Hentschel, Klaus, Webel, Josef (eds.) (2016). *Geschichte und Praxis der Materialforschung an den Beispielen Materialprüfung und Materialprüfungsanstalt Stuttgart, Supraleitung, Flüssigkristelle und Bildschirmtechnik*. Diepholz: GNT-Verlag

"primary and secondary texts for a very successful teaching project on material sciences at the University of Stuttgart, designed for students from natural and engineering sciences" (Klaus Hentschel)

Table of contents and introduction: http://tinyurl.com/z54pwfg

More information at: http://tinyurl.com/go6xv24

Horst, Steven (2016). *Cognitive Pluralism*. Cambridge, MA: The MIT Press

"Philosophers have traditionally assumed that the basic units of knowledge and understanding are concepts, beliefs, and argumentative inferences. In Cognitive Pluralism, Steven Horst proposes that another sort of unit—a mental model of a content domain—is the fundamental unit of understanding. He argues that understanding comes not in word-sized concepts, sentence-sized beliefs, or argument-sized reasoning but in the form of idealized models and in domain-sized chunks. He argues further that this idea of "cognitive pluralism"—the claim that we understand the world through many such models of a variety of content domains—sheds light on a number of problems in philosophy.
Horst first presents the "standard view" of cognitive architecture assumed in mainstream epistemology, semantics, truth theory, and theory of reasoning. He then explains the notion of a mental model as an internal surrogate that mirrors features of its target domain, and puts it in the context of ideas in psychology, philosophy of science, artificial intelligence, and theoretical cognitive science. Finally, he argues that the cognitive pluralist view not only helps to explain puzzling disunities of knowledge but also raises doubts about the feasibility of attempts to "unify" the sciences; presents a model-based account of intuitive judgments; and contends that cognitive pluralism favors a reliabilist epistemology and a "molecularist" semantics. Horst suggests that cognitive pluralism allows us to view rival epistemological and semantic theories not as direct competitors but as complementary accounts, each an idealized model of different dimensions of evaluation." (From the Publisher)

More information at: https://mitpress.mit.edu/books/cognitive-pluralism

Loughridge, Deirdre (2016). *Haydn's Sunrise, Beethoven's Shadow: Audiovisual Culture and the Emergence of Musical Romanticism*. Chicago, IL: The University of Chicago Press

"The years between roughly 1760 and 1810, a period stretching from the rise of Joseph Haydn's career to the height of Ludwig van Beethoven's, are often viewed as a golden age for musical culture, when audiences started to revel in the sounds of the concert hall. But the latter half of the eighteenth century also saw proliferating optical technologies—including magnifying instruments, magic lanterns, peepshows, and shadow-plays—that offered new performance tools, fostered musical innovation, and shaped the very idea of "pure" music. Haydn's Sunrise, Beethoven's Shadow is a fascinating exploration of the early romantic blending of sight and sound as encountered in popular science, street entertainments, opera, and music criticism.
Deirdre Loughridge reveals that allusions in musical writings to optical technologies reflect their spread from fairgrounds and laboratories into public consciousness and a range of discourses, including that of music. She demonstrates how concrete points of intersection—composers' treatments of telescopes and peepshows in opera, for instance, or a shadow-play performance of a ballad—could then fuel new modes of listening that aimed to extend the senses. An illuminating look at romantic musical practices and aesthetics, this book yields surprising relations between the past and present and offers insight into our own contemporary audiovisual culture." (From the Publisher)

More information at: http://tinyurl.com/gnryph6

Mawdsley, Stephen E. (2016). *Selling Science: Polio and the Promise of Gamma Globulin.* New Brunswick., NJ: Rutgers University Press.

