

HPS&ST Note

August 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.

Chairs: 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/>

Gregory Radick, University of Leeds

I am a historian and philosopher of science interested in the life and human sciences. My main area of research is the history of biology and the human sciences from the eighteenth century to the present, with particular emphases on Darwinism, genetics and animal behaviour. I also have interests in the philosophy of



science (especially biology), the philosophy of history (especially counterfactuals), the interdisciplinary study of intellectual property, effective teaching of biology and the popularisation of science.

See: http://www.leeds.ac.uk/arts/profile/20040/1069/gregory_radick

Michael R. Matthews University of New South Wales. He is Foundation President of the Inter-Divisional Teaching Commission of the Division of History of Science and Technology (DHST) and the Division of Logic, Methodology and Philosophy of Science (DLMPS). He was Foundation President of the International History, Philosophy and Science Teaching Group and Foundation Editor of the journal *Science & Education*. He publishes in philosophy of education, science education and HPS. In 2010 he received the US History of Science Society 'Joseph H. Hazen Education Prize' in recognition of 'outstanding contributions to education in the History of Science'.



See: <https://education.arts.unsw.edu.au/about-us/people/michael-matthews/>

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

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

Conference website: <http://asiahpsst2016.bolog.com/welcome.php>

1st European IHPST Regional Conference, August 22-25, 2016, Europa-Universität Flensburg, Germany

The 1st European IHPST Regional Conference takes place August 22-25, 2016, at the Europa-Universität Flensburg, Germany. More than 80 participants from 22 countries will attend three plenary lectures, 22 concurrent sessions, and a poster session. Plenary speakers are Johannes Grebe-Ellis (Wuppertal), Hanne Andersen (Copenhagen), and Iwan Rhyss Morus (Aberystwyth). The conference is organized in cooperation of the section of physics, its didactics and its history at the Europa-Universität Flensburg and the Institut for Matematik og Datalogi at the Syddansk Univeristy.

This is the first IHPST Regional Conference in Europe, following the successful Regional Conferences that took place in Latin America (2010, 2012, and 2014) and Asia (2012 and 2014). The conference theme is "*Science as Culture in the European Context: Historical, Philosophical, and Educational Perspectives*", to which the 77 presentations will contribute from historical, philosophical, and educational perspectives.

More information and programme, see:

http://ihpst.clubexpress.com/content.aspx?page_id=22&club_id=360747&module_id=189361.

University of Copenhagen Professorial Appointment in HPS and Science Education

The University of Copenhagen has made one of the first appointments in the world of a professor with joint responsibility for teaching and research in both History and Philosophy of Science and Science Education. The Department of Science Education belongs to the Faculty of Science and contributes to the education of science students whether they aim for careers in science education, research in science, or science related jobs in the private or public sector. (See: [Department of Science Education](#), [University of Copenhagen](#))

Denmark has a strong tradition for cultivating links between history and philosophy of science and science education, and between philosophy and higher education in general. Hence, all Danish university programs must contain a mandatory course in philosophy of science that serves to give students a broader perspective on their own discipline, its development, and its application. Further, most science courses at the high school level are required to address how the individual discipline relates to historical, cultural and technological developments. In accordance with this tradition, the Department of Science Education not only offers courses in science and mathematics education, but also courses in history and philosophy of science for science students at the BSc, MSc and PhD level.

The Department expects to expand its activities in history and philosophy of science and has therefore hired Henrik Kragh Sørensen to act as chair of the [research group in science studies](#) and to create and maintain a lively, international research environment for the group's researchers as the group expands.

Henrik Kragh Sørensen comes from a position as Associate Professor at Aarhus University, where he, among other things, has developed and taught courses in philosophy of mathematics and philosophy of computer science for students in these programs. He has also developed and run courses in history of mathematics for future mathematics teachers, and he has participated in the development of courses in research practice and responsible conduct of research for graduate students in science.



Henrik's research has focused on transitions in mathematics during the 19th century, the internationalisation of Scandinavian mathematics, and the philosophical study of experimental practices in mathematics.

He has worked with the Ministry of Education and groups of high school teachers in supporting new developments of Danish secondary education, such as interdisciplinary student projects that combine mathematics with history. In collaboration with Kristian Danielsen, a high school teacher in mathematics and classic studies, he has created a series of new materials for use in teaching source-centred history of mathematics in upper-secondary mathematics education, which are being published by the Danish Association of Mathematics Teachers.

