BSHS

Annual Meeting

British Society for the History of Science

8th–10th July 2025

Hosted by the
Department of History and Philosophy of Science,
University of Cambridge

UNIVERSITY OF CAMBRIDGE

Whipple Museum of the History of Science

About the BSHS: Founded in 1947, the BSHS is Britain's largest learned society devoted to the history of science, technology and medicine. Current members include lecturers, writers, students, teachers, museum curators and private individuals. We aim to bring together people with interests in all aspects of the field, and to publicise relevant ideas within the wider research and teaching communities and in the media.

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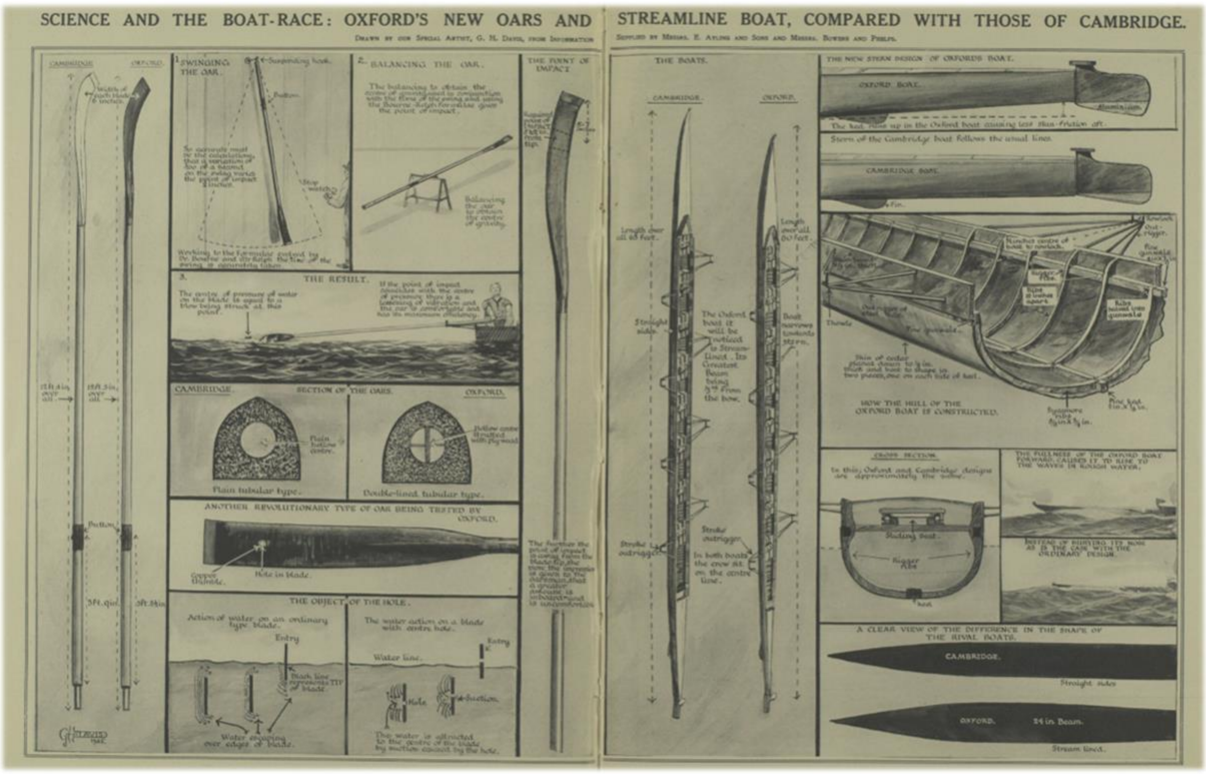


The Illustrated London News, 14th March 1925

Help, where is my session room?

All sessions (except keynote lectures) take place on one of two sites

The Pitt Building (Trumpington St, CB2 1RP) **and the**

Department of History and Philosophy of Science (HPS) (Free School Lane, CB2 3RH)

Although Cambridge is a difficult and confusing place to navigate if it's your first time, these two buildings are opposite ends of a small narrow street, Boltoph Lane (you can pretty much see one from the other), you'll soon get the hang of where everything is.

To keep things simple, sessions in particular series (such as A) are always in the same room every day.

Pitt Building Site (Newton Room, Bentley Room, Syndics Room)
Strands A, C, E

Note: Conference Catering & Registration is located in the Darwin Room on the Ground Floor, enter via main entrance, and turn Left.

Pitt Building, Main Entrance, located on Trumpington St, same road as Kings College.

Newton Room (A Sessions) – located on the Ground Floor. Enter via the main entrance turn Right through doors into large flat room.

Bentley Room (C Sessions) – located on the Second Floor. Enter via main entrance turn right, upstairs to second floor (that's up two flights of stairs), turn right at top of stairs through doorways which should be open to Bentley Room (also sign posted).

Syndics Room (E Sessions) – this is technically located in a building called 17 Mill Lane, but forget that unless you get lost. Enter the Pitt Building via main entrance, walk through lobby and outdoor immediately ahead into courtyard. Syndics room is on the left handside of the quad up a short flight of external stairs through a blue door. Once inside the building the room is located to your immediate left.

Department of History and Philosophy of Science Site (HPS)
(Hopkinson Lecture Theatre, Whipple Museum, Seminar Room 2, and Seminar Room 1)
Strands B, D, F, G

Department of History and Philosophy of Science, Main Entrance, Free School Lane, CB2 3RH)

Hopkinson Lecture Theatre (B Sessions) – located on the 1st Floor. Enter via main entrance, head up the stairs immediately in front of you. Pass Whipple Museum Entrance, through wooden gate, turn right up more stairs, turn right at the top of the flight of stairs and head along the corridor with staff offices. At the end of the corridor pass through door on to landing (with another staircase ignore this) Hopkinson Lecture Theatre is directly in front of you. This is the hardest room to find – *there will be student volunteers on hand to guide you from HPS main entrance if you get lost.*

Whipple Museum Learning Gallery (D Sessions) – located on the mezzanine level of the HPS Dept. Enter via main entrance, head upstairs immediately in front of you. Museum entrance is on your left. Staff at Museum reception desk will be on hand to point you in the right direct. But if not head to end of gallery you have just entered, turn right at the end through doorway and right again and you'll find the Learning Gallery.

Seminar Room 2 (F Sessions) – located in the basement. Enter via main entrance. Head downstairs in front of you. Keep following down seminar room 2 is in front of you.