"Today, when many parents seem reluctant to have their children vaccinated, even with long proven medications, the Salk vaccine trial, which enrolled millions of healthy children to test an unproven medical intervention, seems nothing short of astonishing. In Selling Science, medical historian Stephen E. Mawdsley recounts the untold story of the first large clinical trial to control polio using healthy children—55,000 healthy children—revealing how this long-forgotten incident cleared the path for Salk's later trial." (From the Publisher)

"Mawdsley uses the enthusiasm for Gamma Globulin and the ultimate clinical trial as a vehicle to explore more broadly mid-twentieth-century attitudes towards risk, scientific transparency, double-blind clinical trials, and the power of fundraising and marketing over science. Selling Science is well-written, clearly argued, and extensively researched." (by Daniel J. Wilson, Muhlenberg College )

"Mawdsley tells the riveting and forgotten history of a massive human experiment, conducted in the hopes of preventing polio. It provides a sober reminder of the limits of research ethics and scientific precaution in the face of a dread disease."(by Angela Creager, Princeton University)

More information at: http://tinyurl.com/jgssh52

Richards, Robert J., Daston, Lorraine (2016). *Kuhn's Structure of Scientific Revolutions at Fifty: Reflections on a Science Classic*. Chicago, IL: Chicago University Press.

"Thomas S. Kuhn's The Structure of Scientific Revolutions was a watershed event when it was published in 1962, upending the previous understanding of science as a slow, logical accumulation of facts and introducing, with the concept of the "paradigm shift," social and psychological considerations into the heart of the scientific process. More than fifty years after its publication, Kuhn's work continues to influence thinkers in a wide range of fields, including scientists, historians, and sociologists. It is clear that The Structure of Scientific Revolutions itself marks no less of a paradigm shift than those it describes.
In Kuhn's "Structure of Scientific Revolutions" at Fifty, leading social scientists and philosophers explore the origins of Kuhn's masterwork and its legacy fifty years on. These essays exhume important historical context for Kuhn's work, critically analyzing its foundations in twentieth-century science, politics, and Kuhn's own intellectual biography: his experiences as a physics graduate student, his close relationship with psychologists before and after the publication of Structure, and the Cold War framework of terms such as "world view" and "paradigm." (From the Publisher)

More information at: http://tinyurl.com/hd8dxo8

Stigler, Stephen M. (2016). *The Seven Pillars of Statistical Wisdom*. Cambridge, MA: Harvard University Press.

"What gives statistics its unity as a science? Stephen Stigler sets forth the seven foundational ideas of statistics—a scientific discipline related to but distinct from mathematics and computer science.
Even the most basic idea—aggregation, exemplified by averaging—is counterintuitive. It allows one to gain information by discarding information, namely, the individuality of the observations. Stigler's second pillar, information measurement, challenges the importance of "big data" by noting that observations are not all equally important: the amount of information in a data set is often proportional to only the square root of the number of observations, not the absolute number. The third idea is likelihood, the calibration of inferences with the use of probability. Intercomparison is the principle that statistical comparisons do not need to be made with respect to an external standard. The fifth pillar is

regression, both a paradox (tall parents on average produce shorter children; tall children on average have shorter parents) and the basis of inference, including Bayesian inference and causal reasoning. The sixth concept captures the importance of experimental design—for example, by recognizing the gains to be had from a combinatorial approach with rigorous randomization. The seventh idea is the residual: the notion that a complicated phenomenon can be simplified by subtracting the effect of known causes, leaving a residual phenomenon that can be explained more easily.
The Seven Pillars of Statistical Wisdom presents an original, unified account of statistical science that will fascinate the interested layperson and engage the professional statistician." (From the Publisher)