Stressing the close ties between history and philosophy of science, science education, and current research in the sciences, research in the group will especially focus on integrated history and philosophy of science, philosophy of science in practice, socially and educationally relevant philosophy and history of science, and similar recent developments in the fields of history and philosophy of science that stress the relevance of history and philosophy of science to the sciences and exhibit an empirical inclination to philosophical investigations.

The group will also work on developing new formats for teaching philosophy of science to science students and seeks a leading role in furthering international exchange of experiences with teaching history and philosophy of science to science students at the college and university level. As part of this initiative the Department will host an international repository for teaching material in philosophy of science (launch expected in September; details will follow in a later newsletter).

The Department hopes that the group will come to serve as a center for collaboration between historians and philosophers of science, science educators, and practicing scientists. Scholars interested in short or long term visits, for example during a sabbatical, are encouraged to contact Henrik Kragh Sørensen or members of the group.

Education Sessions at Philosophy of Science Association Conference, Atlanta, November 3-5.

Taking the History and Philosophy of Science to School

(Sponsored by the International History, Philosophy and Science Teaching)

Zoubeida R. Dagher, *History and Philosophy of Science and Science Education: A Symbiotic Relationship*

Michael Clough, *The Value of History and Philosophy of Science for Science Teacher Education*

Pierre Boulos, *Newton, Diagrammatic Reasoning, and Inquiry*

Philosophy of Science and the Context of Science Pedagogy: Historical and Systematic Lessons from the USA in the Past Hundred Years

(Sponsored by the International Society for the History of Philosophy of Science)

Alan Richardson, Organizer and Chair

Andrew Jewett, *Theorizing Science and Pedagogy in the Pre-Professional Era*

Eun Ah Lee & Matthew J. Brown, *Connecting Inquiry and Values in Science Education: An Approach based on John Dewey's Perspective*
Adam Shapiro, *Demarcation, Law, and the Schools: The Science/non-Science Boundary since the Dover Trial*

Opinion Page: Why Should Physicists Study History?

Matthew Stanley, New York University

Abstract: Some things about physics aren't well covered in a physics education. Those are the messy, rough edges that make everything difficult: dealing with people, singly or in groups; misunderstandings; rivals and even allies who won't fall in line. Physicists often do not see such issues as contributing to science itself. But social interactions really do influence what scientists produce. Often physicists learn that lesson the hard way. Instead, they could equip themselves for the actual collaborative world, not the idealized solitary one that has never existed. History can help. An entire academic discipline—history of science—studies the rough edges.

We historians of science see ourselves as illustrating the power of stories. How a community tells its history changes the way it thinks about itself. A historical perspective on science can help physicists understand what is going on when they practice their craft, and it provides numerous tools that are useful for physicists themselves. History of science exposes scientists to new ways of thinking and forces them to re-examine what is already known. Such intellectual flexibility is essential for any discipline, but it is particularly important for fields as influential and authoritative as physics and other sciences. How do we know what we know, and how might it be otherwise?

Full text in *Physics Today* (2016, vol.69, no.7):

<http://scitation.aip.org/content/aip/magazine/physicstoday/article/69/7/10.1063/PT.3.3235>

Matthew Stanley is professor of the history of science at New York University's Gallatin School. He holds degrees in astronomy, religion, physics, and the history of science and is interested in the connections between science and the wider culture. He is the author of *Practical Mystic: Religion, Science, and A. S. Eddington* (Chicago 2007), which examines how scientists reconcile their religious beliefs and professional lives, and *Huxley's Church and Maxwell's Demon* (Chicago 2014), which explores how science changed from its historical theistic foundations to its modern naturalistic ones. His current project is a history of scientific predictions of the end of the world.

<https://nyu.academia.edu/MattStanley>



Previous Opinion Pieces:

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

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

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-juhps.com/>).

