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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

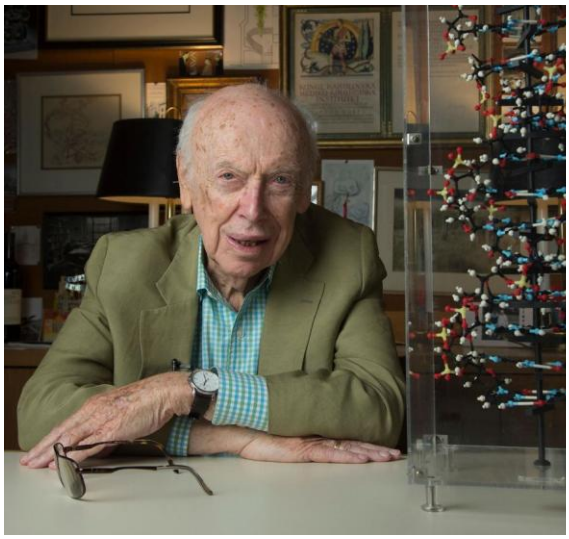
The newsletter seeks to serve the diverse international community of HPS&ST scholars and teachers by disseminating information about events and publications that connect to concerns of the HPS&ST community.

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** .

Vale: James D. Watson (1928-2025)

[from *NYT*]
James D. Watson died 6 November, aged 97 years. He entered the pantheon of science at age 25 when he joined in the discovery of the structure of DNA, one of the most momentous breakthroughs in the history of science, died on Thursday in East Northport, N.Y., on Long Island. He was 97.

Dr. Watson's role in decoding DNA, the genetic blueprint for life, would have been enough to establish him as one of the most important scientists of the 20th century. But he cemented that fame by leading the ambitious Human Genome Project and writing perhaps the most celebrated memoir in science.



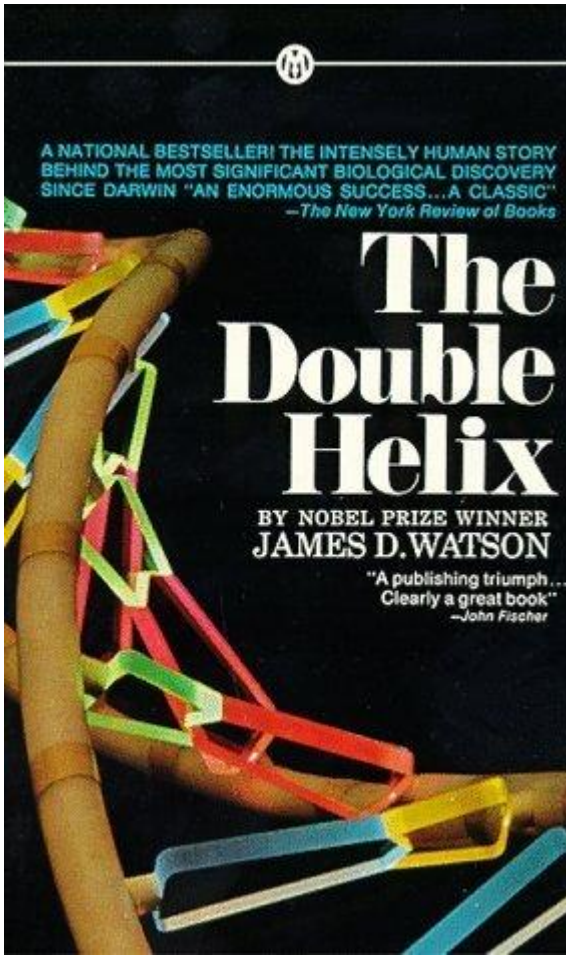
For decades a famous and famously cantankerous American man of science, Dr. Watson lived on the grounds of the Cold Spring Harbor Laboratory, which, in another considerable accomplishment, he took over as director in 1968 and transformed from a relatively small establishment on Long Island with a troubled past into one of the world's major centers of microbiology. He stepped down in 1993 and took a largely honorary position of chancellor.

In 1953, when Dr. Watson and Mr. Crick (as he was known then, before earning his Ph.D.) made their discovery, relatively little was known about DNA's structure and action. Their work opened the door to the discovery of disease-causing genetic mutations, the design of genetically modified crops, the tantalizing and terrifying

new gene-splicing technology of CRISPR Cas-9, and more.

"It changed biology forever," Bruce Stillman, who in 1994 took over from Dr. Watson as director of the Cold Spring Harbor lab, said in an interview for this obituary in 2018.

Dr. Watson's tell-all memoir, *The Double Helix*, had also provoked his colleagues when it was published in 1968, infuriating them for, in their view, elevating himself while shortchanging others who were involved in the project.



Still, it was instantly hailed as a classic of the literature of science. The Library of Congress listed it, along with "The Federalist Papers" and "The Grapes of Wrath," as one of the 88 most important American literary works. (The list was later expanded to 100.)

More: HERE

Towards a pedagogical epistemology of science: SPSP Conference Session

Call for abstracts for thematic session at the Society for Philosophy of Science in Practice (SPSP 2026) Conference, 15-17 July University of Cambridge

In the postscript to *The Structure of Scientific Revolutions*, Kuhn famously lamented: 'Philosophers of science have not ordinarily discussed the problems encountered by a student in laboratories or in science texts' (2012 [1962], 187). Kuhn's lament is still pertinent. There has been a growing literature on the history of science education, but as Kaiser & Warwick have remarked, 'virtually none [of the literature on the history of science education] is concerned with the relationship between training and the production of scientific knowledge' (2005, 393). They argue that there is a need for what they call a 'pedagogical epistemology of science' or 'an epistemology of science based on training' (id.).

In history of science, there are some examples of authors who pay attention to the impact of pedagogy on scientific practice (Olesko 1991; Powers 2012; Warwick 2003). But despite these examples, the challenge posed by Kuhn, Warwick & Kaiser remains unaddressed. Research on the topic is predominantly situated within the disciplinary boundaries of history of

science and science and technology studies (Wittje 2023). If the connection between philosophy of science and (the history of) science education is made, this is predominantly in the context of the pedagogy of science: how can and should history and philosophy of science inform science teaching (e.g. Matthews 2014).

Kaiser & Warwick thought that the lack of philosophical interest in teaching was caused by the abstract, theory-centred focus of traditional philosophy of science (2005, 402). Kaiser hoped that the practice turn in science studies might lead to an increased interest in pedagogy: 'Practices, after all, have to be practiced - and we are thereby necessarily thrust into questions of scientists' training and learning' (2005, 3). This expectation has turned out to be too optimistic.

