HPS&ST Note

October 2018

Introduction

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

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

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

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

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

http://www.hpsst.com/

International Congress on the History of Science in Education, May 30 – June 1, 2019, Vila Real, Portugal

The International Congress on the History of Science in Education is a joint organization of the University of Trás-os-Montes and Alto Douro (UTAD), University of Porto (UP), University of Coimbra (UC) and University of S. Paulo (USP), and it will take place on May 30, 31 and June 1, 2019, at Polo 1 of the School of Human and Social Sciences of UTAD, Portugal.

The 1ICHSE rises following the 1st Meeting of History of Science in Teaching and 2nd Meeting of History of Science in Teaching held at UTAD and UC, in 2015 and 2017, respectively, and it will take place every two years alternating between the universities involved.

The 1ICHSE aims to bring together researchers, professors and students, interested in the history and teaching of Biology, Geology, Chemistry, Physics and Mathematics, as well as Educational Sciences, Engineering, Medicine, Pharmacy, Biochemistry, Anthropology, Astronomy, Psychology, Economics, Sociology, Ecology, Molecular Biology and Nanosciences, among others, in a multi-centered and multidisciplinary debate.

In addition to works focused on teaching, education, didactics and dissemination of sciences, 1ICHSE seeks to bring together reflections and studies of a more general, disciplinary or interdisciplinary nature, in the history of culture, technology and industry, as well as epistemological, historiographic, biographical or prosopographic. Other topics relevant to the history of science and teaching, such as gender studies, the teaching of science in a foreign language and, in general, the various aspects of the interactions between science, technology and the humanities are very important welcome to the dialogue space that 1ICHSE seeks to create.

Plenary Speakers:

- Carlos Fiolhais, Physics, Universidade de Coimbra

- Jorge Varanda, Anthropology, University of Coimbra
- Maria Elice Prestes, Biology, Universidade de São Paulo
- Michael Matthews, Education, University of New South Wales

Abstract submission: January 31, 2019

Full text submission; March 31, 2019

Conference Chair:

- Isilda Rodrigues, isilda@utad.pt

  Depart. Education and Psychology,

  University of Trás-os-Montes e Alto Douro, UTAD, Vila Real, Portugal.

Information available here.

(a) 12th Cent. White Tower

(b) School of Education, Aristotle University

15th International History, Philosophy and Science Teaching Group (IHPST) Biennial Conference, Thessaloniki, July 15-19, 2019

The conference will take place at the Aristotle university of Thessaloniki which was founded in 1925 and occupies an area of 33 hectares in the city centre.

The conference will open on Monday afternoon with registration, an opening session and a welcome reception. On Tuesday, Wednesday and Thursday there will be full-day presentations. There will be scheduled opportunity to visit cultural sites and events in Thessaloniki.

Important Dates:

Abstract submission: January 20, 2019

Final paper submission: March 20, 2019

Full conference information available here.

Conference Chair: A/Professor Fanny Seroglou: ihpst2019@eled.auth.gr

2018 British Society for History of Science, Pickstone Prize Winner

The British Society for the History of Science is delighted to award the 2018 Pickstone Prize to Michael Wintroub for his book *The Voyage of Thought: Navigating Knowledge across the Sixteenth-Century World* (Cambridge University Press, 2017).

The second prize has been jointly awarded to Paola Bertucci for *Artisanal Enlightenment: Science and the Mechanical Arts in Old Regime France* (New Haven, CT: Yale University Press, 2018) and Rohan Deb Roy for *Malarial Subjects: Empire, Medicine and Nonhumans in British India, 1820–1909* (Cambridge: Cambridge University Press, 2017)

Read more about the 2018 Prize on the BSHS website here.

The judging panel for the 2018 Pickstone Prize was chaired by Dr Tim Boon (Head of Research and Public History, Science Museum). It included Dr Patricia Fara (University of Cambridge), Professor Charlotte Sleigh (University of Kent and Editor of the British Journal for the History of Science) and Dr Elizabeth Haines (University of Bristol).

2019 IUHPST Essay Prize in History and Philosophy of Science

The International Union of History and Philosophy of Science and Technology (IUHPST) invites submissions for the 2019 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 history of science for philosophy of science?" This question is intended as a counterpart to the question for the inaugural run of the prize in 2017, which asked about the value of philosophy of science for history of science. The 2017 prize was won by Theodore Arabatzis of

the National and Kapodistrian University of Athens, for his essay "What's in it for the historian of science?", which can be viewed here.

