

# HPS&ST

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# NEWSLETTER



# HPS&ST NEWSLETTER

JANUARY 2021

The HPS&ST NEWSLETTER is emailed monthly to about 8,500 individuals who directly or indirectly have an interest in the contribution of history and philosophy of science to theoretical, curricular and pedagogical issues in science teaching, and/or interests in the promotion of innovative, engaging and effective teaching of the history and philosophy of science. The NEWSLETTER is sent on to different international and national HPS lists and international and national science teaching lists. In print or electronic form, it has been published for 25+ years.

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

Contributions to the NEWSLETTER (publications, conferences, opinion pieces, etc.) are welcome and

should be sent direct to the editor: Michael R. Matthews, UNSW ([m.matthews@unsw.edu.au](mailto:m.matthews@unsw.edu.au)).

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

## HPS&ST NEWSLETTER STAFF

Editor Michael Matthews

Assistant Editor  
(Opinion Page  
& Formatting) Nathan Oseroff-Spicer

Assistant Editor  
(Publications  
& Website) Paulo Maurício

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## 2021 Boyle Lecture on Science and Religion, February 3



Tom McLeish, FRS  
 Professor of Natural Philosophy in the Department of Physics,  
 University of York  
 Heslington, York, YO10 5DD, UK

Email: [tom.mcleish@york.ac.uk](mailto:tom.mcleish@york.ac.uk)

Web: <https://www.york.ac.uk/physics/people/mcleish/>

Feb 3rd from 6pm UK time.

The Boyle lecture is usually a private affair in a London church, but because of the virus is being streamed by ISSR together with a response by Rowan Williams, a Welsh Anglican bishop and former Archbishop of Canterbury, and a live we-

binar panel discussion including Sarah Coakley, an Anglican priest and theologian, and Sarah Lane Richie, a lecturer in the School of Divinity at the University of Edinburgh.

Details: <https://www.issr.org.uk/the-boyle-lectures/>

## The Fabulous 1930s in the History of Science and Technology

*HoST – Journal of History of Science and Technology* is a peer-reviewed open access journal, published online in English by De Gruyter/Sciendo and results of a partnership between four Portuguese research units ([CIUHCT](#), [CIDEHUS](#), [ICS e IHC](#)). [Table of Contents of Volume 14.2](#)

Special issue “The Fabulous 1930s in the History of Science and Technology”, with an introduction by the guest editors, Ana Simões and Antonio Sánchez, to the four articles it contains. This thematic issue sprang from the session “The fabulous thirties in the history of science and technology”, held at the 8th European Society for the History of Science’s biennial meeting (London, September 2018), which was also proposed and organised by the guest editors. The authors’ proposals discussed in this issue offer a good glance at the 1930s historiographical richness.

“Introduction: The Fabulous 1930s in the History of Science and Technology”, Ana Simões and Antonio Sánchez

“The Struggle for Objectivity: Gramsci’s Historical-Political Vistas on Science against the Background of Lenin’s Epistemology”, Pietro Daniel Omodeo

“Ludwik Fleck, Alfred Schutz, and Trust in Sci-

ence: The Public Responsibility of Science Education in Challenging Times”, Kathryn M. Olesko

“The Perfect Pair: Bloch, Febvre, and the History of Science and Technology”, Maria Paula Diogo

“Similarities, Differences, and Missed Connections between Thomas S. Kuhn, Gaston Bachelard and the Continental Historiography of Science”, Alberto Fragio

## Genetics Education and Social Identity special issue of *Science & Education*

The focus of the Special Issue is the interplay between genetics education and conceptions of social identity (i.e., beliefs about race, gender, sexuality, disability).

The link to the Special Issue is below, along with links to each of the papers published within it.

Link to the Special Issue [here](#).