In Soler et al. (2014), a landmark publication providing an overview of approaches within the practice turn, education is not a topic of philosophical reflection. One chapter discusses engineering education, but again in the context of the pedagogy of science, not as a philosophical reflection on the relation between teaching and research. A survey of recent handbooks and journals in philosophy of science demonstrates that philosophical analyses of science education in relation to research are scarce if not non-existent. A 'pedagogical epistemology of science' is thus still wanting.

This session hopes to bring together papers which provide examples of what a pedagogical epistemology of science could look like. Contributions can come from different philosophical traditions and vantage-points and involve different approaches. One could provide a philosophical analysis of historical or contemporary educational practices and their epistemic relevance, or one could unearth forgotten pedagogical epistemologies of science in the work of philosophers of science or scientists.

Bibliography

Kaiser, David, and Andrew Warwick. 2005. 'Kuhn, Foucault, and the Power of Pedagogy'. In Pedagogy and the Practice of Science: Historical and Contemporary Perspectives, edited by David Kaiser. MIT Press.

Kuhn, Thomas. 2012. The Structure of Scientific Revolutions. 4th edn. Edited by Ian Hacking. University of Chicago Press.

Matthews, Michael R., ed. 2014. International Handbook of Research in History, Philosophy and Science Teaching. Springer.

Olesko, Kathryn Mary. 1991. Physics as a Calling: Discipline and Practice in the Königsberg Seminar for Physics. Cornell University Press.

Powers, J.C. 2012. Inventing Chemistry: Herman Boerhaave and the Reform of the Chemical Arts. University of Chicago Press.

Soler, Léna, Sjoerd Zwart, Michael Lynch, and Vincent Israel-Jost, eds. 2014. Science After the Practice Turn in the Philosophy, History, and Social Studies of Science. Routledge.

Warwick, Andrew. 2003. Masters of Theory: Cambridge and the Rise of Mathematical Physics. University of Chicago Press.

Wittje, Roland. 2023. 'Relocating Education in the History of Science and Technology'. History of Education 52 (2-3): 462-78. https://doi.org/10.1080/0046760X.2022.2141350.

For questions on the scope and nature of the session, contact Pieter Beck (pieter.beck@ugent.be).

Joint European Society for the History of Science/History of Science Society meeting, 3–16 July 2026, Edinburgh

Submissions are now open for the joint European Society for the History of Science/History of Science Society meeting to be held from 13–16 July 2026 in Edinburgh**.**

The conference theme is "Shifting Perspectives: Plural Worlds, Contested Sciences." Submissions are welcome on any topic in the history of STM and aim for an ensemble of contributions on diverse geographical, thematic and methodological perspectives.

The **deadline** for proposals is **Monday 1** December 2025, 11:59 pm PST (Tuesday 2 December 2025, 7:59 am UTC).

For more information, please visit the website of the Call for Proposals: https://hssonline.org/page/2026cfp

To submit your proposal, please, visit: https://tinyurl.com/ESHSHSS26

For questions, contact the Program Co-Chairs at: info@hssonline.org

Society for Philosophy of Science in Practice (SPSP), 11th Biennial Conference 15–17 July 2026, Cambridge

On-line submission site for paper or session proposals **HERE**

Abstract submission deadline: 1 December 2025

Main Contact: Justin B. Biddle 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**.

The SPSP conferences provide a broad forum for scholars committed to making detailed and systematic studies of scientific practices — neither dismissing concerns about truth and rationality, nor ignoring contextual and pragmatic factors. The conferences aim at cutting through traditional disciplinary barriers and developing novel approaches.

We welcome contributions from not only philosophers of science, but also philosophers working in epistemology and ethics, as well as the philosophy of engineering, technology, medicine, agriculture, and other practical fields. Additionally, we welcome contributions from historians and sociologists of science, pure and applied scientists, and any others with an interest in philosophical questions regarding scientific practice.

SPSP welcomes proposals for individual papers, and 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.

Integrated history and philosophy of psychology

On behalf of the Joint Commission of DHST/DLMPST, we are happy to announce **a new series of online colloquia** to bring together historical and philosophical perspectives on science. Please join us for our first session with **Uljana Feest,** professor of philosophy at Leibniz University, Hannover.

Prof. Feest specializes on the philosophy and history of the cognitive and behavioral sciences, with special focus on experimental practices of knowledge generation and concept formation in these fields. She uses an approach that integrates the history of psychology with the philosophy of psychology. Prof. Feest has published articles about introspection, phenomenology, the history of analytic philosophy, the epistemology of experimentation, validity, and the replication crisis in psychology. She is the author of *Operationism in Psychology. An Epistemology of Exploration* (University of Chicago Press 2025). She has recently begun to work on a new project, analyzing the history, investigative practices, and social relevance of personality research.

To gain access to the Zoom link, please enter your email to the following form and we will email you the link shortly after: https://forms.gle/RDBY52fG4TZmCevh8

Censorship in the Sciences: Journal issue

A special issue of the *Journal of Controversial Ideas* explores the serious problem of censorship plaguing the sciences, from the classroom to the research lab to scientific journals. The special issue contains nine peer-reviewed papers including:

- *From Worriers to Warriors: The Cultural Rise of Women* by Cory Clark, Executive Director of the Adversarial Project at the University of Pennsylvania

- *Fire the Censors! It's the Only Way to Restore Free Inquiry* by Robert Maranto, 21st Century Chair in Leadership at the Department of Education Reform at the University of Arkansas

- *Silencing Science at MIT: MIT Shows that Cancel Culture Causes Self-Censorship at STEM Universities* by Wayne Stargardt, President of the MIT Free Speech Alliance

- *With Friends Like These: On the Role of Presupposition in Pseudo-Defenses of Free Speech on Campus* byMike Veber, Associate Professor of Philosophy at East Carolina University

The collection expands upon subjects discussed at the Censorship in the Sciences conference held at the University of Southern California in January 2025. Over 100 academics gathered for three days to discuss what constitutes censorship, how this problem impacts scientific research and teaching, and how to combat its spread.

The collection also includes an introduction highlighting the themes discussed at the conference.

Scientiae Conference: Disciplines of Knowing in the Early Modern World

The 13th annual conference, will be held from 9 to 12 June 2026 in Nantes, France, and hosted by the Centre of research CRINI, and units of research attached to the Humanities Center at Nantes University.