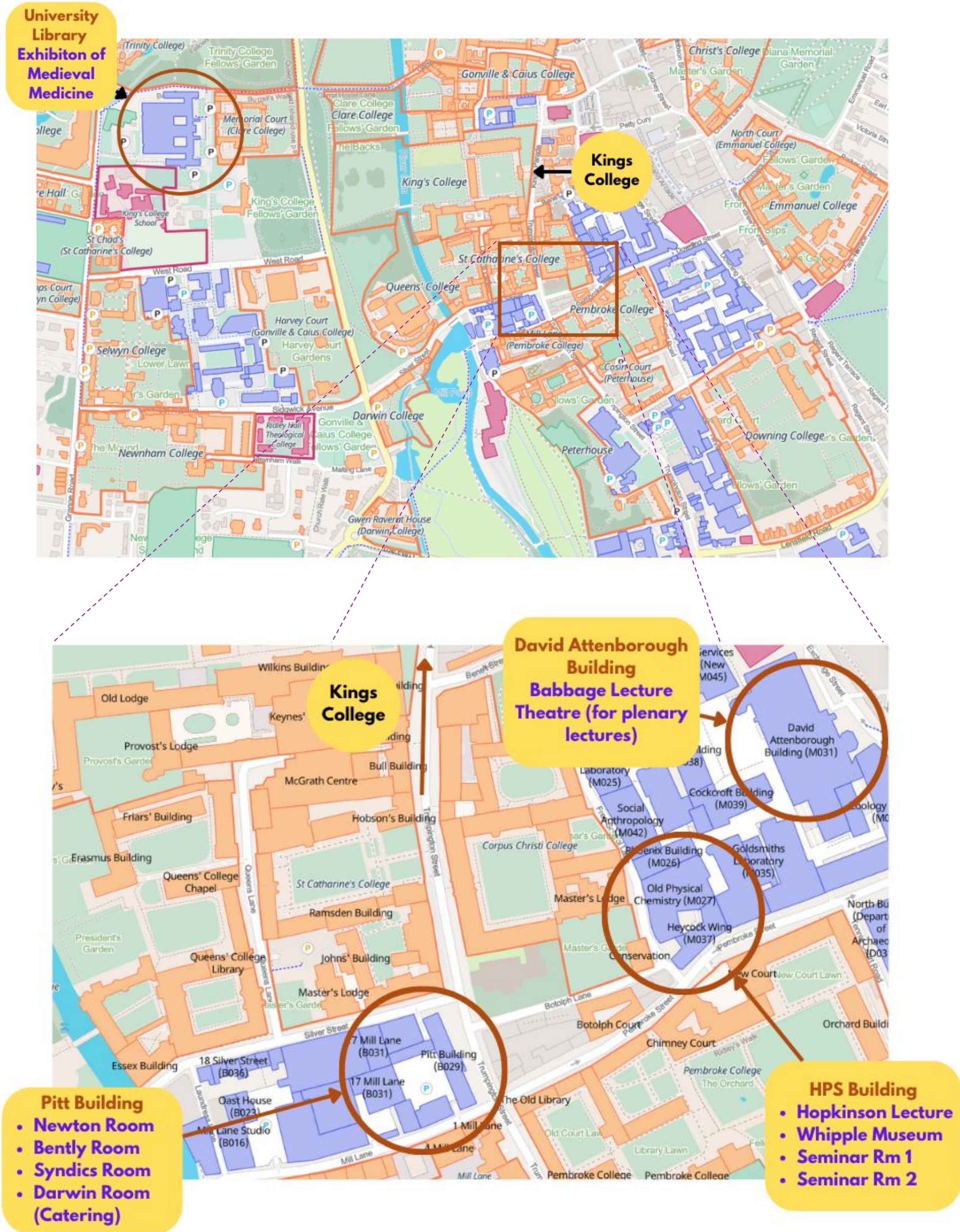
Seminar Room 1 (G Sessions) – located on the ground floor. Enter via main entrance. Turn immediately left enter door directly in front of you, welcome to seminar room 1.

Help I want to escape to a library for some peace and quiet!

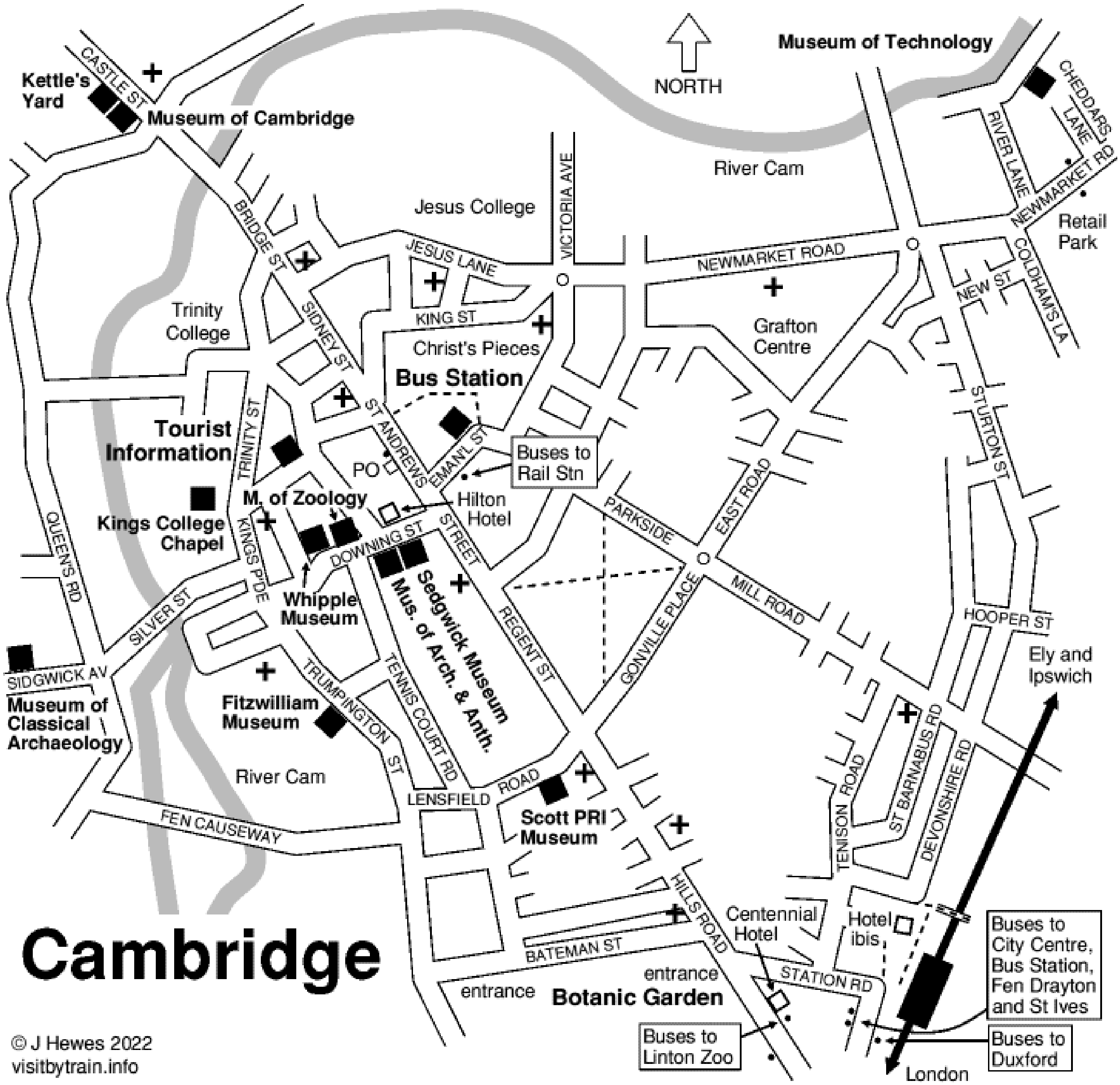
Fear not, the **Whipple Library**, in the Dept. of History and Philosophy of Science is open for you. Theres 50 study spaces, printing facilities, friendly staff, and thousands of books!

To get there: head to the department enter via main entrance, walk up first flight of stairs, pass through wooden gate, head forwards rather than up stairs to the right and follow signs. Student volunteers will happily help you find your way.

Maps



University Library
Exhibiton of Medieval Medicine
Kings College
Kings College
David Attenborough Building
Babbage Lecture Theatre (for plenary lectures)
Pitt Building
• Newton Room
• Bently Room
• Syndics Room
• Darwin Room (Catering)
HPS Building
• Hopkinson Lecture
• Whipple Museum
• Seminar Rm 1
• Seminar Rm 2



Above is a handy map of the city showing the location of the museums. To locate yourself from the sessions, the Whipple Museum as shown above also appears on the maps on the previous page.

Further details about local museums and special collection visits can be found later in this programme.