[Introduction](#) to the Special Issue by *Brian Donovan and Ross Nehm*

[The Confounding of Race in High School Biology Textbooks, 2014–2019](#) by *John Willinsky*

[From Basic to Humane Genomics Literacy](#) by *Brian Donovan, Monica Weindling and Dennis Lee*

[Does Social Constructionist Curricula Both Decrease Essentialist and Increase Nominalist Beliefs About Race?](#) by *John Tawa*

[Using Anthropological Principles to Transform the Teaching of Human “Difference” and Genetic Variation in College Classrooms](#) by *Amelia Hub-*

*bard and Laura Monnig*

[Investigating Conflation of Sex and Gender Language in Student Writing About Genetics](#) by *Molly Stuhlsatz, Zoë Buck Bracey, and Brian Donovan*

[Behavioral Genetics, Population Genetics, and Genetic Essentialism](#) by *Alexandre Morin-Chassé*

[Measuring Belief in Genetic Determinism: A Psychometric Evaluation of the PUGGS Instrument](#) by *Robyn Tornabene, Gena Sbeglia, and Ross Nehm*

## Teaching the History of Science: *Isis* Vol. 111 No. 3, September 2020

The September 2020 issue of *Isis* (the journal of the U.S. History of Science Society) contains a 62-page, 8-article section on ‘Teaching the History of Science’. Each of the articles is available for free download as a pdf file.

[Introduction: The Changing Pedagogical Landscapes of History of Science and the “Two Cultures”](#), *Karen Rader*

[The History of Chemistry in Chemical Education](#), *John C. Powers*

[In Praise of a Historical Storytelling Approach in Science Education](#), *Daniel Gamito-Marques*

[Crash Course History of Science: Popular Science for General Education?](#) *Allison Marsh & Bethany Johnson*

[Bringing History into the Lab: A New Approach to Scientific Learning in General Education](#), *David Brandon Dennis, R.A. Lawson & Jessica M. Pisano*

Reconstructing Early Modern Artisanal Epistemologies and an “Undisciplined” Mode of Inquiry, *Tianna Helena Uchacz*

Co-teaching Botany and History: An Interdisciplinary Model for a More Inclusive Curriculum, *Frederica Bowcutt & Tamara Caulkins*

History in the Education of Scientists: Encouraging Judgment and Social Action, *Vivien Hamilton & Daniel M. Stoebel*



## Opinion Piece: *Big History: We all need to know* Art Hobson

Art Hobson is Professor Emeritus of Physics at the University of Arkansas, USA. He has published *Tales of the Quantum: Understanding Physics’ Most Fundamental Theory* (Oxford University Press, 2017) as well as physics papers on quantum foundations, particularly the measurement problem.

He is also interested in physics literacy for the general public and has published *Physics: Concepts & Connections* (Pearson, 5th edition 2010), a physics-literacy textbook for non-science college students.

He publishes a regional op-ed column and is active in such science-related social issues as global warming.

Email: [ahobson@uark.edu](mailto:ahobson@uark.edu)

Web: [homepage](#)

During the past century, science has revealed enormous new realms of history: the universe’s 13.8 billion years, Earth’s 4.5 billion years, not to mention 5 million years of early human precursors following our divergence from the other apes, and Homo sapiens’ 200,000 years. Yet world history courses begin at most a mere 12,000 years ago, following the transition from hunter-gatherers to settled agriculture.

Kids today need a grander take on who we are. They must figure out how to pull us through global warming, pandemics, our overpopulation burden, warfare in the nuclear age, etc., and into a more secure future. In his book *The Future of Life*, the prophetic scholar and biologist Edward O. Wilson describes our era as the “bottleneck.” Solutions to the bottleneck problems require new perspective: a planetary grasp of what it means to be human; an understanding of how we are situated in the universe. This requires some knowledge of millions of years of biological history and billions of years of cosmic history.

Around 1990, many colleges and schools began developing "Big History" courses that examine history from the Big Bang to the present. Rather than focusing only on human civilisation, such courses explore how humankind fits within the broader context of nature, drawing not only from historical texts but also from biology, astronomy, geology, archaeology and other sciences.

A few possible topics for such courses: How did the universe begin? How did the chemical elements arise from the deaths of stars? How was our solar system born? What is life? How did life begin? Is there life and intelligence on other planets? How did Earth arise and then change? How did humans get here? What was life like during the long hunter-gatherer phase? How did the transition to farming proceed? Such topics might occupy the first one-third of a two-semester course, with the remainder devoted to world civilisation within the broader context of Earth's changing environment and resources.

As an easy alternative, existing world history courses could be broadened by adding a two- to four-week survey of cosmic and biological history at the beginning, plus occasional topics (e.g. our expanding population, climate change, other human impacts on the environment), during the remainder of the course. At a minimum, all world history courses should include biological history beginning with the divergence of humans from the apes, or perhaps beginning with *Homo sapiens*.

