

HPS&ST Newsletter
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Introduction

The HPS&ST Newsletter is sent monthly to about 11,000 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 40+ years.

The Newsletter, along with RESOURCES, OBITUARIES, OPINION PIECES and more, are lodged at the website: [HERE](#)

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 (publications, conferences, Opinion Piece, etc.) are welcome and should be sent direct to the editor: Michael R. Matthews, UNSW, m.matthews@unsw.edu.au .

27th International Congress of History of Science and Technology, Dunedin, June 29-July 5, 2025

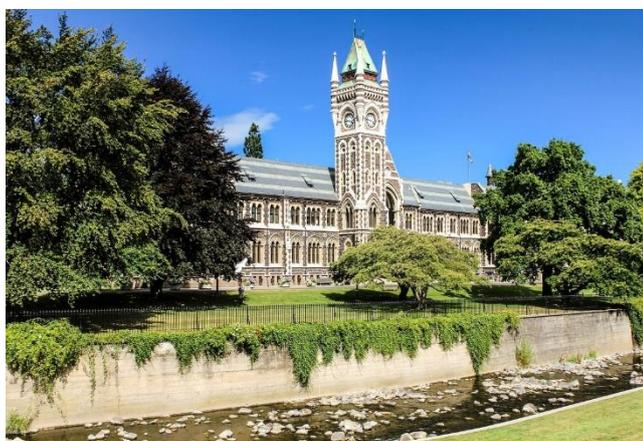


The 27th International Congress of History of Science and Technology will be held from **29 June - 5 July 2025** at the University of Otago in Dunedin, New Zealand.

Symposium Proposals due by 1 May 2024.
Standalone Papers due by 1 December 2024.

The International Congress of History of Science and Technology (ICHST), held every four years, is the world's premier meeting for history of science and technology. The 27th Congress will be held as a hybrid in-person and online event at the University of Otago's Dunedin campus in June-July 2025. Delegates registered for virtual participation will be able to both present and attend online. The Congress will bring together a diverse group of the world's leading scholars and students in the fields of history of science, technology, and medicine as well as related disciplines. It will be the first time the Congress has been held in Australasia and only the second time in the Southern Hemisphere.

The **theme** of the 27th ICHST is "Peoples, Places, Exchanges, and Circulation."



Details [HERE](#)

ISHPSSB 2025 CONFERENCE, 20–25 JULY 2025, University of Porto

The [International Society for the History, Philosophy, and Social Studies of Biology](#) (ISHPSSB) brings together scholars from diverse disciplines, including the life sciences as well as history, philosophy, and social studies of science. The biennial ISHPSSB summer meetings are known for innovative, transdisciplinary sessions, and for fostering informal, cooperative exchanges and ongoing collaborations.

The upcoming ISHPSSB meeting will be held in Porto, Portugal, from 20–25 July, 2025. The [website for the upcoming conference](#) is currently under development.

Two special sessions are being co-organized by ISHPSSB and IHPST. If your paper fits the following topics, please send a message to the email indicating your interest in these specific sessions. In these cases, the organizers will submit the session.

- The construction of school knowledge on history, philosophy, and social studies of biology (contact: Charbel El-Hani, charbel.elhani@gmail.com)
- Making educational sense of the philosophical significance of “new biology” (contact: Ramsey Affifi, affifi@gmail.com)

The submission deadline is 1 November, 2024.

PhilSci Archive - Top 5 Downloads + Books

PhilSci-Archive is the official preprint repository for the PSA and the best place to host your philosophy of science preprints. It offers a free, stable, and openly accessible archive for scholarly articles and monographs.

Downloadable books are available [HERE](#)

The most downloaded preprints for the last six months of articles deposited in the previous two years are:

[Cobb, David \(2022\) Empiricism in the Philosophy of Science](#)

[Wiggleton-Little, Jada and Callender, Craig \(2022\) Screening Out Neurodiversity](#)

[Chen, Eddy Keming \(2023\) Laws of Physics](#)

[Ardourel, Vincent and Bangu, Sorin \(2023\) Finite-size scaling theory: Quantitative and qualitative approaches to critical phenomena](#)

[Stern, Julio Michael and Pereira, Carlos Alberto de Braganca and Lauretto, Marcelo de Souza and Esteves, Luis Gustavo and Izbicki, Rafael and Stern, Rafael Bassi and Diniz, Marcio Alves and Borges, Wagner de Souza \(2023\) The e-value and the Full Bayesian Significance Test: Logical Properties and Philosophical Consequences](#)

Committee for Skeptical Inquiry Conference, October 24-27

[CSICon 2024](#) starts Thursday, October 24, at the Horseshoe Las Vegas.

CSICon is where the brightest stars of reason and science come to shine and features thought-provoking presentations on a variety of topics, informational workshops, panels, book signings, and more. This year's featured presenters include internationally beloved science communicators **Neil deGrasse Tyson** and **Brian Cox** (who will also receive the 2024 Richard Dawkins Award), as well as the stars of the popular *Skeptics' Guide to the Universe* podcast.

CSICon 2024 will also feature a special performance by the illusionist **Banachek** and presentations from **Timothy Caulfield**, **Michael Mann**, **Chris French**, **Jerry Coyne**, journalist **Rina Raphael**, popular YouTuber **Forrest Valkai**, **Andrea Love**, **Massimo Pigliucci**, **Natalia Pasternak**, **Nick Tiller**, **Melanie Trecek-King**, and many more. We're also pleased to host the popular **Sunday Morning Papers** session and the Lilienfeld Alliance's first ever half-day academic conference, "**LiliCon**."