BAU BAHÇEŞEHİR UNIVERSITY

Bahçeşehir Journal of Intellectual History and History of Science

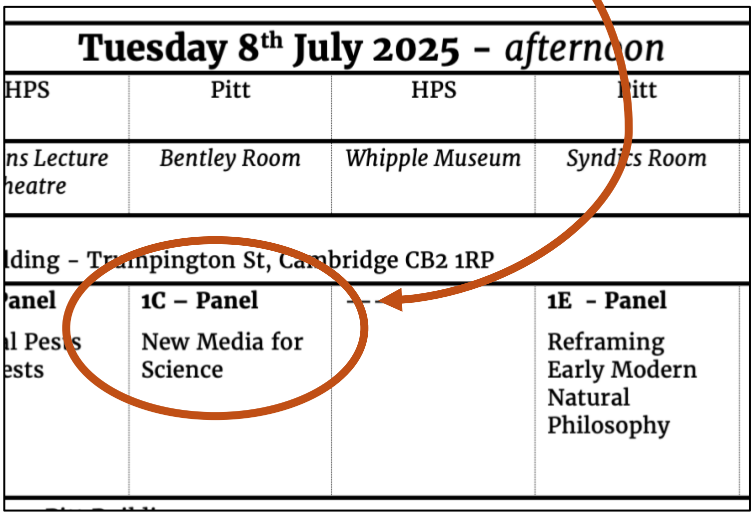
An international, peer-reviewed, open-access journal advancing research in intellectual history and the history of science.

Bahçeşehir Journal of Intellectual History and History of Science (BJIHHS) is an international, peer-reviewed, open-access academic journal dedicated to publishing cutting-edge research in the fields of intellectual history and the history of science. The journal aims to foster interdisciplinary dialogue and promote global, comparative, and historiographical approaches to the study of ideas, knowledge systems, and scientific practices.

Editor-in-Chief: Assoc. Prof. Derya Gürses Tarbuck
Email: dgurses@gmail.com
Bahçeşehir University,
Faculty of Humanities and Social Sciences
Beşiktaş, İstanbul, Turkey

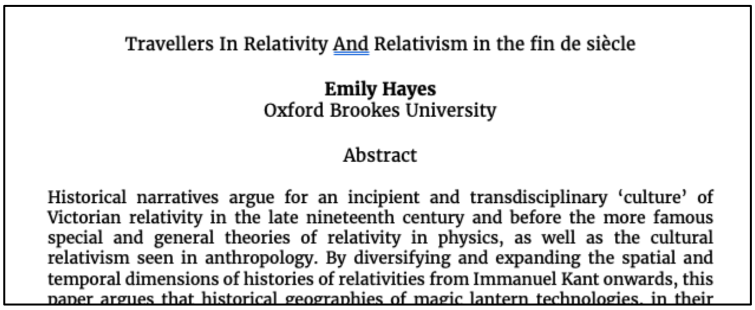
How to use this programme

1) *From the programme overview page. Click on a session title.*
For example click on "1C – New Media for Science".

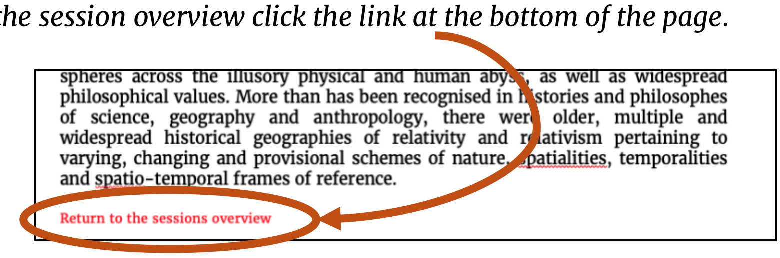


2) *This will open a detailed breakdown of the session contents. Click on a speakers name to open the abstract. For example, "Emily Hayes".*

3) *This will open the paper abstract.*



4) *To return to the session overview click the link at the bottom of the page.*



cambridgecambridgeProgramme Overview

Tuesday 8th July 2025 - *afternoon*

Building	Pitt	HPS	Pitt	HPS	Pitt	HPS	HPS
Room	*Newton Room*	*Hopkinson Lecture Theatre*	*Bentley Room*	*Whipple Museum Learning Gallery*	*Syndics Room*	*Seminar Rm 2*	*Seminar Rm 1*
11:00	**Library Tour – University of Cambridge Library -** Curious Cures: Medicine in the Medieval World ***Sign-up required*** - *https://tickets.museums.cam.ac.uk/overview/9374*						
12:00	**Registration** Darwin Room – Pitt Building - Trumpington St, Cambridge CB2 1RP						
14:00	**1A – Roundtable** Teaching the History of Science Today: Frameworks, Canons, Contexts	**1B – Panel** Animal Pests and Tests	**1C – Panel** New Media for Science	---	**1E - Panel** Reframing Early Modern Natural Philosophy	**1F – Panel** Creating Scientific Knowledge: Health and Epidemics	**1G – Panel** Psy Science and Expertise
15:30	**Tea Break** – Darwin Room, Pitt Building						
16:00	**2A – Roundtable** History and Philosophy of Science in Schools	**2B – Roundtable** 100 years of Biochemistry in Cambridge	**2C – Panel** Newtonian Trajectories: Local Adaptations and Global Receptions in the 18th Century	**2D - Panel** Exploring the Digitalised 'Electrical Age (for Women)'	**2E – Panel** Paper, Pens and Specimens: Using Archival Media to Reclaim the Agency of Women in Natural History	**2F – Panel** Experiments	**2G – Panel** Environmental-ism: Then and Now
18:15	**BSHS Presidential Address – Babbage Lecture Theatre, Sir David Attenborough Building** Professor Chiara Ambrosio (University College London), chaired by Professor Hasok Chang (University of Cambridge)						
19:00	**BSHS Presidential Reception** (sponsored by Cambridge University Press) – HPS Dept. and Whipple Museum (*ticketed)*						

Wednesday 9th July 2025 - *morning*

Building	Pitt	HPS	Pitt	HPS	Pitt	HPS	HPS
Room	*Newton Room*	*Hopkinson Lecture Theatre*	*Bentley Room*	*Whipple Museum Learning Gallery*	*Syndics Room*	*Seminar Rm 2*	*Seminar Rm 1*
09:00	**Registration** - *will remain open throughout the day* Darwin Room – Pitt Building - Trumpington St, Cambridge CB2 1RP						
09:30	**3A – Panel** Cool Britannia, Warm Science: Social Science and Politics in the 1990s	**3B – Panel** Evolutionary Receptions	**3C – Panel** Weather Spaces and Weathered Places: managing and measuring local weather c.1700-1950 (1 of 2)	**3D – Panel** Defining Disciplines: Cosmology, Natural Philosophy, Physics	**3E - Panel** Nuclear: Plutonium, Pluviculture, and Experimental Laboratories	**3F – Panel** Human-Animal Interactions in the 20th Century	**3G – Panel** Early Modern Books and Bodies
11:00	**Tea Break** – Darwin Room, Pitt Building						
11:30	**4A – Roundtable** Collaborations in 20th Century science, technology and Medicine	**4B – Panel** Reconsidering Genetics	**4C – Roundtable** Weather Spaces and Weathered Places: the Stuff of Weather (2 of 2)	**4D - Roundtable** Collection Ecologies: Toward and Environmental History of Science	**4E – Panel** Historiograph-ical Perspectives	**4F – Panel** Colonial Bioprospecting and Indigenous Knowledge	**4G – Panel** Zoology and the Global Zoo
13:00	**Lunch –** Darwin Room, Pitt Building – *only for those registered as conference speakers* (BSHS EGM starts at 13:30 in Syndics Room)						