A Big History course would necessarily draw on a range of faculty talents. An educational campus is the perfect location for such an endeavour. Why shouldn't we use the broad array of talent available at educational institutions to pull such interdisciplinary courses together?

In 1989, David Christian of Macquarie Univer-

sity in Sydney, Australia, collaborated with colleagues from diverse fields to develop a course exploring history from the Big Bang to the present. According to the university's 2012 school catalog, the course "invites you on an immense journey through time, to witness the first moments of our universe, the birth of stars and planets, the formation of life on Earth, the dawn of human consciousness, and the ever-unfolding story of humans as Earth's dominant species. Explore the inevitable question of what it means to be human."

Christian's course caught the attention of software developer and philanthropist Bill Gates. According to Gates, "He really blew me away. ... It made me wish that I could have taken big history when I was young, because it would have given me a way to think about all of the school work and reading that followed. In particular, it really put the sciences in an interesting historical context and explained how they apply to a lot of contemporary concerns."

By 2011, 50 university professors around the world had offered Big History courses. A secondary school pilot course was developed and taught to 3,000 kids in 50 high schools worldwide. In 2012, there were 87 schools, including 50 U.S. schools, teaching Big History. There are initiatives to make it a standard required course at universities throughout the world. Gates has used his funds to launch a free online version for high school students.

Such courses could help fill one of our planet's most crying needs: a scientifically literate human population that can figure out better solutions to our problems than, for example, the United States' fractured, evidence-free, anti-intellectual, and profoundly tragic approach to Covid-19. We need an intelligent, literate world population cap-

able of governing itself peacefully and equitably for the happiness of all.

This article was previously published in the Northwest Arkansas Democrat-Gazette, USA, 8 December 2020.

## Invitation to Submit Opinion Piece

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

Contributions can be sent direct to [Michael Matthews](#) or [Nathan Oseroff-Spicer](#).

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

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

## PhD Theses in HPS&ST Domain

The HPS&ST NEWSLETTER is the ideal medium for publicising and making known submitted and awarded doctoral theses in the HPS&ST domain.

The following details should be submitted to the editor at [m.matthews@unsw.edu.au](mailto:m.matthews@unsw.edu.au):

- Candidate's name and email

- Institution
- Supervisor
- Thesis title
- Abstract of 100-300 words
- Web link when theses are required to be submitted for open search on web.

## Feng Shui Project

The Springer journal *Science & Education* will publish at the end of 2021 a special thematic issue on the subject:

*Feng Shui: Educational, Philosophical and Cultural Perspectives*.

The issue is being guest edited by Michael Matthews (UNSW) and has been in preparation for the past eighteen months. The subject ranges over issues in philosophy of education, history and philosophy of science, cultural studies, and pedagogy.

The issue, in part, will develop and appraise arguments advanced in the book: *Feng Shui: Teaching about Science and Pseudoscience* (Springer 2019).

The issue is being contributed to by educators, philosophers, scientists, anthropologists, social psychologists, and economists. It is probably the first comprehensive, multi-disciplinary treatment of Feng Shui and education. The issue will be widely advertised. It should promote a clearer and enriched understanding of this relatively neglected subject.

Feng Shui is an ancient Chinese theory, world-view and practice that is being internationally adopted well beyond Asia. It is intimately connected



ted with Traditional Chinese Medicine, alternative medicines, acupuncture, a range of 'energy-based' healing and health regimes such as Tai Kwon Do, divination (fortune-telling); and increasingly with architectural, construction and town-planning theory and practice.

The topic of the thematic issue encompasses many obvious questions. Is feng shui scientific, pseudoscientific or simply not science? Can pseudoscience be distinguished from science? In schools, should feng shui be taught or taught about? Is it an indigenous knowledge system, and consequently there cultural considerations for inclusion in curricula that are independent of epistemological considerations? If included, should it be in science or social studies programmes? How does the efficacy of a practice bear upon the truth, or epistemological status, of the theory behind the practice? And many more.

In China, predictably, the topic is quite pointed. In 2016 the Central Propaganda Department of the Ministry of Science and Technology released the national document: *Chinese Citizens' Scientific Quality Standards* (State Council Bulletin No. 24, 2016).

