

# HPS&ST Note

January 2019

## 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](mailto: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 ICHSE 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 ICHSE 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, ICHSE 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 ICHSE 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](mailto:isilda@utad.pt)  
Depart. Education and Psychology,  
University of Trás-os-Montes e Alto Douro, UTAD, Vila  
Real, Portugal.



Information available [here](#).

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



12th Cent. White Tower



School of Education, Aristotle University

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](mailto:ihpst2019@eled.auth.gr)

## **IHPST Elections: Call for Nominations**

Nominations are invited for a number of positions on the IHPST Council and the IHPST Nominating Committee for 2019-2021. The positions include: President-Elect, Secretary, Treasurer, Director (2), Teacher Representative, Student Representative, Nominating Committee Members (4).

IHPST members are invited to nominate other members, or themselves, for one of these positions. Each nomination should include the following items:

1. The name of the nominee and for what position,
2. A brief statement on what makes the nominee an ideal candidate for this position, and
3. A brief comment on the nominee's level of involvement with the IHPST Group (e.g., participation in biennial or regional meetings, publications, reviewing or editorial work for Science & Education).

Nominations will be accepted until February 15, 2019. Please send your nomination that includes the requested information to Zoubeida Dagher, Nominating Committee Chair, at [IHPSTnominations@gmail.com](mailto:IHPSTnominations@gmail.com).

## **Royal Society *Notes and Records* Early Career Essay Award**

*Notes and Records* reports on current research and archival activities throughout the field of history of science, technology and medicine. The Essay Award is open to researchers in the history of science who have completed a postgraduate degree within the last five years. The previously unpublished essay of up to 8,000 words should be based on original research and it may relate to any aspect of the history of science, technology and medicine in any period.

The winning entry is chosen using the journal's standard criteria for selection (i.e. excellence and interest to a wide audience) and will be published in the journal.

The award consists of:

A cash prize of £500

Publication of the winning entry in Notes and Records

A year's subscription to Notes and Records

The deadline for submission of an essay is 28th February 2019 at 23.59 GMT. Entries received after this time will not be accepted.

How to enter:

The essay should be no more than 8000 words in length, including references, and should reflect the style guidelines of the journal.

The submission must be accompanied by a covering message confirming the post-graduate degree title and where and when it was awarded.

[notes@royalsociety.org](mailto:notes@royalsociety.org).

### *Eligibility*

The award is open to all researchers in the history of science who have completed a postgraduate degree within the last five years, except employees of the Royal Society, their families, agents or any third party directly associated with administration of the award.

In entering the award, you confirm that you are eligible to do so and eligible to claim any prize you may win. The Royal Society may require you to provide proof that you are eligible to enter the award. The essay should not be under consideration for publication elsewhere. It must be written in English. Only one entry per person is permitted. The Royal Society reserves all rights to disqualify you if your conduct is contrary to the spirit or intention of the award.

Full terms and conditions are [here](#).

Professor Anna Marie Roos

Editor, Notes and Records: The Royal Society Journal of the History of Science

## **Philosophy of Science with Children**

A growing number of science educators are doing philosophy with children as they learn science. Philosophical questions can ignite students' interests in science and expand their perspectives on science, reality and society. The philosopher Matthew Lipman observed that philosophical inquiry stimulates critical and creative thinking among students, and recent research has found a positive impact of doing philosophy on a range of outcomes for children. In the context of science education, philosophical dialogue may contribute to the discussion of big ideas such as substance, classification, the nature of science and ethically or culturally sensitive issues arising in the science class such as the theory of evolution or sexuality.

On 18th - 19th March 2019 the National STEM Learning Centre (UK), will host a 2 day event to explore philosophical dialogue in science education. The aim of the meeting is to share and reflect on approaches to doing philosophy in science education, and research on doing philosophy in science education.

To find out more please click [here](#) or contact Lynda Dunlop at York University at [lynda.dunlop@york.ac.uk](mailto:lynda.dunlop@york.ac.uk).

To contribute a paper, workshop or philosophical provocation, complete the form [here](#).

(deadline 20th December).

## **Horizon Research Report (2018) on USA K-12 Science, Mathematics, Computer Education**

[Horizon Research](#) just released the first report from the 2018 NNSME+. The report

can be found [here](#).

The 2018 National Survey is the sixth in a series of surveys dating back to 1977. The study provides current data on essential elements of the K-12 science, mathematics, and, new in 2018, computer science education system in the United States, including:

- Instructional practices, and how well these align with current understanding of learning.
- Factors that shape teachers' decisions about content and pedagogy.
- Characteristics of the science/mathematics/computer science teaching force in terms of race, gender, age, content background, beliefs about teaching and learning, and perceptions of preparedness.
- The most commonly used textbooks/programs, and how they are used.
- Formal and informal opportunities teachers have for ongoing development of their knowledge and skills.
- How resources, including well-prepared teachers and course offerings, are distributed among schools in different types of communities and different socioeconomic levels.