Building on Scientiae's interdisciplinary legacy, and its study of the production and circulation of knowledge, the conference will underscore the interconnectedness of regions, periods, cultures, and material and intellectual traditions in the period between 1400 and 1800. Although centred around the emergence of modern natural science, Scientiae is intended for scholars working in any area of early-modern intellectual culture.

Keynotes speakers

Stéphane Van Damme (IUF, ENS Ulm, Maison Française d'Oxford)
Martine van Ittersum (University of Dundee, Scotland, UK)

The **submission deadline** is **31 January 2026**. Details **HERE**.

Conference. History and Philosophy of Science: Past, Present, and Future:

This conference will be held 24 - 26 June 2026, The Hong Kong University of Science & Technology. Submissions by 31 December.

History and Philosophy of Science (aka HPS) emerged in the 1950s and greatly promoted the historical approach to the philosophy of science. Despite its rapid institutionalisation in the 1960s, HPS did not become a full-fledged academic discipline eventually. There have been axiological, institutional, methodological, and practical challenges. That said, some historically minded philosophers of science and philosophically minded historians of science never stop making efforts to promote the dialogue across the boundaries and develop HPS approaches (e.g. integrated HPS, HOPOS, and PHS). This conference aims to reflect on the nature, methodology, development, and prospect of HPS.

Keynote Speakers

Theodore Arabatzis (University of Athens, Greece)
Uljana Feest (University of Hannover, Germany)
Greg Radick (University of Leeds, UK)
Alan Richardson (University of British Columbia, Canada)

Selected papers will be published in an edited volume, to be published by Springer, part of Asian Studies in the Philosophy of Science.

For more information, please click here<https://www.shanyafeng.com/hps26>.

Submission Guidelines

Please submit a 500-word abstract for blind review via Oxford Abstracts<https://app.oxfordabstracts.com/stages/79091/submitter> by 31 December 2025.

Contact

If you have any enquiries or questions, please contact Qiyue Zhang (qiyue.zhang@connect.ust.hk<mailto:qiyue.zhang@connect.ust.hk>).

Opinion Page.

For and Against Scientism: Science, Methodology, and the Future of Philosophy*

MOTI MIZRAHI, Florida Institute of Technology

Moti Mizrahi is Professor of Philosophy at the Florida Institute of Technology. He teaches courses on Artificial Intelligence (AI) Ethics, Bioethics, Engineering Ethics, and Philosophy of Science. He received his PhD in philosophy from the Graduate Center of the City University of New York in 2010.

His books include *The Kuhnian Image of Science: Time for a Decisive Transformation?* (Rowman & Littlefield/Bloomsbury, 2018), *The Relativity of Theory: Key Positions and Arguments in the Contemporary Scientific Realism/Antirealism Debate* (Springer, 2020), *For and Against Scientism: Science, Methodology, and the Future of Philosophy* (Rowman & Littlefield/Bloomsbury, 2022), and *Playing God with Emerging Technologies: How to Avoid the Traps of Techno-Optimism and Techno-Pessimism* (Bloomsbury, 2025).

The term *scientism* is used in several ways. It is used to denote an epistemological thesis according to which science is the source of our knowledge (or some other epistemic good, such as justified belief) about the world and ourselves. Relatedly, it is used to denote a methodological thesis according to which the methods of science are superior to the methods of non-scientific fields or areas of inquiry. It is also used to denote a metaphysical thesis according to which what exists is what science says exists. In recent decades, the term *scientism* has acquired a derogatory meaning when it is used in defense of non-scientific ways of knowing. In particular, some theologians and philosophers level the charge of "scientism" against those (mostly scientists) who are dismissive of religion and philosophy. Other philosophers, however, embrace scientism, or some variant thereof, and object to the pejorative use of the term *scientism*.

1. *Scientism* as a Pejorative Term

According to Robert Pennock (1996, 551), the term *scientism* is "a term of derision coined by Hermeneutic critics of science to label those who wanted to apply the methods of the natural sciences 'inappropriately' to the human sciences, for which they thought the literary model of Hermeneutic *interpretation* should reign as the proper method" (emphasis in original). Attempts to apply the empirical methods of

the sciences to the human sciences are probably as old as modern science itself. For example, inspired by the work of Isaac Newton, David Hume attempted "to introduce the experimental method of reasoning into moral subjects," as the full title of his *Treatise on Human Nature* (1739-1740) clearly states.

When Pennock (1996, 551) says that the term *scientism* is "a term of derision," his target of criticism is Phillip Johnson whose book, *Darwin on Trial* (1991), is the inspiration for the brand of creationism known as "Intelligent Design." But there are earlier uses of the term *scientism* as a derogatory term by people of faith. For instance, H. Richard Rasmusson (1954, 393) characterizes scientism as "a cult that has made a religion out of science."

Those who use the term *scientism* as a derogatory term, then, are concerned about science encroaching on fields or areas of inquiry that presuppose the existence of the very things whose existence they take science to be questioning or denying, such as God, the supernatural, and the like. In that respect, as far as the scientism debate is concerned, the term *science* typically covers the physical sciences, such as physics and chemistry, the life sciences, such as biology and genetics, and the social sciences, such as psychology and sociology, but not the arts and the humanities, such as literature, philosophy, and religious studies.

A few decades later, from a term deployed when defending religion from science intruding on its territory, the term *scientism* became a term used in defense of philosophy against science as well. For instance, according to Tom Sorell (1991, x), scientism "is a matter of putting too high a value on science in comparison with other branches of learning or culture," such as philosophy. The term *scientism* is then used as a pejorative term that is supposed to pick out an attitude that is condemned as excessive or exaggerated by definition.

As Susan Haack (2007, 17-18) puts it:

> Scientism is an exaggerated kind of deference towards science, an excessive readiness to accept as authoritative any claim made by the sciences, and to dismiss every kind of criticism of science or its practitioners as anti-scientific prejudice.

However, as René van Woudenberg et al. (2018, 2) rightly point out:

> no one will accept this notion of 'scientism' as an adequate characterization of their own views, as no one will think that their deference to science is *exaggerated*, or their readiness to accept claims made by the sciences is *excessive* (emphasis in original).

In fact, Haack (2012, 76) herself observes that, before it was weaponized by those who sought to defend religion and philosophy from science trespassing on their territories, "the word 'scientism' was neutral."