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 16th Congress of Logic, Methodology and Philosophy of Science and Technology (CLMPST 2019) to be held at the Czech Technical University, Prague, Czechia, 5-10 August 2019. Presenting at the Congress will be a condition of the award.

The award will carry a cash prize of 1,000 U.S. dollars and, in addition, a waiver of the Congress registration fee.

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 15 December 2018, following the standard instructions indicated on the Congress website here.

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 will need to be shared out among the authors.

This prize is administered by the Joint Commission of the IUHPST, 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:

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 15 December 2018**.

2019 DHST Prize Competition for Young Scholars

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 fifth DHST Prize for Young Scholars, to be awarded in 2019 and presented in 2021.

Initiated at the 22nd International Congress of History of Science in 2005 held in Beijing, the DHST Young Scholar Prize is now awarded by the IUHPST/DHST every two years.

Up to three awards for recent Ph.D. historians of science and technology will be awarded to recognize outstanding doctoral dissertations completed and filed between 1 September 2016 and 1 September 2018.

The 2019 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 endeavors to maintain the broadest coverage of subjects, geographical areas, chronology and civilizations (African, American, Asian, Islamic, Western and Ancient Civilizations, and others not included in this list).

Each Prize consists of a certificate, assistance with travel and accommodation expenditures to the IUHPST/DHST Congress in Prague in July 2021 and a waiver of registration fees. The winner of a prize whose dissertation engages substantially Islamic science and culture (over competitions five (2016-2018) and six (2018-2020), is also awarded the Ihsanoglu Prize funded by the Istanbul Foundation for Research

and Education (ISAR).

Calendar

> Submission: Applications open 1 October 2018 and close 30 November 2018 (22:00, GMT)
>
> Award Committee meetings: January and February 2019
>
> Announcement of prize winners for fifth competition, March 2019
>
> Award ceremony for winners of competitions 5 and 6: July 2021 in Prague.

Conditions and Application

> Language: Submission in all languages is welcome. All dissertations must be accompanied by a detailed summary in English of no more than 20 pages.
>
> Application procedure: Applicants must submit online here, where they can also find additional procedural and application requirements.

Questions may be addressed to Michael A. Osborne, President, DHST.
Mike.Osborne@oregonstate.edu

Maurice Daumas Prize

The International Committee for the History of Technology, ICOHTEC, welcomes submissions for the Maurice Daumas Prize, which aims to encourage innovative scholarship in the history of technology. ICOHTEC is interested in the history of technological development as well as its relationship to science, society, economy, culture and the environment. There is no limitation as to theoretical or methodological approaches.

The prize will be awarded to the author of the best article submitted which deals with the history of technology in any period of the past or in any part of the world and which was published in a journal or edited volume in 2017 or 2018. Eligible for the prize are original articles published in (or later translated into) any of the official ICOHTEC languages (English, French, German, Russian or Spanish). Submissions are welcomed from scholars of any country who are currently in graduate school or have received their doctorate within the last seven years. Please send your submission and a brief (not to exceed one-page) cv to each of the six Prize Committee members no later than 15 January 2019. Electronic submissions are preferred. The winner will be contacted in late April 2019.

The prize will be awarded at our 46th Symposium, to be held in Katowice, Poland, in summer 2019 (22-27 July 2019). The winner will receive a cash prize of Euro 500 as well as a travel grant of Euro 300 (if needed) to attend the ICOHTEC Symposium, which will feature a special panel organized around the winning article. The Daumas Prize is sponsored by the Université de Technologie de Belfort-Montbéliard (UTBM), France.

Maurice Daumas (1910 - 1984) – The French Trailblazer

The history of technology would never have become a prominent field of historical research without energetic pathbreakers. Maurice Daumas was one of them. One of his better known early works is Les instruments scientifiques aux XVIIe et XVIIIe siècles, which was also published in English. Between 1962 and 1978, he edited a highly acclaimed history of technology, Histoire générale des techniques, in five volumes, which has been translated into English and Spanish, and used as a textbook in various countries. In France, Daumas was also the pioneer of industrial archaeology. Daumas was the first secretary general of ICOHTEC and the host of its symposium at Pont-à-Mousson in 1970.

For further information about Daumas see here.

