

HPS&ST NEWSLETTER



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OCTOBER 2019

The HPS&ST NEWSLETTER is sent monthly to about 8,400 emails of individuals who directly or indirectly have 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, engaging and effective teaching of the history and philosophy of science. The NEWSLETTER 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 25+ years.

The NEWSLETTER 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 NEWSLETTER (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 NEWSLETTER, along with RESOURCES, OBITUARIES, OPINION PIECES and more, are available at the website: <http://www.hpsst.com/>

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CONTENTS

Society for Philosophy of Science in Practice (SPSP) Eighth Biennial Conference, Michigan State	3	Call for Editor: <i>Annals of Science</i> . .	11
Journal Special Issue: “Idealization, Representation, Explanation Across the Sciences”, <i>Studies in History and Philosophy of Science</i>	3	Opinion: <i>Galileo’s Legacy: Avoiding the Myths and Muddles</i>	12
The Parington Prize 2020	4	Invitation to Submit Opinion Piece .	18
Mario Bunge Celebrates a Century .	5	Previous HPS&ST NEWSLETTER Opinion Pieces	18
16th DLMPST Congress, Prague, Report	8	HPS&ST NEWSLETTER Assistant Editor Required	20
8th Integrated History and Philosophy of Science Conference (&HPS8), Virginia Tech, VA	10	PhD Theses in HPS&ST Domain . . .	20
Science, Religion and Big Questions Conference, University of Oxford . .	10	Recent HPS&ST Research Articles . .	20
		Recent HPS&ST Related Books . . .	22
		Coming HPS&ST Related Conferences	32
		HPS&ST Related Organisations and Websites	33

Society for Philosophy of Science in Practice (SPSP) Eighth Bien- nial Conference, 7 – 10 July 2020, Michigan State University, USA

In collaboration with the Consortium for Socially Relevant Philosophy of/in Science and Engineering (SRPOISE) biennial meeting (see details below).

Keynote speakers: Karen Barad, University of California at Santa Cruz; Till Grüne-Yanoff, Royal Institute of Technology (KTH) Stockholm.

Keynote MSU panel on “Epistemologies of Science”: Kristie Dotson (Philosophy and African American and African Studies); Sean A. Valles (Lyman Briggs College and Philosophy); Kyle Whyte (Philosophy and Community Sustainability).

On-line submission site for paper or session proposals is available [here](#).

Abstract submission deadline: 10 January 2020

Main Contact: Alan C. Love, aclove@umn.edu.

More information available [here](#).

SPSP is an interdisciplinary community of scholars who approach the philosophy of science with a focus on scientific practice and the practical uses of scientific knowledge.

For further details on our objectives, see our mission statement [here](#).

SPSP welcomes both proposals for individual papers, and also strongly encourage proposals for whole, thematic sessions with coordinated papers, particularly those which include multiple disciplinary perspectives and/or input from scientific practitioners. You may wish to involve other

members of SPSP (a listing is available on our website) or post a notice to the SPSP mailing list describing your area of interest and seeking other possible participants for a session proposal. (To post to this list or to receive updates on the conference, please subscribe via [this link](#)).

Alan C. Love

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Journal Special Issue: “Idealiza- tion, Representation, Explanation Across the Sciences”, *Studies in His- tory and Philosophy of Science*

Call for Papers: “Idealization, Representation, Explanation Across the Sciences”

Special Issues: *Studies in History and Philosophy of Science Part A*

Guest editors: Elay Shech, Melissa Jacquart, Martin Zach

More information is available [here](#).

One goal of the scientific endeavour is to explain phenomena. Often, scientists attempt to explain a phenomenon by way of representing it in some manner (such as with mathematics, models, or theory), which allows for an explanation of the phenomenon under investigation. However, in developing scientific representations, scientists often deploy simplifications and idealisations. As a result, scientific representations often provide only partial, and often distorted, accounts of the phenomenon in question. Philosophers have analysed the nature and function of

how scientists construct representations, deploy idealisations, and provide explanations.

While the topics of idealisation, representation, and explanation have been thoroughly discussed in the literature separately, they deserve further analysis in terms of the connections among themselves, across different scientific disciplines, and in relation to other central issues in philosophy of science such as the realism debate and confirmation theory.

The focus of this special issue is to address, among others, the following topics:

- How can one account for the practice of employing assumptions that are strictly false but that nevertheless tell us something important about the world?
- Can idealisations facilitate or aid in developing representations or offering explanations of phenomena? If so, how? If not, why not?
- Is there always a conflict between idealisation and accurate representation?
- If explaining requires representing difference-makers responsible for the phenomenon in question, what happens if the difference-makers are misrepresented?
- Are there any important differences for the role of idealisation and representation in offering explanations in the context of modelling verses theory development?
- Do idealisations and misrepresentations afford understanding (in addition to or instead of providing explanations)?
- How are we to make sense of distinctively mathematical explanations of physical phenomenon that appear in science?

- Should mathematical explanations in science be thought of as inaccurate representations or do they latch on to the ostensible mathematical nature of the natural world?
- Assuming that there are indispensable idealisations in science, can realists make sense of such state of affairs? Or does the presence of such idealisation support empiricism?
- More generally, do our practices of scientific representation support realism or empiricism?

We invite original contributions that address any (but are not necessarily limited to) these questions. The deadline for submitting manuscripts is **January 15, 2020**.

Submissions must not be under consideration for publication elsewhere. Submissions must be prepared for anonymous review and should not exceed 10,000 words, including abstract, footnotes, and references. Manuscripts should be submitted online via the [EVISE system](#) by selecting the Idealization, Representation, Explanation Special Issue (SI) from the list. Manuscripts must be prepared according to the instructions for authors available [here](#).

Further questions should be addressed to guest editors:

Elay Shech (eshech@auburn.edu)

Melissa Jacquart (melissa.jacquart@uc.edu)

The Parington Prize 2020

The Society for the History of Alchemy and Chemistry established the Partington Prize in memory of Professor James Riddick Partington, the Society's first Chairman. It is awarded every three

years for an original and unpublished essay on any aspect of the history of alchemy or chemistry. The prize consists of five hundred pounds (£500) if awarded to a single essay. Alternatively, it may be divided, or not awarded at all.

The competition is open to anyone with a scholarly interest in the history of alchemy or chemistry who, by the closing date of **31 December 2019**, has not reached 35 years of age, or if older is currently enrolled in a degree programme or has been awarded a master's degree or PhD within the previous three years. No restriction is placed on the nationality or country of residence of competitors. Only one entry is permitted from any competitor.

The prize-winning essay will be published exclusively in the Society's journal, *Ambix*. It must not have been submitted to any other journal at any time before 30 April 2020.

Essays must be submitted in English. Essays must be fully documented using the conventions used in the current issue of *Ambix* and include an abstract of no more than 200 words. Essays must not exceed 10,000 words in length, including the abstract, references and footnotes.

All entries should be sent to The Hon. Secretary at prizes@ambix.org in the form of two separate e-mail attachments in Microsoft Office Word (preferably 2013 or later). The first attachment should be headed "Partington Prize Entry 2020" and should give the author's name, institution, postal address, e-mail address, date of birth (and, if relevant, the date of the award of the masters degree or PhD), the title of the essay, and the word count. The second attachment should be the essay, which should not identify the author either by name or implicitly.

Entries must arrive before midnight GMT on **31**

December 2019. The decision of the Society will be final on all matters. The result of the competition will be announced by 30 April 2020. Please direct any enquiries to prizes@ambix.org.

Mario Bunge Celebrates a Century



Mario Bunge, in good health, fine spirits and with a sharp mind, celebrated with family his 100th birthday on 21st September at his home in Montreal.

He was born in Buenos Aires in 1919. He has held chairs in physics and in philosophy at universities in Argentina, the USA, and since 1966 a philosophy chair at McGill University.

He has published 70 books (many with revised editions) and 540 articles; with many translated into one or other of twelve languages.

His 500 page, fascinating and richly informative autobiography, *Between Two Worlds*, is available [here](#).

Bunge has made substantial contributions to an unequalled range of fields: physics, philosophy of physics, metaphysics, methodology and philosophy of science, philosophy of mathematics, logic, philosophy of psychology, philosophy of social science, philosophy of biology, philosophy of technology, moral philosophy, social and political philosophy, management theory, medical philosophy, linguistics, criminology, legal philosophy, and education.

He has been a staunch defender of realism in both philosophy of science and in ethics, and a champion of the Enlightenment tradition. Although recognising the limitations and oversights of its 18th century proponents, Bunge has been a critic of all philosophical and cultural programmes that reject or undermine the Enlightenment project. In his words:

The Enlightenment gave us most of the basic values of contemporary civilized life, such as trust in reason, the passion for free inquiry, and egalitarianism. Of course, the Enlightenment did not do everything for us. ...For instance, the Enlightenment did not foresee the abuses of industrialization, it failed to stress the need for peace, it exaggerated individualism, it extolled competition at the expense of cooperation, it did not go far enough in social reform, and it did not care much for women or for the underdeveloped peoples. However, the Enlightenment did perfect, praise, and diffuse the main conceptual and moral tools for advancing beyond itself. (Bunge 1994, 'The Counter-Enlightenment in Contemporary Social Studies' p.40. In P. Kurtz & T.J. Madigan (eds.) *Challenges to the Enlightenment*.)