And so, some contemporary philosophers have argued that the term *scientism* should remain neutral. For instance, Rik Peels (2017, 11) argues that we should treat scientism as a neutral thesis, rather than an attitude, since whether it is rational, warranted, or permissible to have such an attitude is a question that should be "up for debate." Moreover, Peels (2018, 29) argues, "No matter how one understands 'scientism' [i.e., as an attitude, an affection, or a stance], it will always imply some scientistic thesis or other [e.g., that 'we should have a scientistic attitude']."

Likewise, I argue that to define the term *scientism* in a pejorative way is to provide a persuasive definition of *scientism*, to beg the question against anyone who is inclined to endorse scientism, and to turn the scientism debate into a mere verbal dispute (Mizrahi 2017a, 352).

For these reasons, and because "the truth or falsity of scientism matters a great deal" (van Woudenberg et al. 2018, 1), debate is better advanced by following Mikael Stenmark (1997), Rik Peels (2017; 2018) and my own work (Mizrahi 2017a) in treating scientism as a thesis that is up for discussion and debate rather than an attitude that is rendered mistaken *by definition*.

2. *Scientism* as an Epistemological Thesis

The first occurrences of the term *scientism* suggest that it was used to denote an epistemological thesis, in particular, a thesis concerning how knowledge (or some other epistemic good, such as justified belief) about the world and ourselves is acquired. For instance, in Stephen Pearl Andrews' *The Primary Synopsis of Universology and Alwato: The New Scientific Universal Language* (1871, xiii), *scientism* is defined as "the Spirit or Principle of Science--regular, exact, precise, etc." By *science*, Andrews (1871, 19) means "a Systematic, Orderly, and somewhat Complete Arrangement of what is certainly known or held to be known, and of what is important to be known, in respect to the particular subject or Department of Being treated of."

Construed as an epistemological thesis, scientism is a species of empiricism. More specifically, it is the view that gives priority to scientific forms of knowledge and ways of knowing, such as observation and experimentation, over non-scientific forms of knowledge and ways of knowing, such as armchair reflection. As Patricia Churchland (2011, 4) puts it, "philosophy and science are working the same ground, and evidence should trump armchair reflection."

As an epistemological thesis, however, scientism is a narrower thesis than empiricism. This is because empiricism allows non-scientific but empirical modes of inquiry to count as knowledge-producing, whereas scientism grants knowledge-producing status to scientific modes of inquiry only. To illustrate this point, consider the following example with respect to observation:

> Compare, for instance, the sort of telescopic observations Galileo conducted when he discovered the rings of Saturn with simply lying around and gazing at the night sky. It might seem as if the former is 'scientific', whereas the latter is not, but that such gazing can still produce 'real knowledge'. (Mizrahi 2017a, 354)

Accordingly, observation by means of scientific instruments, such as telescopes, is a scientific mode of observation, and hence knowledge-producing on epistemological scientism.

Understood as an epistemological thesis, scientism can vary in terms of how superior to non-scientific ways of knowing science is taken to be. For instance, to say that *only* psychology can teach us about the workings of the human mind, whereas Moliere and Stendhal can teach us nothing about that (cf. Kitcher 1991, 118), is to subscribe to a strong version of epistemological scientism.

As Peels (2018, 34) points out, other variants of *epistemological scientism* include the following:

(a) All genuine knowledge is to be found only through (methods of) the natural sciences. (See also Stenmark 1997, 19.)

(b) The natural sciences provide the only reliable path to knowledge. (See also Rosenberg 2011, 6.)

(c) All questions can in principle be answered by the natural sciences. (See also Atkins 1995.)

(d) Everything that can be known can be known through the natural sciences. (See also Russell 1946, 863.)

As Peels (2018) also points out, each of these statements of epistemological scientism can take a weak or a strong version as well. Take (b), for example. The claim that science provides the only reliable path to knowledge is stronger than the claim that science provides the *best* reliable path to knowledge. Unlike the former, which rules out non-scientific paths to knowledge, the latter allows for paths to knowledge other than science, but it says that, of all the paths to knowledge, science is the best one.

Similarly, I distinguish between *Strong Scientism*, which is the view that scientific knowledge is the *only* knowledge we have, and *Weak Scientism*, which is the view that scientific knowledge is the *best* knowledge we have (Mizrahi 2017a). The former implies that those things we call knowledge that are not scientific are not really knowledge at all, whereas the latter implies that there is non-scientific knowledge, although scientific knowledge is better than non-scientific knowledge.

3. *Scientism* as a Methodological Thesis

In addition to *scientism* as an epistemological thesis, early instances of the term *scientism* suggest that it was used to denote a related methodological thesis. For instance, in his definition of *scientism* in *The Primary Synopsis of Universology and Alwato: The New Scientific Universal Language*, Stephen Pearl Andrews (1871, xiii) describes the methods of science as "regular, exact, precise, etc." Accordingly, scientism as a methodological thesis captures the fact that the scientism debate is partly about "the idea that science, or the scientific method, is superior to all other modes of inquiry" (Beale 2017, 67). That is to say, if the methods and practices of science are indeed more "regular, exact, [and] precise" (Andrews 1871, xiii) than non-scientific modes of inquiry, then the former can be said to be superior to the latter in those respects.

According to both Stenmark (1997) and Peels (2018), *methodological scientism* entails a demand that non-scientific disciplines adopt the methods and practices of science. As Stenmark (1997, 17) puts it, methodological scientism (or "academic-internal scientism") is the "attempt to extend the use of the methods of natural science to other academic disciplines." Likewise, according to Peels (2018, 31), "the methodological variety [of scientism] grants that [non-scientific fields] are proper academic disciplines that ask sensible questions, [but] it asserts that they are so only if they adopt the methods of the natural sciences, such as observation and experimentation."

On the other hand, I argue that non-scientific disciplines would benefit from adopting the methods and practices of science, but it is not a necessary condition for the production of knowledge in those disciplines (Mizrahi 2017a, 2017b, 2018a, 2018b, 2018c). On my *Weak Scientism*, non-scientific disciplines are still proper academic disciplines that

produce knowledge, even if they do not use the methods and practices of science to do so, it's just that the knowledge produced by scientific disciplines is better (both quantitatively and qualitatively) than the knowledge produced by non-scientific disciplines.

Opponents of scientism often point out that the methods of science have limits. As Patricia Churchland (2011, 3) puts it, "Scientism, as I have been duly wagged, is overreaching." That is to say, there are certain questions that are beyond the scope of scientific inquiry, such as questions about the existence of God and the supernatural (Stenmark 2016, 1-17).