CSICon 2024 runs October 24–27 at the Horseshoe Las Vegas, and a limited number of tickets are still available. If you're within driving distance (or a quick flight) of Las Vegas, check out the website for full details and tickets. Or

follow all the conference highlights through CFI's social media accounts and get daily recaps on the CFI blog

Workshop on Scientific Pluralism, Epistemic Diversity, and Progress in Science

27-28 March 2025

University of Wuppertal, Germany

Submission Deadline: 15.11.2024

Notification of Acceptance: 15.12.2024

The idea that science should converge on a single, ultimate truth has become contested as the dominant view in the academic world; scientific pluralism has gained wide acceptance. However, these discussions have become so rich and entangled that now we can speak of a confusing "plurality of [scientific] pluralisms" (Wylie 2015). The overall goal of this workshop is to examine and clarify different ideas of scientific pluralism.

The workshop investigates the complex relationship between scientific pluralism, epistemic diversity and scientific progress, both theoretically and through the examination of case studies. The overall goal is to discuss whether pluralism hinders or contributes to progress, and to explore the roles of institutional and social structures in this dynamic. A particular focus is put on the social sciences, with an emphasis on the fields of psychology and economics, but case studies from any other field of science are very welcome.

Keynote Speakers:

- Anna Alexandrova (University of Cambridge)
- Paul Hoyningen-Huene (Leibniz University Hanover)
- Inkeri Koskinen (University of Helsinki)
- David Ludwig (Wageningen University & Research)

For further information, please visit our workshop website at <https://grk2696.de/scientific-pluralism-workshop/>. If you have any further questions, please do not hesitate to contact us at pluralism.workshop@uni-wuppertal.de

OPINION PAGE

What is Knowledge? Realist vs Pragmatist Epistemology*

CÉLINE HENNE, Philosophy Department,
University of Bologna

Henne is a postdoctoral fellow in philosophy at the University of Bologna in Italy. Her research focuses on the intersection of philosophy of science, philosophy of language, and epistemology.



Her main areas of research lie at the intersection of epistemology, philosophy of language, and philosophy of science. Her current research consists in studying the role of semantic indeterminacy in conceptual disagreements.

Henne completed her “classes préparatoires littéraires” at Lycée Fénelon in Paris and received my BA in Philosophy from the University of Lyon. Her master's degree in Philosophy was from the Ecole Normale Supérieure (Paris & Lyon). In 2022 she completed her PhD in History and Philosophy of Science at the University of Cambridge with the thesis [*Framed and Framing Inquiry: Development and Defence of John Dewey's Epistemology*](#). Before going to the University of Bologna, she was a postdoctoral fellow at the University of Toronto.

How could gaining knowledge amount to anything other than discovering what was already there? How could the truth of a statement or a theory be anything but its correspondence to facts that were fixed before we started investigating them?

Discovery vs Creation of Knowledge

Some philosophers have argued that, despite widespread intuitions to the contrary, knowledge is not merely a matter of representation but also of construction, and that truth cannot be completely detached from human needs and interests. John Dewey, for example, [argued](#) that the object of knowledge is the product of enquiry and not something that exists independently of that enquiry. But this can't be right. After all, scientists discovered DNA, distant planets and gravity, they did not *create* them. Facts are facts. Any other view seems disastrous, from the vague assertion that we all create our own truth to the Nietzschean [claim](#) that it's interpretations all the way down. Without a shared target that we all aim at getting right, rational discussion is no longer possible. So, what were these philosophers getting at, exactly?

The realist view, which sees enquiry as a process of revelation and knowledge as a representation of antecedent facts, is intuitively compelling. Think of a murder investigation. To be sure, the investigators might need a creative imagination in thinking about possible solutions and ways of looking for evidence, but their *knowledge* of the killer's identity does not involve any creation on their part. On the contrary: someone killed the victim, and nothing that the investigators do during their inquiries could alter that fact. Knowledge consists in having the right beliefs about that fact, based on the right evidence.

These kinds of examples are useful for philosophers: they are simple, familiar and they generate powerful intuitions. But, precisely because of their simplicity, they can be misleading. Not all enquiries are like whodunnit investigations. In fact, if we want to know what knowledge is, we should also look at more complex cases, in which the object of investigation itself is articulated only as enquiry progresses. Depending on the type of enquiry we examine, we might find that it is more appropriate

to talk of articulation than representation, creation rather than revelation.

Some enquiries are indeed like whodunnits. We start with specific questions, and these questions come with predetermined sets of possible answers. Our goal is to land on the correct answer. Sometimes – hopefully, more often than not – we succeed; but nothing we actually *do* during our investigation determines what the correct answer is. This is the tragedy of the judicial system. Innocent lives are ruined while the real culprits get away with murder. Some cold cases remain cold forever, and the truth is buried with the corpse. To a certain extent, many of our scientific enquiries could be understood in this way.

Consider the following question: how has Earth's average surface temperature changed over the past million years? With the help of complex inferences and models based on what we know of today's temperatures and paleontological data, scientists can reach some estimates. But scientists might be wrong, and the further back in the past we go, the more difficult it is to get precise estimates. Yet, Earth's surface did have an average temperature exactly one million years ago, just like it has an average temperature today. If we could travel back in time and bring our meteorological stations with us, we would be able to measure the temperature at different points on Earth and calculate this average.

Notice that the enquiries I have just described both operate within a familiar domain. The definite questions, with their space of possible answers, presuppose an object of investigation that is already well defined. The correct solution to a murder case might be surprising, but it's nothing that a clever novelist could not imagine. Scientists can enquire into the temperature on Earth over the past million years because others before them have developed the conceptual, theoretical and instrumental tools that allow us to understand and measure temperature and study its effects on a host of natural phenomena. Precisely for this reason, we should not assume that all enquiries are like this. Instead, we should turn our attention to the enquiries that create that familiarity in the first place.