Among the 132 Reference Points deemed essential for the scientific literacy of Chinese citizens are:

- (4) Knowing that philosophy and social sciences, like natural sciences, is an important tool for people to understand the world and transform the world.
- (5) Understanding Chinese excellent traditional culture plays an important role in understanding nature and society and developing science and technology.
- (9) Knowing the traditional Chinese philosophical concepts such as Yin and Yang, the five elements, the unity of heaven and man, and knowledge-giving to knowledge is the simple materialism and overall

systematic methodology of ancient China, and has practical significance.

(33) Know that explaining natural phenomena depends on scientific theory, respects objective laws, seeks truth from facts, and is not superstitious or blindly following natural phenomena that cannot yet be explained by scientific theory.

(87) Understand that traditional Chinese medicine is a traditional Chinese medical method and has its own advantages compared to Western medicine.

Clearly, a proper appreciation of feng shui is required for the realisation of these national goals. Beyond China, the topic also has salience for discussion of the nature of science (NOS) and debates about multicultural and indigenous science.

Manuscripts have now been submitted and the reviewing task will commence. Offers of assistance with reviewing, from scholars familiar with any of the subfields of the topic, would be most welcome. The standard reviewing time is 30 days.

Reviewing is onerous and not much rewarded, but it is the foundation for advancement of scholarship. And on this particular topic, reviewing is of utmost importance. When the issue is published, reviewers and their institutions will be acknowledged, though not, of course, linked to the specific paper reviewed.

Those wishing to assist with reviewing should contact the guest editor at [m.matthews@unsw.edu.au](mailto:m.matthews@unsw.edu.au). Please indicate please do indicate whether your research is in history, philosophy, education, cultural studies or combinations thereof. Attaching a CV would be most useful.

## Recent HPS&ST Research Articles

[HoST: Journal of History of Science and Techno-](#)

logy (Volume 14, Issue 2, December 2020)

Special Issue: The Fabulous 1930s in the History of Science and Technology

Issue Editors: Ana Simões and Antonio Sánchez

Baldassarri, F. (2020). Descartes and the Dutch: Botanical Experimentation in the Early Modern Period. *Perspectives on Science*, 28(6), 657-683. <https://www.muse.jhu.edu/article/776546>

Bardapurkar, A. (2020). Teaching Scientific Temper. *Resonance*, 25, 1399-1405. doi:10.1007/s12045-020-1059-y

Brecevic, C. (2021). The Role of Imagination in Ernst Mach's Philosophy of Science: A Biologico-Economical View. *HOPPOS: The Journal of the International Society for the History of Philosophy of Science*. doi:10.1086/712974 (Just Accepted)

Neto, C. (2020). When imprecision is a good thing, or how imprecise concepts facilitate integration in biology. *Biol Philos* 35, 58. doi:10.1007/s10539-020-09774-y

Page, M. D. (2021). The Role of Historical Science in Methodological Actualism. *Philosophy of Science*, 1-38. doi:10.1086/712833 (just accepted)

Textor, M. (2021). Mach's Neutral Monism. *HOPPOS: The Journal of the International Society for the History of Philosophy of Science*. doi:10.1086/712943 (just accepted)

## Recent HPS&ST Related Books

Allen, Barry (2021). *Empiricisms: Experience and Experiment from Antiquity to the Anthropocene*. Oxford, UK: Oxford University Pres.

ISBN: 978-0-197-50893-0

“In this sweeping volume of comparative philosophy and intellectual history, Barry Allen reassesses the values of experience and experiment in European and world traditions. His work traces the history of empirical philosophy from its birth in Greek medicine to its emergence as a philosophy of modern science. He surveys medical empiricism, Aristotelian and Epicurean empiricism, the empiricism of Gassendi and Locke, logical empiricism, radical empiricism, transcendental empiricism, and varieties of anti-empiricism from Parmenides to Wilfrid Sellars.

“Throughout this extensive intellectual history, Allen builds an argument in three parts. A richly detailed account of history's empiricisms in Part One establishes a context in Part Two for reconsidering the work of the radical empiricists—William James, Henri Bergson, John Dewey, and Gilles Deleuze, each treated in a dedicated chapter. What is “radical” about them is their effort to return empiricism from epistemology to the ontology and natural philosophy where it began.