Bunge's remarkable corpus of scientific and philosophical writing is not inert; it has had significant disciplinary, cultural and social impact. In 1989 the *American Journal of Physics* asked its readers to vote for their favourite papers from the journal in the sixty years since its founding in 1933. Bunge's 1956 'Survey of the Interpretations of Quantum Mechanics' was among the 20 top voted papers. In 1993, the journal repeated the exercise this time Bunge's 1966 paper 'Mach's Critique of Newtonian Mechanics' – joined his first paper in the top 20. A noteworthy achievement in the physics community for a professor of philosophy. His mentions, interviews and columns in the Spanish, and to a lesser extent English popular press and TV, on topics in physics, psychoanalysis, climate change, economic crises, and much more, run into the multi-hundreds; he is an international 'public intellectual' of the highest stature.

Beyond breadth, Bunge's work stands out for its coherence and systemicity. In the past half-century, the pursuit of systemic philosophy, 'big pictures', 'grand narratives', or even cross-disciplinary understanding has considerably waned. Susan Haack wrote:

Our discipline becomes every day more specialized, more fragmented into cliques, niches, cartels, and fiefdoms, and more determinedly forgetful of its own history. (*Scientism and its Discontents*, 2016, p.39).

Bunge with his multi-disciplinary competences and wide-ranging intellectual concerns has defied this trend. His philosophical system was laid out in detail in his monumental eight-volume *Treatise on Basic Philosophy* (1974-1989). Individual volumes were devoted to Semantics, Ontology, Epistemology, Systemism, Philosophy of Science, and Ethics. His *Political Philosophy: Fact, Fic-*

tion and Vision (2009) was originally planned as its ninth volume.

Recognition of Bunge's 100 Years

It is rare for scholars to reach the 100 milestone and still be writing, researching and engaging with ideas. Bunge is doing all of this. In 2018 he published on 'Gravitational Waves and Space-Time' in *Foundations of Science*; and on 'Chance: Individual Indeterminacy or Collective Randomness?' in *Review of Metaphysics*. In 2019 he published on 'Inverse Problems' in *Foundations of Science*. His longevity and productivity warrant celebration by the HPS community and this has been done with a number of associations, publications and projects recognising Bunge's centenary and his enormous life-long contribution to Latin American and then international philosophy, physics, and philosophy of science.

- The President's Report at The Division of Logic, Methodology and Philosophy of Science and Technology acknowledged and commended Bunge's lifetime of contribution to philosophy of science.
- Springer published a 41-chapter, 830-page *Festschrift* contributed to by scholars from 14 countries. The chapters cover ten fields to which he has contributed (physics, philosophy, psychology, social science, mathematics and more).

Matthews, M.R. (ed.) 2019, *Mario Bunge: A*

Centenary Festschrift. (If institutions purchase the e-book, then all staff and students can download all chapters as pdf files. Further they can buy the paperback book for USD25/EUR25.)

- Bunge's 384 page 2014 *Memoirs (Entre dos Mundos)* in Spanish, is freely available [here](#).
- The *Memoirs* in English (*Between Two Worlds*) can be ordered [here](#).
- Ignacio Morgado Bernal published in *El País* on 21 September 2019 an account of his wide-ranging contributions to philosophy and intellectual life.
- The Universidad Nacional Mayor De San Marcos, Universidad Del Peru, produced a TV programme on Bunge where philosophers Alberto Cordero Lecca and Miguel León Unzueta gave appraisals of his work. See [here](#).
- Bunge in China. A Call for Papers has been issued for a meeting September 20-22, 2021, 'Developing Mario Bunge's Scientific-Philosophical Programme', hosted by the Huaguang Academy of Information Science, Wuhan, China
Details from Zongrong LI 2320129239@qq.com.
- Hundreds of short and long clips of, and about, Bunge and his work in English, Spanish and other languages are easily found on YouTube. An informative interview in English given on the occasion of his 95th birthday can be seen [here](#).

16th DLMPST Congress, Prague, August 5-10, Report



The 16th International Congress on Logic, Methodology and Philosophy of Science and Technology was superbly organized at the Czech Technical University in Prague, August 5-10 (More information is available [here](#)).

There were approximately 700 participants of which, encouragingly, about 300 were undergraduate or graduate students.

Plenary lectures were given by: Heather Douglas (Michigan State University), Joel D. Hamkins (University of Oxford), and Sandra D. Mitchell (University of Pittsburgh)

Additionally there were 21 invited lectures: Anna Alexandrova, Atocha Aliseda Llera, Christina Brech, Alex Broadbent, Anna Brožek, Franz Dietrich, Valentin Goranko, Hans Halvorson, Gerhard Heinzmann, Gürol Irzik, Tarja Knuuttila, Jan Kra-

jíček, Sabina Leonelli, Maryanthe Malliaris, Michael Matthews, Jonathan Okeke Chimakonam, Dunja Šešelja, Ray Turner, Heinrich Wansing, and Sang Wook Yi.

The 17th DLMPST Congress will be held July 24-29, 2023, University of Buenos Aires.

Information from Pablo Lorenzano (pablo@unq.edu.ar) or Eleonora Cresto (eleonora.cresto@gmail.com).

A photo record of congress can be seen [here](#).

One panel discussion, organised and chaired by Joeri Witteveen (University of Copenhagen) was devoted to the teaching of HPS to science students.

The following questions were addressed:



Mieke Boon Hasok Chang Hans Halvorson Mikkel Johansen Roy Wagner

Teaching HPS to Science Students

1. What makes teaching science students different from teaching philosophy students and how should we (historians and philosophers) adapt to an audience of practitioners of a field of study that we are reflecting on?
2. How can the teaching of philosophy of science to science students benefit from recent developments in integrated HPS, practice-oriented philosophy of science, and socially relevant philosophy of science? Based on particular examples, panel members will discuss how these can be packaged and processed to make them suitable for teaching.
3. What kind of teaching materials are useful for teaching HPS to science students? Many history and philosophy of science textbooks are written without an audience of scientists in mind, but some newer textbooks are particularly written for training scientists.
4. What is the added value of having someone trained in HPS teach a course history and philosophy of a scientific subject.
5. What are the best practices for co-teaching a philosophy of science course with a scientist?
6. What, if any, are the essential ingredients for a course in HPS for scientists? Should a brief twentieth-century history of philosophy of science from (say) logical empiricism to Feyerabend be part of any philosophy of science course, or should developments in the particular science under discussion be leading in the selection of topics?



Heather Douglas



Joel D. Hamkins



Sandra D. Mitchell

8th Integrated History and Philosophy of Science Conference (&HPS8), Virginia Tech, Blacksburg, VA, July 15-17, 2020

The Committee for Integrated History and Philosophy of Science invites the submission of individual paper and poster abstracts for “&HPS8”, the 8th conference in the series Integrated History and Philosophy of Science. We seek contributions that genuinely integrate the historical and philosophical analysis of science (i.e., the physical sciences, life sciences, cognitive sciences, and social sciences), or discuss methodological issues surrounding the prospects and challenges of integrating history and philosophy of science. For information about Integrated History and Philosophy of Science and previous conferences, see [here](#).

Recent scholarship in history and especially in philosophy of science has shown that scientific practice can best be characterised as a pluralistic endeavour. Might the field of integrated history and philosophy of science (HPS) also need a pluralistic framework for the analysis of the full sweep of science in past and present, combining philosophical analysis and historical evaluation of science? How might we build disciplinary knowledge without disciplinary methodological unification?

The organisers especially welcome contributions investigating problem-centred and pluralistic methodologies for integrated HPS. The organisers also welcome submissions in any area of integrated HPS.

Deadline for submission of paper and poster abstracts: **December 10, 2019**

Notification date: January 31, 2020

Please direct any inquiries to Lydia Patton (critique@vt.edu) or Jutta Schickore (jschicko@indiana.edu)

Science, Religion and Big Questions Conference, 22-23 June 2020, University of Oxford

The Learning about Science and Religion (LASAR) Research Centre at Canterbury Christ Church University and the Oxford Argumentation in Religion and Science (OARS) project at the Department of Education at the University of Oxford invite abstracts for papers and seminars that explore Big Questions in the context of education and the science-religion dialogue.

Papers and seminars are invited which will help to characterise, expand and progress the science-religion dialogue in relation to Big Questions. This

could be by discussing ways to relate science and religion in general or in the context of a selected Big Question, for example, how science and religion can help us understand what it means to be a person; mapping issues explored in the science-religion dialogue onto contemporary contexts such as the question of personhood in the context of artificial intelligence; or by identifying 'wicked problems' in contemporary life that can be examined through a framework of Big Questions, such as by examining the intersection of mental health and the science-religion dialogue.

Papers should introduce language and constructs that will help educators to understand the terrain. Terms could include epistemic insight, argumentation, theory of knowledge, knowledge domains, sufficient truth, conundrum, apparent contradiction, conflict, ways of relating, interdisciplinary relationships, cross-disciplinary questions, multidisciplinary arenas.

We hope that the conference will provide a compendium of Big Questions that can engage students' and young adults' interest, with explanations for teachers and tutors about their educative value and the importance of giving students access to a range of views about how science and religion relate.

Abstract submissions are invited for either individual short papers (300-500 words) or seminar proposals (600-1000 words). For short papers, speaker(s) will have a maximum of 20 minutes presentation time, followed by up to 10 minutes for questions and discussion.

For seminars, authors are asked to propose three or four presentations that link together with a shared time for questions and discussion.