From Puzzlement to Intelligibility)

There was a time when we did not know what temperature was nor how to measure it. As Hasok

Chang recounts in *Inventing Temperature* (2004), scientists started their investigations with a vague sense of temperature as a phenomenon related to our sensations of hot and cold as well as various natural phenomena, such as the expansion and contraction of solids and liquids. They noticed that doors are more difficult to open in the summer heat, and water levels in pots steadily rise when brought to a boil. From this rudimentary starting point, they worked their way towards sophisticated measuring instruments, the conceptual distinction between temperature and heat, all the way to thermodynamics and the kinetic theory of gases.

Although their enquiries were guided by various aims – establishing the fixed points of thermometry, relating the abstract concept of absolute temperature to concrete measurements – those enquiries were nothing like 'whodunnit' investigations. Scientists did not know exactly what they were looking for, and their target evolved along with their enquiry. Their work was chiefly creative, because they made the tools that served to delineate the very object of their enquiry. Retrospectively, we can understand what they were doing as getting closer to what we now understand with the help of our more sophisticated tools. But their enquiry was open ended, with each step building on previous steps in an iterative process.

The kind of knowledge or understanding that is gained through this enquiry cannot be captured by the idea of representation alone. Philip Kitcher, in *Science, Truth, and Democracy* (2001), proposes the image of the sculptor making a statue: while relying on the materiality of the marble block, the sculptor does not stumble upon a hidden treasure patiently waiting to be discovered.

Joseph Rouse, in *Articulating the World* (2015), proposes to replace the notion of representation with that of articulation. Science creates new patterns of reasoning and interaction with our surroundings. In doing so, it transforms puzzling phenomena into intelligible objects of discourse and action. Although most of us do not have a technical understanding of temperature and heat, we are now surrounded with devices that embody this knowledge – thermometers, refrigerators, microwaves.

Framed and Framing Inquiries

What distinguishes these types of enquiries, and what accounts for their differences? In addressing these questions, I follow the insights of Rudolph Carnap (*Logical Foundations of Probability*, 1950) and of Thomas Kuhn (*The Structure of Scientific Revolutions*, 1962), who both emphasised the role of frameworks or paradigms in our cognitive lives.

Frameworks can be understood as constellations of concepts, methods and assumptions that reflect our understanding of the world around us and regulate how we think and act. The whodunnit-style investigations can be likened to what Carnap termed ‘internal questions’ – I prefer to call them ‘framed enquiries’. Their defining feature is that they rely on settled frameworks that constrain the enquiry from question to answer, from problem to solution. In asking what the surface temperature of Earth was a million years ago, scientists presuppose (among other things) the complex theoretical and instrumental apparatus that defines temperature as a quantifiable physical property.

Similarly, the question ‘Who killed Ratchett on the Orient Express?’ presupposes established concepts that distinguish between different kinds of events and actions. Our folk categories, along with their more sophisticated legal counterparts, determine what counts as suicide, murder, manslaughter, life and death, how they relate to one another, and how to differentiate between them in practice.

Once the framework is settled, it delimits the questions we can ask and the range of their possible answers, although the correct answer itself is not up to us. To express this feature, Kuhn likened the research done under an established paradigm to a kind of ‘puzzle-solving’, where the structure of the problem itself allows for only one predetermined solution. We can say that there is a fact of the matter about the surface temperature of Earth a million years ago because, *given* our current concept of temperature and measurement methods, this question has a determinate correct answer, although scientists will probably never get more than rough and uncertain estimates.

By contrast, in what we may term ‘framing enquiries’, which include what Carnap called ‘external questions’, the framework itself is at stake. The issue is not just *what* to think about things, but *how* to think about them. Such enquiries are concerned with the creation, revision

or expansion of our frameworks. In their most radical instances, they lead to what Kuhn called ‘paradigm shifts’, as when physics moved from the Newtonian paradigm of absolute space and time to Einstein’s relativistic paradigm.

While these enquiries also rely on concepts, methods and assumptions – as all enquiries do – they involve the continuous revision of existing frameworks or the creation of new ones as they progress. Consequently, these enquiries are open-ended and creative in a more fundamental sense. The product itself, not just the way of getting there, involves creation.

The distinction between framed and framing enquiries can be illuminated by an analogy with legal judgements. The law characterises certain kinds of acts as different types of offences and delineates the types of consequences that ensue. In most cases, the existing legal categories can be applied to the case at hand. However, judges are sometimes faced with situations that do not fit the existing categories. With the development of new technologies, these situations are happening more and more often. Lawmakers must redefine ‘property’ and ‘theft’ in the digital age.

The already complex issue of determining responsibility is further challenged by the advent of self-driving cars and the use of artificial intelligence in decision-making. Framing enquiries are analogous to court trials where past judgements (in common law) or written laws (in civil law) underdetermine how these novel phenomena should be interpreted and adjudicated. In these instances, judges or lawmakers need to make creative decisions that will not only settle the present case, but also constrain how future similar situations will be judged.

Why it matters?

Why is this distinction significant? For one, it shows that simple cases of framed enquiry cannot serve as the sole paradigm for knowledge acquisition. One of the defining characteristics of framed enquiries is that they occur in familiar domains, where we possess the tools required to ask and answer questions about certain objects or phenomena. They are like filling in the blanks on an already well-drawn map. We have the big picture, but we are missing a few mountain paths.