### **Downloadable and Gratis Book: *Being Modern: The Cultural Impact of Science in the Early Twentieth Century***

University College London Press (UCLP) announces the publication of a new open access book *Being Modern: The Cultural Impact of Science in the Early Twentieth Century*, edited by Robert Bud, Paul Greenhalgh, Frank James and Morag Shiach.

Download free [here](#).



In the early decades of the twentieth century, engagement with science was commonly used as an emblem of modernity. This phenomenon is now attracting increasing attention in different historical specialities. *Being Modern* builds on this recent scholarly interest to explore engagement with science across culture from the end of the nineteenth century to approximately 1940.

Addressing the breadth of cultural forms in Britain and the western world from the architecture of Le Corbusier to working class British science fiction, *Being Modern* paints a rich picture. Seventeen distinguished contributors from a range of fields including the cultural study of science and technology, art and architecture, English culture and literature examine the issues involved.

The book will be a valuable resource for students, and a spur to scholars to further examination of culture as an interconnected web of which science was a critical part, and to supersede such tired formulations as ‘Science and culture’.

## **Correspondence: Peter Boghossian, Revealing Research, and a Disturbing Institutional Reaction**

From Dr. Rainer Brömer

“As someone who has taught both Science Studies and research ethics, I am quite flabbergasted about the (not unanticipated) response of Portland State University to the (admittedly controversial) stunt that their member of staff Peter Boghossian pulled off, together with Helen Pluckrose and James Lindsay, which has become known as the “[Sokal squared affair](#)”: “Here is what Lindsay wrote on Twitter:

We’ve known all along that Portland State University would eventually crack down on @peterboghossian for his participation in our grievance studies probe, and now that process is well underway. They’re setting a dangerous precedent with this.

“His tweet includes a link to a video on YouTube showing Boghossian’s reaction to

the summons by PSU's Internal Review Board: <https://t.co/CnILSIVEmU>

([Address of the tweet](#))

“Now, I am not saying that the hoax is beyond reproach – the original Sokal hoax has been widely and controversially debated in the STS community, and so should this one. However, threatening disciplinary action seems to me an inappropriate (...) tool of debate. The PSU's IRB really lost me when they stated (see 5:20 in the video): "... the project met the federal definition of 'human subject' as it involved collecting data by interacting with living individuals”.

“As you may recall, the researcher sent hoax papers to journal editors who passed them on to reviewers. Do we really want to consider this process a 'human trial'? And if so, what next? Assume I am planning to go to a conference in order to confront a colleague I disagree with: Should I ask the ethics committee for permission? After all, the colleague might be hurt, even traumatised by my intervention.

Anyway, I do not want to comment too much at this point, just bring this matter to your valued attention.

“At the end of the video (5:58), there is a suggestion to contact the PSU's VP for Research, Mark McLellan ([mclellan@pdx.edu](mailto:mclellan@pdx.edu)) with 'respectful letters & good faith arguments', cc P. Boghossian ([pgb@pdx.edu](mailto:pgb@pdx.edu)). Given that this affair falls quite squarely into the remit of Science Studies, maybe some of you are interested in engaging with the matter.

Warmest greetings from Gröttingen and a happy New Year free from disciplinary action for raising controversies,

Dr. Rainer Brömer

Wissenschaftslektorat Doz. (TR)

Übersetzungen, Korrekturen und mehr...

Academic Publication Support

An der Lutter 7

D-37075 Göttingen

Germany

## Opinion Page

### Climate Change and Philosophy

Robin Attfield,  
Philosophy Department,  
Cardiff University  
UK

#### *Introducing the Precautionary Principle*

Debate about climate change – its documentation, causes, consequences and best policies for mitigation and management – is rightly consuming the international attention of politicians, economists, scientists and industrialists. It has recently been suggested that the debate has not until now been investigated by philosophers of science or epistemologists. While this may be true on a strict interpretation of ‘philosophers of science’ and ‘epistemologists’, it is scarcely true if the precautionary principle, which bestrides ethics, epistemology and philosophy of science, is taken into account, and epistemology and philosophy of science are interpreted broadly enough to include it and its implications.