“In Part Three, Allen sets empirical philosophy in conversation with Chinese tradition, considering technological, scientific, medical, and alchemical sources, as well as selected Confucian, Daoist, and Mohist classics. The work shows how philosophical reflection on experience and a profound experimental practice coexist in traditional China with no interaction or even awareness of each other, slipping over each other instead of intertwining as they did in European history, a difference Allen attributes to a different understanding of the value of knowledge.

“Allen's book recovers empiricism's neglected, multi-textured contexts, and elucidates the enduring value of experience, to arrive at an idea of what is living and dead in philosophical empiricism.”

More information available [here](#).

Boddice, Rob (2021). *Humane Professions: The Defence of Experimental Medicine, 1876–1914*. Cambridge: Cambridge University Press.

ISBN: 978-1-108-78008-7

“In this compelling history of the co-ordinated, transnational defence of medical experimentation in the nineteenth and early twentieth centuries, Rob Boddice explores the experience of vivisection as humanitarian practice. He captures the rise of the professional and specialist medical scientist, whose *métier* was animal experimentation, and whose guiding principle was ‘humanity’ or the reduction of the aggregate of suffering in the world. He also highlights the rhetorical rehearsal of scientific practices as humane and humanitarian, and connects these often defensive professions to meaningful changes in the experience of doing science. *Humane Professions* examines the strategies employed by the medical establishment to try to cement an idea in the public consciousness: that the blood spilt in medical laboratories served a far-reaching human good.” (From the Publisher)

More information available [here](#).

DeSilva, Jeremy (Ed.) (2021). *A Most Interesting Problem: What Darwin’s Descent of Man Got Right and Wrong about Human Evolution*. Princeton, NJ: Princeton University Press.

ISBN: 978-0-691-19114-0

“In 1871, Charles Darwin published *The Descent of Man*, a companion to *Origin of Species* in which he attempted to explain human evolution, a topic he called “the highest and most interesting problem for the naturalist.” *A Most Interesting Problem* brings together twelve world-class scholars and science communicators to investigate what Darwin got

right—and what he got wrong—about the origin, history, and biological variation of humans.

“Edited by Jeremy DeSilva and with an introduction by acclaimed Darwin biographer Janet Browne, *A Most Interesting Problem* draws on the latest discoveries in fields such as genetics, paleontology, bioarchaeology, anthropology, and primatology. This compelling and accessible book tackles the very subjects Darwin explores in *Descent*, including the evidence for human evolution, our place in the family tree, the origins of civilisation, human races, and sex differences.

“*A Most Interesting Problem* is a testament to how scientific ideas are tested and how evidence helps to structure our narratives about human origins, showing how some of Darwin’s ideas have withstood more than a century of scrutiny while others have not.

“*A Most Interesting Problem* features contributions by Janet Browne, Jeremy DeSilva, Holly Dunsworth, Agustín Fuentes, Ann Gibbons, Yohannes Haile-Selassie, Brian Hare, John Hawks, Suzana Herculano-Houzel, Kristina Killgrove, Alice Roberts, and Michael J. Ryan.” (From the Publisher)

More information available [here](#).

Franklin, Allan & Laymon, Ronald (2021). *Once Can Be Enough: Decisive Experiments, No Replication Required*. Cham: Springer.

ISBN: 978-3-030-62564-1

“There has recently been considerable discussion of a “replication crisis” in some areas of science. In this book, the authors argue that replication is not a necessary criterion for the validation of a scientific experiment. Five episodes from physics and genetics are used to substantiate this thesis: the Meselson-Stahl experiment on DNA replication, the discoveries of the positron and the omega minus hyperon, Mendel’s plant experiments, and the discovery of

parity non-conservation. Two cases in which once wasn't enough are also discussed, the non-discovery of parity non-conservation and the search for magnetic monopoles. Reasons why once wasn't enough are also discussed."

More information available [here](#).