For information about ICOHTEC see here.

Prize Committee

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James Joule's Bicentenary. Scientific and Pedagogical Issues Concerning Energy Conservation

At the 14-17 September Biennial Conference of the ESHS, DATES there was a symposium celebrating the bicentenary of James Joule with focus both at his scientific as well pedagogic issues. It was organized by Paulo Maurício and Ricardo Lopes Coelho under the umbrella of the IDTC.

J. Brian Pitts, University of Cambridge, "Conservation of Energy: Missing Features in Its Nature and Justification and Why They Matter",

Shaul Katzir, Tel Aviv University, Israel, "The use of energy conservation before the formulation of the law",

Ricardo Lopes Coelho, Lisbon University, "How energy became a substance, 1850-1885"

Manuel Bächtold, University of Montpellier, France, "Introducing Joule's paddle wheel experiment in high school physics teaching: does it contribute to the learning of energy?"

The room was full, and the symposium was much appreciated by the participants. Two grants of 300 euros each were attributed to too early career scholars, Gustavo Rocha, from Brazil, and Ashton Green from United States.

You can see a copy of the programme here.

Opinion Page

Creeping Bias in Research: Negative Results Are Glossed Over

New York Times, 24 September 2018

When we think of biases in research, the one that most often makes the news is a researcher's financial conflict of interest. But another bias, one possibly even more pernicious, is how research is published and used in supporting future work.

A recent study in *Psychological Medicine* examined how four of these types of biases came into play in research on antidepressants. The authors created a data set containing 105 studies of antidepressants that were registered with the Food and Drug Administration. Drug companies are required to register trials before they are done, so the researchers knew they had more complete information than what might appear in the medical literature.

Publication bias refers to the decision on whether to publish results based on the outcomes found. With the 105 studies on antidepressants, half were considered "positive" by the F.D.A., and half were considered "negative." Ninety-eight percent of the positive trials were published; only 48 percent of the negative ones were.

Outcome reporting bias refers to writing up only the results in a trial that appear positive, while failing to report those that appear negative. In 10 of the 25 negative studies, studies that were considered negative by the F.D.A. were reported as positive by the researchers, by switching a secondary outcome with a primary one, and reporting it as if it were the original intent of the researchers, or just by not reporting negative results.

Spin refers to using language, often in the abstract or summary of the study, to make negative results appear positive. Of the 15 remaining "negative" articles, 11 used spin to puff up the results. Some talked about statistically nonsignificant results as if they were positive, by referring only to the numerical outcomes. Others referred to

trends in the data, even though they lacked significance. Only four articles reported negative results without spin.

Spin works. A randomized controlled trial found that clinicians who read abstracts in which nonsignificant results for cancer treatments were rewritten with spin were more likely to think the treatment was beneficial and more interested in reading the full-text article. It gets worse. Research becomes amplified by citation in future papers. The more it's discussed, the more it's disseminated both in future work and in practice. Positive studies were cited three times more than negative studies. This is **citation bias**.

Only half of the research was positive. Almost no one would know that. Even thorough reviews of the literature would find that nearly all studies were positive, and those that were negative were ignored. This is one reason you wind up with 10 percent of Americans on antidepressants when good research shows the efficacy of many of the drugs is far less than believed.

The preregistration of trials is supposed to help control for these biases. It works sporadically. In 2011, researchers examined cohorts of randomized controlled trials to see how well the published research matched what scientists said it was going to do beforehand. In some studies, they found, eligibility criteria for participants differed greatly from what was published.

In some, they found that procedures had changed for how to conduct analyses. In almost all, the sample size calculations had changed. Almost none reported on all the outcomes that were noted in the protocols or registries. Primary outcomes were changed or dropped in up to half of publications. This isn't to say secondary outcomes don't matter; they're often very important. It's also possible that some of these decisions were made for legitimate reasons, but, too often, there are no explanations.

In 2012, researchers re-analyzed 42 meta-analyses for nine drugs in six classes that had been approved by the F.D.A. In their re-analyses, they included data from the F.D.A. that was not in the medical literature. The addition of the new data changed

the results in more than 90 percent of the studies. In those where efficacy went down, it did so by a median 11 percent. When efficacy went up – about the same rate that it went down – it did so by a median 13 percent.