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

Conference: “Interdisciplinary Futures: *Open the Social Sciences 20 years later*”, 19-20 January 2017, Lisbon, Portugal

Conference on the occasion of the 20th anniversary of *Open the Social Sciences* (1996)
Organised by INTREPID <www.intrepid-cost.eu> and TINT <www.helsinki.fi/tint> with support from the Calouste Gulbenkian Foundation <<https://gulbenkian.pt/en/>>

Keynote speakers:

Immanuel Wallerstein on "Forty Years Later: Are the Social Sciences More Open?"
Björn Wittrock on "Social Sciences in Their Contexts: Five Transformative Periods"
Felicity Callard on “The social sciences, life sciences and humanities: shifting plate tectonics”

Background

The slim but remarkable volume (*Open the Social Sciences: Report of the Gulbenkian Commission on the Restructuring of the Social Sciences*) was published in 1996. The Calouste Gulbenkian Foundation had established, in 1993, the multidisciplinary Gulbenkian Commission on the Restructuring of the Social Sciences. After three years of work, led by Immanuel Wallerstein, the Commission published its report (with Stanford University Press). The Report analysed the situation in the social sciences, its origins, and possible futures, making recommendations for improvements, largely based on ideals of openness and interdisciplinarity. These deals have gained ground more broadly since then in the academia. The report attracted attention and incited commentary and some debate within the social sciences.

This year, 20 years have passed, and it is now an opportune time to revisit the themes and suggestions of the Report. Many of them are still very timely, awaiting further examination and debate. On the other hand, some things have changed in the social sciences and their various boundary conditions. It will be important to update the diagnoses and proposals accordingly. Reconsidering the Report and its messages collectively at a conference will provide an opportunity to address the challenges in a way that is respectful for historical continuity and generative of novel and updated insights.

Submission of Abstracts

In addition to submitting an abstract of a single paper, you are also welcome to propose a whole session of 3 (or 4) papers (sessions are envisaged to be 90 minutes).

Abstracts of single papers should be 500-600 words. Proposals for full sessions should include a general abstract of 300-400 words describing the theme of the session plus separate abstracts of each paper of 300-400 words.

Please submit your abstracts through EasyChair by: **15 September 20**

<https://ifoss20.wordpress.com/abstract/>

Conference web site: <https://ifoss20.wordpress.com/>

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.sbh.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**.

Vale: Gustavo Bueno in memoriam (1924-2016)

On August 7 the Spanish philosopher Gustavo Bueno passed away at the age of 91 in his house in Niembro in the asturian region of Spain. Even at such a respectable age, there is no doubt that this loss will be profoundly mourned by his family and friends, especially taking into account the unfortunate fact that Bueno's death came only one day after that of his beloved wife, Carmen Sánchez.



A coincidence that, tragic as it undeniably is for all who loved Professor Bueno and his spouse, should certainly remind us all now of how deeply embedded the lives of a couple may be at times and the moving extent to which such an interlacement can be made evident when those lives reach their unavoidable end.

His death however, will be also felt inevitably by the various generations of philosophers and scholars who, both in Spain and the Americas, benefited from his magistry over the last five decades. What we owe to Bueno is impossible to pay, or even to determine with any precisión, and so it would be pretentious on my part to try to compensate with this obituary a debt which is simply enormous. This brief note nevertheless, represents an attempt to recognize the enormity of the debt as well as a tribute to the very many accomplishments Bueno undertook during his long and productive career .

Born in 1924 in the medieval town of Santo Domingo de la Calzada in La Rioja where he would be buried almost 92 years later, Gustavo Bueno studied Philosophy in Zaragoza and earned a PhD in Madrid with a thesis on Philosophy of Religion. His initial research interests as a promising young scholar with the Consejo Superior de Investigaciones Científicas (CSIC) in Madrid were in Symbolic Logic. In Spain in the 1940s this was a most novel area of expertise, and it captured the interest of many. Gustavo Bueno would never shy entirely away from this starting point of his intellectual development as the common recourse to logic in his later publications demonstrates.