Please email abstracts as a Word document to Pro-

fessor Berry Billingsley (lasar@canterbury.ac.uk) by 1 February 2020. Abstracts will be considered on receipt.

Visit <http://www.epistemicinsight.com/> for more information about the Epistemic Insight Initiative.

Call for Editor: *Annals of Science*

Taylor & Francis is looking to recruit an Editor for *Annals of Science*. Co-editorship applications will also be considered.

Annals of Science, launched in 1936, publishes work on the history of science, technology and medicine, covering developments from classical antiquity to the late 20th century. The editors particularly welcome submissions from authors in Asia, Africa and South America. Each issue contains research articles, and a comprehensive book reviews section, including essay reviews on a group of books on a broader level.

Taylor & Francis are seeking an outstanding academic researcher(s) or practitioner(s) with an international reputation for research excellence, a passion for communication, and ideally prior experience of editing a scientific journal. They will have the opportunity to work with Taylor & Francis to help shape the future direction of *Annals of Science* by identifying strategies to enhance its quality and reputation.

Working collaboratively with the Editorial Board and the Publisher, the successful candidate(s) will continue *Annals of Science's* long tradition of publishing works on the history of science, technology and medicine.

Interested candidates are requested to email a cv and covering letter to the Portfolio Manager

at Taylor & Francis (justin.robinson@tandf.co.uk) for consideration. All applications will be treated as strictly confidential, and each will be judged on its merits without regard to the race, religion, nationality, sex, seniority, or institutional affiliation of the candidate.

The closing date for applications for this position is **14 October 2019**. More information is available [here](#).

Opinion: *Galileo's Legacy: Avoiding the Myths and Muddles*

Maurice Finocchiaro

Philosophy Department, University of
Nevada-Las Vegas

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In 1633, at the conclusion of one of history's most famous trials, the Roman Inquisition found Galileo Galilei guilty of "vehement suspicion of heresy"; this was a specific category of religious crime intermediate in seriousness between formal heresy and mild suspicion of heresy. He had committed this alleged crime by defending the idea that the Earth is a planet rotating daily around its own axis and revolving yearly around the Sun; his

argument was found in a book published the previous year and titled *Dialogue on the Two Chief World Systems, Ptolemaic and Copernican*. The problem stemmed chiefly from the fact that Galileo was implicitly denying the Catholic Church's beliefs that the Earth's motion contradicted Scripture and Scripture was a scientific authority.

The Trial's Iconic Status

Thus, Galileo became the protagonist of a cause célèbre that continues to our own day. For example, in the eighteenth century, Voltaire opined that the tragedy would bring "eternal disgrace" to the Catholic Church (Voltaire 1877-83, vol.12, p.249); and in the twentieth century, Arthur Koestler labeled it "the greatest scandal in Christendom" (Koestler 1964).

However, there is also irony in this tragedy. For eventually the Church came to recognise that Galileo was right not only about the Earth's motion, but also about the limited authority of Scripture. This recognition came in 1893 when Pope Leo XIII issued an encyclical entitled *Providentissimus Deus*, propounding the Galilean principle that Scripture is not a scientific authority, but only one on questions of faith and morals. Moreover, another acknowledgment came in the period 1979-92, when Pope Saint John Paul II undertook a highly publicised and highly controversial "rehabilitation" of Galileo.

It is not surprising that the Catholic Church would try to appropriate Galileo's legacy. In fact, independently of his epoch-making role in the history and philosophy of religion, his legacy has a second main aspect: Galileo was one of the founders of modern science. That is, science as we know it today emerged in the sixteenth and seventeenth centuries thanks to the discoveries, inventions, ideas, and activities of a group of people like Ga-

lileo that also included Nicolaus Copernicus, Johannes Kepler, René Descartes, Christiaan Huygens, and Isaac Newton.

In physics, Galileo pioneered the experimental investigation of motion. He also formulated, clarified, and systematised many of the basic concepts and principles needed for the theoretical analysis of motion, such as an approximation to the law of inertia, a formulation of the relativity of motion, and the composition of motion into distinct components. And he discovered the laws of falling bodies, including free fall, descent on inclined planes, pendulums, and projectiles.

In astronomy, Galileo introduced the telescope as an instrument for systematic observation. He made a number of crucial observational discoveries, such as mountains of the Moon, satellites of Jupiter, phases of Venus, and sunspots. And he understood the cosmological significance of these observational facts and gave essentially correct interpretations of many of them; that is, he provided a robust confirmation of the theory that the Earth moves, daily around its own axis and yearly around the Sun.

With regard to scientific method, Galileo pioneered several important practices. For example, he was a leader in the use of artificial instruments (like the telescope) to learn new facts about the world; this is to be contrasted to the use of instruments like the compass for practical purposes. Moreover, he pioneered the active intervention into and exploratory manipulation of physical phenomena in order to gain access to aspects of nature that are not detectable without such experimentation; this is the essence of the experimental method, as distinct from a merely observational approach. He also contributed to the establishment and extension of other more tradi-

tional, but little used, methodological practices, such as the use of a quantitative and mathematical approach in the study of motion. He contributed to the explicit formulation and clarification of important methodological principles, such as the setting aside of biblical assertions and religious authority in scientific inquiry. And he was also an inventor, making significant contributions to the devising and improvement of such instruments as the telescope, microscope, thermometer, and pendulum clock.

Finally, there is a third aspect to Galileo's legacy. In fact, the historical circumstances of his time and his own personal inclinations made him into a kind of philosopher. Of course, he was not a systematic metaphysician who speculated about the eternal problems of being and nothingness. Instead he was a concrete-oriented and practical-oriented critical thinker who not only was engaged in a quest for knowledge of nature, but also reflected on questions about the nature of knowledge. In the eloquent words of Owen Gingerich, for Galileo "what was at issue was both the truth of nature and the nature of truth" (Gingerich 1982, p.133). Or, as I would put it, Galileo was like the ancient Greek philosopher Socrates, their main difference being that Socrates reflected on moral or ethical questions of good and evil and the meaning of life. Thus, just as many regard Socrates as the Father of Western Philosophy, we may regard Galileo as the Socrates of methodology and epistemology.

In short, Galileo's legacy clearly has a three-fold character, relating to science, religion, and philosophy. These three things are such major and crucial cultural elements, and their interaction has such significant cultural ramifications, that we may also speak more generally of his cultural legacy.

All aspects of Galileo's cultural legacy can be illuminated by focusing on his trial by the Inquisition, stressing its intellectual developments and issues, and elaborating, in turn, its background, proceedings, aftermath, and significance. However, before articulating the background, it is important to have a methodological discussion outlining the multifaceted and balanced approach that is necessary to avoid common pitfalls. This approach requires a mastery of a number of distinctions, which, however, must not be turned into separations. It also requires an awareness of the non-intellectual factors, which cannot be totally neglected, even as one stresses intellectual aspects.

A New Approach to Galileo's Trial

The most common view about the trial of Galileo is that it epitomises the conflict between enlightened science and obscurantist religion. The incompatibility thesis is very widespread. For example, various formulations of it have been advanced by such scientific, philosophical, and cultural icons as Voltaire, Bertrand Russell, Albert Einstein, and Karl Popper. However, I believe that such a thesis is erroneous, misleading, and simplistic.

For the moment, one main reason for identifying this first anti-clerical myth about the trial is that it may be usefully contrasted to a second myth at the opposite extreme. It seems that some found it appropriate to fight an objectionable myth by constructing another.

The opposite anti-Galilean myth maintains that Galileo deserved condemnation because he violated not only various ecclesiastical norms, but also various rules of scientific methodology and logical reasoning; he is thus portrayed as a master of cunning and knavery, and it is difficult to find a misdeed of which the proponents of this myth have

not accused him. The history of this myth too has its own fascination; it too includes illustrious names, such as French physicist, philosopher, and historian Pierre Duhem, German playwright Bertolt Brecht, Hungarian intellectual Arthur Koestler, and Austrian-American philosopher Paul Feyerabend.

These two opposite myths are useful as reference points in order to orient oneself in the study of the controversy, since it is impossible to evaluate the trial adequately unless one admits that both of these accounts are mythological and thus rejects both. However, avoiding them is easier said than done. For example, one cannot simply follow a mechanical approach of mediating a compromise by dividing in half the difference that separates them. A helpful way of proceeding is to read the relevant texts and documents with care and with an awareness of a number of crucial conceptual distinctions.

To begin with, the controversy was at least two-sided: it involved partly *scientific issues* about physical facts, natural phenomena, and astronomical and cosmological matters; and it also involved *methodological* and *epistemological questions* about what truth is and the proper way to search for it, and about what knowledge is and how to acquire it. The overarching scientific issue was whether the Earth stands still at the centre of the universe, with all heavenly bodies revolving around it, or whether the Earth is itself a heavenly body that rotates on its axis every day and revolves around the Sun once a year.

The epistemological and methodological issues were several. First, there was the question of whether physical truth has to be directly observable, or whether any significant phenomenon (e.g., the Earth's motion) can be true even though our

senses cannot detect it directly, but can detect only its effects; remember that even today the Earth's motion cannot be seen directly by an observer on Earth. Second, there was the question of whether artificial instruments like the telescope have any legitimate role in the search for truth, or whether the proper way to proceed is to use only the natural senses; in fact, the telescope was the first artificial instrument ever used to learn novel scientific or philosophical truths about the world. A third issue of this sort involved the question of the role of the Bible in scientific inquiry, whether its assertions about natural phenomena have any authority, or whether the search for truth about nature ought to be conducted completely independently of the claims contained in the Bible; this was not only a methodological or epistemological issue, but also a theological or hermeneutical one, and it was the paramount issue in the trial, since it was widely believed that the new geokinetic theory contradicted the Bible.