More information at: http://www.hup.harvard.edu/catalog.php?isbn=9780674088917

## # Coming HPS&ST-Related Conferences

July 16-18, 2016, 18th UK-European Foundations of Physics Conference
Details at: http://www.lse.ac.uk/philosophy/blog/2015/10/01/foundations-2016/
July 18-22, 2016, History and Pedagogy of Mathematics, Montpellier, France
Details at: http://hpm2016.sciencesconf.org/resource/page/id/2
July 26-30, 2016, 43rd ICOHTEC meeting: Technology, Innovation, and Sustainability: Historical and Contemporary Narratives. Porto, Portugal
Details at: http://www.icohtec.org/annual-meeting-2016-cfp.html
August 1-4, International Society for the Philosophy of Chemistry, Conference, Boca Raton, Florida, USA
Details at: https://sites.google.com/site/ispc2016/program
August 10-13, 2016, Annual Meeting of the Cognitive Science Society, Philadelphia, MA, USA
Details at: http://cognitivesciencesociety.org/conference2016/index.html
August 22-25, 2016, 1st European IHPST Regional Conference, Flensburg, Germany
Details at:
http://ihpst.net/content.aspx?page_id=22&club_id=360747&module_id=189361
August 26-28, 2016, International Conference of East-Asian Association for Science Education, Tokyo, Japan.
Details at: http://ease2016tokyo.jp/
September 1-2, 2016, Teaching & Learning in Early Modern England: Skills & Knowledge in Practice, University of Cambridge, Cambridge, UK.
September 5-7, 2016, European Physical Society, *2nd International Conference on the History of Physics*, Pöllau Castle, Pöllau, Austria.
Abstract submission deadline: 28 April 2016
Details at: **www.historyofphysics.org**
September 16-17, 2016, Mathematical Biography: A MacTutor Celebration, St Andrews University, Scotland
Details at: **http://www.mcs.st-and.ac.uk/mathbiog/**
September 19-23, University of Copenhagen, Graduate HPS&ST course
Details at: www.ind.ku.dk/hpscourse
And from: Ricardo Karam (ricardo.karam@ind.ku.dk).
September 22-23, 2016, Philosophy of Scientific Experimentation 5(PSX5), University of Belgrade, Belgrade, Serbia
More information at: http://philsci.org/images/docs/flyers/Flyer.pdf

September 22-24, 2016, The 7th International Conference of the European Society for the History of Science (ESHS), Prague
Details at: http://www.7eshs2016.cz
October 3-7, 2016, XII International Ontology Congress, San Sebastian, Spain
Submissions by July 15. Details at: www.ontologia.net
October 26-28, 2016, Conference on science and democracy, Pisa, Italy
Details at: http://iasc.me/2016-conference/
October 26-28, 2016, Nature of Science Symposium, Limerick, Ireland
Details at: LimerickNOS2016@gmail.com
October 28, 2016, Science and Religion in Education Conference, Oxford, UK
Details at: http://www.faradayschools.com/events/conference/
October 28-39, 2016, 32nd Boulder Conference on the History and Philosophy of Science
"Gravity: Its History and Philosophy"
Deadline for Submission: August 1, 2016.
Contact: Allan Franklin Allan.Franklin@colorado.edu
November 5, 2016, Leibniz: Legacy and Impact, Manchester Metropolitan University, UK
Abstract deadline: February 28.
Details at: http://leibniz-translations.com/leibniz2016.htm
November 14-15, Symposium: The Dilemmas of Upright Scientists, Israel, Tel-Aviv University
Inquiries to: Yuliana Litov, ylitov@tauex.tau.ac.il
November 27-27, 1st Inter-regional Research Conference on Science and Mathematics Education: Interfacing Arab and European Science and Mathematics Education Research, American University of Beirut, Beirut, Lebanon
Details at: http://www.aub.edu.lb/fas/smec/Pages/1stInter-RegionalConference.aspx
December, 14-16, 2016, Third Lisbon International Conference on Philosophy of Science: Contemporary Issues, Portugal, Lisbon University
Details at: http://lisbonicpos.campus.ciencias.ulisboa.pt/
December, 15-18, 2016, 3rd Asian HPS&ST Conference, Pusan National University, South Korea.
Inquiries to: Hwe-Ae Seo, haseo@pusan.ac.kr
January 5-8, 2017, 131th Annual Meeting of the American Historical Association, Denver, Colorado, USA.
Details at: **http://historians.org/annual-meeting/future-meetings**
February 16-20, 2017, AAAS Annual Meeting, Boston, USA
Details at: **https://aaas.confex.com/aaas/2017/cfp.cgi**
March 24-25, 2017, Biodiversity and its Histories, University of Cambridge
Deadline for submission: 1 September 2016
Details at: http://philsci.org/images/docs/flyers/CFP.pdf
July 4-7, 2017, 14th IHPST International Biennial Conference, Ankara, Turkey.
Conference Chairs Mehmet Fatih Taşar [**mftasar@gazi.edu.tr**] & Gultekin Cakmakci [**cakmakci@hacettepe.edu.tr**]
Details at: **http://ihpst.net/**
July 16-21, 2017, International Society for the History, Philosophy, and Social Studies of Biology (ISHPSSB) 2017 Meeting, São Paulo, Brazil.
Details at: **http://www.ishpssb.org/announcements/148-ishpssb-2017-meeting**
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**
September 7-10, 2017, 8th Tensions of Europe Conference Athens, Greece.

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