Soon however Professor Bueno found a variety of other avenues to explore with equal academic rigour within different arenas in Philosophy. In the years to come during the 1940s and the 1950s, Bueno wrote extensively about core questions in epistemology and phenomenology as well as aesthetics and the philosophy of the arts while at the same time studying in systematic detail the intricacies of philosophies so apart from each other as those of Saint Thomas Aquinas and Karl Marx. In the midst of Francoism the majority thought that Bueno was a marxist. But one of a very peculiar class, namely: the sort of a Marxist who never refuses to acknowledge whatever philosophical import conveyed by other lines of thought, even those irremediably idealistic . Not, of course, that *everyone is right (and hence anything goes and probably nothing is worth a damn thing)* as many social-constructivist and proponents of the postmodernity would have it. On the contrary , the moral here is all about *dialectics* (in the classical Socratic and Platonic sense of the term): it is simply the case that

trying to prove your views right is something that cannot be done without taking seriously what others say, even if your goal is to refute their position with cogent arguments

From the outset of the 1960s, Bueno moved to the city of Oviedo in the north-west part of Spain taking a professorship in Philosophy at the local university. It is in such geographical milieu that Gustavo Bueno put forwards most of his contributions to virtually all the various areas of Philosophy; and additionally it is also there that he put together a group of scholars and professors who had great impact in recent history of Spanish philosophy.



In a period reluctant to recognizing the value of tradition in the history of thought, Bueno's philosophy vindicates the classical notion of a philosophical system while addressing with indefatigable subtlety a stunningly ample array of issues given rise to by the scientific disciplines, the technologies, the politics and the religious developments of the day. Gustavo Bueno in the 1970s, 80s and 90s, as well as the beginning of the 21st century constructed in stages a coherent philosophical system. It is a system which Bueno named *Philosophical Materialism* and includes an ontology, a philosophy of science, an ethical doctrine, an anthropological theory as well as a theory of the state and a theory of religion. All those aspects alongside with many other perhaps apparently "minor" issues (ranging from the idea of sport to the philosophy of television or music) were brought to Bueno's insatiable attention to be analyzed with endless vigour in an infinity of book and papers.

His books include: *Ensayos materialistas* (1972), *La metafísica presocrática* (1974), *Ensayo sobre las categorías de la economía política* (1972), *El animal divino. Ensayo materialista de filosofía de la religión* (1986), *Primer ensayo sobre las categorías de las ciencias políticas* (1991), *El mito de la cultura* (1997), *España frente a Europa* (1999), *Televisión. Apariencia y verdad* (2000), *El mito de la izquierda* (2003) and *El ego trascendental* (2016) - to name just a few of the most salient ones.

Perhaps Gustavo Bueno's contribution to the Philosophy of Science represents one of the most interesting aspects within his philosophical system for the readers of the HPS&ST Note. Published in the form of five volumes (out of a monumental project of 15 which will now not be completed), Bueno's *Theory of Categorical Closure* takes roots in the systematic discussion of the ideas of a plurality of other philosophers (from Aristotle to Feyerabend) to sustain that far from reducing itself to networks of propositions to be empirically contrasted, the true nature of scientific fields and practices lays out the construction of essential parts of our world (from objects to landscapes) which clearly would have never come to being without the development of science and technology. In this respect, and much as Ian Hacking has classically emphasized in his celebrated 1983 book, science is about *intervening in the reality outside* at least every bit as much as it is about *representing it*.

This is a point Bueno had independently entertained before the outset of the new experimentalist conception of science in the English speaking world. It is also one that should not go unnoticed by those working in the area of science education as it is way too easy

(unfortunately) to leave the students in the classroom with the misleading impression that there is no more to science than propositions, theories and models to be assessed against the background of the evidence available at hand. This view implies a drastic oversimplification of science and a distorted account of what scientists really do. As Bueno sustains with so much argument and historical erudition, scientific fields are constructions and involve physical operations with tools, instruments and technologies.

This is not to admit however, as more than one constructivist (and undoubtedly many a deconstructivist *à la Derrida*) would be for sure tempted to conclude in too quick a manner, that there is no specific difference between a scientific theory and any other socially institutionalized practise. It can be granted that science is a social construction, but such a contention is conceptually flimsy and almost sounds tautological (for indeed *everything* that people do within a social and political milieu is a social construction). What really distinguishes science from other (admittedly social) kinds of construction is the fact that the operations involved give rise to parts of our reality (from nuclear energy to electricity, from anti-biotics to GPS or chemical weapons) that for better or for worse we all need to live with. There is no denial that science meets the reality of our world outside and this is exactly where social relativism goes astray.

After all, a philosophically informed scientific education need not jump from the debunking of an idealistic view of science to the sort of relativism that ignores the connexion between the ideas of science and truth. That would be too simple a dichotomy (albeit perhaps a tempting one somehow). Gustavo Bueno's *Theory of Categorical Closure* constitutes one of the most ambitious attempts to explain why this is so.