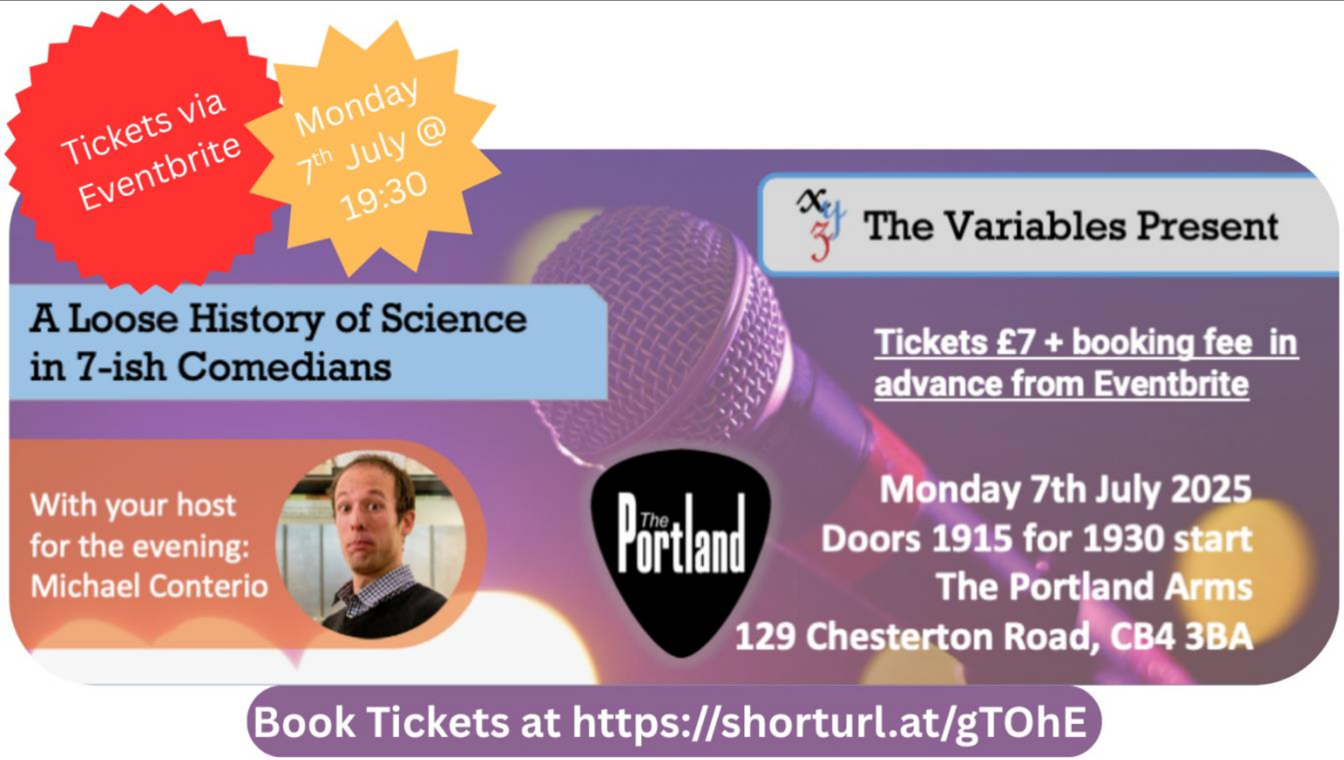
Wednesday 9th July 2025 - *afternoon*

Building	Pitt	HPS	Pitt	HPS	Pitt	HPS	HPS
Room	*Newton Room*	*Hopkinson Lecture Theatre*	*Bentley Room*	*Whipple Museum Learning Gallery*	*Syndics Room*	*Seminar Rm 2*	*Seminar Rm 1*
14:00	**5A – Roundtable** Approximating the Proxy: the Power and Precarity of Nature's Stand Ins	**5B – Panel** Eugenics	**5C – Panel** Between the Lab and the Field	**5D – Panel** Scientific Instruments in the Beijing Palace Museum Collection: Itineraries, Display and Uses	**5E - Panel** Fakes, Scandals and Uncertainty in the History of Technology	**5F – Panel** Plants, Collecting and Medicine	**5G – Workshop** Stories in Conversation: mobilising oral history (and ethnographic storytelling) to reflect on environmental collaboration
15:30	**Tea Break** – Darwin Room, Pitt Building						
16:00	**6A – Panel** Activism and the History of Science: Trajectories in Research and Training	**6B – Panel** Science, Religion and Non-Religion	**6C – Panel** Practicing Meteorology: At Home	**6D - Panel** History of Science and Technology: in the 21st Century Museum	**6E – Panel** Science and Politics in the 1970s and 1980s	**6F – Panel** Conceptualising Turbulence: Bodily Resilience, Flowing Particles, and Uncertain Prognoses in Pre-Modern Medicine	**6G – Panel** Craftsmen, Scholars, Pirates and Chessmen
18:15	**Keynote Lecture – Babbage Lecture Theatre, Sir David Attenborough Building** 'Vanquished: An Unnatural History of Extinction' Professor Sadiah Qureshi (University of Manchester) *introduced by Helen Macdonald, with Q&A lead by Sarah Qidwai*						
19:45	**Conference Dinner –** Clare College						

Thursday 10th July 2025 - *morning*							
Building	Pitt	HPS	Pitt	HPS	Pitt	HPS	HPS
Room	*Newton Room*	*Hopkinson Lecture Theatre*	*Bentley Room*	*Whipple Museum Learning Gallery*	*Syndics Room*	*Seminar Rm 2*	*Seminar Rm 1*
09:00	**Registration** - *will remain open throughout the day* Darwin Room – Pitt Building - Trumpington St, Cambridge CB2 1RP						
09:30	**7A – Panel** Transformations of Science Journals After World War II (1 of 2)	**7B – Panel** Science Fiction, Science Fans, and Public Culture	**7C – Panel** (Dis)-Ability	**7D – Panel** Museums and Collections I	**7E - Panel** Life in the Ocean	**7F – Panel** Surveillance and Standardization	**7G – Panel** Research Interviews in the History of Science and Medicine: Reflections and New Directions
11:00	**Tea Break** – Darwin Room, Pitt Building						
11:30	**8A – Panel** Transformations of Science Journals After World War II (2 of 2)	**8B – Roundtable** Cropscapes and Temporalities	**8C – Roundtable** Using Natural History collections to answer the big questions of our time	**8D - Panel** Museums and Collections II	**8E – Panel** Oceanography	**8F – Panel** Politics, Ideology and Science	**8G – Panel** Between Life and Death: Notes on Liminality
13:00	**Lunch –** Darwin Room, Pitt Building – *only for those registered as conference speakers* (HSS/ESHS Edinburgh 2026 info session – starts 13:30 Syndics Room)						

Thursday 10th July 2025 - *afternoon*

Building	Pitt	HPS	Pitt	HPS	Pitt	HPS	HPS
Room	*Newton Room*	*Hopkinson Lecture Theatre*	*Bentley Room*	*Whipple Museum Learning Gallery*	*Syndics Room*	*Seminar Rm 2*	*Seminar Rm 1*
14:00	**9A – Roundtable** Locating Labour, Knowledge, and Community in the History of Food Crop Innovation	**9B – Panel** Science, Policy and Empire	**9C – Panel** American Science in the Postwar Era	**9D – Panel** World Fairs and their Heritage in 19th Century Europe	**9E - Panel** Scientific Life and Society	---	**9G – Workshop** Astronomy in Practice
16:00	**Tea Break** – Darwin Room, Pitt Building						



Session Details

Tuesday 8th July 14:00 – 15:30

1A: Roundtable: Teaching the History of Science Today: Frameworks, Canons, Contexts

Newton Room, Pitt Building

Session Abstract: This roundtable builds on prior discussions about introductory teaching in the history of science at earlier BSHS meetings, such as the virtual session on "Reimagining the Introductory History of Science Course" at BSHS 2023. We invite conversations about pedagogical challenges, approaches, and changes being considered and implemented by historians of science in their teaching at different departments. Attending to the evolving frameworks, innovative approaches to canonical touchstones, and new questions and challenges that have been set in motion in an expanding discipline, we invite reflections and discussion for reinvigorating our teaching.