Like epistemological scientism, methodological scientism can take a weak or a strong version as well. According to the *strong* variant of methodological scientism, *only* scientific methods yield knowledge (or some other epistemic good, such as justified belief) about the world and ourselves. This strong version implies that, if non-scientific fields or areas of inquiry are to produce knowledge about the world and ourselves, they must use scientific methods. In that respect, the strong variant of methodological scientism raises concerns about "scientific imperialism" (Kitcher 2017) or "scientific expansionism" (Stenmark 2004, xi-xii), which is when science goes beyond what is considered to be its proper sphere. For this reason, some philosophers have deemed it necessary to defend the importance of the humanities and the arts in education (Nussbaum 2010).

According to the *weak* version of methodological scientism, scientific methods are *better* than non-scientific methods at producing knowledge (or some other epistemic good, such as justified belief) about the world and ourselves. An advocate of weak methodological scientism, then, can grant that "there is plenty of good, solid work in non-scientific disciplines such as history, legal scholarship, music theory, etc." (Haack 2012, 79), but insist that such work can be improved by the introduction and application of scientific methods (Mizrahi 2018a; 2018b).

4. *Scientism* as a Metaphysical Thesis

In addition to *scientism* as epistemological and methodological theses, early instances of the term *scientism* suggest that it was used to denote a metaphysical thesis as well. For instance, In *The Science of Aesthetics* (1872, 425), Henry N. Day uses the term *scientism* to refer to the thesis that "mind and matter are made one and identical," which Day finds objectionable on the grounds that it ignores the distinction between substance and form, and thus renders the human person "a mysterious inexplicable organism which is neither mind nor matter."

More recently, John Dupré (1988) aligns *scientism* with *physicalism*, which is a thesis about "the physical nature of the mental" (32), and *materialism*, which is the thesis that, "if one removed from the universe all the physical entities, there would be nothing left" (33).

Construed as a metaphysical thesis, then, *scientism* is a species of materialism, physicalism, or naturalism more broadly (Armstrong 1978, 261), according to which "reality is exhausted by the natural world, in the sense of the world as the natural sciences are capable of revealing it to us" (McDowell 1998, 175). This sort of naturalism that restricts reality to what science can discover is what John McDowell casually calls "philistine scientism." According to McDowell (1998, 72):

> A scientific conception of reality is eminently open to dispute. When we ask the metaphysical question *whether reality is what science can find out about*, we cannot, without begging the question, restrict the materials for an answer to those that science can countenance (emphasis added).

Contrary to McDowell, James Ladyman et al. (2007, 30) argue that "Naturalism requires that, since scientific institutions are the instruments by which we investigate objective reality, their outputs should motivate all claims about this reality, including metaphysical ones." In other words, science, especially physics, is our guide to what exists.

Some contemporary philosophers in the analytic tradition endorse both epistemological scientism and metaphysical scientism. According to Alex Rosenberg (2017, 213), for example, scientism is the combination of naturalism and empiricism. Likewise, for Ladyman (2011, 97), scientism "incorporates elements of both empiricism and materialism." Together with Don Ross, David Spurrett, and John Collier, Ladyman adopts a "scientistic stance," which is "the synthesis of the empiricist and materialist stances" (2007, 99). Needless to say, physicalism, naturalism, and materialism, as well as empiricism, are by no means generally accepted among contemporary academic philosophers in the analytic tradition (Bourget and Chalmers 2014). Table 1 gives a brief summary of the varieties of theses that fall under the label of "scientism."

Table 1. Varieties of scientism

	scientism		
	epistemological	*methodological*	*metaphysical*
strong	Scientific knowledge is the only knowledge we have.	Scientific methods are the only methods that produce knowledge (or justified belief, etc.).	Science is the only guide to the nature of reality.
weak	Scientific knowledge is better than non-scientific knowledge.	Scientific methods are better than non-scientific methods in producing knowledge (or justified belief, etc.).	Science is the best guide to the nature of reality.

5. Key Arguments for and Against Scientism

Arguments for and against scientism usually trade on what proponents take to be the successes of science and what opponents take to be the internal inconsistency or the negative effects of endorsing scientism. Proponents of scientism argue that the success of science is evidence for scientism. For example, according to James Ladyman et al. (2007):

> Powerful explanations and successful predictions have been produced by sciences that aren't physics and which refer to such entities. They are good ammunition for an epistemic success argument in favour of naturalism [that is, scientism as a metaphysical thesis] (Ladyman et al. 2007, 41).

In other words, the fact that our best scientific theories successfully explain and accurately predict natural phenomena is evidence that the methods and practices of science are superior to non-scientific modes of inquiry and that the natural world is pretty much the way science says it is, given that other fields or areas of inquiry, such as metaphysics, "can claim no such success" (Ladyman et al. 2007, 7).

René van Woudenberg et al. (2018, 17) criticize this argument for scientism from the success of science by claiming that "it hardly needs saying that a claim about the comparative success of science nowhere near implies that science is our *only* route to knowledge, rational belief, etc." (emphasis added).

It is true that the success of science does not *entail* that science is the only way of knowing about the world and ourselves, but it is not clear that this is what the argument from the success of science amounts to. That is to say, the argument for scientism from the success of science need not be a deductive argument whose premises entail its conclusion. Rather, the success of science is supposed to be strong evidence for (or a good reason to accept) scientism.

Similarly, the conclusion of the argument for scientism from the success of science need not be construed as *Strong Scientism*, namely, the thesis that science is the *only* way of knowing about the world and ourselves. Rather, it can be construed as *Weak Scientism*, namely, the thesis that science is the *best* way of knowing about the world and ourselves. Understood as a non-deductive argument for *Weak Scientism*, the argument from the success of science might provide strong reasons, namely, the explanatory, predictive, and instrumental success of science, to accept *Weak Scientism* (Mizrahi 2017a, 2017b, 2018a, 2018b, and 2018c).

Peter Harrison (2018) also criticizes the argument from the success of science. Harrison (2018, 13) argues that the "history of science is not the place to turn for those seeking an evidentiary basis for ontological naturalism [or metaphysical scientism]." This is because "historical actors did not recognize the natural-supernatural distinction in the way we presently do," Harrison (2018, 8) argues, and because, throughout the history of science, supernatural explanations were often given to natural phenomena (e.g., the role of God in Newtonian mechanics).

By contrast, I argue that, in addition to the explanatory, predictive, and instrumental success of science, there is another sense in which scientific disciplines can be said to be more successful or better than non-scientific disciplines. In general, scientific disciplines are *quantitatively* better than non-scientific disciplines in terms of research output and research impact.