How could we make legitimate generalisations about knowledge acquisition based on how

enquiry works in the cases in which we already know so much? If we want to understand how we, as cognitively limited beings, manage to gain knowledge of the world we live in, we should examine framing enquiries – enquiries that chart new territories or alter our overall understanding of a subject matter.

But this does not just matter for philosophers and their theories of knowledge, or for scientists and their understanding of their research. This distinction also impacts how we navigate our own daily enquiries, including in the social and political domain.

Many debates labour in unproductive arguments when it is wrongly assumed that participants share the same framework. In most social and political disagreements, the frameworks through which we analyse things and evaluate decisions – our conception of justice, equality, efficiency – are almost always at stake. If you are debating whether this or that country is a democracy, or whether trans women are women, chances are you are not relying on the same framework but rather debating about the framework itself.

Take the assessment of COVID-19-related policies. We can only reduce the disagreement about the efficiency of lockdowns or vaccine mandates to a debate about *facts* or *data* once we already agree on all the essentials: What ‘efficiency’ means from a medical, social, political and economic perspective; how individual freedoms are to be balanced with society-wide benefits; how actual and preventable COVID-19 deaths are calculated; and many other parameters.

Dispute about Frameworks

But settling on a shared framework *is* the hard part. This is one of the reasons (although arguably, only one of many) why facts do not change minds because, most often, it is the framework through which we analyse them that is at stake.

It is, then, crucial to know when we are in a framed or in a framing enquiry, debate or conversation. The issue is not merely one of potential miscommunication, but also of misdirected argumentation. I have noted earlier that, in framed enquiry, the framework constrains the space of possible answers, while in framing enquiry, the issue is more open-ended. We do not aim at a predetermined target in the same way that a murder investigation aims at finding out who the

murderer is. When we discuss our conceptions of democracy, gender, efficiency, the goal is to build conceptual structures that help us make sense of the world, given our purposes. There is no right answer to be found ‘out there’, whether in the Platonic essence of democracy or a metaphysical ‘eternal feminine’.

Carnap expresses this idea by claiming that external questions are primarily practical questions. By this, he means that their answers are not provided directly by the world, but rather they are partially determined by our needs, purposes and interests. This is because, for Carnap, frameworks are instruments or tools, not simply mirrors of the world. This is perhaps more intuitive for social concepts, like gender or democracy, but even scientific frameworks are interest-dependent in some sense.

Take the astronomical nomenclature that distinguishes between planets and asteroids. Is there really a shared essence between the gas giants Jupiter and Saturn and the comparatively small rock Mercury that excludes the smaller rocks Pluto and Eris? More likely, different theoretical interests – calculating orbits, explaining the formation of the solar system – are likely to yield slightly different verdicts. Even the way data is collected (for example, how COVID-19 deaths are reported and calculated) involves choices that partly reflect our values and interests, whether practical or theoretical. In William James’s words: ‘The trail of the human serpent is thus over everything.’

Wither Objectivity?

This is not to say that, when we engage in framing enquiry, we should give up on any ideal of objectivity. The open-endedness of framing enquiry does not amount to a free-for-all pass to choose or create the framework that fits one’s prior beliefs and desires. In fact, doing so would be the opposite of open-endedness, since it would subordinate the entire enquiry to predetermined ends. Instead, facts matter in framing enquiry because there is a constant iterative adjustment between frameworks and facts. The ideal is less one of correspondence to independent reality as one of pragmatic coherence or reflective equilibrium between means and ends, facts and values. For example, a health-first view of efficiency that looks at COVID-19 deaths but not suicides and mental health consequences lacks

coherence. Reasons, arguments and evidence still have a central role to play in framing enquiry.

In a similar vein, saying that conceptual frameworks determine the space of possible answers does not mean that we can create our own truth, or change the facts themselves just by adopting a new framework. To take our earlier example, it might be that, according to one conception of 'efficacy' that is geared towards short-term economic loss, lockdowns were not effective, while according to another conception of 'efficacy' geared towards limiting the spread of COVID-19, lockdowns were effective.

In that case, we are not faced with two sets of 'alternative facts'. Both frameworks can accommodate the same facts. We cannot pick and choose the framework we want, with the parameters we want, to change the facts themselves. What we can do is have legitimate debates about what conception of efficacy is more useful – what aspects of human life matter to us, and what kind of framework will help us make better decisions in the future.

This is why it is important to know when we are engaged in a framed or a framing enquiry. Unfortunately, it is not always straightforward to tell, especially from the inside. First, the distinction between framed and framing enquiry is a spectrum rather than a dichotomy, and that complicates matters. Many of our daily investigations are very clearly on the framed end of the spectrum: why is the kitchen sink leaking? How many eggs do we have in the fridge? But in more complex enquiries, whether in science or politics, the boundaries between framed and framing enquiry are blurred, as we most often alternate between the two.

There can be framing moments in a mostly framed enquiry, as when we decide which analysis to perform in a statistical study. Sometimes, we have to wait until the end of our enquiry to find out whether it was a framed or framing enquiry. We might think that we are dealing with a familiar kind of problem, only to discover that we need to reconfigure our approach as we go along.

Second, we might be oblivious to the difference between framed and framing enquiry because we are oblivious to the presence of frameworks themselves. Frameworks are crystallisations of our understanding of the world, and they remain

transparent most of the time. We see *through* them instead of looking *at* them. We rarely examine them until they break down. Even then, we tend to believe that the words we use and the methods we learned are transparent ways of describing reality. We hold on to our deep-seated intuition that all of our enquiries are like Hercule Poirot mysteries. We debate as if the world itself could settle who is right or wrong, even in the sociopolitical domain.