Chair/Organiser: Charu Singh (University of Cambridge)
Mary Augusta Brazelton (University of Cambridge)
Michael Barany (University of Edinburgh)
Amelia Bonea (University of Manchester)
Alex Csiszar (Harvard University)
Gregory Radick (University of Leeds)

1B: Animal Pests and Tests

Hopkinson Lecture Theatre, Dept. of History and Philosophy of Science

The City as Experiment: Sydney and the Rat-Flea Theory of Plague, 1900-1907
Jules Skotnes-Brown (University of St. Andrews)

Lifetimes: Animal Testing, Temporality and Lifespans
Alice Would (University of Bristol)

Success as vulnerability: the crisis of epidemic dengue in Singapore, 1985 – 2000
Timothy Sim (University of Cambridge)

Chair: Staffan Müller-Wille (University of Cambridge)

1C: New Media for Science

Bentley Room, Pitt Building

Travellers In Relativity and Relativism in the fin de siècle
Emily Hayes (Oxford Brookes University)

From Monochrome to Colour: Giorgio Roster's Hand-Coloured Lantern Slides in 19th-Century Science
Francesca Strobino (Libera Accademia di Belle Arti [LABA] Firenze)

Televising Behaviour: The Production Culture of a Zoological Film Unit, 1958–64
Miles Kempton (University of Cambridge)

Chair: Rebekah Higgitt (National Museums Scotland)

1E: Reframing Early Modern Natural Philosophy

Syndics Room, Pitt Building

'Independent from physical experiment or geometrical demonstration': Spring watches, mechanical principles, and the search for an absolute measure of time in 17th Century Europe
Yoav Beirach (Max Planck Institute for the History of Science, Berlin)

Robert Greene on the Homogeneity of Light and Heterogeneity of Matter
Ovidiu Babeș (Free University Brussels)

Harvey's Legacy in Verse: The Poetical Depiction of Blood Circulation in Sir Richard Blackmore's "Creation" (1712)
Benedetta Burgio (Catholic University of Milan)

Chair: Erin Beeston (University of Manchester)

1F: Creating Scientific Knowledge: Health and Epidemics

Seminar Room 2, Dept. of History and Philosophy of Science

Shared Illness, Shared Memory: How epidemics shaped domestic archives in colonial Yucatán
Olin Moctezuma-Burns (University of Cambridge)

A journey from tropical to frozen territories: the Malaspina & Bustamante expedition between Vava'u and the Falklands Islands (1793-1794)
Marcelo F. Figueroa (CONICET, Argentina)

Chair: Dora Vargha (University of Exeter/Humboldt University)

1G: Psy Science and Expertise

Seminar Room 1, Dept. of History and Philosophy of Science

The Making of the 'Modern Thai Mind': Mental Hygiene, Child Guidance, Social Psychiatry, and Revolution
Krittapak Ngamvaseenont (University of Manchester)

Psy Expertise of Violence: a History of Shifting Attention
Stéphanie Pache (UQAM)

Icepicks, Brains, and Nobel Prizes
Lukas J. Meier (Harvard University)

Chair: Deborah Cohen (University of Birmingham)

Tuesday 8th July 16:00-18:00

2A: Roundtable: History and Philosophy of Science in Schools

Newton Room, Pitt Building

Session Abstract: This roundtable brings together a group of academics, teachers, and syllabus designers to share our experiences of bringing the history and philosophy of science into primary and secondary education in the UK. We reflect on our work with and in different public and private bodies, including the UK Parliament, local councils, learned societies, and examination boards. We discuss the importance of bringing the history and philosophy of science into the school setting, particularly in order to address issues of equality and diversity in STEM today. And we share some of the practical results, as well as the challenges, of doing such work, including public-facing teaching materials and protoype syllabi. Finally, we invite other participants at BSHS 2025 to share their own experiences as part of an open discussion in order to pool resources and develop a future action plan for "HPS in Scools".

James Poskett (Warwick University)
Rosanna Evans (University of Cambridge)
Rory Kent (University of Cambridge)
Carole Moss (OCR Examinations)

Chair: Sabine Clarke (University of York)

2B: 100 years of Biochemistry in Cambridge

Hopkinson Lecture Theatre, Dept. of History and Philosophy of Science

Session Abstract: The session brings together biochemists, librarians, archivists and historians to reflect on the centenary of the biochemistry department establishing its own premises in Cambridge. It will consist of short, 10-15 minute talks followed by reflections, a roundtable discussion and questions.

Biochemistry archives at CUL
Jacky Cox and Sally Kent (Cambridge University Library)
Frederick Gowland Hopkinson and his legacy
Robin Hesketh (University of Cambridge)
Rose Scott-Moncrieff and the foundation of biochemical genetics
Cathie Martin (John Innes Centre, Norwich)
The Needham's Biochemistry Cabinet
John Moffett and Rosalind Grooms (Needham Research Institute, Cambridge)
Fred Sanger and the Cambridge Biochemistry Department
Chris Howe (University of Cambridge)

Chair: Francis Neary (University of Cambridge)

Tuesday 8th July 16:00-18:00

2C: Newtonian Trajectories: Local Adaptations and Global Receptions in the 18th Century

Bentley Room, Pitt Building

Session Abstract: The diffusion of Newtonian science in the eighteenth century was not a uniform process but rather a dynamic interplay between local contexts and global networks. This panel examines the varied receptions, adaptations, and resistances to Newtonian ideas across diverse geographies, including Europe and Asia. By employing a glocal methodology, the panel explores how Newtonianism intersected with a variety of knowledge systems, religious frameworks, and sociopolitical structures, revealing the multifaceted ways in which scientific ideas are recontextualized and transformed.

The panel brings together case studies from Scotland, England, and Japan, showcasing how Newtonian thought was appropriated and contested in these distinct cultural and intellectual milieus. This comparative approach not only highlights the heterogeneity of the reception of Newtonian ideas but also challenges Eurocentric narratives by emphasizing the agency of non-European actors in shaping global scientific knowledge.

British Anti-Newtonianism: Hutchinsonians and the Limits of Universal Science

Derya Gürses Tarbuck (Bahcesehir University)

Newton in Nagasaki: Science Translation and the Cosmology of Change

Lewis Bremner (University of Cambridge)

How to Spot a Newtonian: The Case of David Hume

Lewis Ashman (University of Edinburgh)

Chair: Katrina Dean (University of Cambridge)

2D: Exploring the digitized 'Electrical Age (for Women)'

Whipple Museum, Learning Resource Centre, Dept. of History and Philosophy of Science

Session abstract: This session examines the insights to be gained from The Electrical Age (for Women) that was published quarterly from 1926 to 1986 by the UK's Electrical Association for Women (EAW), and recently made available online in fully digitized form by the Archives of the Institution of Engineering and Technology. While Suzette Worden and Carroll Pursell, among others, have acknowledged the significance of the EAW as (at least at first) a feminist campaigning body, no previous study has looked in any detail at the multi-source content of this widely read women-led magazine. By bringing together the tools of the AHRC Congruence Engine project on digitized heritage, and the historical resources gathered by the EAW centenary project 'Electric Dreams, a Festival of Womanpower' the contributors show the fruitfulness of sustained inter-institutional collaboration between archive managers, digital specialists and historians. Our papers sequentially cover the process of digitizing the Electrical Age journal and its early uses (Anne Locker & Asha Gage); the use of digital tools (including AI) to analyse the complete contents of the journal (Daniel Belteki); the shifting gender patterns of electrification as revealed in the Electrical Age's international coverage (Graeme Gooday) and the EAW's troubled relationship with nuclear energy (Eleanor Peters) revealed in the Electrical Age.