This problem is worldwide. In 2004 in *JAMA*, a study reviewed more than 100 trials approved by a scientific-ethical committee in Denmark that resulted in 122 publications and more than 3,700 outcomes. But a great deal went unreported: about half of the outcomes on whether the drugs worked, and about two-thirds of the outcomes on whether the drugs caused harm. Positive outcomes were more likely to be reported. More than 60 percent of trials had at least one primary outcome changed or dropped.

But when the researchers surveyed the scientists who conducted the trials and published the results, 86 percent reported that there were no unpublished outcomes.

There has even been a systematic review of the many studies of these types of biases. It provides empirical evidence that the biases are widespread and cover many domains.

A modeling study published in *BMJ Open* in 2014 showed that if a publication bias caused positive findings to be published at four times the rate of negative ones for a particular treatment, 90 percent of large meta-analyses would later conclude that the treatment worked when it actually didn't.

This doesn't mean we should discount all results from medical trials. It means that we need, more than ever, to reproduce research to make sure it's robust. Dispassionate third parties who attempt to achieve the same results will fail to do so if the reported findings have been massaged in some way.

Further, there are things we can do to fix this problem. We can demand that trial results be published, regardless of findings. To that end, we can encourage journals to publish negative results as doggedly as positive ones. We can ensure that preregistered protocols and outcomes are the ones that are finally reported in the literature. We can hold authors to more rigorous standards when they publish, so that results are accurately and transparently reported. We can celebrate and elev-

ate negative results, in both our arguments and reporting, as we do positive ones. Unfortunately, getting such research published is harder than it should be.

These actions might make for more boring news and more tempered enthusiasm. But they might also lead to more accurate science.

Comment: ***John Sweller***, School of Education, University of New South Wales

This is an important issue that is even more complex than the article suggests. I'm not clear what "negative results" mean in the context of instructional design.

Let me give examples from my Cognitive Load research history. Let's assume I run a simple, 2-group study hypothesising that Instructional Procedure A gives better test results than Instructional Procedure B. If my test results indicate that A is statistically better than B, the experiment will almost certainly be published. But if I get the opposite "negative" statistically significant result, it is equally likely to be published. Cognitive load theory is under constant development and those advances usually occur after such negative results.

The problem arises when we obtain a non-significant result. That is a negative result that is far less likely to be published. Our difficulty arises in determining why the non-significant result was obtained. The experiment may have failed because the hypothesis was wrong. That obviously should be published. But there are a multitude of trivial reasons why an instructional design experiment may fail and there is no point publishing an experiment if it fails for any of those reasons.

For example, the effect may be real but it may be too small to be detected by the statistical test. Repeating the experiment with a larger sample may yield significant results. There may be a mis-match between the materials used and the knowledge of the learners. If the learners are too advanced for the materials being taught,

we'll get ceiling effects; if they are insufficiently expert we'll get floor effects. In either case, significant effects are unlikely and the experiment has obtained negative results for entirely trivial reasons.

There are many other trivial reasons for the failure of an experiment. I can't see the point of filling the literature with this stuff – there is enough useless stuff out there already. Notwithstanding these issues, I think the current system works. What doesn't work is non-research that can't possibly fail because of the way it is run.

Invitation to Submit Opinion Piece

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

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

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

http://www.hpsst.com/.

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

Michael Matthews, School of Education, UNSW, An Occasion to Celebrate: Mario Bunge's 99th Birthday (September 2018)

Cormac Ó Raifeartaigh, Waterford Institute of Technology, Ireland, History of Science in Schools (July 2018)

Hugh Lacey, Philosophy Department, Swarthmore College, Appropriate Roles for Ethics and Social Values in Scientific Activity (June 2018)

Gerald Holton, Physics Department, Harvard University, Tracing Tom Kuhn's Evolution: A Personal Perspective (April/May 2018)

Monica H. Green, History Department, Arizona State University, On Learning How to Teach the Black Death (March 2018).

Stephen Pinker, Psychology Department, Harvard University, The Intellectual War on Science (February 2018).

Michael Ruse, Philosophy Department, Florida State University, Does Life Have Meaning? Or is it Self-Deception at Best and Terrifyingly Absurd at Worst? (January 2018).

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

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

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

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

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

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

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

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

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

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

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

PhD Theses in HPS&ST Domain

This will be a new section of the monthly HPS&ST Note. The Note is the ideal medium for publicizing and making known submitted and awarded doctoral theses in the HPS&ST domain.