A fourth issue was the question of the nature of hypotheses and their role in the search for truth: whether they are merely instruments for mathematical calculation and observational prediction that can be only more or less convenient but neither true nor false, or whether they are assumptions about physical reality that are more or less probable and potentially true or false but not yet known with certainty; here, this problem stemmed from the fact that even the anti-Copernicans admitted that one could explain the motion of the heavenly bodies by means of the hypothesis of the Earth's motion, but they took this as a sign of its instrumental convenience and not of its truth, potential truth, or probable truth.

Let us call these four central issues, respectively, the problems of the observability of truth; the legitimacy of artificial instruments; the scientific au-

thority of the Bible; and the role of hypotheses (or the problem of instrumentalism vs. realism).

For the second needed conceptual clarification, one must distinguish between *factual correctness* and *rational correctness*; that is, between being right about the truth of the matter and having the right reasons for believing the truth. Suppose we begin by asking who was right about the scientific issue. It is obvious that Galileo was right and his opponents were wrong, since he preferred the geokinetic to the geostatic view, and today we know for a fact that the Earth does move and is not standing still at the centre of the universe. However, it is equally clear that his being right about this fact does not *necessarily* mean that his motivating reasons were correct, since it is conceivable that although he might have chanced to hit upon the truth, his supporting arguments may have been unsatisfactory. Hence, the evaluation of his arguments is a separate issue.

The next distinction that must be appreciated is also easy when stated in general terms but extremely difficult to apply in practice. It is that *essential correctness* must not be equated with either *total correctness* or *perfect conclusiveness*. Applied to our case, this means that even if Galileo's arguments were essentially correct, as I would hold, the possibility must be allowed that the reasoning of his opponents was not worthless, nor irrelevant, nor completely unsound.

To appreciate the next distinction, let us ask whether Galileo or the Church was right in regard to the epistemological and methodological aspect of the controversy. Since such issues are normally more controversial than scientific ones, this is an area which some like to exploit by trying to argue that the Church's epistemological and philosophical insight was superior to Galileo's. The ar-

gument is usually made in the context of a frank and explicit admission that Galileo was unquestionably right on the scientific issue. Thus, these anti-Galilean critics often boast to be displaying even-handedness and balanced judgment by contending that on the one hand Galileo was right from a scientific or factual point of view, but that on the other hand the Church was right from an epistemological or philosophical point of view.

However, such interpretations can be criticised for their exaggeration, one-sidedness, and superficiality in the analysis of the epistemological component of the affair (Finocchiaro 1997, 2010, 2019).

Finally, one must bear in mind that this episode was *not* merely an *intellectual* affair. Besides the scientific, astronomical, physical, cosmological, epistemological, methodological, theological, hermeneutical, and philosophical issues, and besides the arguments pro and con, there were legal, political, social, economic, personal, and psychological factors involved. To be sure, it would be a mistake to concentrate on these external issues, or even to devote to them equal attention in comparison with the intellectual issues, for the latter constitute the heart of the episode, and so they must have priority. Nevertheless, it would be equally a mistake to neglect the external, or non-intellectual, factors altogether.

Non-intellectual Factors

Beginning with personal or psychological factors, it is easy to see that Galileo had a penchant for controversy, was a master of wit and sarcasm, and wrote with unsurpassed eloquence. Interacting with each other and with his scientific and philosophical virtues, these qualities resulted in his making many enemies and getting involved in many other bitter disputes besides the main one

that concerns us here. Typically, these disputes involved questions of priority of invention or discovery, and fundamental disagreements about the occurrence and interpretation of various natural phenomena.

The politics of Galileo's trial has to be understood in the context of the Catholic Counter-Reformation. Martin Luther had started the Protestant Reformation in 1517, and the Catholic Church had convened the Council of Trent in 1545-63. So Galileo's troubles developed and climaxed during a time of violent struggle between Catholics and Protestants. Since he was a Catholic living in a Catholic country, it was also a period when the decisions of that council were being taken seriously and implemented and thus affected him directly. Aside from the question of papal authority, one main issue dividing the two camps was the interpretation of the Bible—both how specific passages were to be interpreted and who was entitled to do the interpreting. The Protestants were inclined toward relatively novel and individualistic or pluralistic interpretations, whereas the Catholics were committed to relatively traditional interpretations by the appropriate authorities.

More specifically, the climax of the trial in 1632-3 took place during the so-called Thirty Years War (1618-48) between Catholics and Protestants. At that particular juncture, Pope Urban VIII, who had earlier been an admirer and supporter of Galileo, was in an especially vulnerable position; thus, not only could he not continue to protect Galileo, but he used Galileo as a scapegoat to reassert, exhibit, and test his authority and power. The problem stemmed from the fact that in 1632 the Catholic side led by the King of Spain and the Bohemian Holy Roman Emperor was disastrously losing the war to the Protestant side led by the

King of Sweden, Gustavus Adolphus. Religion was not the only issue in the war, which was being fought also over dynastic rights and territorial disputes. In fact, ever since his election in 1623, the pope's policy had been motivated primarily by political considerations, such as his wish to limit and balance the power of the Hapsburg dynasty which ruled Spain and the Holy Roman Empire.

Just as the political background of the affair involved primarily matters of religious politics, so the legal background involved essentially questions of ecclesiastical, or "canon," law. In Catholic countries, the activities of intellectuals like Galileo were subject to the jurisdiction of the Congregation of the Index and the Congregation of the Holy Office, or Inquisition.

Although the Inquisition dealt with other offences such as witchcraft, it was primarily interested in two main categories of crimes: formal heresy and suspicion of heresy. The term suspicion in this context did not have the modern legal connotation pertaining to allegation and contrasting it to proof. One difference between formal heresy and suspicion of heresy was the seriousness of the offence. Another was whether the culprit, having confessed the incriminating facts, admitted having an evil intention.

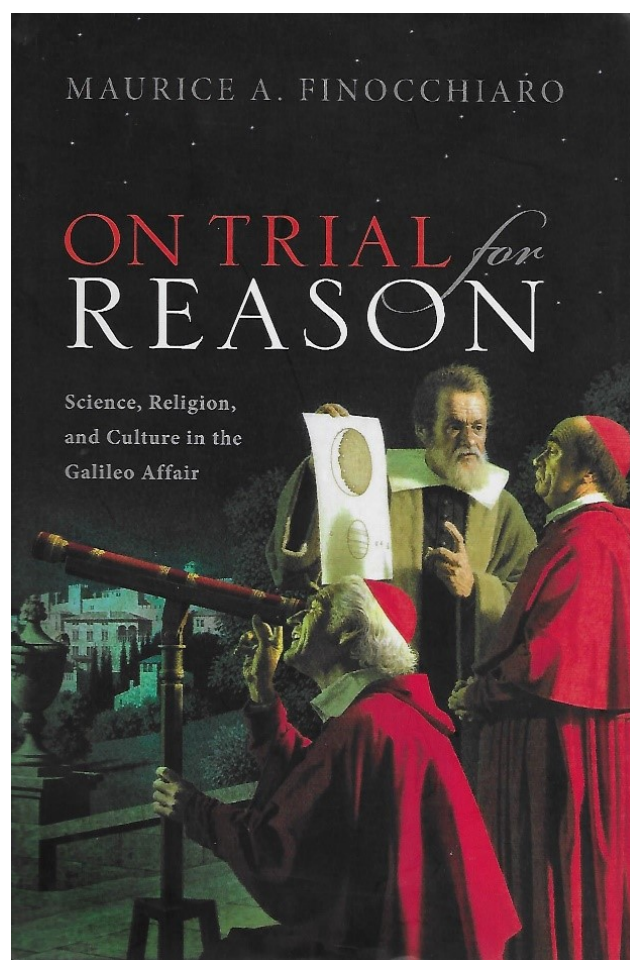
Conclusion

To summarise, the cultural legacy of Galileo in science, religion, and philosophy can be effectively elaborated by focusing on his trial (its background, proceedings, aftermath, and significance) and by stressing the intellectual developments and issues. However, a balanced approach must be followed, by avoiding the two opposite extremes exemplified by the anti-Galilean and anti-clerical myths, and by not completely overlooking the non-intellectual factors. There is no easy way of

doing this, but it is helpful to distinguish scientific from epistemological (or methodological) issues, factual correctness from rational correctness, essential correctness from total correctness, the several epistemological issues from each other, intellectual from external factors, and the several external factors (personal-psychological, social, economic, political, and legal) from each other. However, these distinct aspects are also interrelated, so the point is not to deny their interaction, but to make sure they are not confused or conflated with one another.

The above argument is extracted from Chapter One of:

Finocchiaro, M.A.: 2019, *On Trial for Reason: Science, Religion and Culture in the Galileo Affair*, Oxford University Press, Oxford.



The argument is also elaborated in:

Finocchiaro, M.A.: 1980, *Galileo and the Art of Reasoning: Rhetorical Foundations of Logic and Scientific Method*, Reidel, Dordrecht

Finocchiaro, M.A.: 1989, *The Galileo Affair: A Documentary History*, University of California Press, Berkeley.