'Distributing Electric Dreams: the digitisation of the Electrical Age (for Women)

Anne Locker & Asha Gage (IET Archives)

Re-electrified texts: analysing the Electrical Age using a digital humanities toolkit

Daniel Belteki (Science Museum Group)

Between the two waves: re-interpreting the Electrical Association for Women (1924-1986) in international context

Graeme Gooday (University of Leeds)

'Get Into LANE': Nuclear Energy in the Electrical Association for Women's Electrical *Age*

Eleanor Peters (Historic Environment Scotland)

Chair: Helen Close (Women's Engineering Society)

Tuesday 8th July 16:00-18:00

2E: Paper, Pens and Specimens: Using Archival Media to Reclaim the Agency of Women in Natural History

Syndics Room, Pitt Building

Session Abstract: Prior to the 21st century, the history of natural history was traditionally treated as a masculine pursuit conducted by wealthy gentleman, professors and parson naturalists. Though historians of science now recognise women and other subaltern agents played significant roles, it is often difficult to reconstruct their contributions because institutional archives either erased, lost or mislabelled evidence of their agency. The papers in this session address this issue through a number of case studies that reveal new ways through which the agency of women in the history of natural history can be reconstructed through unlikely, yet strikingly common, forms of material and visual culture that have remained hidden in plain sight within scientific and educational archives. The papers collectively show that women actively used different kinds of media - labels, drawings, notes, specimens - to shape natural history as classifiers, field naturalists, specimen collectors, museum curators and teachers during the 19th and early 20th centuries. Though the task of finding and interpreting evidence of this agency sometimes requires historians to initially read against the grain of a collection's original organisation, the papers show it is possible to transform the archive into a multivalent tool that speaks to the important role played by women in the history of natural history.

How Women Shaped Geological Collections: The Case of the Oxford University Museum of Natural History, 1813-1914

Grace Exley (University of Leeds & Oxford University Museum of Natural History)

Our Geological Friend: Recovering the Legacy of Lady Charlotte Murchison's Paleontological Collection

Matthew Daniel Eddy (Durham University)

Natural History at The Mount School York: The Communal Practices of Quaker Girls (1902-1928)

Hong Jiang (Sichuan University)

Women Botanists Hidden in Male-Dominated Networks: A Spotlight on the Silesian Botanist Käthe Hoffmann (1883–1960)

Sabine von Mering (Museum für Naturkunde, Berlin)

Chair: Anne Secord (University of Cambridge)

2F: Experiments

Seminar Room 2, Dept. of History and Philosophy of Science

The Fifteenth Experiment: Anti-Newtonian prismatic experiments in 1750s London
Cosimo Calabrò (McGill University)

The Nature of the Glass Electrode: Learning from Errors
Hasok Chang (University of Cambridge) & Klaus Ruthenberg (Coburg University)

The Fair and the Foul: William Thomson's Electrometers and the Challenges of Atmospheric Electricity
Katy Duncan (Royal Institution of Great Britain)

Thing and Form c.1848: Seeing Sound, or what's in a Pendulum?
David Trippet (University of Cambridge)

Chair: Jip van Besouw (University of Sevilla)

2G: Environmentalism: Then and Now

Seminar Room 1, Dept. of History and Philosophy of Science

The Idea of "Chinese origin of Western Learning" and the Response to Western Meteorology in Late 19th-century China
Xinyue Li (University of Manchester)

'Drener Panchali' and 'Bapre ki Bhayanak Asvine Jhor': Storm-Science, Improvement Infrastructures, and Crisis
Varun Mallik (University of Cambridge)

(Re)inventing the Interdisciplinary Wheel? Environmental collaboration in past and present
Angela Cassidy (Egenis/CRPR, University of Exeter)

Chair: Charlotte Sleigh (University College London)

3A: Cool Britannia, Warm Science: Science, Social Science and Politics in the 1990s

Newton Room, Pitt Building

Session Abstract: This session explores the history of science policy and social science in the UK's political transitions of the 1990s. While much has been made of the 1970s and 1980s as turning points in recent history – the so-called "market turn" from social democracy to neoliberalism, along with the roles that "groovy" and "greedy" science and social science have played in that turn – the 1990s, in contrast, seems like a boring decade of boxy suits and bland centrism.

This image, however, distorts a decade that teemed with political and economic possibilities – and risks – for science and social science. The 1990s was the decade of the third way and GSK, of the "crusade for biotechnology", of the first Labour government in eighteen years – and, with it, the agenda to "modernise" government. And yet, it was also the decade that started with the peak of the BSE epidemic and ended with the GM media storm, whilst, in between, the Railtrack disasters showed the limits of out-sourcing public risk to the private sector. All these events exposed challenges for the governance of science and the (social) science of governance.

This panel's papers thus seek to unpack the history of science, social science, and politics in the 1990 and answer: what happened in the nineties? The panel will conclude with a commentary from Melanie Smallman, Professor of Science and Technology Studies at UCL, former communications advisor to Defra's Chief Scientific Advisor and a policy adviser on science, technology, and environmental issues for Labour's National Policy Forum.

Science policy from Major to Blair

Jon Agar (University College London)

Sociology, Sex, and Social Democracy: the politics of intimacy in the British Third Way

Lise Butler (City St. George's, University of London)

Strategic Futures: Science Policy, Management Consultancy and Futures Thinking under New Labour

Jacob Ward (Maastricht University)

Discussant/Chair: Melanie Smallman (University College London)

3B: Evolutionary Receptions

Hopkinson Lecture Theatre, Dept. of History and Philosophy of Science

Darwin on Ottoman Soil: The Reception and the Early Debates of Darwinian Evolution

Selin Kara (Aksaray University)

The Origins of the Darwinian Icon: The Tree of Life

Lizzie Schulz (University of Leeds)

Caricatures of Darwin and evolution

John van Wyhe (Director of Darwin Online)

Chair: Jim Secord (University of Cambridge)

Wednesday 9th July 09:30-11:00

3C: Weather spaces and weathered places: managing and measuring local weather, c.1700-1950
(1 of 2)

Bentley Room, Pitt Building

Session Abstract: The papers given in Session 3C use a range of approaches – material culture, environmental history, historical geography, affect theory – to help capture the wide range of different meanings, activities, impacts and mitigations that have been associated with experiences of local weather in different times and places. They explore the complexities of working between conceptions of weather as experience, local knowledge or meteorology, and between the immediacy of local weather and abstractions of regional or global climate. The papers draw attention to geographies at different scales, from national weather reporting, to urban and civic spaces and climate-focused structures. They also emphasise the material things that mediate and define experiences of weather. Session 4C allows fuller discussion of the papers and a more focused exploration of the material culture of weather and weathering. These objects and aspects of the built environment will be considered as evidence for the histories we tell and as tools for communicating the histories, present and future of weather experiences.

"The botanical conservatory as fulcrum of empire in eighteenth-century Europe"
Tamara Caulkins (Central Washington University)

Livestock housing: Weather, health, and welfare?
Karen Sayer (Leeds Trinity University)

Weather in the museum: Meteorological instruments, nature study and Edinburgh weather at the Royal Scottish Museum
Rebekah Higgitt (National Museums Scotland)

Domesticating the weather: How weather forecasts became part of daily life in the Netherlands
David Baneke (Universiteit Utrecht)

Chair: Simon Naylor (University of Glasgow)

3D: Defining Disciplines: Cosmology, Natural Philosophy, Physics

Whipple Museum, Learning Resource Centre, Dept. of History and Philosophy of Science

Establishing Cosmology, 1630-1731
Adam Mosley (Swansea University)

Reconfiguring natural philosophy: Willem Jacob's Gravesande's narrowing of 'physica'
Steffen Ducheyne (Vrije Universiteit Brussel)

The Invention of the Physicist: Encyclopaedias as a Site for Metascience in 19th Century Britain.
Alex King (University of Leeds)

Chair: Joe Martin (Durham University)

3E: Nuclear: Plutonium, Pluviculture, and Experimental Laboratories

Syndics Room, Pitt Building

Monitoring plutonium exposures with political machines in the Cold War
Clara Florensa (IMF-CSIC)

Let it Rain: on the Complex Relationship between Scientist and Scientific Institution in the Case of 20th Century Romanian Pluviculture Experiments
Daniela Dandes (University of Manchester)

Thailand in the Nuclear Age: An Experimental Laboratory, Knowledge Appropriation, and the 1973 Popular Uprising
Kwanchanok Kittiwanich (Chiang Mai University)

Chair: Xavier Roqué (Universitat Autònoma de Barcelona)