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Obituaries for scholars in the HPS&ST field that have passed on are most welcome. It is important to keep a collective memory of people and their contributions. This is especially important for scholars outside the Anglo-American community whose contributions and passing might not be well known in the Anglo-American community.

Previous Obituaries can be read at: <http://www.idtc-ihps.com/obituaries.html>

*Transversal : International Journal for the Historiography of Science*

Transversal: International Journal for the Historiography of Science is a semi-annual online journal published by the Graduate Program in History of Federal University of Minas Gerais (UFMG), Brazil.

www.historiographyofscience.org

The journal promotes scholarly research in the historiography of science and chronicles its history and criticism. Although historiography of science is a sub-discipline of History, we construe this subject broadly to include analysis of the historiography of science produced by

history of science, philosophy of science and related disciplines. By focusing its analysis on the different historical, social and epistemological implications of science, historiography of science is a transversal knowledge with respect to the production of science, hence the name of this journal.

In order to accomplish its purpose the journal publishes research on historical, theoretical, conceptual and methodological aspects of the different themes, works and authors present in this tradition, as well as the new approaches in the recent historiography of science.

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Recent HPS&ST Research Articles

Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences (Vol.58, August 2016)

Special Issue: Replaying the Tape of Life: Evolution and Historical Explanation
Peter Harrison, Ian Hesketh (Eds.)

Machado, J., Braga, M. (2016). Can the History of Science Contribute to Modelling in Physics Teaching? The Case of Galilean Studies and Mario Bunge's Epistemology. *Science & Education*, 1-14. doi: 10.1007/s11191-016-9844-4 Online first.

Massimi, M. (2016). Three tales of scientific success. *Philosophy of Science*. doi: 10.1086/687861 online first

Ferreira, T. A. S., El-Hani, C. N., Silva-Filho, W. J. (2016). Knowledge, Belief, and Science Education: A Contribution from the Epistemology of Testimony. *Science & Education*, 1-20. doi: 10.1007/s11191-016-9834-6 online first.

Fox, C. W. (2016). The Newtonian Equivalence Principle: How the relativity of acceleration led Newton to the equivalence of inertial and gravitational mass. *Philosophy of Science*. doi: 10.1086/687935 online first

Saxena, A., Behari, A. Negotiating ethical issues in Biology: three case studies. *Review of Science, Mathematics and ICT Education*, 10(1), 39-64.

Smith, M. U., Siegel, H. (2016). On the Relationship Between Belief and Acceptance of Evolution as Goals of Evolution Education: Twelve Years Later. *Science & Education*, 25(5), 473-496. Doi: 10.1007/s11191-016-9836-4

Zollman, D. (2016). Oersted Lecture 2014: Physics education research and teaching modern Physics. *American Journal of Physics*, 84, 573-580. doi: 10.1119/1.4953824

Recent HPS&ST Books

Franssen, M., Vermaas, P.E., Kroes, P., & Meijers, A.W.M. (Eds.) (2016). *Philosophy of Technology after the Empirical Turn*. Dordrecht: Springer

“This volume features 16 essays on the philosophy of technology that discuss its identity, its position in philosophy in general, and the role of empirical studies in philosophical analyses of engineering ethics and engineering practices.

This volume is published about fifteen years after Peter Kroes and Anthonie Meijers published a collection of papers under the title *The empirical turn in the philosophy of technology*, in which they called for a reorientation toward the practice of engineering, and sketched the likely benefits for philosophy of technology of pursuing its major questions in an empirically informed way.

The essays in this volume fall apart in two different kinds. One kind follows up on *The empirical turn* discussion about what the philosophy of technology is all about. It continues the search for the identity of the philosophy of technology by asking what comes after the empirical turn. The other kind of essays follows the call for an empirical turn in the philosophy of technology by showing how it may be realized with regard to particular topics. Together these essays offer the reader an overview of the state of the art of an empirically informed philosophy of technology and of various views on the empirical turn as a stepping stone into the future of the philosophy of technology.” (From the Publisher)

More information at: <http://www.springer.com/gp/book/9783319337166#aboutBook>

Gelfert, Axel (2016). *How to Do Science with Models: A Philosophical Primer*. Dordrecht: Springer