Finocchiaro, M.A.: 2005, *Retrying Galileo: 1633-1992*, University of California Press, Berkeley.

Finocchiaro, M.A.: 2010, *Defending Copernicus and Galileo: Critical Reasoning in the Two Affairs*, Springer, Dordrecht.

Invitation to Submit Opinion Piece

In order to make better educational use of the wide geographical and disciplinary reach of this HPS&ST NEWSLETTER, 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 [Michael Matthews](#) or [Nathan Oseroff-Spicer](#).

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 NEWSLETTER.

They will be archived in the OPINION folder at the HPS&ST web site: <http://www.hpsst.com/>.

Previous HPS&ST NEWSLETTER Opinion Pieces

Michael R. Matthews, Education, University of New South Wales, [Feng Shui: Philosophical Appraisal and Educational Opportunity](#) (September 2019)

Daniel J. Kennefick, Physics Department, University of Arkansas, [The Problem of Scientific Bias: The 1919 Astronomical Confirmation of Einstein's Theory](#), (August 2019)

Nicholas Maxwell, Philosophy, University College, London, [The Metaphysics of Science and Aim-Oriented Empiricism](#) (May 2019)

Ron Good, Louisiana State University, [The Two Darwins: Erasmus and Charles on Evolution](#), (June 2019)

Lucie Laplane, Paolo Mantovani, Ralph Adolphs, Hasok Chang, Alberto Mantovani, Margaret McFall-Ngai, Carlo Rovelli, Elliott Sober, and Thomas Pradeu: [Why Science Needs Philosophy](#) (April 2019)

Thomas J.J. McCloughlin, School of STEM Education, Innovation & Global Studies, Dublin City University, Ireland, [Beware the Greeks: Sources for the History of Gravity in Science Teaching](#) (March 2019)

Bettina Bussmann, University of Salzburg, Austria & Mario Kötter, University of Muenster, Germany [Between Scientism and Relativism: Epistemic Competence as an Important Aim in Science and Philosophy Education](#) (February 2019)

Robin Attfield, Philosophy Department, Cardiff University, [Climate Change and Philosophy](#)

(January 2019)

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?

HPS&ST NEWSLETTER Assistant Editor Required

As additional Assistant Editor is required for this HPS&ST NEWSLETTER which has been published in one form or another for about 25 years. The NEWSLETTER's twofold purpose is to promote the contribution of history and philosophy of science to theoretical, curricular and pedagogical issues in university and school science teaching; and to promote and support innovative, engaging and effective teaching of the history and philosophy of science at all levels. The NEWSLETTER serves 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.

Currently there are two assistant editors: Paulo Maurício (Education, Lisbon) and Nathan Oseroff-Spicer (Philosophy, London). A third is required to assist in identifying newsletter content, to locate and liaise with groups and individuals with HPS&ST concerns, and to better advertise and publicise the newsletter.

There is no remuneration apart from the satisfaction of contributing to a hopefully useful community project. It is difficult to quantify the time commitment, but it could be between 5-10 hours per month. The person should be connected to either the HPS or science education communities and be familiar with their main programmes, research and activities.

All inquiries to newsletter editor, Michael R. Matthews (m.matthews@unsw.edu.au)

PhD Theses in HPS&ST Domain

The HPS&ST NEWSLETTER is the ideal medium for publicising 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

ISIS (Vol.110, N. 3, September 2019) Focus: Computational History and Philosophy of Science
Abraham Gibson, Manfred D. Laubichler, and Jane Maienschein (Org.)

Aguiar, O., Sevian, H. & El-Hani, C. N. (2018). Teaching about Energy: Application of the Conceptual Profile Theory to Overcome the Encapsulation of School Science Knowledge. *Science & Education* 27(9-10): 863-893. doi:[10.1007/s11191-018-0010-z](https://doi.org/10.1007/s11191-018-0010-z).

Batista, R.F.M., & Silva, C.C. (2019) When Things Go Wrong: Implementing Historical-Investigative Activities in the Classroom. *Science & Education*, 1-17. doi:[10.1007/s11191-019-00071-z](https://doi.org/10.1007/s11191-019-00071-z)

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Sikorski, T.R. (2019) Context-Dependent "Upper Anchors" for Learning Progressions. *Science & Education*, 1-25. doi:[10.1007/s11191-019-00074-w](https://doi.org/10.1007/s11191-019-00074-w) online first

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Ubben, M.S. & Heusler, S. (2019) Gestalt and Functionality as Independent Dimensions of Mental Models in Science. *Research in Science Education*, 1-15. doi:[10.1007/s11165-019-09892-y](https://doi.org/10.1007/s11165-019-09892-y) online first

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Recent HPS&ST Related Books

Blackstock, Jason J., Sean Low (eds). (2019) *Geoengineering our Climate?.* Taylor & Francis ISBN: 978-1-849-71374-0

If the detrimental impacts of human-induced climate change continue to mount, technologies for geoengineering our climate – i.e. deliberate modifying of the Earth's climate system at a large scale – are likely to receive ever greater attention from countries and societies worldwide. Geoengineering technologies could have profound ramifications for our societies, and yet agreeing on an international governance framework in which even serious research into these planetary-altering technologies can take place presents an immense international political challenge.

In this important book, a diverse collection of internationally respected scientists, philosophers, legal scholars, policymakers, and civil society representatives examine and reflect upon the global geoengineering debate they have helped shape. Opening with essays examining the historic origins of contemporary geoengineering ideas, the book goes on to explore varying perspectives from across the first decade of this global discourse since 2006. These essays methodically cover: the practical and ethical dilemmas geoengineering poses; the evolving geoengineering research agenda; the challenges geoengineering technologies present to current international legal and political frameworks; and differing perceptions of geoengineering from around the world. The book concludes with a series of for-

ward looking essays, some drawing lessons from precedents for governing other global issues, others proposing how geoengineering technologies might be governed if/as they begin to emerge from the lab into the real world.

This book is an indispensable resource for scientists, activists, policymakers, and political figures aiming to engage in the emerging debate about geoengineering our climate.

Dronamraju, Krishna (2019) *A Century of Geneticists: Mutation to Medicine*. New York, NY: CRC Press. ISBN: 978-1-498-74866-7

“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 Publishers)

More information available [here](#).

Casetta, Elena, Silva, Jorge Marques da, & Vecchi, Davide (2019) (Eds.) *From Assessing to Conserving Biodiversity; Conceptual and Practical Challenges*. Dordrecht: Springer. ISBN: 978-3-030-10990-5 [Open Access Book; Part of the *History, Philosophy and Theory of the Life Sciences* book series (HPTL, volume 24)]

“This open access book features essays written by philosophers, biologists, ecologists and conservation scientists facing the current biodiversity

crisis. Despite increasing communication, accelerating policy and management responses, and notwithstanding improving ecosystem assessment and endangered species knowledge, conserving biodiversity continues to be more a concern than an accomplished task. Why is it so? “The overexploitation of natural resources by our species is a frequently recognised factor, while the short-term economic interests of governments and stakeholders typically clash with the burdens that implementing conservation actions imply. But this is not the whole story. This book develops a different perspective on the problem by exploring the conceptual challenges and practical defiance posed by conserving biodiversity, namely: on the one hand, the difficulties in defining what biodiversity is and characterizing that “thing” to which the word ‘biodiversity’ refers to; on the other hand, the reasons why assessing biodiversity and putting in place effective conservation actions is arduous.” (From the Publishers)

More information available [here](#).

Cook, Kristin & Oliveira, Alandeom W. (Eds.) (2019) *Evolution Education and the Rise of the Creationist Movement in Brazil*. Lanham, MD: Rowman & Littlefield. ISBN: 978-1-7936-0148-3

“*Evolution Education and the Rise of the Creationist Movement in Brazil* examines how larger societal forces such as religion, media, and politics have shaped Brazil’s educational landscape and impacted the teaching and learning of evolution within an increasingly polarized discourse in recent years. To this end, Alandeom W. Oliveira and Kristin Cook have assembled a number of educational scholars and practitioners, many of whom are based in Brazil, to provide up-close and in-depth accounts of classroom-based evolution instruction, teacher preparation programs, current educational policies, and commonly used school curricula. Contribut-

ors also present information on Brazilian teachers' and students' attitudes toward—and understanding of— evolution, emergent (mis)conceptions of evolution, and international comparisons of evolution acceptance and understanding in Brazil compared to other countries. Across the three sections of this book, readers see a nation navigating the complexity of multiple spheres of thought about evolution and its role in the K-12 and postsecondary curriculum. Suggesting the rise of an influential creationist movement in Brazil, this book illuminates the dynamic sociological processes at play in the educational sphere of Latin America in a globalized era that allows for rapid worldwide travel of competing ideologies. Scholars of Latin American studies, religion, education, sociology, and political science will find this book especially useful.” (from the Publishers)

More information available [here](#).

Colgan, Andrew D., & Maxwell, Bruce (Eds.) (2019) *The Importance of Philosophy in Teacher Education: Mapping the Decline and its Consequences*. Abingdon, UK: Routledge. ISBN: 978-1-138-38636-5

“*The Importance of Philosophy in Teacher Education* maps the gradual decline of philosophy as a central, integrated part of educational studies. Chapters consider how this decline has impacted teacher education and practice, offering new directions for the reintegration of philosophical thinking in teacher preparation and development.