3F: Human-Animal Interactions in the 20th Century

Seminar Room 2, Dept. of History and Philosophy of Science

From Backyard to Integration: The Transforming Role of Farmers and the Circulation of Knowledge in China's Poultry Industry History Since the 1980s
Yixuan Li (University of Manchester)

"Maximum Security Quarantine": Livestock disease, biosecurity and animal breeding in Aotearoa New Zealand, 1960–1990
Dmitriy Myelnikov (University of Cambridge)

Masking Canines in China: Rabies Control, Moral Anxieties, and Blurred Human-Animal Boundaries, 1900s-50s
Meng Zhang (University of Manchester)

Chair: Shira Shmuley (MPIWG)

3G: Early Modern Books and Bodies

Seminar Room 1, Dept. of History and Philosophy of Science

Astrological Books and Aristocratic Culture in the Career of Blaise-François, comte de Pagan (1604-1665)
Oded Rabinovitch (Tel Aviv University)

Reviving and Repurposing: Surgical Innovation in Early Modern Italy
Silvia Marchiori (University of Cambridge)

Science and Art in Campi Phlegraei: William Hamilton's Volcanological Study at the Royal Society in the 18th Century
Ana González (Università degli Studi della Campania, Luigi Vanvitelli)

Chair: Yoav Beirach (MPIWG)

4A: Roundtable: Collaborations in Twentieth Century Science, Technology, and Medicine

Newton Room, Pitt Building

Session Abstract: Cooperation, collaboration, and interdisciplinarity have been key structuring concepts for funding agencies and government support for academic knowledge production in the twentieth and twenty-first centuries. Celebrated–often uncritically–as the key to addressing major challenges of research, design, and development, these recurring concepts have histories of their own, including within discourses in the history of science. By bringing together a group of historians who explore knowledge-producing practices linking distant geographies and cultures (Western scientists and Indigenous communities in Brazil, Eastern Europeans collaborating with Asian and African countries after decolonization, or Mexican scientists participating in global research projects), we will explore how our historical actors understood the value and practical challenges of collaboration, including the ways in which they experienced and proactively engaged with real and perceived asymmetries. Actors in socialist and non-aligned countries actively pursued alternative developmentalist projects, many of which emphasize the porous and incomplete divisions of the three worlds system. As historians of science, we also mobilize the concepts of collaboration and networks to make sense of these histories, and will consider what is made visible and invisible through these frames. Understanding the history of science itself as a product of post-war and Cold War reconfigurations of academia, we bring these questions to reflect on our research practices. How do our studies of the history of collaboration shape the ways we work across politico-national, linguistic, and socioeconomic experiences? This roundtable will discuss transnational post-war science, medicine, and technology collaborations while reflexively examining our own collaborative knowledge-making practices.

Edna Suárez-Díaz (Universidad Nacional Autónoma de México)
Sarah Marks (Birkbeck, University of London)
Dora Vargha (Humboldt University of Berlin)
Rosanna Dent (University of Cambridge)

Chair: Soraya de Chadarevian (University of California, Los Angeles)

4B: Reconsidering Genetics

Hopkinson Lecture Theatre, Dept. of History and Philosophy of Science

A (rough) step-by-step guide on how you can get to think of genetic evolution like Julian Huxley: from Oxford to the Modern Synthesis 1906-1942

Stefan Bernhardt-Radu (University of Leeds)

'Somewhat arcane expressions': George Evelyn Hutchinson (1903-1991) and the evolution of homosexuality.

Pieter R. Adriaens (Institute of Philosophy, KU Leuven)

The social-justice case for spreading the word about the historical contingency of genetic knowledge

Gregory Radick (University of Leeds)

Chair: Stuart Blake (Independent Scholar)

4C: Weather spaces and weathered places: The Stuff of Weather (Roundtable/Discussion) (2 of 2)

Bentley Room, Pitt Building

Session Abstract: The papers given in Session 3C use a range of approaches – material culture, environmental history, historical geography, affect theory – to help capture the wide range of different meanings, activities, impacts and mitigations that have been associated with experiences of local weather in different times and places. They explore the complexities of working between conceptions of weather as experience, local knowledge or meteorology, and between the immediacy of local weather and abstractions of regional or global climate. The papers draw attention to geographies at different scales, from national weather reporting, to urban and civic spaces and climate-focused structures. They also emphasise the material things that mediate and define experiences of weather. Session 4C allows fuller discussion of the papers and a more focused exploration of the material culture of weather and weathering. These objects and aspects of the built environment will be considered as evidence for the histories we tell and as tools for communicating the histories, present and future of weather experiences.

Tamara Caulkins (Central Washington University)
Karen Sayer (Leeds Trinity University)
Rebekah Higgitt (National Museums Scotland)
David Baneke (Universiteit Utrecht)

Chair: Simon Naylor (University of Glasgow)

4D: Roundtable: Collection Ecologies: Toward an Environmental History of Science

Whipple Museum, Learning Resource Centre, Dept. of History and Philosophy of Science

Session Abstract: The history of natural history collections and collecting has gained much momentum and public attention in recent years as institutions confront questions of ownership, provenance, classification, colonial reparations, and preservation. Historians of science, environmental historians, anthropologists, ecologists, taxonomists, curators, and archivists have all contributed to these discussions. However, the productive potential of historical research in this area has not yet been fully realized, especially in relation to how collections developed over time and still function as sites of entanglement and disruption across continents, species, societies, and bodies.
The proposed session proposes a new environmental history of the sciences manifested in a critical examination of the pasts and futures of collections. It crosses disciplinary boundaries to re-assess the value and potential of scientific collections ranging from human remains to botanical drawings to microorganisms. It discusses how the tensions inherent in collecting, displaying, and reconstructing natural things have shaped and continue to shape environments, defined broadly to include museums and affiliated large-scale digital infrastructures as well as external environments. This understanding of

collections as environments encompasses the materiality of specimens and the knowledge extracted from and with them as well as ensuing and presupposed concepts, imaginaries and visual cultures of "nature." These refer to physical places as well as social and epistemic spaces, ranging from collection sites and plantations to herbaria, taxonomies and accounting practices, asking: how do collecting and collections produce knowledge? The session highlights the ways in which collections can and have been understood as environments, or even ecosystems, with their own multispecies encounters. Collections are ideal places to reflect on the (historical) instability and potential of scientific disciplines ranging across the biological sciences, as well as on the diversity of actors, labour regimes and sites in the processes of knowledge production. Our session re-evaluates historical collections while at the same time critically reflecting on current projects of (mass) digitization and on the use of collections for biodiversity research.

Elena Canadelli (University of Padua)
Déborah Dubald (Strasbourg University)
Kelly Whitmer (Sewanee, The University of the South, USA)
Dominik Huenniger (The Hunterian, University of Glasgow)

Chair: Brooke Penalozza-Patzak (MPIWG)

4E: Historiographical Perspectives

Syndics Room, Pitt Building

Towards a natural history of small science
Xavier Roqué (Universitat Autònoma de Barcelona)

Journal Impact Factor and Eugene Garfield's Algorithmic Historiography
Lai Ma (University College Dublin)

Teaching history of science, medicine and technology in a STEM university context
Jennifer Wallis and Michael Weatherburn (Imperial College)

Chair: Joe Martin (Durham University)

4F: Colonial Bioprospecting and Indigenous Knowledge

Seminar Room 2, Dept. of History and Philosophy of Science

Monkey business: colonial bioprospecting and animal knowledge under the Dutch East India Company (1600-1800)
Anna Bruins (University of Warwick)

Institutionalisation of Botany and Rubber Plantations in Colonial Southern India
Surabhi Rani Verma (IIT, Madras)

Chair: Jim Endersby (University of Sussex)

Wednesday 9th July 11:30-13:00

4G: Zoology and the Global Zoo

Seminar Room 1, Dept. of History and Philosophy of Science

The Migration Mystery: Avian Minds and Movement in the Nineteenth Century
Matthew Holmes (Independent Scholar)