What we can do, regardless of our degree of awareness for the particular situation we are in, is never to take our frameworks for granted. As Dewey puts it:

Failure to examine the conceptual structures and frames of reference which are unconsciously implicated in even the seemingly most innocent factual inquiries is the greatest single defect that can be found in any field of inquiry. (*Logic: A Theory of Inquiry*, in *Later Works Vol 12*, p.501)

We should always keep in mind that, looking back, frameworks are the results of a long process of trial and error, and, looking forward, most of them will need to be adjusted in light of changing circumstances and new discoveries.

* This essay originally appeared in [Aeon Magazine](#), 29 July 2024

Invitation to Submit Opinion Piece

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

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

They will be archived, and downloadable, in the OPINION folder at the HPS&ST web site [HERE](#).

Varia

- [Cristiano Moura](#) has been appointed in-coming editor of *Science & Education*.

- Eight HPS&ST books downloadable gratis [HERE](#)
- *Science & Education* Open Access articles (148) [HERE](#)

Featured Book: *Women in the History of Science: A sourcebook*

Hannah Wills (Editor), Sadie Harrison (Editor), Erika Jones (Editor), Rebecca Martin (Editor), Farrah Lawrence-Mackey (Editor)
University College London Press, 2023

474 pps,

DOI: <https://doi.org/10.14324/111.9781800084155>

WOMEN IN THE HISTORY OF SCIENCE A SOURCEBOOK



Editors
HANNAH WILLS, SADIE HARRISON, ERIKA JONES,
FARRAH LAWRENCE-MACKEY AND REBECCA MARTIN
UCLPRESS

Women in the History of Science brings together primary sources that highlight women's involvement in scientific knowledge production around the world. Drawing on texts, images and objects, each primary source is accompanied by an explanatory text, questions to prompt discussion, and a bibliography to aid further research.

Arranged by time period, covering 1200 BCE to the twenty-first century, and across 12 inclusive and far-reaching themes, this book is an invaluable companion to students and lecturers alike in exploring women's history in the fields of science, technology, mathematics, medicine and culture.

While women are too often excluded from traditional narratives of the history of science, this book centres on the voices and experiences of women across a range of domains of knowledge. By questioning our understanding of what science is, where it happens, and who produces scientific knowledge, this book is an aid to liberating the curriculum within schools and universities.

Download pdf [HERE](#)

AUTHORS OR PUBLISHERS of suitable HPS&ST books who would like an appropriate Preface, Introduction or First Chapter of their book featured in the newsletter, and placed in the [RESOURCE](#) folder of the HPSST website, should contact newsletter editor [Michael R. Matthews](#)

Golden Oldie: HPS&ST Research from 30+ Years Ago

Good HPS&ST research is clearly written, philosophically informed, well-argued, and has enduring value. Clarity encourages critique and evaluation, where flaws can be identified and corrected. This is a condition for the advance of knowledge.

Much education research is timely. This is useful. But an unfortunate consequence can be that what is timely today might be irrelevant tomorrow. Circumstances change. The research might leave no trace. Conversely, some research can leave a big trace but be philosophically flawed and so do educational and, ultimately, cultural damage.

Good HPS&ST research has a long shelf-life. In defence of this claim, the [HPS&ST Newsletter](#) will identify 30+ years-old articles that had, and still have, philosophical, historical and educational value. They are Golden Oldies.

Third in the series:

W.A. Suchting, 1992, 'Constructivism Deconstructed', *Science & Education*, 1(3) 223-254.

This paper examines the doctrine of 'constructivism' as presented by Ernst von Glasersfeld (1989). Part I attempts to elicit a clearer statement of the concepts, positions and

arguments for the latter than is immediately available in the paper. Part II discusses the problem of intersubjectivity in constructivism. The general conclusions drawn from these sections is that the basic concepts and theses of constructivism are, mostly, at best very obscure, that there is very little argument involved, and that where there is it is quite unsatisfactory. Part III ventures an explanation of at least some of the weaknesses in the doctrine, this involving a brief independent treatment of some relevant epistemological questions.

Available [HERE](#)

Ernst von Glasersfeld responded to Suchting: 'Constructivism Reconstructed: A Reply to Suchting', *Sc.&Educ.* 1992, 1(4), 379-384. The paper is available [HERE](#)

Recent HPS&ST Research Articles

Atkins, L. (2024). Why We Eat Calories: A Plurality Metaphor of Energy in Scientific Disciplines. *Sci & Educ*, 1-24.

<https://doi.org/10.1007/s11191-024-00554-8>

Bélanger, M., Richard, V. (2024). Managing Wide Plurality Through Metarepresentations. *Sci & Educ*, 1-41. <https://doi.org/10.1007/s11191-024-00556-6>

Christodoulou, A., Grace, M. (2024). Becoming 'Wild Citizens': Children's Articulation of Environmental Citizenship in the Context of Biodiversity Loss. *Sci & Educ*, 1-29.

<https://doi.org/10.1007/s11191-024-00558-4>

da Rosa, J.A. (2024), Twenty-Years of Anti-Climate Change and Anti-Evolution Education Legislation in the United States. *Science Education*, 1-23.

<https://doi.org/10.1002/sce.21907>

Flores-Camacho, F., Gallegos-Cázares, L. (2024). Representational Pluralism in Science Education. *Sci & Educ*, 1-21.

<https://doi.org/10.1007/s11191-024-00559-3>

Hof, B., Ienna, G. & Turchetti, S. (2024). The Protest that Never Was: Silencing Political Activism at CERN Before and During the Vietnam War. *Phys. Perspect.*, 1-26.