Friederich, Simon (2021). *Multiverse Theories: A Philosophical Perspective*. Cambridge: Cambridge University Press. ISBN: 978-1-108-76594-7

"If the laws of nature are fine-tuned for life, can we infer other universes with different laws? How could we even test such a theory without empirical access to those distant places? Can we believe in the multiverse of the Everett interpretation of quantum theory or in the reality of other possible worlds, as advocated by philosopher David Lewis? At the intersection of physics and philosophy of science, this book outlines the philosophical challenge to theoretical physics in a measured, well-grounded manner. The origin of multiverse theories are explored within the context of the fine-tuning problem and a systematic comparison between the various different multiverse models are included. Cosmologists, high energy physicists, and philosophers including graduate students and researchers will find a systematic exploration of such questions in this important book." (From the Publisher)

"In recent years multiverse theories have attracted a great deal of attention among physicists, promising simple resolutions to fundamental long-standing problems. Philosopher of science Simon Friederich provides here a valuable, careful examination of these claims and their relation to testable science. The problems posed by the advent of such theories that arguably cannot be shown to be wrong seem to be here to stay. Friederich's comprehensive and even-handed account of all sides of the question of where we are now with this new sort of science has

an important role to play." – Peter Woit, Columbia University

"Friederich offers an excellent even-handed philosophical discussion of multiverse theories. By providing the first single-authored philosophical book on the topic, he moves multiverse issues towards the centre of contemporary philosophy of physics and demonstrates that physical thinking about the multiverse may profit from philosophical considerations. The book will be of profound interest both for philosophers and physicists." – Richard Dawid, Stockholm University

More information available [here](#).

Heilbron, J. L. (2021). *The Ghost of Galileo: In a forgotten painting from the English Civil War*. Oxford, UK: Oxford University Press.

ISBN: 978-0-198-86130-0

"In 1643/4 the once-famous Francis Cleyn painted the unhappy young heir of Corfe Castle, John Bankes, and his tutor, Dr Maurice Williams. The painter is now almost forgotten, the painting much neglected, and the sitters themselves have left little to mark their lives, but on the table of the painting lies a book, open to an immediately identifiable and very significant page. The representation omits the author's name and the book's title; it sits there as a code, as only viewers who had encountered the original and the characteristic figures on its frontispiece would have known its significance. The book is Galileo's *Dialogue on the two chief world systems* (1632), the defence of Copernican cosmology that incited the infamous clash between its author and the Church, and its presence in this painting is no accident, but instead a statement of learning, attitudes, and cosmopolitan engagement in European discourse by the painting's English subjects.

"Grasping hold of the clue, John Heilbron deciphers the significance of this contentious book's appearance in a painting from Stuart England to unravel

the interlocking threads of art history, political and religious history, and the history of science. Drawing on unexploited archival material and a wide range of printed works, he weaves together English court culture and Italian connections, as well as the astronomical and astrological knowledge propagated in contemporary almanacs and deployed in art, architecture, plays, masques, and political discourse. Heilbron also explores the biographies of Sir John Bankes (father of the sitter), Sir Maurice, and the painter, Francis Cleyn, setting them into the narrative of their rich and cultured history.” (From the Publisher)

More information available [here](#).

Hunt, B. (2021). *Imperial Science: Cable Telegraphy and Electrical Physics in the Victorian British Empire*. Cambridge: Cambridge University Press. ISBN: 978-1-108-90270-0

“In the second half of the nineteenth century, British firms and engineers built, laid, and ran a vast global network of submarine telegraph cables. For the first time, cities around the world were put into almost instantaneous contact, with profound effects on commerce, international affairs, and the dissemination of news. Science, too, was strongly affected, as cable telegraphy exposed electrical researchers to important new phenomena while also providing a new and vastly larger market for their expertise. By examining the deep ties that linked the cable industry to work in electrical physics in the nineteenth century – culminating in James Clerk Maxwell’s formulation of his theory of the electromagnetic field – Bruce J. Hunt sheds new light both on the history of the Victorian British Empire and on the relationship between science and technology.” (From the Publisher)

More information available [here](#).

Landeweerd, Laurens (2021). *Time, Life & Memory: Bergson and Contemporary Science*. Cham: Springer. ISBN: 978-3-030-56853-5

“This book revitalises the relevance of the ideas of Henri Bergson (1859-1941) for current developments in exact sciences. The book explores the relevance of Bergson’s thought for contemporary philosophical reflections on three of the most important scientific research areas of today, namely physics (time), synthetic biology (life) and neurobiology (consciousness and memory). Henri Bergson (1859-1941) was one of the most prolific authors of his era and one of the most widely read philosophers. The European public was frantically seeking for answers to questions of the soul and the nature of life and fitting within a historical niche, his writings drew much attention. This work focuses on the relevance of his philosophy for developments in exact sciences today. The discussion of physics in relation to the abstract and the concrete, biology in relation to concepts of life and emerging research fields in synthetic biology, and neuropsychology in relation to the technical nature of human identity, focuses on one main topic: time. Time, isolated from experience, as the measure of the events in the universe in modern physics; time as the measure of emergent systems in evolution as the backdrop of the theory of evolution in biology; time in relation to memory and imagination in neuropsychological accounts of memory. The author thus discusses the ideas of Henri Bergson as a basis to unveil time as a living process, rather than as an instrument for the measure of events. An exciting book for academics interested in the interplay between hard sciences and philosophy.” (From the Publisher)

More information available [here](#).