That is to say, scientific disciplines produce more research overall (as measured by publications) than non-scientific disciplines do and the research they produce has more impact overall (as measured by citations) than non-scientific research has. Together with the qualitative superiority of scientific knowledge over non-scientific knowledge (in terms of explanatory, predictive, and instrumental success), the quantitative superiority of scientific knowledge over non-scientific knowledge provides good reasons for accepting *Weak Scientism* (Mizrahi 2017a, 2017b, 2018a, 2018b, 2018c).

A common argument against scientism is that it is internally inconsistent. For instance, Jeroen de Ridder (2014, 27) argues that "scientism suffers from self-referential problems." That is:

> Not being a scientific claim itself, it would seem scientism cannot be known by anyone. This raises the question of why anyone should assert or believe it in the first place (de Ridder 2014, 27).

Contrary to de Ridder, I argue that there can be scientific evidence for scientism and that there is nothing self-referentially incoherent or inconsistent about that. First, one could argue that scientific knowledge is better than non-scientific knowledge on the basis of research output and research impact. Insofar as such an argument would be an inductive argument from samples of scientific research compared to non-scientific research, it would be a scientific argument for scientism (Mizrahi 2017a, 355-362). Second, if there can be no scientific evidence for scientism, since that would be self-referentially incoherent, then there can be no proofs for rules of inference in logic, either. Third, weaker versions of scientism, according to which scientific ways of knowing are *better* than non-scientific ways of knowing are immune from the self-referential incoherence charge. For they allow that there are ways of knowing other than scientific ones, and that there is knowledge other than scientific knowledge, but they insist that scientific ways of knowing are better than non-scientific ways of knowing, and that scientific knowledge is better than non-scientific knowledge (Mizrahi 2018b, 41-42).

Finally, to insist that scientism must be supported by non-scientific evidence is to presuppose some sort of foundationalism about knowledge and justification. Proponents of scientism, however, need not accept that kind of foundationalism about knowledge and justification. They could appeal to coherentism or reliabilism to argue that our scientific knowledge coheres with our non-scientific knowledge or that our scientific ways of knowing are generally reliable.

When it is not taken to be a risk in itself (see, e.g., Beltramini 2019), arguments against scientism often focus on what critics perceive to be the negative consequences of endorsing scientism. For example, Kitcher (2012) claims that scientism, which he distinguishes from science but does not define, makes us underestimate "the impact of the humanities and the arts" and "inspires scientific imperialism." According to Dupré (2001, 16), scientific imperialism is "the tendency for a successful scientific idea to be applied far beyond its original home."

Two important points about these criticisms of scientism should be made. First, more often than not, the critics use the term *scientism* in its derogatory sense. As van Woudenberg et al. (2018, 2) rightly point out, however, "no one will accept this notion of 'scientism' as an adequate characterization of their own views, as no one will think that their deference to science is *exaggerated*, or their readiness to accept claims made by the sciences is *excessive*" (emphasis in original).

Second, even if it is true that accepting scientism will have negative consequences, it is not clear how that is supposed to be evidence relevant to whether scientism is true or not. Merrilee H. Salmon (2013, 209) calls this sort of argument the "fallacy of mistaking some consequence of a belief with evidence for it." We commit this fallacy when we accept or reject a claim "because of its consequences--the harm or good that might be caused by holding the belief" (Salmon 2013, 209).

For proponents of scientism, on the other hand, the introduction of scientific methods into non-scientific fields or areas of inquiry is seen as positive, not negative. Proponents of scientism argue that, if we want non-scientific disciplines to enjoy the sort of success that scientific disciplines do (that is, explanatory, predictive, and instrumental success), then we should want to introduce and make use of scientific methods in those non-scientific fields.

For instance, Wesley Buckwalter and John Turri argue that the application of methods from the social sciences in philosophy (also known as "experimental philosophy") has been quite successful. As they put it, "Experimental, observational, and statistical techniques have significantly contributed to research in epistemology, action theory, ethics, philosophy of language, and philosophy of mind" (Buckwalter and Turri 2018, 282).

Similarly, I argue that the introduction of methods from data science into philosophy of logic particularly (Mizrahi 2019) and philosophy generally (Mizrahi 2018b, 48) might bring to academic philosophy the sort of success enjoyed by the sciences. And Ibo Van De Poel (2020, 231-244) argues that, if they want to make academic philosophy "societally relevant," academic

philosophers need to incorporate the synthetic methods of designers as well as techniques of experimentation into philosophical inquiry.

Conclusion

The mere mention of scientism tends to evoke strong negative sentiments among academic philosophers (Mizrahi 2023a). Such visceral reactions run the risk of reducing the scientism debate in academic philosophy to a mere verbal dispute (Mizrahi 2023b). Thankfully, academic philosophers like van Woudenberg et al. (2018) and Turunen et al. (2023) have been pushing the scientism debate in a more constructive direction in recent years. They insist on treating scientism as a neutral thesis that can be argued for or against. As such, scientism comes in different varieties (Table 1), some of which are more plausible than others.

If the introduction of scientific methods into academic philosophy can be, and has been, successful, as some proponents of (some variety of) scientism argue (e.g., Buckwalter and Turri 2018), then it is difficult to explain the strong opposition to the introduction of scientific methods into philosophy by some academic philosophers.

For instance, sentiment analysis has been used in various fields, from business (Ligthart et al. 2021) to education (Shaik et al. 2023), quite successfully. Why resist its application to research in academic philosophy (Mizrahi 2023a)? Is academic philosophy essentially different from other academic disciplines where sentiment analysis has been used successfully? Are there good reasons to be concerned about the introduction of scientific methods into academic philosophy as some academic philosophers are (e.g., Haack 2017)?

These are some of the questions I wanted to begin to broach in my *For and Against Scientism: Science, Methodology, and the Future of Philosophy*.

References

Andrews, Stephen P. 1871. *The Primary Synopsis of Universology and Alwato: The New Scientific Universal Language*. New York: Dion Thomas, 141 Fulton St.

Armstrong, D. M. 1978. "Naturalism, Materialism, and First Philosophy." *Philosophia* 8 (2-3): 261-276.

Atkins, Peter W. 1995. "Science as Truth." *History of the Human Sciences* 8 (2): 97-102.

Beale, Jonathan. 2017. "Wittgenstein's Anti-scientistic Worldview." In *Wittgenstein and Scientism*, edited by J. Beale and I. J. Kidd, 59-80. New York: Routledge.

Beltramini, Enrico. 2019. "Philosophy of Management Between Scientism and Technology." *Philosophy & Technology* 32 (3): 535-548.