This principle maintains that to prevent serious or irretrievable harm, where there is good reason to believe that such harm is at risk of happening, action (including action by public bodies) should be taken, even if there is an absence of scientific consensus. (This formulation has been reworded to overcome some problems mentioned below.) Now in the matter of climate change, although there is near-consensus among scientists that it is happening and that it is



partly caused by human agency, there remains some disagreement, because a sceptical minority deny one or both of these claims. However, the precautionary principle can still kick in, since even the sceptics have to admit that there is good reason to believe that global warming is anthropogenic (caused by human action) and that serious or irretrievable harm is resulting or will result from global warming (even if they dispute that these good reasons are conclusive ones). So, if they accept the precautionary principle, as most of the nations on earth do (an early form of it was included in the United Nations Framework Convention on Climate Change, adopted at the Rio Summit of 1992), they cannot avoid accepting that preventative action should be taken.

I can remember debating this matter in a conference in Milan in 2008. A climate sceptic had managed, with the vocal assistance of some members of the audience, to be allowed to ventilate from the podium his scepticism about climate change being either significant or anthropogenic. When it came to my turn to speak, I was able to comment that even if there are grounds for doubt about these matters, acceptance of the precautionary principle still obliges us, sceptics and non-sceptics alike, to support the taking of preventative action. This principle is a valuable one partly because it bestrides epistemology and ethics, concerning, as it does, what should be done when scientific consensus is incomplete or unavailable. By the same token, this same principle bestrides philosophy of science and ethics, as it concerns what attitude rational people should take, and what actions they should favour, when scientific fellow-workers, committed to the same or similar methods of scientific investigation, are unable to achieve full agreement.

#### *Earlier Debates at the Borderlines of Epistemology and Ethics*

Besides, I am far from alone in appealing to the precautionary principle, or in discussing the interface between science and ethics in matters of climate change. The proceedings volume of a conference held a few months earlier at Padua, *Ethics and Climate Change*, edited by Matteo Mascia and Lucia Mariani (Padova: CLEUP SC/Fondazione Lanza, 2010) includes a section entitled 'Science, Ethics and Politics Facing Climate Change: An Overview', of which the first chapter, authored by Antonio Navarra and Sergio Castellari, is entitled 'Climate Change and Science',

and includes several diagrams showing concentrations of greenhouse gases, global average temperatures, global average sea level, northern hemisphere snow cover, and projected global average surface warming and sea level rise at the end of the 21st century. The following section is entitled 'Ethics, Equity and Sustainability in Climate Change', and includes chapters from Simon Caney ('Equity and Greenhouse Gas Emissions'), and from myself ('Climate Change: the Ethical Dimension'), together with chapters from (among others) Thomas Heyd from Canada and Carmen Velayos Castelo from Spain.

Another book, also published in 2010, was Ruth Irwin's *Climate Change and Philosophy: Transformatinal Possibilities* (London and New York: Continuum). Chapters include Heila Lote-Sisitha and Lesley le Grange, 'Climate Change Education in a Context of Risk and Vulnerability'; Trish Glazebrook, 'Myths of Climate Change', and my own 'Mediated Responsibilities, Global Warming and the Scope of Ethics' (an expanded version of a paper that had appeared in *Journal of Social Philosophy* in 2009).

Yet earlier, James Garvey published in 2008 *The Ethics of Climate Change: Right and Wrong in a Changing World*, also with Continuum of London and New York. Some of the section headings of this book included 'Uncertainty' and 'Costs'. Thus, while the emphasis was on ethics, considerations of epistemology and economics were not forgotten.

#### *Back to the Precautionary Principle*

To revert more precisely to the Precautionary Principle, this Precautionary Principle had entered European law in the closing decades of the last century, and, as a result of the Rio Summit (1992), now forms part of international law. And as well as applying to issues such as climate change, it applies to matters like the release into the environment of genetically modified organisms capable of subverting native ecosystems. So it was disconcerting to discover that genetics students of my own University, who were being trained in genetic modification, had never been taught anything about it, and had in fact never heard of it; I did my best to rectify this omission for the last few years of my teaching of applied ethics to the students

of this course.

Besides, many other philosophers have written about the ethics of climate change. One is Stephen Gardiner, the author of *A Perfect Moral Storm* (2011), who applies philosophical techniques to issues of climate change. (I return to Gardiner's book below.) In another, jointly edited by Stephen Gardiner, Simon Caney, Dale Jamieson and Henry Shue, and entitled *Climate Ethics: Essential Readings* (Oxford: Oxford University Press, 2010), a whole plethora of ethicists discuss aspects of climate change issues, including issues of risk and of scientific disagreement. The issues under discussion include research into climate engineering, and whether the pursuit of this research strengthens or weakens the motivation of society and of governments to take strenuous action to reach agreements on mitigation and adaptation. While this research was originally envisaged as ancillary to proposals for mitigation (etc.), climate engineering has also been proposed as a technological fix, whereby a single nation could unilaterally seek to find a 'solution' to the problem of climate change.