<https://doi.org/10.1007/s00016-024-00317-6>

Korfmacher, I. M., Hammann, M., & Konnemann, C. (2024). The role of consensus messaging in teaching evolution. *International Journal of*

Science Education, 1–20.

<https://doi.org/10.1080/09500693.2024.2400724>

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Baptiste Morin, the mathematicians Pierre Petit, Gilles Personne de Roberval, Pierre de Fermat, and many others.” (From the Publisher)

More information [HERE](#)

Recent HPS&ST Related Books

Ariew, R., & Bos, E.-J. (2024). *René Descartes: The Complete Correspondence in English Translation, Volume I. From the Early Years to the Discourse on Method, 1619-1638*. Oxford, UK. Oxford University Press. ISBN: 9780198860044.

“*René Descartes: The Complete Correspondence in English Translation* is the first complete English translation of the extant correspondence of the polymath René Descartes, who excelled in all areas of philosophy, the sciences, and mathematics. The translation is based on the best available editions, modified by several other sources. It is accompanied by an editorial apparatus consisting of cross-references and brief biographies of the correspondents. Descartes' correspondence elaborates his views, providing a crucial resource for students, teachers, and scholars in philosophy, history of philosophy, and history of science and mathematics.

“Volume I presents correspondence from the period 1619 to 1638. The letters begin with exchanges between Descartes and the physico-mathematician Isaac Beeckman, the essayist Guez de Balzac, the lens maker Jean Ferrier, and Descartes' future primary correspondent Marin Mersenne. It includes letters to high ranking Oratorians. One can also see the beginnings of Descartes' relations with Constantijn Huygens, who will be Descartes' other chief correspondent. One can also trace the developments of Descartes' early unpublished works on metaphysics, physics, and human biology, together with his reaction to the condemnation of Galileo by the Catholic Church. The letters show developments in Descartes' construction and publication of the *Discourse on Method*, together with the essays *Dioptrics*, *Meteors*, and *Geometry*. This results in an explosion of letters from and to various critics such as the professor of medicine Vopiscus Fortunatus Plemp, the astrologer Jean

Borowski, Audrey (2024). *Leibniz in His World: The Making of a Savant*. Princeton, NJ: Princeton University Press. ISBN: 9780691260747

“Described by Voltaire as “perhaps a man of the most universal learning in Europe,” Gottfried Wilhelm Leibniz (1646–1716) is often portrayed as a rationalist and philosopher who was wholly detached from the worldly concerns of his fellow men. *Leibniz in His World* provides a groundbreaking reassessment of Leibniz, telling the story of his trials and tribulations as an aspiring scientist and courtier navigating the learned and courtly circles of early modern Europe and the Republic of Letters.

“Drawing on extensive correspondence by Leibniz and many leading figures of the age, Audrey Borowski paints a nuanced portrait of Leibniz in the 1670s, during his “Paris sojourn” as a young diplomat and in Germany at the court of Duke Johann Friedrich of Hanover. She challenges the image of Leibniz as an isolated genius, revealing instead a man of multiple identities whose thought was shaped by a deep engagement with the social and intellectual milieus of his time. Borowski shows us Leibniz as he was known to his contemporaries, enabling us to rediscover him as an enigmatic young man who was complex and all too human.

“An exhilarating work of scholarship, *Leibniz in His World* demonstrates how this uncommon intellect, torn between his ideals and the necessity to work for absolutist states, struggled to make a name for himself during his formative years.” (From the Publishers)

More information [HERE](#)

Davis, Edward B. (2024). *Protestant Modernist Pamphlets: Science and Religion in the Scopes*

Era. Baltimore, MD: Johns Hopkins University Press. ISBN: 9781421449821

“A critical edition of ten rare pamphlets on science and religion published from 1922–1931 by the University of Chicago Divinity School.

“In the years surrounding the Scopes trial in 1925, liberal Protestant scientists, theologians, and clergy sought to diminish opposition to evolution and to persuade American Christians to adopt more positive attitudes toward modern science. With funding from the Rockefeller Foundation and many leading scientists, the University of Chicago Divinity School published a series of ten pamphlets on science and religion to counter William Jennings Bryan's efforts to ban evolution in public schools.

“In *Protestant Modernist Pamphlets*, historian Edward B. Davis, who discovered these pamphlets, reprints them with extensive editorial comments, annotations, and introductions to each. Based on unpublished correspondence and internal Divinity School documents, these introductions narrate the origin of the pamphlets, as well as their funding sources and how readers reacted to them. Letters from dozens of top scientists at the time reveal their previously unknown views on God and the relationship between science and religion. Viewed together, the pamphlets and Davis's critical assessment of their historical importance provide an intriguing perspective on Protestant modernist encounters with science in the early twentieth century.” (From the Publishers)

More information [HERE](#)

Hattiangadi, Jagdish (2024). *Francis Bacon's Skeptical Recipes for New Knowledge*. Springer: Dordrecht. ISBN: 978-3-031-52584-1

“The book sets an ambitious goal. It devises a new account of scientific methodology that makes it possible to explain how scientists manage, at least occasionally, to find true models of reality. The new methods may be contrasted with all those currently available that employ “coherence theories” of

knowledge. Under this designation are grouped positions that can seem very different (such as those of Poincaré, Duhem, Popper, Hempel, Quine, Kuhn, and Feyerabend) but are united by the idea that the most general statements of science are merely hypotheses. They may be conjectures, opinions, conventions, posits, paradigms, or even myths. The most we can claim to know from such generalities is that they are internally consistent and coherent with empirical data. Consistency is insufficient to establish the truth of a conceptual system because many different systems, perhaps an infinite number, can be logically consistent and cohere with recorded data. Such is the well-known problem of the empirical under-determination of theories. *Francis Bacon's Skeptical Recipes for New Knowledge* suggests a new methodology that solves this fundamental problem of knowledge.” (From the Publishers)