“Touching on key points in history, this valuable collection of chapters accurately appraises the global decline of philosophy of education in teacher education programs and seeks to understand the external and endemic causes of changed attitudes towards a discipline which was once assigned such a central place in teacher education. Chapters illus-

trate how a grounding in the theoretical and ethical dimensions of teaching, learning, and education systems contribute in meaningful ways to being a good teacher, and trace the consequences of a decline in philosophy on individuals' professional development and on the evolution of the teaching profession more broadly. With this in mind, the text focusses on the future of teacher education and considers how we can ensure that philosophy of education feeds into the excellence of teaching today.

“This book will be of great interest to graduate, postgraduate students as well as research scholars in the field of educational philosophy and history of education. In addition, it will be useful for those involved in teacher education, and in particular, course, module and program development.” (From the Publishers)

More information available [here](#).

Elliott, Kevin C., & Steel, Daniel (Eds.) (2019) *Current Controversies in Values and Science*. Abingdon, UK: Routledge. ISBN: 978-1-138-19328-4

“*Current Controversies in Values and Science* asks ten philosophers to debate five questions (two philosophers per debate) that are driving contemporary work in this important area of philosophy of science. The book is perfect for the advanced student, building up her knowledge of the foundations of the field while also engaging its most cutting-edge questions. Introductions and annotated bibliographies for each debate, preliminary descriptions of each chapter, study questions, and a supplemental guide to further controversies involving values in science help provide clearer and richer snapshots of active controversies for all readers.” (From the Publishers)

“The ten specially-commissioned articles in this volume capture the excitement and challenges of

one of the hottest areas of contemporary philosophy of science. Written for the advanced student of philosophy, these essays will equally engage the interest of the seasoned professional.” – Janet Kourany, University of Notre Dame

“Current Controversies in Values and Science” is an outstandingly helpful summary of the recent debates on how science and values are entangled. With its short chapters, students might feel lighted to approach these complex matters and form their own opinion about what is at stake in public debates and how could philosophy help them to assess the arguments and to see through the positions.” – Adam Tamas Tuboly, Institute of Philosophy, Hungarian Academy of Sciences Supported by the MTA BTK Lendület Morals and Science Research Group

More information available [here](#).

Esterson, Allen, & Cassidy, David C. (2019) *Einstein's Wife: The Real Story of Mileva Einstein-Marić*, Cambridge, MA: MIT Press.
ISBN: 978-0-262-03961-1

“Albert Einstein’s first wife, Mileva Einstein-Marić, was forgotten for decades. When a trove of correspondence between them beginning in their student days was discovered in 1986, her story began to be told. Some of the tellers of the “Mileva Story” made startling claims: that she was a brilliant mathematician who surpassed her husband, and that she made uncredited contributions to his most celebrated papers in 1905, including his paper on special relativity. This book, based on extensive historical research, uncovers the real “Mileva Story.”

“Mileva was one of the few women of her era to pursue higher education in science; she and Einstein were students together at the Zurich Polytechnic. Mileva’s ambitions for a science career, however, suffered a series of setbacks—failed diploma examinations, a disagreement with her doctoral disserta-

tion adviser, an out-of-wedlock pregnancy by Einstein. She and Einstein married in 1903 and had two sons, but the marriage failed. Was Mileva her husband’s uncredited coauthor, unpaid assistant, or his essential helpmeet? It’s tempting to believe that she was her husband’s secret collaborator, but the authors of *Einstein’s Wife* look at the actual evidence, and a chapter by Ruth Lewin Sime offers important historical context. The story they tell is that of a brave and determined young woman who struggled against a variety of obstacles at a time when science was not very welcoming to women.” (From the Publishers)

Review by Gerald Holton in *Phys. Perspect.* (2019). doi:[10.1007/s00016-019-00246-9](https://doi.org/10.1007/s00016-019-00246-9)

More information available [here](#).

Finocchiaro, M.A. (2019) *On Trial for Reason: Science, Religion and Culture in the Galileo Affair*. Oxford, UK: Oxford University Press.
ISBN: 978-0-198-79792-0

“In 1633 the Roman Inquisition condemned Galileo as a suspected heretic for defending the astronomical theory that the earth moves, and implicitly assuming the theological principle that Scripture is not scientific authority. This controversial event has sent ripples down the centuries, embodying the struggle between a thinker who came to be regarded as the Father of Modern Science, and an institution that is both one of the world’s greatest religions and most ancient organizations. The trial has been cited both as a clear demonstration of the incompatibility between science and religion, and also a stunning exemplar of rationality, scientific method, and critical thinking.

“Much has been written about Galileo’s trial, but most works argue from a particular point of view - that of secular science against the Church, or

justifying the religious position. Maurice Finocchiaro aims to provide a balanced historical account that draws out the cultural nuances. Unfolding the intriguing narrative of Galileo's trial, he sets it against its contemporary intellectual and philosophical background. In particular, Finocchiaro focuses on the contemporary arguments and evidence for and against the Earth's motion, which were based on astronomical observation, the physics of motion, philosophical principles about the nature of knowledge, and theological principles about the authority and the interpretation of Scripture. Following both sides of the controversy and its far-reaching philosophical impact, Finocchiaro unravels the complex relationship between science and religion, and demonstrates how Galileo came to be recognised as a model of logical reasoning." (From the Publishers)

More information available [here](#).

Golding, Edward L. (2017). *A History of Technology and Environment: From stone tools to ecological crisis* Abingdon, Oxon: Routledge. ISBN: 978-1-138-68586-4

This book provides an accessible overview of the ways that key areas of technology have impacted global ecosystems and natural communities. It offers a new way of thinking about the overall origins of environmental problems. Combining approaches drawn from environmental biology and the history of science and technology, it describes the motivations behind many technical advances and the settings in which they occurred, before tracing their ultimate environmental impacts. Four broad areas of human activity are described:

- over-harvesting of natural resources using the examples of hunting, fishing and freshwater use;
- farming, population, land use, and migration;

- discovery, synthesis and use of manufactured chemicals; and
- development of sources of artificial energy and the widespread pollution caused by power generation and energy use.

These innovations have been driven by various forces, but in most cases new technologies have emerged out of fascinating, psychologically rich, human experiences. This book provides an introduction to these complex developments and will be essential reading for students of science, technology and society, environmental history, and the history of science and technology.

More information available [here](#).

Jost, Juergen (2019) *Leibniz und die moderne Naturwissenschaft*. Dordrecht: Springer. ISBN: 978-3-662-59236-6

"What does a scholar of the 17th century still have to say for today's natural sciences? Quite a lot, as this book shows. Gottfried Wilhelm Leibniz (1646-1716) was a universal genius, and he achieved groundbreaking accomplishments in almost all fields of science, in particular in philosophy (relativity of space and time), mathematics (infinitesimal calculus, determinant theory, binary system, construction of a calculating machine), logic (predicate and modal logic, concept of possible worlds), physics (conservation of energy and principle of action), the history of the earth and mankind, jurisprudence and theology. However, these achievements were not isolated, but embedded in a comprehensive system based on the principles of contradiction, of sufficient reason and of continuity. Only through understanding this system, the unity and the range of his thinking emerge. Jürgen Jost, who, like few others, overlooks the various sciences, confronts this Leibnizian system with the ways of thinking and results of today's natural

sciences, in particular quantum physics, relativity theory and cosmology, modern logic, evolutionary biology and brain research.

“It turns out that Leibniz’ system is still relevant and insightful in many respects, but some of its positions must also be revised. This results in new insights into both Leibniz’ system and into contemporary natural sciences.” (From the Publishers; translation from the German by the author)

More information available [here](#).

Kumar, Alok. (2019) *Ancient Hindu Science: Its Transmission and Impact on World Cultures*. San Rafael, CA: Morgan & Claypool Publishers. ISBN: 978-1-681-73530-6

“To understand modern science as a coherent story, it is essential to recognize the accomplishments of the ancient Hindus. They invented our base-ten number system and zero that are now used globally, carefully mapped the sky and assigned motion to the Earth in their astronomy, developed a sophisticated system of medicine with its mind-body approach known as Ayurveda, mastered metallurgical methods of extraction and purification of metals, including the so-called Damascus blade and the Iron Pillar of New Delhi, and developed the science of self-improvement that is popularly known as yoga. Their scientific contributions made impact on noted scholars globally: Aristotle, Megasthenes, and Apollonius of Tyana among the Greeks; Al-Biruni, Al-Khwarizmi, Ibn Labban, and Al-Uqlidisi, Al-Jahiz among the Islamic scholars; Fa-Hien, Hiuen Tsang, and I-tsing among the Chinese; and Leonardo Fibbonacci, Pope Sylvester II, Roger Bacon, Voltaire and Copernicus from Europe. In the modern era, thinkers and scientists as diverse as Ralph Waldo Emerson, Johann Wolfgang von Goethe, Johann Gottfried Herder, Carl Jung, Max Mueller, Robert Oppenheimer,

Erwin Schroedinger, Arthur Schopenhauer, and Henry David Thoreau have acknowledged their debt to ancient Hindu achievements in science, technology, and philosophy.

“The American Association for the Advancement of Science (AAAS), one of the largest scientific organizations in the world, in 2000, published a timeline of 100 most important scientific findings in history to celebrate the new millennium. There were only two mentions from the non-Western world: (1) invention of zero and (2) the Hindu and Mayan sky-watchers astronomical observations for agricultural and religious purposes. Both findings involved the works of the ancient Hindus.