Here we have another issue where reflection is needed at the interface of philosophy of science and ethics, this time about the ethics of undertaking certain kinds of research. There are in fact varieties of climate engineering, some of them relatively benign, such as the planting of forests, and others much more controversial, such as emitting reflective aerosols into the stratosphere to reduce the quantity of incoming solar radiation, or depositing massive quantities of iron filings in the oceans to foster the growth of blue-green algae capable of removing carbon dioxide. Given the range of kinds of climate engineering, and the possibilities that some of them would lead to large-scale subversion of ecosystems, it is possible that different attitudes should be adopted to the various different kinds.

#### *Gardiner's Treatment of the Precautionary Principle*

One of the strands of Gardiner's 2011 book concerns scientific uncertainty, and the debate surrounding the Precautionary Principle. As Gardiner relates, a moderate version of the Precautionary Principle was included in the UNFCCC at the Rio Conference of 1992, which had the effect of ruling out certain kinds of appeal to

uncertainty as justifications for inaction. Subsequently attempts have been made to present a form of this principle that is more general while remaining acceptable. Thus one standard statement, the Wingspread statement, asserts that ‘When an activity raises threats of harm to human health of the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically’ (Gardiner 2011, 412).

Gardiner proceeds to consider objections to such principles, as liable to halt any activity, however beneficial, on the basis of any worry, however fanciful, but replies to the objections in a convincing manner (Gardiner 2011, 412-4). It does, however, seem wise to include that there must be good reason to credit the threats envisaged, as in the version of the precautionary principle presented above. Potentially beneficial actions and policies may need to be put on hold, but precaution is warranted only when there is good reason to credit the relevant threats. The Principle still makes a significant difference, but with this or parallel clauses included can be defended against charges that it would inhibit most or even all initiatives. Thus it should not be construed as appealing to the worst outcomes of actions or policies that are theoretically possible, but rather to outcomes which there is good reason to consider significantly likely.

### *Recent Books*

Two books of mine have discussed some of these issues, including the relevance of the precautionary principle. I have in mind here the second edition of *Environmental Ethics: An Overview for the Twenty-First Century* (Cambridge: Polity, 2014) and the second edition of *The Ethics of the Global Environment* (Edinburgh University Press, 2015). These matters have also been discussed in *Environmental Ethics: A Very Short Introduction*, forthcoming from Oxford University Press.

Each of these books has a chapter on the ethics of climate change, including discussions of the precautionary principle and of attitudes that should be taken to research into climate engineering. A distinction is drawn there between tree-planting, likely to benefit both humanity and the environment without significant harm being done, and more radical forms of climate engineering, which (in the case of



stratospheric aerosols) have been held to threaten the continuation of monsoons, and (in the case of depositing iron filings in oceans) pose threats to ocean ecosystems, contrary to the Sustainable Development Goals of 2015. It would be far better if international agreement about greenhouse gas mitigation can be not only agreed but also implemented as a matter of urgency.

### *References*

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- Attfield, Robin, 2010, 'Mediated Responsibilities, Global Warming and the Scope of Ethics', in Irwin, Ruth (ed.), *Climate Change and Philosophy: Transformational Possibilities*, London and New York: Continuum, 183-196 (an expanded version of the above)
- Attfield, Robin, 2010, 'Climate Change: the Ethical Dimension', in Matteo Mascia and Lucia Mariani (eds), *Ethics and Climate Change*, Padova: CLEUP SC/Fondazione Lanza, 77-84
- Attfield, Robin, 2014, *Environmental Ethics: An Overview for the Twenty-First Century*, 2nd edition, Cambridge: Polity.
- Attfield, Robin, 2015, *The Ethics of the Global Environment*, 2nd edition, Edinburgh: Edinburgh University Press.
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- Gardiner, Stephen M., 2011, *A Perfect Moral Storm: The Ethical Tragedy of Climate Change*, Oxford: Oxford University Press.

- Gardiner, Stephen M., Simon Caney, Dale Jamieson and Henry Shue (eds), 2010, *Climate Ethics: Essential Readings*, Oxford: Oxford University Press.
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- Heyd, Thomas, 2010, 'The Challenge of Climate Change', in Matteo Mascia and Lucia Mariani (eds), *Ethics and Climate Change*, Padova: CLEUP SC/Fondazione Lanza, 165-175.
- Irwin, Ruth (ed.), 2010, *Climate Change and Philosophy: Transformational Possibilities*, London and New York: Continuum.
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- Velayos Castelo, Carmen, 2010, 'Which Responsibility for Climate Science?' in Matteo Mascia and Lucia Mariani (eds), *Ethics and Climate Change*, Padova: CLEUP SC/Fondazione Lanza, 177-188.