The following details should be submitted to the editor at m.matthews@unsw.edu.au:

- Candidate's Name and email
- Institution
- Supervisor
- Thesis title
- Abstract of 100-300 words
- Web link when theses are required to be submitted for Open search on web.

Recent HPS&ST Research Articles

Bratkovich, M.O. (2018) Shining Light on Language for, in, and as Science Content. *Science & Education*, 1-14. doi:10.1007/s11191-018-9998-3 online first

Calamia, M., & Gherardelli, M. (2018). Exact Time: the First Scientific Application of Radiocommunications. *Substantia*, 2(2), 119-123. doi:10.13128/Substantia-65

Honenberger, P. (2018) Darwin among the Philosophers: Hull and Ruse on Darwin, Herschel, and Whewell. *HOPOS: The Journal of the International Society for the History of Philosophy of Science*, 1-32. doi:10.1086/698894 online first

Kersting, M. & Steier, R. (2018) Understanding Curved Spacetime: The Role of the Rubber Sheet Analogy in Learning General Relativity. *Science & Education*, 1-31. doi:10.1007/s11191-018-9997-4

Klev, A (2018) A Road Map of Dedekind's Theorem 66. *HOPOS: The Journal of the International Society for the History of Philosophy of Science*, 1-37. doi:10.1086/698660 online first

Kragh, H. (2018) Ludvig Lorenz and His Non-Maxwellian Electrical Theory of Light. *Physics in Perspective*, 20(3), 221-253. doi:s00016-018-0223-1

Murphy, P. K. et al. (2008) Fostering high school students' conceptual understanding and argumentation performance in science through Quality Talk discussions. *Science Education*, 1-26. doi:10.1002/sce.21471 online first

Olson, J.K. (2018) The Inclusion of the Nature of Science in Nine Recent International Science Education Standards Documents, 1-24. *Science & Education*. doi:10.1007/s11191-018-9993-8 online first

Tsybulsky, D. (2018) Comparing the Impact of Two Science-as-Inquiry Methods on the NOS Understanding of High-School Biology Students *Science & Education*, 1-23. doi:10.1007/s11191-018-0001-0 online first.

Recent HPS&ST Related Books

Anjum Rani Lill, & Mumford, Stephen (2018) *Causation in Science and the Methods of Scientific Discovery*. Oxford, UK: OUP. ISBN: 9780198733669

> "Causation is the main foundation upon which the possibility of science rests. Without causation, there would be no scientific understanding, explanation, prediction, nor application in new technologies. How we discover causal connections is no easy matter, however. Causation often lies hidden from view and it is vital that we adopt the right methods for uncovering it. The choice of methods will inevitably reflect what one takes causation to be, making an accurate account of causation an even more pressing matter. This enquiry informs the correct norms for an empirical study of the world. "In Causation in Science and the Methods of Scientific Discovery, Rani Lill Anjum and Stephen Mumford propose nine new norms of scientific discovery. A number of existing methodological and philosophical orthodoxies are challenged as they argue that progress in science is being held back by an overly simplistic philosophy of causation." (From the Publishers)

More information available here.

van Dongen, Jeroen (2018) *Einstein's Unification*. Cambridge, UK: CUP. ISBN: 9781108703031

> "…an impressive and important book …Einstein's Unification is a unified, detailed, coherent, and convincing narrative about the path Einstein took after coming to general relativity and the reason for his all-consuming search for a unified theory of the forces of nature. Van Dongen's book will deeply influence how we understand Einstein and how future biographies that try to relate all aspects of Einstein's life will be written." Isis
>
> "[This] book will be of interest to Einstein studies specialists, to historians and philosophers of science in general, and to scientists with any interest, professional or otherwise, in fundamental physics. The lay reader, provided they are reasonably well versed in physics, will find much to enjoy here also." D. Kennefick, University of Arkansas

> "Van Dongen's book is an excellent resource for all who wish to understand Einstein more deeply, balancing the technical, the philosophical, and the historical with skill and judgment …By adding to his careful technical comments a nuanced, undogmatic treatment of the philosophical issues, van Dongen has made a truly valuable contribution to our understanding of Einstein." Peter Pesic, Notre Dame Philosophical Reviews

More information available here.