Reiss, Michael J., Watts, Fraser, & Wiseman, Harris (Eds.) (2019) *Rethinking Biology: Public Understandings*. London, UK: World Scientific.

ISBN: 978-9-811-20826-3

“Biologists always need to grapple with integrating two explanatory approaches. On the one hand, there is necessarily an effort to drill down to the lowest possible level to explain what is happening in whatever is being studied. That involves looking at how higher-level processes arise from lower-level ones. On the other hand, there is a need to consider how the broader context influences bottom-up processes; that involves looking at how the whole influences the parts. Neither approach is satisfactory on its own. There is always a need to integrate the consideration of how parts influence wholes with how wholes influence parts.

“This book arises from a concern that in the public dissemination of biology the need to integrate these different perspectives is not coming across well. In popularisations, simplistic micro explanations always seem to arouse most interest and to capture the headlines. That risks distorting and simplifying the complexity of biological processes and can mislead people. In this book we are urging a concerted attempt to come to grips with the interactive complexity of biology, and to find ways of conveying it to the public accessibly and effectively.

“We are particularly concerned with how biology is communicated to the public. Too often, what comes over to the public is a crude, out-of-date, simplistic, mono-causal, reductionist biology. Why so? Why is biology so misrepresented? Who is responsible? It is partly the media, of course, but we suggest that biologists themselves are often partly responsible. When it comes to communication with the public, they tend to over-simplify in a way that distorts.”  
(From the Publisher)

More information available [here](#).

Tomasello, Michael (2021). *Becoming Human: A Theory of Ontogeny*. Cambridge, MA: Harvard University Press. ISBN: 978-0-674-24828-1

“Virtually all theories of how humans have become such a distinctive species focus on evolution. Here, Michael Tomasello proposes a complementary theory of human uniqueness, focused on development. Building on the seminal ideas of Vygotsky, his data-driven model explains how those things that make us most human are constructed during the first years of a child’s life.

“Tomasello assembles nearly three decades of experimental work with chimpanzees, bonobos, and human children to propose a new framework for psychological growth between birth and seven years of age. He identifies eight pathways that starkly differentiate humans from their closest primate relatives: social cognition, communication, cultural learning, cooperative thinking, collaboration, prosociality, social norms, and moral identity. In each of these, great apes possess rudimentary abilities. But then, Tomasello argues, the maturation of humans’ evolved capacities for shared intentionality transform these abilities—through the new forms of sociocultural interaction they enable—into uniquely human cognition and sociality.

The first step occurs around nine months, with the emergence of joint intentionality, exercised mostly with caregiving adults. The second step occurs around three years, with the emergence of collective intentionality involving both authoritative adults, who convey cultural knowledge, and coequal peers, who elicit collaboration and communication. Finally, by age six or seven, children become responsible for self-regulating their beliefs and actions so that they comport with cultural norms.

“Becoming Human places human sociocultural activity within the framework of modern evolutionary theory and shows how biology creates the conditions under which culture does its work.” (From the Publisher)

More information available [here](#).

Waddell, Mark A. (2021). *Magic, Science, and Religion in Early Modern Europe (New Approaches to the History of Science and Medicine)*. Cambridge: Cambridge University Press.