## 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/>

Dhyaneswaran Palanichamy & Bruce V. Lewenstein, School of Integrative Plant Science, Cornell University, [How History can Enable Better Teaching of Statistics in Introductory Biology Courses](#) (December 2018)

Frederick Grinnell, Biology Department, University of Texas, [Teaching research integrity – Using history and philosophy of science to introduce ideas about the ambiguity of research practice](#) (November 2018)

New York Times, [Creeping Bias in Research: Negative Results Are Glossed Over](#) (October 2018)

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 is 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](mailto: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

Aguiar, O., Sevia, H. & El-Hani (2018) Teaching About Energy: Application of the Conceptual Profile Theory to Overcome the Encapsulation of School Science

- Knowledge. *Science & Education*, 1-31. doi:[10.1007/s11191-018-0010-z](https://doi.org/10.1007/s11191-018-0010-z) online first
- Alameh, S., & Abd-El-Khalick, F. (2018) Towards a Philosophically Guided Schema for Studying Scientific Explanation in Science Education. *Science & Education*, 1-31. doi:[10.1007/s11191-018-0021-9](https://doi.org/10.1007/s11191-018-0021-9) online first
- Ampatzidis, G., & Ergazaki, M. (2018) Challenging Students' Belief in the 'Balance of Nature' Idea: The Emergence of a Design Theory. *Science & Education*, 1-25. doi:[10.1007/s11191-018-0017-5](https://doi.org/10.1007/s11191-018-0017-5) online first
- Lindholm, M. (2018) Promoting Curiosity? Possibilities and Pitfalls in Science Education. *Science & Education*, 1-16. doi:[10.1007/s11191-018-0015-7](https://doi.org/10.1007/s11191-018-0015-7) online first
- Martins, R. (2019) Émile Meyerson and mass conservation in chemical reactions: a priori expectations versus experimental tests. *Foundations of Chemistry*, 1-16. doi:[10.1007/s10698-018-09331-2](https://doi.org/10.1007/s10698-018-09331-2) online first
- Pisano, R., Anakkar, A., Pellegrino, E.M. et al. (2018) Thermodynamic foundations of physical chemistry: reversible processes and thermal equilibrium into the history. *Foundations of Chemistry*, 1-27. doi:[10.1007/s10698-018-09324-1](https://doi.org/10.1007/s10698-018-09324-1)
- Santini, J., Bloor, T. & Sensevy, G. (2018) Modeling Conceptualization and Investigating Teaching Effectiveness: A Comparative Case Study of Earthquakes Studied in Classroom Practice and in Science. *Science & Education*, 1-41. doi:[10.1007/s11191-018-0016-6](https://doi.org/10.1007/s11191-018-0016-6) online first
- Zhang, A. & Zangwill, A. (2018) Four Facts Everyone Ought to Know about Science: The Two-Culture Concerns of Philip W. Anderson. *Physics in Perspective*, 20(4), 342-369 doi:[10.1007/s00016-018-0229-8](https://doi.org/10.1007/s00016-018-0229-8)

## Recent HPS&ST Related Books

Bognon-Küss, Cécilia, & Wolfe, Charles T. (Eds.) (2019) *Philosophy of Biology Before Biology*. Oxford, UK: Routledge ISBN:9781138652873

“The use of the term ‘biology’ to refer to a unified science of life emerged around 1800 (most prominently by scientists such as Lamarck and Treviranus, although scholarship has indicated its usage at least 30-40 years earlier). The interplay between philosophy and natural science has also accompanied the constitution of biology as a science.

“Philosophy of Biology Before Biology examines biological and proto-biological writings from the mid-eighteenth century to the early nineteenth century (from Buffon to Cuvier; Kant to Oken; and Kielmeyer) with two major sets of questions in mind:

“What were the distinctive conceptual features of the move towards biology as a science?

“What were the relations and differences between the ‘philosophical’ focus on the nature of living entities, and the ‘scientific’ focus?

“This insightful volume produces a fresh but also systematic perspective both on the history of biology as a science and on the early versions of, in the 1960s in a post-positivist context, the philosophy of biology. It will appeal to students and researchers interested in fields such as History of Science, Philosophy of Science and Biology.” (From the Publisher)

More information available [here](#).