“Taking scientific practice as its starting point, this book charts the complex territory of models used in science. It examines what scientific models are and what their function is. Reliance on models is pervasive in science, and scientists often need to construct models in order to explain or predict anything of interest at all. The diversity of kinds of models one finds in science – ranging from toy models and scale models to theoretical and mathematical models – has attracted attention not only from scientists, but also from philosophers, sociologists, and historians of science. This has given rise to a wide variety of case studies that look at the different uses to which models have been put in specific scientific contexts. By exploring current debates on the use and building of models via cutting-edge examples drawn from physics and biology, the book provides broad insight into the methodology of modelling in the natural sciences. It pairs specific arguments with introductory material relating to the ontology and the function of models, and provides some historical context to the debates as well as a sketch of general positions in the philosophy of scientific models in the process.”

More information at: <http://www.springer.com/gp/book/9783319279527#aboutBook>

Hasse, Dag Nikolaus (2016). *Success and Suppression: Arabic Sciences and Philosophy in the Renaissance*. Cambridge, MA: Harvard University Press

“It is often assumed that the Renaissance had little interest in Arabic sciences and philosophy, because humanist polemics from the period attacked Arabic learning and championed Greek civilization. Yet Hasse shows that Renaissance denials of Arabic influence emerged not because scholars of the time rejected that intellectual tradition altogether but because a small group of anti-Arab hard-liners strove to suppress its powerful and persuasive influence. The period witnessed a boom in new translations and multivolume editions of Arabic authors, and European philosophers and scientists incorporated—and often celebrated—Arabic thought in their work, especially in medicine, philosophy, and astrology. But the famous Arabic authorities were a prominent obstacle to the Renaissance project of renewing European academic culture through Greece and Rome, and radical reformers accused Arabic science of linguistic corruption, plagiarism, or irreligion. Hasse shows how a mixture of ideological and scientific motives led to the decline of some Arabic traditions in important areas of European culture, while others continued to flourish.” (From the publisher)

More information at: <http://www.hup.harvard.edu/catalog.php?isbn=9780674971585>

Ippoliti, Emiliano, Sterpetti, Fabio, Nickles, Thomas (Eds.) (2016). *Models and Inferences in Science*. Dordrecht: Springer

“The book answers long-standing questions on scientific modeling and inference across multiple perspectives and disciplines, including logic, mathematics, physics and medicine. The different chapters cover a variety of issues, such as the role models play in scientific practice; the way science shapes our concept of models; ways of modeling the pursuit of scientific knowledge; the relationship between our concept of models and our concept of science. The book also discusses models and scientific explanations; models in the semantic view of theories; the applicability of mathematical models to the real world and their effectiveness; the links between models and inferences; and models as a means for acquiring new knowledge. It analyzes different examples of models in physics, biology, mathematics and engineering. Written for researchers and graduate students, it provides a cross-disciplinary reference guide to the notion and the use of models and inferences in science.” (From the Publishers)

More information at: <http://www.springer.com/gp/book/9783319281629>

Kamminga, Harmke & Somsen, Geert (Eds.) (2016). *Pursuing the Unity of Science Ideology and Scientific Practice from the Great War to the Cold War*. Abingdon, UK: Routledge

“From 1918 to the late 1940s, a host of influential scientists and intellectuals in Europe and North America were engaged in a number of far-reaching unity of science projects. In this period of deep social and political divisions, scientists collaborated to unify sciences across disciplinary boundaries and to set up the international scientific community as a model for global political co-operation. They strove to align scientific and social objectives through rational planning and to promote unified science as the driving force of human civilization and progress. This volume explores the unity of science movement, providing a synthetic view of its pursuits and placing it in its historical context as a scientific and political force. Through a coherent set of original case studies looking at the significance of various projects and strategies of unification, the book highlights the great variety of manifestations of this endeavour. These range from unifying nuclear physics to the evolutionary synthesis, and from the democratization of scientific planning to the utopianism of H.G. Wells's world state. At the same time, the collection brings out the substantive links between these different pursuits, especially in the form of interconnected networks of unification and the alignment of objectives among them. Notably, it shows that opposition to fascism, using the instrument of unified science, became the most urgent common goal in the 1930s and 1940s. In addressing these issues, the book makes visible important historical developments, showing how scientists participated in, and actively helped to create, an interwar ideology of unification, and bringing to light the cultural and political significance of this enterprise.” (From the Publisher)