More information [HERE](#)

Nagel, Thomas (2024). *What Is It Like to Be a Bat?*. Oxford, UK: Oxford University Press. ISBN: 9780197752791

“A 50th anniversary edition of one of the most widely influential articles of 20th Century philosophy

“Consciousness is what makes the mind-body problem really intractable.” So begins Thomas Nagel's classic 1974 essay *What is it Like to be a Bat?* Nagel's essay initiated the now widespread attention to consciousness as a central problem for philosophy, psychology, and neuroscience; it also influenced the recognition of the consciousness of nonhuman creatures as an important subject of study. Nagel argued that the essential subjectivity of conscious experience — what it is like for the creature undergoing it — means that reductionist theories of mind, which attempt to analyze it in physical terms, can never succeed. It follows that the physical sciences cannot provide a complete description of reality, and that the physical conception of objective reality must be transcended if science is going to comprehend the mind.

“This edition reissues this classic and widely influential article on its 50th anniversary, along with a new preface discussing the origins and influence of the essay, as well as *Further Thoughts: The Psychophysical Nexus*, a supplementary essay which describes Nagel's later thoughts about how to respond to the problem posed by *What Is It Like to Be a Bat?* This second essay suggests that the most promising path forward for the mind-body problem, if one accepts the irreducible subjectivity of consciousness, is to seek a necessary connection between mental and neurophysiological states through a more fundamental type of state which is neither mental nor physical but necessitates them both as essential aspects. In other words, a state that is physical from the outside and mental from the inside, just as we are. This would be a form of monism, requiring the formation of new concepts, since our present concepts of the mental and the physical do not entail such a necessary connection. The essay explains why the relation between the mental and the physical may be necessary, even though our present concepts make it appear contingent.” (From the Publisher)

More information [HERE](#)

Nesvold, Erika (2024). *Off-Earth: Ethical Questions and Quandaries for Living in Outer Space*. Cambridge, MA: The MIT Press. ISBN: 9780262550994

“We've pinpointed the destination, refined the technology, designed the habitat, outfitted our space residents. Are we forgetting something? A timely reminder that it's not just rocket science, this thought-provoking book explores the all-too-human issues raised by the prospect of settling in outer space. It's worth remembering, Erika Nesvold suggests, that in making new worlds, we don't necessarily leave our earthly problems behind. Accordingly, her work highlights the complex ethical challenges that accompany any other-worldly venture—questions about the environment, labor rights, and medical ethics, among others.

“Any such venture, Nesvold contends, must be made on behalf of all humanity, with global input and collaboration. *Off-Earth* thus

includes historical and contemporary examples from outside the dominant Western/US, abled, and privileged narrative of the space industry. Nesvold calls on experts in ethics, sociology, history, social justice, and law to launch a hopeful conversation about the potential ethical pitfalls of becoming a multi-planet species—and, ideally, to shed light on similar problems we presently face here on Earth.

“Space settlement is rapidly becoming ever more likely. Will it look like the utopian vision of *Star Trek*? Or the dark future of *Star Wars*? Nesvold challenges us to decide.” (From the Publishers)

More information [HERE](#)

Robinson, Andrew (2024). *Einstein in Oxford*. Chicago, IL: The University of Chicago Press. ISBN: 9781851246380

“In 1931, Albert Einstein visited Oxford to receive an honorary degree and lecture on relativity and the universe. While teaching, he naturally chalked equations and diagrams on several blackboards. Today, one of these boards is the most popular object in Oxford's History of Science Museum. Yet Einstein tried to prevent its preservation because he was modest about his legendary status. Having failed, he complained to his diary: “Not even a cart-horse could endure so much!”

“Nevertheless, he came back to Oxford in 1932 and again in 1933—then as a refugee from Nazi Germany. In many ways, the city appealed deeply and revealed him at his most charismatic as he participated in its science, music, and politics, and wandered its streets alone. *Einstein in Oxford* is an eye-opening exploration of the world's most famous scientist, told through the personal writings he left behind from an important period of his life. From the pages of his diary entries, poem, and other written observations, readers gain a deeper understanding of the unique man—and humor—who continues to fascinate the world.” (From the Publishers)

More information [HERE](#)

Simion, Mona (2024). *Resistance to Evidence*. Cambridge, MA: Cambridge University Press. ISBN: 9781009298537 [Open Access]

“We have increasingly sophisticated ways of acquiring and communicating knowledge, but efforts to spread this knowledge often encounter resistance to evidence. The phenomenon of resistance to evidence, while subject to thorough investigation in social psychology, is acutely under-theorised in the philosophical literature. Mona Simion's book is concerned with positive epistemology: it argues that we have epistemic obligations to update and form beliefs on available and undefeated evidence. In turn, our resistance to easily available evidence is unpacked as an instance of epistemic malfunctioning. Simion develops a full positive, integrated epistemological picture in conjunction with novel accounts of evidence, defeat, norms of inquiry, permissible suspension, and disinformation. Her book is relevant for anyone with an interest in the nature of evidence and justified belief and in the best ways to avoid the high-stakes practical consequences of evidence resistance in policy and practice. This title is also available as Open Access on Cambridge Core.” (From the Publishers)

More information [HERE](#)

Watson, Matthew (2024). *False Prophets of Economics Imperialism: The Limits of Mathematical Market Models*. Columbia, NY: Columbia University Press. ISBN: 9781788217668

“This book studies the methodological revolution that has resulted in economists’ mathematical market models being exported across the social sciences. The ensuing process of economics imperialism has struck fear into subject specialists worried that their disciplinary knowledge will subsequently count for less. Yet even though mathematical market models facilitate important abstract thought experiments, they are no substitute for carefully contextualised empirical investigations of real social phenomena. The two exist on completely different ontological planes, producing very different types of explanation.