Bueno, Otávio, Chen, Ruey-Lin, & Bonnie, Melinda, Fagan (Eds.) (2019) *Individuation, Process, and Scientific Practices*. Oxford, UK: Oxford University Press. ISBN: 9780190636814

“What things count as individuals, and how do we individuate them? It is a classic philosophical question often tackled from the perspective of analytic metaphysics. This volume proposes that there is another channel by which to approach individuation — from that of scientific practices. From this perspective, the question then becomes: How do scientists individuate things and, therefore, count them as individuals?

“This volume collects the work of philosophers of science to engage with this central philosophical conundrum from a new angle, highlighting the crucial topic of experimental individuation and building upon recent, pioneering work in the philosophy of science. An introductory chapter foregrounds the problem of individuation, arguing it should be considered prior to the topic of individuality. The following chapters address individuation and individuality from a variety of perspectives, with prominent themes being the importance of experimentation, individuation as a process, and pluralism in individuation’s criteria. Contributions examine individuation in a wide range of sciences, including stem cell biology, particle physics, and community ecology. Other chapters examine the metaphysics of individuation, its bearing on realism/antirealism debates, and interrogate epistemic aspects of individuation in scientific practice.

“In exploring individuation from the philosophy of biology, physics, and other scientific subjects, this volume ultimately argues for the possibility of several criteria of individuation, upending the tenets of traditional metaphysics. It provides insights for philosophers of science, but also for scientists interested in the conceptual foundations of their work.” (From the Publisher)

More information available [here](#).

Carroll, David W. (2018) *Purpose and Cognition. Edward Tolman and the Transformation of American Psychology*. Cambridge, UK: Cambridge University Press. ISBN: 9781107553156



“This book discusses the development of Edward Tolman’s purposive behaviourism from the 1920s to the 1950s, highlighting the tension between his references to cognitive processes and the dominant behaviourist trends. It shows how Tolman incorporated concepts from European scholars, including Egon Brunswik and the Gestalt psychologists, to justify a more purposive form of behaviourism and how the theory evolved in response to the criticisms of his contemporaries. The manuscript also discusses Tolman’s political activities, culminating in his role in the California loyalty oath controversy in the 1950s. Tolman was involved in a number of progressive causes during his lifetime, activities that drew the attention of both state legislators in California and the Federal Bureau of Investigation. It treats Tolman’s theoretical and political activities as emanating from the same source, a desire to understand the learning process in a scientific manner and to apply these concepts to improve the human condition.” (From the Publisher)

More information available [here](#).

Ebbs, Gary (2019) *Carnap, Quine, and Putnam on Methods of Inquiry*. Cambridge, UK: Cambridge University Press. ISBN: 9781316630853

“Carnap, Quine, and Putnam held that in our pursuit of truth we can do no better than to start in the middle, relying on already-established beliefs and inferences and applying our best methods for re-evaluating particular beliefs and inferences and arriving at new ones. In this collection of essays, Gary Ebbs interprets these thinkers’ methodological views in the light of their own philosophical commitments, and in the process refutes some widespread misunderstandings of their views, reveals the real strengths of their arguments, and exposes a number of problems that they face. To solve these problems, in many of the essays Ebbs also develops new philosophical approaches, including new

theories of logical truth, language use, reference and truth, truth by convention, realism, trans-theoretical terms, agreement and disagreement, radical belief revision, and contextually a priori statements. His essays will be valuable for a wide range of readers in analytic philosophy.”

More information available [here](#).

Garson, Justin (2019) *What Biological Functions Are and Why They Matter*. Cambridge, UK: Cambridge University Press. ISBN: 9781108472593

“The biological functions debate is a perennial topic in the philosophy of science. In the first full-length account of the nature and importance of biological functions for many years, Justin Garson presents an innovative new theory, the ‘generalized selected effects theory of function’, which seamlessly integrates evolutionary and developmental perspectives on biological functions. He develops the implications of the theory for contemporary debates in the philosophy of mind, the philosophy of medicine and psychiatry, the philosophy of biology, and biology itself, addressing issues ranging from the nature of mental representation to our understanding of the function of the human genome. Clear, jargon-free, and engagingly written, with accessible examples and explanatory diagrams to illustrate the discussion, his book will be highly valuable for readers across philosophical and scientific disciplines.” (From the Publisher)

More information available [here](#).