Bourget, David and David Chalmers. 2014. "What Do Philosophers Believe?" *Philosophical Studies* 170 (3): 465-500.

Buckwalter, Wesley and Turri, John. 2018. "Moderate Scientism in Philosophy." In *Scientism: Prospects and Problems*, edited by J. de Ridder, R. Peels, and R. van Woudenberg, 280-300. New York: Oxford University Press.

Churchland, Patricia, S. 2011. *Braintrust: What Neuroscience Tells Us about Morality*. Princeton, NJ: Princeton University Press.

Dupré, John. 1988. "Materialism, Physicalism, and Scientism." *Philosophical Topics* 16 (1): 31-56.

Dupré, John. 2001. *Human Nature and the Limits of Science*. Oxford: oxford University Press.

Haack, Susan. 2007. *Defending Science--Within Reason: Between Scientism and Cynicism*. Amherst: Prometheus Books.

Haack, Susan. 2007. *Defending Science--Within Reason: Between Scientism and Cynicism*. Amherst: Prometheus Books.

Haack, Susan. 2012. "Six Signs of Scientism." *Logos & Episteme* 3 (1): 75-95.

Haack, Susan. 2017. "The Real Question: Can Philosophy Be Saved?" *Free Inquiry* 37 (6): 40-43.

Harrison, Peter. 2018. "Naturalism and the Success of Science." *Religious Studies* 56 (2): 274-291.

Johnson, Phillip E. 1991/2010. *Darwin on Trial*. Third Edition. Downers Grove, IL: InterVarsity Press.

Kitcher, Philip. 1991. "Seeing in the Dark." *Nature* 354 (6349): 118-119.

Kitcher, Philip. 2017. "The Trouble with Scientism: Why History and the Humanities are Also a Form of Knowledge." In *Science Unlimited? The Challenges of Scientism*, edited

by M. Boudry and M. Pigliucci, 109-120. Chicago: The University of Chicago Press.
Ladyman, James, Don Ross, David Spurrett, and John Collier. 2007. *Every Thing Must Go: Metaphysics Naturalized*. New York: Oxford University Press.
Ladyman, James. 2011. "The Scientistic Stance: The Empirical and Materialist Stances Reconciled." *Synthese* 178 (1): 87-98.
Ligthart, Alexander, Cagatay Catal, and Bedir Tekinerdogan. 2021. "Systematic Reviews in Sentiment Analysis: A Tertiary Study." *Artificial Intelligence Review* 54: 4997-5053.
McDowell, John. 1998. *Mind, Value, and Reality*. Cambridge, MA: Harvard University Press.
Mizrahi, Moti. 2017a. "What's so Bad about Scientism?" *Social Epistemology* 31 (4): 351-367.
Mizrahi, Moti. 2017b. "In Defense of Weak Scientism: A Reply to Brown." *Social Epistemology Review and Reply Collective* 6 (2): 9-22.
Mizrahi, Moti. 2018a. "More in Defense of Weak Scientism: Another Reply to Brown." *Social Epistemology Review and Reply Collective* 7 (4): 7-25.
Mizrahi, Moti. 2018b. "Weak Scientism Defended Once More." *Social Epistemology Review and Reply Collective* 7 (6): 41-50.
Mizrahi, Moti. 2018c. "Why Scientific Knowledge is Still the Best." *Social Epistemology Review and Reply Collective* 7 (9): 18-32.
Mizrahi, Moti. 2019. "What Isn't Obvious about 'Obvious': A Data-Driven Approach to Philosophy of Logic." In *Advances in Experimental Philosophy of Logic and Mathematics*, edited by A. Aberdein and M. Inglis, 201-224. London: Bloomsbury.
Mizrahi, Moti. 2022. *For and Against Scientism: Science, Methodology, and the Future of Philosophy*. Rowman & Littlefield Publishers. New York: Bloomsbury Publishing.
Mizrahi, Moti. 2023a. "Scientism and Sentiments about Progress in Science and Academic Philosophy." *Social Epistemology Review and Reply Collective* 12 (6): 39-60.
Mizrahi, Moti. 2023b. "Why Everything You Think You Know about Scientism is Probably Wrong." *Social Epistemology Review and Reply Collective* 12 (11): 1-8.
Nussbaum, Martha, C. 2010. *Not for Profit: Why Democracy Needs the Humanities*. Princeton: Princeton University Press.
Peels, Rik. 2017. "Ten Reasons to Embrace Scientism." *Studies in History and Philosophy of Science Part A* 63 (June): 11-21.
Peels, Rik. 2018. "A Conceptual Map of Scientism." In *Scientism: Prospects and Problems*, edited by J. de Ridder, R. Peels, and R. van Woudenberg, 28-56. New York: Oxford University Press.
Pennock, Robert T. 1996. "Naturalism, Evidence and Creationism: The Case of Phillip Johnson." *Biology and Philosophy* 11 (4): 543-559.
de Ridder, Jeroen. 2014. "Science and Scientism in Popular Science Writing." *Social Epistemology Review and Reply Collective* 3 (12): 23-39.
Rasmusson, Richard H. 1954. "The Preacher Talks to the Man of Science." *The Scientific Monthly* 79 (6): 392-394.
Rosenberg, Alexander. 2011. *The Atheist's Guide to Reality: Enjoying Life Without Illusions*. New York: W. W. Norton.
Rosenberg, Alexander. 2017. "Strong Scientism and Its Research Agenda." In *Science Unlimited? The Challenges of Scientism*, edited by M. Boudry and M. Pigliucci, 203-223. Chicago: The University of Chicago Press.
Russell, Bertrand. 1946. *History of Western Philosophy, and Its Connection with Political and Social Circumstances from the Earliest Times to the Present Day*. London: Allen and Unwin.
Salmon, Merrilee H. 2013. *Introduction to Logic and Critical Thinking*. Sixth Edition. Boston, MA: Wadsworth.
Shaik, Thanveer, Xiaohui Tao, Christopher Dann, Haoran Xie, Yan Li, and Linda Galligan. 2023. "Sentiment Analysis and Opinion Mining on Educational Data: A Survey." *Natural Language Processing Journal* 2: 100003.
Sorell, Tom. 1991. *Scientism: Philosophy and the Infatuation with Science*. London: Routledge.
Stenmark, Mikael. 1997. "What is Scientism?" *Religious Studies* 33 (1): 15-32.
Stenmark, Mikael. 2004. *How to Relate Science and Religion: A Multidimensional Model*. Grand Rapids, Michigan: Wm. B. Eerdmans Publishing Co.
Stenmark, Mikael. 2016. *Scientism: Science, Ethics, and Religion*. New York: Routledge.