More information at: <http://tinyurl.com/z7vdw86>

Maxwell, Nicholas (2016). Can Scientific Method Help Us Create a Wiser World? In N. Dalal, A. Intezari & M. Heitz (eds.), *Practical Wisdom in the Age of Technology: Insights, Issues and Questions for a New Millennium* (pp. 147-161). Abingdon, UK: Routledge

“Two great problems of learning confront humanity: (1) learning about the universe, and about ourselves as a part of the universe, and (2) learning how to make progress towards as good a world as possible. We solved the first problem when we created modern science in the 17th century, but we have not yet solved the second problem. This puts us in a situation of unprecedented danger. Modern science and technology enormously increase our power to act, but not our power to act wisely. All our current global crises have arisen as a result. What we need to do is learn from our solution to the first great problem of learning how to go about solving the second one. Properly implemented, this idea leads to a new kind of inquiry rationally devoted to helping humanity make progress towards as good a world as possible.” (Abstract)

More information at: <http://philpapers.org/rec/MAXCSM>

Maxwell, Nicholas (2016). Popper's Paradoxical Pursuit of Natural Philosophy. In J. Shearmur & G. Stokes (eds.), *Cambridge Companion to Popper* (pp. 170-207). Cambridge, MA: Cambridge University Press

“Philosophy of science is seen by most as a meta-discipline – one that takes science as its subject matter, and seeks to acquire knowledge and understanding about science without in any way affecting, or contributing to, science itself. Karl Popper’s approach is very different. His first love is natural philosophy or, as he would put it, cosmology. This intermingles cosmology and the rest of natural science with epistemology, methodology and metaphysics. Paradoxically, however, one of his best known contributions, his proposed solution to the problem of demarcation, helps to maintain the gulf that separates science from metaphysics, thus fragmenting cosmology into falsifiable science on the one hand, untestable philosophy on the other. This has damaging repercussions for a number of issues Popper tackles, from the problem of induction to simplicity of theory and quantum theory. But his proposed solution to the demarcation problem is untenable. Metaphysical assumptions are an integral part of scientific knowledge, inherent in the persistent acceptance of unified theories against the evidence. Once this is appreciated, it becomes obvious that natural philosophy, a synthesis of science and philosophy, is both more rigorous and of greater intellectual value than the two dissociated components we have today. What Popper sought for could come to full fruition. Problems that Popper tackled, from the problem of induction, to the problem of unity of theory, problems of quantum theory, and problems concerning the scope and limits of physics, all receive more adequate resolution within the new, fully-fledged natural philosophy.” (abstract)

More information at: <http://philpapers.org/rec/MAXPPP>

Maxwell, Nicholas (2015). What's Wrong with Science and Technology Studies? What Needs to Be Done to Put It Right? In R. Pisano & D. Capecchi (eds.), *A Bridge Between Conceptual Frameworks: Sciences, Society and Technology Studies*. Springer

“After a sketch of the optimism and high aspirations of History and Philosophy of Science when I first joined the field in the mid 1960s, I go on to describe the disastrous impact of "the strong programme" and social constructivism in history and sociology of science. Despite Alan Sokal's brilliant spoof article, and the "science wars" that flared up partly as a result, the whole field of Science and Technology Studies is still adversely affected by social constructivist ideas. I then go on to spell out how in my view STS ought to develop. It is, to begin with, vitally important to recognize the profoundly problematic character of the aims of science. There are substantial, influential and highly problematic metaphysical, value and

political assumptions built into these aims. Once this is appreciated, it becomes clear that we need a new kind of science which subjects problematic aims - problematic assumptions inherent in these aims - to sustained imaginative and critical scrutiny as an integral part of science itself. This needs to be done in an attempt to improve the aims and methods of science as science proceeds. The upshot is that science, STS, and the relationship between the two, are all transformed. STS becomes an integral part of science itself. And becomes a part of an urgently needed campaign to transform universities so that they become devoted to helping humanity create a wiser world.” (Abstract)