Hopwood, Nick, Flemming, Rebecca, & Kassell, Lauren (Eds.) (2018) *Reproduction Antiquity to the Present Day*. Cambridge, UK: Cambridge University Press ISBN: 9781107068025

“From contraception to cloning and pregnancy to populations, reproduction presents urgent challenges today. This field-defining history synthesizes a vast amount of scholarship to take the long view. Spanning from antiquity to the present day, the book focuses on the Mediterranean, western Europe, North America and their empires. It combines history of science, technology and medicine with social, cultural and demographic accounts. Ranging from the most intimate experiences to planetary policy, it tells new stories and revises received ideas. An international team of scholars asks how modern ‘reproduction’ – an abstract process of perpetuating living organisms – replaced the old ‘generation’ – the active making of humans and beasts, plants and even minerals. Striking illustrations invite readers to explore artefacts, from an ancient Egyptian fertility figurine to the announcement of the first test-tube baby. Authoritative and accessible, *Reproduction* offers students and non-specialists an essential starting point and sets fresh agendas for research.” (From the Publisher)

More information available [here](#).

Massimi, Michela, & Breitenbach Angela (Eds.) (2019) *Kant and the Laws of Nature*. Cambridge, UK: Cambridge University Press. ISBN: 9781107546776

“There can be no doubt that this volume will prove a rich source for future discussions [of] issues regarding Kant and the laws of nature.”  
– Journal of the History of Philosophy

“This is an excellent book that I expect to be extremely useful for anyone interested in Kant’s views on necessity, nature, laws, and the natural sciences. I also believe it should be of interest to those working on current debates in these topics who wish to broaden their understanding of the history of these ideas. The book presents a range of philosophical work at the cutting edge, with many contributors engaging with recent work by others in the volume. ... By the end of the

book, one has a sense that one is up-to-date with several key questions, positions, debates, and developments of these topics of recent years.’

– Jessica Leech, Notre Dame Review Philosophical Reviews

“The volume succeeds admirably in furthering our understanding of Kant’s Critical writings on laws of nature and showing how they bear on present-day discussion.” – Katherine Dunlop, Metascience

“Kant’s philosophy of natural science is a flourishing domain of scholarship, within which the notion of a law is absolutely critical. Kant and the Laws of Nature, which contains thirteen chapters from top-notch, international scholars on the title topic, is hence a text of transparent value to researchers working in this burgeoning area. The volume is not, however, parochially limited to technical readings of Kant’s views on physics. It rather offers substantial treatment of some of the most pressing and knotted issues in Kant scholarship, more broadly. ... Massimi and Breitenbach’s volume is a superb resource for Kant scholars of all stripes. Its splendid chapters offer acute and profound insights on the vital topic of laws of nature in Kant’s thought.” – Michael Bennett McNulty, Kantian Review

More information available [here](#).

Potochnik, Angela, Colombo, Matteo, & Wright, Cory (2018) *Recipes for Science; An Introduction to Scientific Methods and Reasoning*. Oxford, UK: Routledge. ISBN: 9781138920736

“More often than not students acquire content knowledge about science, deprived from any explicit reflection about the methods, the reasoning and the uncertainties that characterize it. Even laboratory activities can take the form of implementing a cookbook recipe, simply following predetermined steps towards a ‘correct’ answer. But this is not how science is done. If there are recipes, they are open to

creativity and they vary enormously. Recipes for Science excellently shows this and provides very useful materials for explicit reflection about the nature of science.” – Kostas Kampourakis, University of Geneva, Switzerland

More information available [here](#).

Ruse, Michael (2019) *The Problem of War. Darwinism, Christianity, and their Battle to Understand Human Conflict*. Oxford, UK: Oxford University Press. ISBN: 9780190867577

“Darwinian evolutionary theory is one of the brightest jewels in the crown of science, yet it has been highly controversial since its first appearance in the *On the Origin of Species* in 1859. Well known is the opposition of so many Christians, an opposition that shows little sign of abating today. In *The Problem of War*, philosopher Michael Ruse argues that the roots of the unease lie not simply (as many think) in a straight clash between science and religion, but more deeply in the fact that, while professional biologists are producing first-class science, Darwinism has always had a somewhat darker side where it functions as a secular religion, a form of humanism, directly challenging Christianity.

“Testing and confirming this claim, *The Problem of War* is an in-depth study of Christians and of Darwinians on the theme of war. It covers a wide range of thinkers: on the Christian side from Augustine to modern theologians such as Reinhold Niebuhr and Karl Barth, to the present Regius Professor of Theology at Oxford Nigel Biggar; and on the Darwinian side from Darwin himself to more modern thinkers like Konrad Lorenz, Frans de Waal, and the present Johnstone Family Professor in the Department of Psychology at Harvard, Steven Pinker.