Dronamraju, Krishna (2018) *A Century of Geneticists: Mutation to Medicine*. Abingdon, UK: Routledge. ISBN: 9781498748667

> "Genetics, like all scientific disciplines, is a human endeavor. Thus, the lives of geneticists - their friendships, colleagues and associations – play an important role in the historical development of the science. This book summarizes the history of genetics by reviewing the lives of the prominent and influential researchers beginning with the earliest and simplest branches of genetics (studies of inheritance and mutation) and ending with the human genome project – the pinnacle of genetics research of the 20th century." (From the Publisher)

More information available here.

MacLeod, Roy, Egdell, Russell G., & Bruton, Elizabeth (Eds.) (2018) *For Science King & Country: The Life and Legacy of Henry Moseley*. Unicorn Publishing Group: London. ISBN: 978-1-910500-71-2

> "Killed in action at Gallipoli in the Dardanelles Campaign of 1915, aged just twenty-seven, Henry Gwyn Jeffreys Moseley was widely regarded as the most promising British physicist of his generation. His

pioneering Measurements of X-ray spectra provided a firm basis for the concept of atomic number and re-cast the periodic table of the elements into its modern form. Had he survived, he seemed destined to win a Nobel Prize.

"This book is a commemoration of Moseley's life, work, and legacy. Inspired by the exhibition 'Dear Harry…Henry Moseley: A Scientist Lost to War', at the Museum of the History of Science, Oxford, in 2015-2016, and revisiting earlier accounts, thirteen historians and scientists chart his experience of Manchester and Oxford; his military service; the reception of his work by the scientific community; and the impact of his work upon X-ray spectroscopy in physics, chemistry, and materials science. "For Science, King & Country speaks to those with an interest in history, science, and the First World War, and draws upon a wealth of archives, artefacts, and recent research on the reward systems of science. Overall, it presents a comprehensive account of a young scientist whose brief but mercurial career paved the way to a new understanding of nature, and to shaping the future of physical science." (From the Publishers)

More information available here.

Mancuso, Stefano, & Viola, Alessandra (2018) *Brilliant Green: The Surprising History and Science of Plant Intelligence*. Vancouver, BC: Island Press ISBN:9781610917315

"Are plants intelligent? Can they solve problems, communicate, and navigate their surroundings? Or are they passive, incapable of independent action or social behavior? Philosophers and scientists have pondered these questions since ancient Greece, most often concluding that plants are unthinking and inert: they are too silent, too sedentary – just too different from us. Yet discoveries over the past fifty years have challenged these ideas, shedding new light on the extraordinary capabilities and complex interior lives of plants.

> "In *Brilliant Green*, Stefano Mancuso, a leading scientist and founder of the field of plant neurobiology, presents a new paradigm in our understanding of the vegetal world. Combining a historical perspective with the latest in plant science, Mancuso argues that, due to cultural prejudices and human arrogance, we continue to underestimate plants. In fact, they process information, sleep, remember, and signal to one another – showing that, far from passive machines, plants are intelligent and aware. Through a survey of plant capabilities from sight and touch to communication, Mancuso challenges our notion of intelligence, presenting a vision of plant life that is more sophisticated than most imagine.
>
> "Plants have much to teach us, from network building to innovations in robotics and man-made materials – but only if we understand more about how they live. Part botany lesson, part manifesto, Brilliant Green is an engaging and passionate examination of the inner workings of the plant kingdom." (From the Publisher)

More information available here.

Pigliucci, Massimo (2018) *Nonsense on Stilts*. (2nd Edition). Chicago, IL. Chicago University Press ISBN: 9780226496047

> "Recent polls suggest that fewer than 40 percent of Americans believe in Darwin's theory of evolution, despite it being one of science's best-established findings. Parents still refuse to vaccinate their children for fear it causes autism, though this link has been consistently disproved. And about 40 percent of Americans believe that the threat of global warming is exaggerated, including many political leaders.
>
> "In this era of fake news and alternative facts, there is more bunk than ever. But why do people believe in it? And what causes them to embrace such pseudoscientific beliefs and practices? In this fully revised

second edition, noted skeptic Massimo Pigliucci sets out to separate the fact from the fantasy in an entertaining exploration of the nature of science, the borderlands of fringe science, and–borrowing a famous phrase from philosopher Jeremy Bentham–the nonsense on stilts. Presenting case studies on a number of controversial topics, Pigliucci cuts through the ambiguity surrounding science to look more closely at how science is conducted, how it is disseminated, how it is interpreted, and what it means to our society. The result is in many ways a "taxonomy of bunk" that explores the intersection of science and culture at large.