More information at: <http://philpapers.org/rec/MAXWWW-4>

Romeiras, Francisco Malta & Leitão, Henrique (2016). One Century of Science: The Jesuit Journal *Brotéria* (1902-2002). In Robert A. Maryks (ed.), *Exploring Jesuit Distinctiveness: Interdisciplinary Perspectives on Ways of Proceeding within the Society of Jesus* (pp.235-258). Leiden: Brill [Available at <http://tinyurl.com/hk7aa3g>]

“For historians of science, one of the most distinctive features of the Society of Jesus was its dedication to science and scientific education, especially when compared with other religious orders. The Jesuits’ contributions to early modern science have been studied extensively and are now widely known, lending further credence to George Sarton’s (1884–1956) dictum that “one cannot study the history of mathematics in the sixteenth and seventeenth centuries without coming across Jesuits at every corner.” Fifty years later, in his book on the history of electricity in the seventeenth and eighteenth centuries, John Heilbron (1934–) echoed this assertion by stating that “the single most important contributor to the support to the study of physics in the seventeenth century was the Catholic Church and, within it, the Society of Jesus.” Today, it is clear that Heilbron and Sarton’s statements can be extended to other scientific subjects, especially those connected to the mathematical and physical sciences such as astronomy, seismology, meteorology, and engineering. (...)

The notion that there had been Protestant novelty and genius as opposed to Catholic backwardness and conservatism in the evolution of early modern science was gradually deconstructed. As a result, historians began to study the Society’s scientific contributions in detail, and it is now clear that this religious order was especially relevant not only for the teaching and practice of science in Europe but also for the circulation of scientific knowledge around the world, and especially between Europe, East Asia, and America.” (From the Introduction)

More information at: <http://tinyurl.com/z5s38d8>

Schrenk, Markus (2016) *Metaphysics of Science: A Systematic and Historical Introduction*. Abingdon, UK: Routledge

"Metaphysics of Science is an ambitious book. It brings together an engaging overview of the history of the metaphysics of science with contemporary debates in the area. Senior undergraduates and graduate students will find it a most useful tool." By Kristie Miller, University of Sydney, Australia

"This is an excellent book, which implements a novel and deeply illuminating approach to the metaphysics of science." By Jessica Wilson, University of Toronto, Canada

More information at: <http://tinyurl.com/gumhyn6>

Smith, David Livingstone (Ed.) (2016). *How Biology Shapes Philosophy: New Foundations*

for Naturalism. Cambridge, MA: Cambridge University Press

“How Biology Shapes Philosophy is a seminal contribution to the emerging field of biophilosophy. It brings together work by philosophers who draw on biology to address traditional and not so traditional philosophical questions and concerns. Thirteen essays by leading figures in the field explore the biological dimensions of ethics, metaphysics, epistemology, gender, semantics, rationality, representation, and consciousness, as well as the misappropriation of biology by philosophers, allowing the reader to critically interrogate the relevance of biology for philosophy. Both rigorous and accessible, the essays illuminate philosophy and help us to acquire a deeper understanding of the human condition. This volume will be of interest to philosophers, biologists, social scientists, and other readers with an interest in bringing science and the humanities together.” (From the Publisher)

More information at: <http://tinyurl.com/j9ghqk8>

Coming HPS&ST Related Conferences

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/hpscource

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 2-4, 2016, Feminist Epistemologies Methodologies Metaphysics and Science Studies (FEMMSS) University of Notre Dame, Indiana, USA.

Details at: <http://femmss.org/http://femmss.org/>

October 3-7, 2016, XII International Ontology Congress, San Sebastian, Spain

Submissions by July 15. Details at: www.ontology.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 3-5, 2016, Philosophy of Science Association, Biennial Conference, Atlanta GA.
Details at: philsci.org/psa-biennial-meeting
- 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://lisbonicospos.campus.ciencias.ulisboa.pt/>
- December, 15-18, 2016, 3rd Asian HPS&ST Conference, Pusan National University, South
Korea.
Details at: <http://asiahpsst2016.bolog.com/welcome.php>
- January 5-8, 2017, 131th Annual Meeting of the American Historical Association, Denver,
Colorado, USA.
Details at: <http://historians.org/annual-meeting/future-meetings>
- January 19-20, 2017, “Interdisciplinary Futures: *Open the Social Sciences 20 years later*”,
Lisbon, Portugal.
Conference web site: <https://ifoss20.wordpress.com/>
- 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/>