“In this deeply researched and wide-ranging intellectual history, Matthew Watson surveys the evolution of modern economics and its modelling methodology. With its origins in Jevons and Robbins and its culmination in Samuelson, Arrow and Debreu, he charts the escape from reality that has allowed economists’ hypothetical mathematical models to speak to increasingly self-referential mathematical truths. These are shown to perform badly as social truths, consequently imposing strict epistemic limits on economics imperialism.

“The book is a formidable analysis of the epistemic limitations of modern-day economics and marks a significant counter to its methodology’s encroachment across the wider social sciences.” (From the Publishers)

More information [HERE](#)

Zhai, X. & Krajcik, J. (Eds.) (2024) *Uses of Artificial Intelligence in STEM Education*. Oxford, UK: Oxford University Press.

“In the age of rapid technological advancements, the integration of Artificial Intelligence (AI), machine learning (ML), and large language models (LLMs) in Science, Technology, Engineering, and Mathematics (STEM) education has emerged as a transformative force, reshaping pedagogical approaches and assessment methodologies. *Uses of AI in STEM Education*, comprising 25 chapters, delves deep into the multifaceted realm of AI-driven STEM education.

“It begins by exploring the challenges and opportunities of AI-based STEM education, emphasizing the intricate balance between human tasks and technological tools. As the chapters unfold, readers learn about innovative AI applications, from automated scoring systems in biology, chemistry, physics, mathematics, and engineering to intelligent tutors and adaptive learning. The book also touches upon the nuances of AI in supporting diverse learners, including students with learning disabilities, and the ethical considerations surrounding AI's growing influence in educational settings. It showcases

the transformative potential of AI in reshaping STEM education, emphasizing the need for adaptive pedagogical strategies that cater to diverse learning needs in an AI-centric world. The chapters further delve into the practical applications of AI, from scoring teacher observations and analyzing classroom videos using neural networks to the broader implications of AI for STEM assessment practices.

“Concluding with reflections on the new paradigm of AI-based STEM education, this book serves as a comprehensive guide for educators, researchers, and policymakers, offering insights into the future of STEM education in an AI-driven world.” (From the Publishers)

More information [HERE](#)

Authors of HPS&ST-related papers and books are invited to bring them to attention of the Newsletter’s assistant editor Paulo Maurício (paulo.asterix@gmail.com) for inclusion in these sections.

Seeking New Editors for *Metascience*

Metascience publishes book reviews in History and Philosophy of Science, and Science and Technology Studies. The journal was established in 1984 by the Australasian Association for the History, Philosophy and Social Studies of Science and reaches 75,000 readers per year.

Metascience’s main goal is to offer reviews of new books of note published in all languages in HPS. In addition, it also organizes symposia and anniversary reviews of classic books in HPS. The two Editors in Chief are responsible for selecting books for review, finding reviewers, and checking the reviews for quality. There is assistance available for the organization of book reviews and sending out review copies. The publisher also provides a yearly editorial stipend.

Please reach out to the Editors in Chief or the publisher for more information.

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PhD Award in HPS&ST

We welcome publishing details of all PhDs awarded in the field of HPS&ST. Send details (name, title, abstract, supervisor, web link) to editor: m.matthews@unsw.edu.au

Coming HPS&ST Related Conferences

October 28-30, 2024, Conference on Philosophy of Technology, Maastricht University

Details: [HERE](#)

December 5-7, 2024, 8th Pan-Hellenic Conference on Philosophy of Science, Athens

Details: [HERE](#)

March 6-10, 2025, US Philosophy of Education Society, PES, annual conference, Baltimore.

Details: [HERE](#)

March 23-26, 2025, NARST Annual Conference, National Harbour, Maryland, USA

Details: [HERE](#)

March 27-29, 2025, Integrated History and Philosophy of Science, 10th conference. CIT Pasadena, CA

Details: [HERE](#)

March 27-28, 2025, Workshop on Scientific Pluralism, Epistemic Diversity, and Progress in Science. University of Wuppertal
Submissions by 15 November

Details: [HERE](#)

June 29-July 5, 2025 International Congress of Science and Technology, Dunedin, New Zealand

Details: [HERE](#)

July 20-25, 2025 ISHPSSB Conference, University of Porto.

Details: [HERE](#)

August 25-29, 2025, European Science Education Research Association, biennial conference, Copenhagen

Details: [HERE](#)

22-25 June 2026, 8th ICASE World Conference on Science & Technology Education, University College, Cork, Ireland

Details: [HERE](#)

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
[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
[FHPP APS](#) - Forum on History and Philosophy of Physics of the American Physical Society
[HAD AAS](#) - Historical Astronomy Division of the American Astronomical Society.
[ACS HIST](#) – American Chemical Society Division of the History of Chemistry
[GWMT](#) - Gesellschaft für Geschichte der Wissenschaften, der Medizin und der Technik
[ISHEASTME](#) – International Society for the History of East Asian History of Science Technology and Medicine
[EASE](#) - East-Asian Association for Science Education

[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
[BAHPS](#) - Baltic Association for the History and Philosophy of Science
[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)

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HPS&ST related organizations wishing their web page to be added to the list should contact assistant editor Paulo Maurício:
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