“The Ancient Hindu Science is well documented with remarkable objectivity, proper citations, and a substantial bibliography. It highlights the achievements of this remarkable civilization through painstaking research of historical and scientific sources. The style of writing is lucid and elegant, making the book easy to read. This book is the perfect text for all students and others interested in the developments of science throughout history and among the ancient Hindus, in particular.” (From the Publisher)

More information available [here](#).

Livermore, Roy (2019) *The Tectonic Plates are Moving!* Oxford, UK: Oxford University Press. ISBN: 978-0-198-84793-9

“This book is full of delightful surprises ...I highly recommend this book as one for you if you want to be properly informed and royally entertained.” – Pete Loader, Teaching Earth Science

“...a super read; I thoroughly enjoyed it! If you have the slightest interest in the history of plate tectonics, do read this book you will not be disappointed!” – Michael Brown, International Geology Review

“This book explains modern plate tectonics in a non-technical manner, showing not only how it accounts for phenomena such as earthquakes, tsunamis and volcanic eruptions, but also how it controls conditions at the Earth’s surface, including global geography and climate.” – Ian Angus, *Green Left Weekly*

“Roy Livermore’s book provides a comprehensive and authoritative account of the development of plate tectonics theory, from the earliest days of sea-floor spreading to current ideas on mantle plumes and the tectonics of Mars. It clearly describes the critical interactions of science, technology, human personalities and historical accidents. This is a thoroughly enjoyable book, written from the point of view of a knowledgeable insider.” – Roger C. Searle, Durham University, UK

“Far from being a dense, jargon-laden history book, Livermore brings an accessible writing style and brilliant humour to the story, which certainly had me chuckling. If you know anyone (including yourself!) who is keen to find out more about our planet, give them this book.” – Jonathan Scafidi, The Geological Society

in America and change the focus of his work from mathematics to philosophy. Volume 2 of *Alfred North Whitehead: The Man and His Work* follows Whitehead’s journey to the United States and analyzes his expanding intellectual life. Although Whitehead wrote philosophy based on natural science while still in London, he began his most important work shortly after moving to Harvard in 1924. *Science and the Modern World* appeared in 1925, *Religion in the Making* in 1926, *Symbolism* in 1927, and *Process and Reality* in 1929.

Discussing these and other important works, Lowe combines scholarly analysis with valuable insights gathered from Whitehead’s friends and colleagues. Although Whitehead ordered that all his private papers be destroyed, Lowe was given access to letters the philosopher wrote to his son, North, and others. Never before published, the letters add a new personal dimension to Whitehead’s life and thought. Photographs of the philosopher, his family, and associates provide an intimate look at a private and self-effacing man whose work has had a lasting impact on twentieth-century thought.” (From the Publishers)

More information available [here](#).

More information available [here](#).

Lowe, Victor (2019) *Alfred North Whitehead: The Man and His Work: 1910-1947*. (Vol.2). Baltimore, MD: John Hopkins University Press. ISBN: 978-1-421-43420-9

Mazur, Allan (2017) *Technical Controversies over Public Policy: From Fluoridation to Fracking and Climate Change*. Abingdon, UK: Routledge ISBN: 978-1-138-06904-6

“The second volume of Victor Lowe’s definitive work on Alfred North Whitehead completes the biography of one of the twentieth century’s most influential yet least understood philosophers. In 1910 Whitehead abruptly ended his thirty-year association with Trinity College of Cambridge and moved to London. The intellectual and personal restlessness that precipitated this move ultimately led Whitehead—at the age of sixty-three—to settle

“This study of major public, technical controversies is done by a veteran craftsman of sociological and scientific reasoning. Allan Mazur depends first and foremost on scientific and technical understanding, recognizing that experts can disagree on scientific facts and public policy while reflecting his appreciation of these controversies’ dynamics as the inevitable result of progress. Mazur successfully carves out a place in the public debate neither as a partisan

nor as a polemicist but rather as an honest broker and sage observer of history and the contemporary scene.” – Jonathan B. Imber, Wellesley College

“In *Technical Controversies in Public Policy*, Allan Mazur has written comprehensive accounts of most of the major public science controversies of the past half century and shows how political, ideological, and value-based factors displace or overwhelm conclusions based on scientific evidence. He argues that although asserting “correct” information is unlikely to change embedded views, journalists and authoritative people can improve public understanding by setting the record straight in a manner that reduces the polarizing heat of controversy.” – Rush D. Holt, American Association for the Advancement of Science

“Among the diverse subjects Allan Mazur has studied during his long and productive career, technical controversies are a recurring theme. In *Technical Controversies over Public Policy*, he expands substantially on his earlier work explaining the roots, benefits, and costs of technical controversies – especially global climate change – and takes a less sanguine approach to the impacts of such controversies on policy in this era of “truthiness” and increasing political polarization. This book tells a critically important story and deserves to be read by a broad audience: the academic community, policymakers, the media, and the public.” – Albert H. Teich, George Washington University

More information available [here](#).

Newman, Todd P. (2019) *Theory and Best Practices in Science Communication Training*. Taylor & Francis. ISBN: 978-1-138-47815-2

“This new book demonstrates the productive ferment of the science communication training field. The authors draw on diverse research traditions to suggest new ways of thinking about science communication. Science communication serves many

goals, and these chapters suggest how practitioners might be trained to better address those goals. Ideas from this book will surely find their way into my own courses and workshops.” – Bruce Lewenstein, Chair, Department of Science and Technology Studies, Cornell University, USA

“As science communication training proliferates worldwide, and is increasingly commercialised, this collection of essays and studies is timely and highly relevant. It offers a variety of perspectives, drawing on multiple disciplines and theoretical models and proposing several options for practice and policy. In this way, it provokes us to explore further the purposes and processes of training in various contexts, and to reflect more on what effective communication might mean and on important nuances of difference between training and education.” – Brian Trench, President, PCST (Public Communication of Science and Technology) international network, Ireland

“This book brings together a diverse group of experts and shares different perspectives on the “science of science communication”. Research on science communication and science communication training are vital to advancing our efforts to prepare scientists to discuss their work with the public, policymakers, media, and other scientists. I am thrilled this book provides this critical link, and it offers important insights to all of us who are committed to this work.” – Laura Lindenfeld, Director, Alan Alda Center for Communicating Science, Stony Brook University, USA

More information available [here](#).

Noakes, Richard (2019) *Physics and Psychics: The Occult and the Sciences in Modern Britain*. Cambridge, UK: Cambridge University Press. ISBN: 978-1-107-18854-9

“This is the first systematic exploration of the intriguing connections between Victorian physical

sciences and the study of the controversial phenomena broadly classified as psychic, occult and paranormal. These phenomena included animal magnetism, spirit-rapping, telekinesis and telepathy. Richard Noakes shows that psychic phenomena interested far more Victorian scientists than we have previously assumed, challenging the view of these scientists as individuals clinging rigidly to a materialistic worldview. Physicists, chemists and other physical scientists studied psychic phenomena for a host of scientific, philosophical, religious and emotional reasons, and many saw such investigations as exciting new extensions to their theoretical and experimental researches. While these attempted extensions were largely unsuccessful, they laid the foundations of modern day explorations of the connections between physics and psychic phenomena. This revelatory study challenges our view of the history of physics, and deepens our understanding of the relationships between science and the occult, and science and religion.” (From the Publishers)

More information available [here](#).

Rogacheva, Maria (2019) *The Private World of Soviet Scientists from Stalin to Gorbachev*. Cambridge, UK: Cambridge University Press. ISBN: 978-1-316-64726-4

“Rogacheva sheds new light on the complex transition of Soviet society from Stalinism into the post-Stalin era. Using the case study of Chernogolovka, one of dozens of scientific towns built in the USSR under Khrushchev, she explains what motivated scientists to participate in the Soviet project during the Cold War. Rogacheva traces the history of this scientific community from its creation in 1956 through the Brezhnev period to paint a nuanced portrait of the living conditions, political outlook, and mentality of the local scientific intelligentsia. Utilizing new archival materials and an extensive

oral history project, this book argues that Soviet scientists were not merely bought off by the Soviet state, but that they bought into the idealism and social optimism of the post-Stalin regime. Many shared the regime’s belief in the progressive development of Soviet society on a scientific basis, and embraced their increased autonomy, material privileges and elite status.” (From the Publishers)

More information available [here](#).

Romeiras, Francisco Malta (2019) *Jesuits and the Book of Nature: Science and Education in Modern Portugal*. Leiden: Brill. ISBN: 978-90-04-38236-7

“Jesuits and the Book of Nature: Science and Education in Modern Portugal offers an account of the Jesuits’ contributions to science and education after the restoration of the Society of Jesus in Portugal in 1858. As well as promoting an education grounded on an “alliance between religion and science,” the Portuguese Jesuits founded a scientific journal that played a significant role in the consolidation of taxonomy, plant breeding, biochemistry, and molecular genetics. In this book, Francisco Malta Romeiras argues that the priority the Jesuits placed on the teaching and practice of science was not only a way of continuing a centennial tradition but should also be seen as response to the adverse anticlerical milieu in which the restoration of the Society of Jesus took place.” (From the Publisher)

More information available [here](#).