"No one–neither the public intellectuals in the culture wars between defenders and detractors of science nor the believers of pseudoscience themselves–is spared Pigliucci's incisive analysis in this timely reminder of the need to maintain a line between expertise and assumption. Broad in scope and implication, Nonsense on Stilts is a captivating guide for the intelligent citizen who wishes to make up her own mind while navigating the perilous debates that will shape the future of our planet." (From the Publishers)

More information available here.

de Ridder, Jeroen, Peels, Rik & van Woudenberg, Rene (Eds.) (2018) *Scientism: Prospects and Problems*. Oxford, UK: OUP. ISBN: 9780190462758

"Can only science deliver genuine knowledge about the world and ourselves? Is science our only guide to what exists? Scientism answers both questions with yes. Scientism is increasingly influential in popular scientific literature and intellectual life in general, but philosophers have hitherto largely ignored it. This collection is one of the first to develop and assess scientism as a serious philosophical position. It features twelve new essays by both proponents and critics of scientism.

> "Before scientism can be evaluated, it needs to be clear what it is. Hence, the collection opens with essays that provide an overview of the many different versions of scientism and their mutual interrelations. Next, several card-carrying proponents of scientism make their case, either by developing and arguing directly for their preferred version of scientism or by responding to objections. Then, the floor is given to critics of scientism. It is examined whether scientism is epistemically vicious, whether scientism presents a plausible general epistemological outlook and whether science has limits. The final four essays zoom out and connect scientism to ongoing debates elsewhere in philosophy. What does scientism mean for religious epistemology? What can science tell us about morality and is a scientistic moral epistemology plausible? How is scientism related to physicalism? And is experimental philosophy really a form of scientism tailored to philosophy?"

More information available here.

Schatzberg, Eric (2018) *Technology: Critical History of a Concept*. Chicago, IL: Chicago University Press. ISBN: 9780226584027

> "In this book, Eric Schatzberg presents a long, complicated, and important story: the emergence of a key concept–arguably the defining concept–of our age. He collects, clarifies, synthesizes, and interprets a massive amount of research in both primary and secondary sources. For the foreseeable future, this is going to be the definitive study of the origins and meaning of technology." Rosalind Williams, Massachusetts Institute of Technology
>
> "This book is thoroughly researched, thoughtfully conceived, carefully structured, and provides real insight into the conceptual origins and genealogy of the term 'technology.' Schatzberg stretches his coverage from the ancient world to the present day. This immensely satisfying

> piece of historical scholarship deserves wide readership." Thomas J. Misa, University of Minnesota

More information available here.

Vintiadis Elly, &, Mekios, Constantinos (Eds.) (2018) *Brute Facts*. Oxford, UK: OUP. ISBN: 9780198758600

> "Brute facts are facts that don't have explanations. Such facts appear in our explanations, inform many people's views about the structure of the world, and are part of philosophical interpretations in metaphysics and the philosophy of science. Yet, despite the considerable literature on explanation, the question of bruteness has been left largely unexamined. The chapters in Brute Facts address this gap in academic thought by exploring the central considerations which surround this topic. How can we draw a distinction between facts that can reasonably be thought of as brute and facts for which further explanation is possible? Can we explain something and gain understanding by appealing to brute facts? Is naturalism inconsistent with the existence of (non-physical) brute facts? Can modal facts be brute facts? Are emergent facts brute? This volume brings together contributions by authors who offer different answers to these questions. In presenting a range of different viewpoints on these matters, Brute Facts engages with major debates in contemporary philosophy concerning modality, naturalism, consciousness, reduction and explanation." (From the Publisher)

More information available here.

Wray, K. Brad (2018) *Resisting Scientific Realism*. Cambridge, UK: CUP. ISBN: 9781108415217

> "In this book K. Brad Wray provides a comprehensive survey of the arguments against scientific realism. In addition to presenting logical considerations that undermine the realists' inferences to the likely truth or approximate truth of our theories, he provides a thorough assessment of the evidence from the history of science. He also examines grounds for a defence of anti-realism, including an anti-realist explanation for the success of our current theories, an account of why false theories can be empirically successful, and an explanation for why we should expect radical changes of theory in the future. His arguments are supported and illustrated by cases from the history of science, including a sustained study of the Copernican Revolution, and a study of the revolution in early twentieth century chemistry, when chemists came to classify elements by their atomic number rather than by their atomic weight." (From the Publishers)

More information available here.