“Ruse shows that the dynamic between Darwinians and Christians has not been a straightforward opposition, and complicates as it moves

through the 20th century, as some Christian thinkers start to favor the inevitability of war and Darwinians acknowledge the idea of moral progress. Ruse shows how in some cases, some were even able to integrate Darwinian and Christian perspectives on war.

“Best categorized as intellectual history, *The Problem of War* is a narrative, using a wide and deep breadth of knowledge and references to reveal nuances in how war as a core function of human nature has been understood. By appreciating the religious nature of the dispute, Ruse helps to foster a better understanding of the ongoing criticisms of Darwinism and creates a way for differing Christian and Darwinian perspectives to indeed find common meeting ground.” (From the Publisher)

More information available [here](#).

Singer, P. N., & van der Eijk, Philip J. (2019) *Galen: Works on Human Nature Volume 1. Mixtures (De Temperamentis). Part of Cambridge Galen Translations*. Cambridge, UK: Cambridge University Press. ISBN: 9781107023147

“Mixtures is of central importance for Galen’s views on the human body. It presents his influential typology of the human organism according to nine mixtures (or ‘temperaments’) of hot, cold, dry and wet. It also develops Galen’s ideal of the ‘well-tempered’ person, whose perfect balance ensures excellent performance both physically and psychologically. Mixtures teaches the aspiring doctor how to assess the patient’s mixture by training one’s sense of touch and by a sophisticated use of diagnostic indicators. It presents a therapeutic regime based on the interaction between foods, drinks, drugs and the body’s mixture. Mixtures is a work of natural philosophy as well as medicine. It acknowledges Aristotle’s profound influence whilst engaging with Hippocratic ideas on health and nutrition, and with Stoic, Pneumatist and Peripatetic physics. It appears here in a new translation,

with generous annotation, introduction and glossaries elucidating the argument and setting the work in its intellectual context.” (From the Publisher)

More information available [here](#).

Smith, David Livingstone (2019) *How Biology Shapes Philosophy: New Foundations for Naturalism*. Cambridge, UK: Cambridge University Press. ISBN: 9781107628205

“*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 available [here](#).

Werrett, Simon (2019) *Thrifty Science: Making the Most of Materials in the History of Experiment*. Chicago, IL: The University of Chicago Press ISBN: 9780226610399

“*Thrifty Science* explores this distinctive culture of experiment and demonstrates how the values of the household helped to shape an array of

experimental inquiries, ranging from esoteric investigations of glow-worms and sour beer to famous experiments such as Benjamin Franklin's use of a kite to show lightning was electrical and Isaac Newton's investigations of color using prisms. Tracing the diverse ways that men and women put their material possessions into the service of experiment, Werrett offers a history of practices of recycling and re-purposing that are often assumed to be more recent in origin. This thriving domestic culture of inquiry was eclipsed by new forms of experimental culture in the nineteenth century, however, culminating in the resource-hungry science of the twentieth. Could thrifty science be making a comeback today, as scientists grapple with the need to make their research more environmentally sustainable?" (From the Publisher)

More information available [here](#).

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

## Coming HPS&ST Related Conferences

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](mailto: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 11-13, 2019, Formal Methods and Science in Philosophy III, Dubrovnik, Croatia  
Details at: <https://www.iuc.hr/conference-details.php?id=326>
- 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, Bulgaria  
Details available [here](#)
- May 27-29, 2019, Eddington Conference, Paris, France.  
Details at: <https://www.eddingtonstudies.org/>
- May 29-31, 2019, Plastics Heritage: History, Limits and Possibilities. Museu da Farmácia (Pharmacy Museum) in Lisbon, Portugal  
Details available [here](#)
- July 7-12, 2019, International Society for the History, Philosophy and Social Studies of Biology meeting (ISHPSSB), Oslo, Norway.  
Abstracts deadline: 18 January 2019  
Details available [here](#)
- July 10-13, 2019, British Society for the History of Science meeting, Edinburgh, UK.  
Details at: [www.bshs.org.uk](http://www.bshs.org.uk)
- July 15-19, 2019, International History, Philosophy and Science Teaching Group, Biennial Conference, Thessaloniki, Greece.

Details from conference chair, Fanny Seroglou, [fannyseroglou@gmail.com](mailto:fannyseroglou@gmail.com)

July 25-27, 2019, Learning From Empirical Approaches to HPS 2019 (LEAHPS 2019),  
Leibniz University, Hannover, Germany

Details at: <https://leaphs2019.wordpress.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](#).

September 2-4, 2019. European Conference for Cognitive Science (EuroCogSci  
2019), Ruhr-Universität Bochum, Germany.

More information: [EuroCogSci2019@rub.de](mailto:EuroCogSci2019@rub.de).