Sanitt, Nigel (2019) *Culture, Curiosity and Communication in Scientific Discovery*. Routledge. ISBN: 978-1-138-62558-7

”More and more people worry about the possibility that the scientific temper is exhausting its own

foundations when the focus is on outcomes. A focus on impact leads us to forget the significance of an attitude that values meaning before signals, questions before answers, problems before solutions, and imagination and creativity before testing and falsifying. Nigel Sanitt, in this essay on creativity in science, breaks an arrow for the scientific imagination and reminds us of the fundamentals of a scientific temper.” – Martin W Bauer, Professor of Social Psychology and Research Methodology, London School of Economics and Political Science

”In an age when there are more and more scientists, few of them can give a compelling account of how they find understanding and reach conclusions. In *Culture, Curiosity and Communication in Scientific Discovery*, Nigel Sanitt has drawn upon a broad range of investigations as well as historical and contemporary sources to provide some important insights and to stimulate thought.” – Roger Blandford, Professor of Physics and of Particle Physics and Astrophysics, KAVLI Institute, Stanford University

”Questioning is essential to the practice of science. But the question of how scientific theories are constructed and verified remains controversial. Nigel Sanitt’s new book offers an original perspective on scientific questioning. By deploying problematological philosophy, graph theory and theories of meaning and narrative, he makes important arguments about the nature of scientific reasoning and how it is practised. He reveals the problematological unity in scientific practice and raises key questions about the most important theories in physics today.” – Nick Turnbull, Lecturer in Politics, University of Manchester

“This book tells the human story of one of man’s greatest intellectual adventures - how it came to be understood that light travels at a finite speed, so that when we look up at the stars, we are looking back in time. And how the search for a God-given absolute frame of reference in the universe led most improbably to Einstein’s most famous equation $E = mc^2$, which represents the energy that powers the stars and nuclear weapons. From the ancient Greeks measuring the solar system, to the theory of relativity and satellite navigation, the book takes the reader on a gripping historical journey. We learn how Galileo discovered the moons of Jupiter and used their eclipses as a global clock, allowing travellers to find their Longitude. And how Ole Roemer, noticing that the eclipses were a little late, used this to obtain the first measurement of the speed of light, which takes eight minutes to get to us from the sun. We move from the international collaborations to observe the Transits of Venus, including Cook’s voyage to Australia, to the achievements of Young and Fresnel, whose discoveries eventually taught us that light travels as a wave but arrives as a particle, and all the quantum weirdness which follows. In the nineteenth century, we find Faraday and Maxwell, struggling to understand how light can propagate through the vacuum of space unless it is filled with a ghostly vortex Aether foam. We follow the brilliantly gifted experimentalists Hertz, discoverer of radio, Michelson with his search for the Aether wind, and Foucault and Fizeau with their spinning mirrors and lightbeams across the rooftops of Paris. Messaging faster than light using quantum entanglement, and the reality of the quantum world, conclude this saga.” (From the Publisher)

More information available [here](#).

Spence, John C. H. (2019) *Lightspeed: The Ghostly Aether and the Race to Measure the Speed of Light*. Oxford, UK. Oxford University Press. ISBN: 978-0-198-84196-8

More information available [here](#).

Stadler, Friedrich (Ed.) (2019) *Ernst Mach – Life, Work, Influence*. Dordrecht: Springer. ISBN 978-3-030-04378-0

“This edited volume features essays written in honor of Ernst Mach. It explores his life, work, and legacy. Readers will gain a better understanding of this natural scientist and scholar who made major contributions to physics, the philosophy of science, and physiological psychology.

“The essays offer a critical inventory of Mach’s life-work in line with state-of-the-art research and historiography. It begins with physics, where he paved the way for Einstein’s Theory of Relativity. The account continues with Mach’s contributions in biology, psychology, and physiology pioneering with an empiricist and gestaltthaft Analysis of Sensations. Readers will also discover how in the philosophy of science he served as a model for the Vienna Circle with the Ernst Mach Society as well as paved the way for an integrated history and theory of science.

“Indeed, his influence extends far beyond the natural sciences – to the Vienna Medical School and psychoanalysis (R. Bárány, J. Breuer, S. Freud), to literature (Jung Wien, R. Musil), to politics (F. Adler, Austro-Marxism and the Viennese adult education), to arts between Futurism and Minimal Art as well as to social sciences between the liberal school (J. Schumpeter, F. A. von Hayek) and empirical social research (P. Lazarsfeld und M. Jahoda).”
(From the Publishers)

More information available [here](#).

Timberlake, Todd (2019) *Finding our Place in the Solar System: The Scientific Story of the Copernican Revolution*. Cambridge, UK: Cambridge University Press. ISBN: 978-1-316-85620-8

“*Finding our Place in the Solar System* gives a detailed account of how the Earth was displaced from its traditional position at the center of the universe to be recognized as one of several planets orbiting the Sun under the influence of a universal gravitational force. The transition from the ancient geocentric worldview to a modern understanding of

planetary motion, often called the Copernican Revolution, is one of the great intellectual achievements of humankind. This book provides a deep yet accessible explanation of the scientific disputes over our place in the solar system and the work of the great scientists who helped settle them. Readers will come away knowing not just that the Earth orbits the Sun, but why we believe that it does so. The Copernican Revolution also provides an excellent case study of what science is and how it works.”
(From the Publisher)

More information available [here](#).

Authors of HPS&ST-related papers and books are invited to bring them to attention of [Paulo Maurício](#) or [Nathan Oseroff-Spicer](#) for inclusion in these sections.

Coming HPS&ST Related Conferences

October 24-25, 2019, ‘Physical Time, Biological Time: Bergsonism Today’ International Workshop, University of Toulouse 2 – Jean Jaurès, France

More information available .

October 29-30, 2019, ‘Scientific Literacy for All’ Conference, Beijing Normal University, China.

More information available [here](#).

Email: bnukxts@126.com.

October 30 – November 1, 2019, Bucharest Colloquium in Early Modern Science, University of Bucharest.

Details: Ovidiu Babeş

(ovidiu.babes@icub.unibuc.ro).

November 5-7, 2019, ‘Values in Modelling and

Decision Analyses', Society for Decision Making under Deep Uncertainty (DMDU), Delft University of Technology

Information available [here](#).

December 7-11, 2019, Philosophy of Education Society of Australasia (PESA) Annual Conference, University of Hong Kong.

More information:

<https://pesa.org.au/conference>.

January 3-6, 2020, episteme 8, conference, Mumbai, India

Details available [here](#).

January 8-9, 2020, 'Universals Locales', British Academy Sponsored, University of Edinburgh.

Details: <http://mathglobal.org/locales.html>

January 8-9, From Scientific Pluralism to Pluralism in HPS, University of Exeter, UK

Details: Alex Aylward (a.m.aylward@leeds.ac.uk) and Adrian Currie (a.currie@exeter.ac.uk)

January 17-17, 2020, How Quantum Mechanics Changed Philosophy, University of Wuppertal, Germany

Inquiries to vanstrien@uni-wuppertal.de

January 20-21, 2020, International Workshop on the Philosophy of Cancer Biology, University of Bordeaux, France.

Details available [here](#).

March 15-18, 2020, NARST Annual Conference, Portland OR, USA

More information available [here](#).

July 9-11, 2020, 6th International STEM in Education Conference, Vancouver, Canada

Details available [here](#).

July 15-17, 2020, 8th Integrated History and

Philosophy of Science Conference (&HPS8). Virginia Tech, Blacksburg VA

Information: Lydia Patton (critique@vt.edu) or Jutta Schickore (jschicko@indiana.edu)

July 4-8, 2021, IHPST 16th International Conference, University of Calgary, Canada

Details from Glenn Dolphin:

glenn.dolphin@ucalgary.ca.

July 25-31, 2021, 26th International Congress of History of Science and Technology (DHST), Prague

Information: <https://www.ichst2021.org/>

September 20-22, 2021, 'Developing Mario Bunge's Scientific-Philosophical Programme', Huaguang Academy of Information Science, Wuhan, China

Details from Zongrong LI (2320129239@qq.com)

July 24-29, 2023, 17th DLMPST Congress, University of Buenos Aires Information: Pablo Lorenzano, pablo@unq.edu.ar.

HPS&ST Related Organisations and Websites

IUHPST – International Union of History, Philosophy, Science, and Technology

DLMPST – Division of Logic, Mathematics, Philosophy, Science, and Technology

DHST – Division of History, Science, and Technology

IHPST – International History, Philosophy, and Science Teaching Group

NARST – National Association for Research in Science Teaching

[ESERA](#) – European Science Education Research Association website [HERE](#).

[ASERA](#) – Australasian Science Education Research Association

[ICASE](#) – International Council of Associations for Science Education

[UNESCO](#) – Education

[HSS](#) – History of Science Society

[ESHS](#) – European Society for the History of Science

[AHA](#) – American History Association

[ISHEASTME](#) – International Society for the History of East Asian History of Science Technology and Medicine

[BSHS](#) – British Society for History of Science

[EPSA](#) – European Philosophy of Science Association

[AAHPSSS](#) - The Australasian Association for the History, Philosophy, and Social Studies of Science

[HOPOS](#) – International Society for the History of Philosophy of Science

[PSA](#) – Philosophy of Science Association

[BSPS](#) – The British Society for the Philosophy of Science

[SPSP](#) – The Society for Philosophy of Science in Practice

[ISHPSB](#) – The International Society for the History, Philosophy, and Social Studies of Biology

[PES](#) – The Philosophy of Education Society (USA)

The above list is updated and kept on the HPS&ST

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