ISBN: 978-1-108-34823-2

“From the recovery of ancient ritual magic at the height of the Renaissance to the ignominious demise of alchemy at the dawn of the Enlightenment, Mark A. Waddell explores the rich and complex ways that premodern people made sense of their world. He describes a time when witches flew through the dark of night to feast on the flesh of unbaptised infants, magicians conversed with angels or struck pacts with demons, and astrologers cast the horoscopes of royalty. Ground-breaking discoveries changed the way that people understood the universe while, in laboratories and coffee houses, philosophers discussed how to reconcile the scientific method with the veneration of God. This engaging, illustrated new study introduces readers to the vibrant history behind the emergence of the modern world.” (From the Publisher)

“An enchanting, yet eminently accessible, tour of the magical and mysterious in European thought from the Renaissance to the Enlightenment. The real wizardry is how Waddell masterfully explains the uniqueness of early modern views of magic, religion and nature, while emphasising the profound links between this past and our present.” – Matthew James Crawford, Kent State University

“Waddell provides a superb review of the intersections among belief systems and underlines the great extent to which they determined early modern lived experience. *Magic, Science and Religion in Early Modern Europe* is deftly written and invites the reader to imagine as well as learn, to engage curiosity and passion as well as intellect. It is a triumph in the genre.” – Allison Kavey, CUNY John Jay College and CUNY Graduate Center

Zangwill, Andrew (2021). *A Mind Over Matter: Philip Anderson and the Physics of the Very Many*. Oxford, UK: Oxford University Press.

ISBN: 978-0-198-86910-8

“*A Mind Over Matter* is a biography of the Nobel-prize winner Philip W. Anderson, a person widely regarded as one of the most accomplished and influential physicists of the second half of the twentieth century.

“Anderson (1923-2020) was a theoretician who specialised in the physics of matter, including window glass and metals, magnets and semiconductors, liquid crystals and superconductors. More than any other single person, Anderson transformed the patchwork subject of solid-state physics into the deep, subtle, and coherent discipline known today as condensed matter physics.

“Among his many world-class research achievements, Anderson discovered an aspect of wave physics that had been missed by all previous scientists going back to Isaac Newton. He became a public figure when he testified before Congress to oppose its funding of an expensive project intended exclusively for particle physics research. Over the years, he published many articles designed to influence a broad audience about issues where science impacted public policy and culture.

“Anderson grew up in the American mid-west, was educated at Harvard, and rose to the pinnacle of his profession during the first decade of his thirty-five career as a theoretical physicist at Bell Telephone Laboratories. Almost uniquely, he spent many years working half-time as a professor at the University of Cambridge and at Princeton University. The outspoken Anderson enjoyed broad influence outside of physics when he helped develop and champion the concepts of emergence and complexity as organising principles to help attack very difficult problems in technically challenging disciplines.” (From the Publisher)

More information available [here](#).

More information available [here](#).

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

## Coming HPS&ST Related Conferences

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

Details from Glenn Dolphin:  
[glenn.dolphin@ucalgary.ca](mailto:glenn.dolphin@ucalgary.ca).

**POSTPONED TO JULY 3-7, 2022**

July 11-16, 2021, Biennial meeting of the International Society for the History, Philosophy, and Social Studies of Biology, Milwaukee, WI

Details available [here](#).

July 19-23, 2021 'Objects of Understanding: Historical Perspectives on Material Artefacts in Science Education' will take place at the Europa-Universität Flensburg (Germany)

Details: Roland Wittje, [roland.wittje@gmail.com](mailto:roland.wittje@gmail.com) and [here](#).

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

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

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

Details from Zongrong LI [2320129239@qq.com](mailto:2320129239@qq.com).

July 24-29, 2023, 17th DLMPST Congress, Univer-

sity of Buenos Aires Information: Pablo Lorenzani, [pablo@unq.edu.ar](mailto:pablo@unq.edu.ar).

## HPS&ST Related Organisations and Websites

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

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

**DHST** – Division of History, Science, and Technology

**IHPST** – International History, Philosophy, and Science Teaching Group

**NARST** – National Association for Research in Science Teaching

**ESERA** – European Science Education Research Association

**ASERA** – Australasian Science Education Research Association

**ICASE** – International Council of Associations for Science Education

**UNESCO** – Education

**HSS** – History of Science Society

**ESHS** – European Society for the History of Science

**AHA** – American History Association

**ISHEASTME** – International Society for the History of East Asian History of Science Technology and Medicine

**BSHS** – British Society for History of Science



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

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

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

[PSA](#) – Philosophy of Science Association

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

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

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

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

The above list is updated and kept on the HPS&ST website [HERE](#).

HPS&ST-related organisations wishing their web page to be added to the list should contact assistant editor Paulo Maurício ([paulo.asterix@gmail.com](mailto:paulo.asterix@gmail.com))

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