Turunen, Petri, Ilmari Hirvonen, and Ilkka Pättiniemi. 2023. "Epistemological Scientism and the Scientific Meta-Method." *European Journal for Philosophy of Science* 13 (2): 1-23.
Van De Poel, Ibo. 2020. "Should Philosophers Begin to Employ New Methods if They Want to Become More Societally Relevant?" In *Philosophy in the Age of Science? Inquiries into Philosophical Progress, Method, and Societal Relevance*, edited by Julia Hermann, Jeroen Hopster, Wouter Kalf, and Michael Klenk, 231-244. London: Rowman & Littlefield.
Van Woudenberg, R., Peels, R., and de Ridder, J. 2018. "Introduction: Putting Scientism on the Philosophical Agenda." In *Scientism: Prospects and Problems*, edited by J. de Ridder, R. Peels, and R. van Woudenberg, 1-36. New York: Oxford University Press.

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"Though closely associated with creationism, the intelligent design movement has its own story. It is related to but different from the various forms of creationism, and it has a unique background in natural theology and conservative politics. Typically perceived today as defunct after its public defeat in the 2005 *Kitzmiller v. Dover* court case, intelligent design did not disappear, and this book makes the case that its legacy is far more significant than we might think. Though it failed to achieve its goal of remaking contemporary science, intelligent design played a crucial role in legitimizing a mindset of suspicion which has taken hold in discussions of climate change, COVID-19, and vaccine hesitancy.

"In today's post-truth moment, where scientific expertise has become increasingly rejected, the volume showcases that the intelligent design movement's most lasting effects may not be in its challenge to evolution, but in the way it influenced the public's understanding of science and scientists. *Designer Science* makes

the case that we are all grappling today with intelligent design's legacy, and it offers a history of how we got here." (From the Publishers)

More information HERE

Vereb, Z. (2025). *Kant and environmental philosophy: The climate crisis and the imperative of sustainability.* Cambridge, United Kingdom: Cambridge University Press. ISBN 9781009664905

"*Kant and Environmental Philosophy* starts with problems of the Anthropocene and looks to Immanuel Kant for answers. It offers a close reading of Kant's texts, arguing that the views we find in his ethical, political, and aesthetic theory are helpful for making sense of ecological challenges like climate change. The book clarifies our duties regarding climate extinction, geoengineering, consumerism, and future generations. It provides insights and solutions for obstacles to sustainability, including corruption and the possibility of civil collapse. In environmental philosophy, historical commentators mine familiar philosophers for insights to these problems, but Kant is often seen as an anthropocentric and dualistic individualist in a world dominated by consequentialist thinking, and accordingly he is overlooked as relevant for environmental philosophy. This book challenges that conclusion, and its comprehensive examination of Kant's texts provides lessons for environmental philosophy and climate ethics at a time when a fresh perspective is desperately needed." (From the Publishers)

More information HERE

Wilson, B. (2025). *Strange stability: How Cold War scientists set out to control the arms race and ended up serving the military-industrial complex*. Cambridge, MA: Harvard University Press. ISBN 9780674976085

"Do scientists speak truth to power? During the Cold War, a group of elite American strategists and science advisors claimed to do precisely that. Styling themselves as figures of rationality and restraint, they insisted that mutual assured destruction was the natural logic of the atomic age: as long as nuclear deterrence was credible, no one would ever shoot first. This doctrine, known as "strategic stability," became the foundation of the arms control movement, earning its promoters widespread admiration as independent thinkers and steadfast peacemakers. But in this crucial counterhistory, Benjamin Wilson shows that we have misunderstood them and their efforts. Arms controllers, he reveals, worked not to restrain the nuclear arms race but to marginalize more radical approaches to disarmament.

"As Wilson makes clear, strategic stability was never the objective condition the analysts presented it as. It was a flexible, contested metaphor based on ideas from physics, economics, and cybernetics, capable of justifying a wide range of policies. Yet the advisors insisted on one upshot above all: constant military research and development and the continuous upgrading of America's strategic arsenal. That these policies benefited the military-industrial complex is no surprise, since many arms control thinkers were creatures of the Pentagon and corporate defense contractors. Some even spoke out against missile development in public while backing lavish funding behind closed doors.

"*Strange Stability* powerfully corrects decades of mythmaking surrounding arms control. At the same time, Wilson offers a sobering reflection on the dream of technocratic restraint. The well-placed insider who resists powerful institutions is an enticing character, but more fictional than real." (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.

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 so that 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 not be timely 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. These Golden Oldies are available, month-by-month **HERE**

Thirteenth in the series:

De Berg, K.C.: 1995, 'Revisiting the Pressure-Volume Law in History: What Can it Teach Us About the Emergence of Mathematical Relationships in Science?', *Science & Education* 4(1), 47-64.

ABSTRACT. In this article the pressure-volume law is reviewed from the point of view of its historical emergence from 1644-1662 and its application in the science classroom. It is contended that mathematical laws in science have value as rich conceptual tools in addition to their role in computation. A classification scheme for algebraic mathematical expressions, based on their historical context, is proposed as a means of assigning significance to the mathematical expressions commonly used in science.

The article can be read and downloaded **HERE**.

Coming HPS&ST Related Conferences

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February 23-27, 2026, 'Material Culture in the History of Physics', Deutsches Museum.
Details: **HERE**
March 5-6, 2026, US Philosophy of Education Society, annual meeting, Pittsburgh
Details: **HERE**
April 19 - 22, 2026, NARST Conference, Seattle
Details: **HERE**
June 9-12, 2026, Scientae annual conference, Nantes, France
Details: **HERE**
June 22-25, 2026, 8th ICASE World Conference on Science & Technology Education, University College, Cork, Ireland
Details: HERE
July 6-10, 2026, IHPST 18th Biennial Conference, Lisbon.
Details: **HERE**
July 13-16, 2026, joint European Society for the History of Science/History of Science Society meeting, Edinburgh.
Details: **HERE**
July 15-17, 2026, Biennial Conference, Society for Philosophy of Science in Practice (SPSP), University of Cambridge
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)
SHOT - Society for the History of Technology

The above list is updated and kept on the HPS&ST website at: **HERE**

HPS&ST related organizations wishing their web page to be added to the list should contact assistant editor Paulo Maurício: paulo.asterix@gmail.com

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