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

Coming HPS&ST Related Conferences

October 26-27, 2018, HSTM Network Ireland Annual Conference, The School of Natural and Built Environment, Queen's University Belfast, Ireland
Details at: https://hstmnetworkireland.org/

October 26-27, 2018, Central States Philosophical Association 2018 Meeting, University at Buffalo, Buffalo, NY.
More information available here.

October 28, November 1, 2018, 18th International Conference on Systems Biology Humanities and Social Sciences, Lyon, France.
More information available here.

November 1-4, 2018, 26th Biannual Meeting of Philosophy of Science Association, Seattle, Washington.
More information available here.

November 8-10, 2018, Investigating the Mind: Pain, Emotion & Affective Disorders, Ruhr-University Bochum, Germany.
More information available here.

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

November 15-17, 2018, 7th Making of the Humanities conference, University of Amsterdam, The Netherlands.
More information available here.

November 16-17, 208, Indiana Philosophical Association's Fall 2018 meeting, Indiana University, Bloomington, IN, USA.
Details at: https://ipa.hanover.edu/

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

November 28-30, 2018, 29th Novembertagung on the History of Mathematics: "History of Mathematical Concepts and Conceptual History of Mathematics", University of Seville, Spain.
Details available here.

November 30 – December 1, 2018, CYBERSPACE 2018, Brno, Czech Republic
Details available here.

December 5-7, 2018, First Annual Meeting of The Australasian Society for Philosophy and Psychology, Macquarie University, Sydney, Austalia.
Details available here.

January 9-10, 2019. Philosophy in Progress Postgraduate Conference. University of Nottingham, UK.
Details available here.

January 17-18, 2019. Double-Helix History: DNA and the past Abstract deadline: 15 September
Details available here.

January 29-29, 2019. The Philosophy of Logical Atomism 1918-2018. Complutense University of Madrid, Madrid, Spain
Deadline for submission of abstracts: September 20th, 2018.
For further inquiries: Javier Cumpa (jcarteseros@ucm.es)

February 25-27, 2019, Third International Conference of the German Society for Philosophy of Science (GWP.2019), Cologne, Germany.
More information available here.

March 29-30, 2019, The Philosophy of Ian Hacking. Institute of Philosophy, Research Centre for the Humanities, Hungarian Academy of Sciences
Inquiries to Dr. Akos Sivado, akos.sivado@gmail.com

March 31 – April 3, 2019, NARST Annual Conference, Baltimore, USA
Details at: https://www.narst.org/

April 1-4, 2019, Evolution Evolving: Process, Mechanism and Theory, Churchill College, University of Cambridge, UK
Details at: https://evolutionevolving.org/

April 24-26, 2019, British Society for the History of Philosophy Annual Conference, King's College London. Strand Campus, London, UK.
Details available here.

May 13-16, 2019, Second Hermann Minkowski Meeting on the Foundations of Spacetime Physics, Albena, Burgaria
Details available here

May 24-27, 2019, American Symposium on the History of Logic: Validity throughout History, University of California, Los Angeles, US.
For further information: Graziana Ciola (grazianaciola@g.ucla.edu)

May 29-31, 2019, Plastics Heritage: History, Limits and Possibilities. Museu da Famácia (Pharmacy Museum) in Lisbon, Portugal
Details available here

July 15-19, 2019, International History, Philosophy and Science Teaching Group, Biennial Conference, Thessaloniki, Greece.
Details from conference chair, Fanny Seroglou, fannyseroglou@gmail.com

July 22-26, 2019, The 46th Annual Hume Society Conference, University of Nevada, Reno, NV, USA.
Details available here.

July 26-28, 2019, 4th International Periodic Table Conference: 'Mendeleev 150', ITMO University, St Petersburg, Russia
Details available here.

August 5-10, 2019, 16th Congress of Logic, Methodology and Philosophy of Science and Technology (CLMPST), Prague, Czech Republic.
For updates and details see here.

September 2-4, 2019. European Conference for Cognitive Science (EuroCogSci 2019), Ruhr-Universität Bochum, Germany.
More information: EuroCogSci2019@rub.de.