'Dipterous angels'? Women and the study of flies at the turn of the twentieth century
Jill Whitelock (Cambridge University Library)

Gustave Loisel, Stanley Flower and the emergence of the "global zoo" around 1900
Oliver Hochadel (IMF-CSIC, Barcelona)

Chair: Erin Beeston (University of Manchester)

5A: Roundtable: Approximating the Proxy: The Power and Precarity of Nature's Stand Ins

Newton Room, Pitt Building

Session Abstract: Proxies, and proxy data, have gained increasing importance as the Earth and natural sciences evolved through the twentieth and twenty-first centuries. Through often small and fragile natural objects—ice, deep ocean sludge, or corals, for example—scientists have scaled and calibrated through space and time, giving texture and depth to histories of the Earth that far exceed human timescales. But when, and how, did natural proxies come to be valued as such? And what is the relationship between these proxies and another facilitator of scientific interrogation and scaling: the instrument? As this discussion will show, in delegating to particular materials 'the power to represent the world' (Mulvin, 2021), scientists and their audiences stretched the bounds of empiricism, elided inadequacies, strained analogies, and excluded alternative materials and ways of knowing. Approximations of this kind often claim considerable scalar leaps. And proxies, by their nature, also admit what cannot be known or observed. Who got to choose proxies and who believed in them were therefore deeply political issues.

This roundtable brings together scholars who work on a diverse range of proxies—remnants of ice, buckets of ocean water, living and once-living bats, and evaporated lakes—to reflect on the formation, history, and power of nature's stand ins. Together we explore the social, political, and cultural work that made proxies powerful and privileged tools at the limits of observation, seeking to understand how epistemic authority comes to cohere around sometimes transient or highly manipulated "natural" objects.

Alexis Rider (University of Cambridge)
Brooke Penaloza Patzak (Max Planck Institute for the History of Science)
Thomas Simpson (Warwick University)
Patrick Anthony (Uppsala University)

5B: Eugenics

Hopkinson Lecture Theatre, Dept. of History and Philosophy of Science

'Africa for the Chinese': Francis Galton's Early Eugenic Ideas and Settler Colonialism in the Late Nineteenth Century

Xianglong Zhu (University of Cambridge)

Newnham's Legacies of Eugenics: The Role of Newnham College in the Production and Dissemination of Eugenics

Jules Macome (University of Cambridge)

Fighting the Tyranny of Heredity: WOmen, Euthenics, and the Making of Better Environments

David Munns (CUNY)

Chair: Robert Bud (Emeritus Keeper, Science Museum)

5C: Between the Lab and the Field

Bentley Room, Pitt Building

Ukichiro Nakaya's Journey Across the Lab-Field Divide
Floris Winckel (Rachel Carson Center, LMU Munich)

Lacerated Hands and Soaked Clothes: The Somatic Realities of Victorian Field Science
Lena Ferriday (King's College London)

Testing and toxicity: how pesticides went from the laboratory to use in the field
Sabine Clarke (University of York)

Chair: Kristin Hussey (Newcastle University)

5D: Scientific Instruments in the Beijing Palace Museum Collection: Itineraries, Display and Uses

Whipple Museum, Learning Resource Centre, Dept. of History and Philosophy of Science

Session Abstract: The Beijing Palace Museum holds a rich collection of scientific instruments that bear witness to the active interest of several Qing emperors in astronomy, as well as to the circulation of knowledge and objects between Europe and East Asia that took place at the time. The contributions of this session focus on three different sets of instruments, each corresponding to an important moment in Sino-European contacts as well as in the history of Chinese science.

Christopher Cullen studies some astronomical instruments made for imperial use by Jesuit missionaries who worked as astronomers at the Qing court between 1644 and 1669. Made under the Jesuits' supervision, these instruments follow European models, but were adjusted to Chinese usage. They embody the direct imperial patronage of astronomy by emperors.

Catherine Jami focuses on some instruments brought to China in 1688 as diplomatic presents from France. Some of them can be traced from their makers' workshops in Paris to the locations where they were used, repaired and displayed in China. Others were reproduced in the imperial workshops and used in the cartographic survey of China that took place between 1708 and 1718.

Bin Xu examines the instruments presented as gifts to the Qianlong emperor by the Macartney embassy (1793), especially the eight items known to have been displayed in the audience hall of the Summer Palace (Yuanmingyuan 圓明園). She also shows how the discovery of Uranus in 1781 led to the sending of two orreries to Qianlong.

Astronomy in the Imperial Palace, late Ming and early Qing: instruments and observatories in the 17th century
Christopher Cullen (University of Cambridge)

From Paris to Beijing: French Instruments in the Qing Imperial Collection, 17th-18th centuries
Catherine Jami (EHESS)

Scientific Instruments Presented to Emperor Qianlong by the Macartney Embassy in 1793
Bin Xu (Palace Museum, Beijing)

Chair: Joshua Nall (University of Cambridge)

5E: Fakes, Scandals and Uncertainty in the History of Technology

Syndics Room, Pitt Building

Of contraptions and con-tricks: fakery considered as a mode of technological innovation
James Sumner (University of Manchester)

Post Office Horizon System – a scandal of mismanagement or a technology working too well?
Melanie Smallman (University College London)

"Machines Without the Certainty of Machinery": Agency and Computational Labor in the Great Trigonometrical Survey
S. Prashant Kumar (University of Chicago)

Chair: Michael Weatherburn (Imperial College)

5F: Plants, Collecting and Medicines

Seminar Room 2, Dept. of History and Philosophy of Science

Neither Superstition Nor Science: Healing with Plants that Look Like You in Early Modern Europe
Xinyi Wen (University of Cambridge)

Tracing Local Botanical Knowledge: London Horticultural Society collectors in the mid-nineteenth century Americas
Sarah Easterby-Smith (University of St. Andrews)

Communities of Collecting: Networking Botanical Exchange in the Long Nineteenth Century
John Schaefer (University of Cambridge)

Chair: Nathan Bossoh (University of Southampton)

5G: Workshop: Stories in Conversation: mobilising oral history (and ethnographic storytelling) to reflect on environmental collaboration

Seminar Room 1, Dept. of History and Philosophy of Science

Session Abstract: As part of RENEWing Biodiversity - a large scale, multi-sited, post pandemic-crisis project investigating people's involvement in biodiversity renewal, our embedded team of STS scholars, social scientists and oral historians has been capturing stories of biodiversity collaboration. This is through ethnographic research documenting interdisciplinarity in real time as the project unfolds; as well as through oral history interviews about the life experiences of academics, naturalists, policy makers, administrators, volunteers, campaigners and others. In this session, we will explore the potential of deep listening – to participants' stories in their own voices, alongside creative responses to ethnographic fieldwork in RENEW. These stories will juxtapose the experiences of people across ordinarily siloed spaces and domains: academia and professional practice; natural and human sciences; conservation and agriculture, to invite reflections on division, common ground and working together. In turn we will use play, talk and creative tinkering to invite you to reflect, share and create your own - personal and shared - stories of collaboration.

Nontraditional format - group listening workshop

This session will mobilise deep listening to engage with research participants' stories, and to elicit attendees' own experiences. We aim to create a reflective space slightly removed from the busyness of the wider conference. Ideally, the session will involve collective listening rather than individual listening via headphones. Given the centrality of audio, we request a quiet room, well-insulated or slightly away from other conference spaces. If possible, high quality audio playback equipment would be welcome, but we will bring portable speakers as backup. If possible, informal layout, e.g. Cabaret format, round or square tables seating approx. 5-8 each, 15-40 total. Screen to show accompanying visual material.

Angela Cassidy (University of Exeter)
Paul Merchant (British Library)

6A: Activism and the History of Science: Trajectories in Research and Teaching

Newton Room, Pitt Building

Session Abstract: Demand for activist research is increasing in the contemporary world. In arenas such as funding dedicated to particular causes, calls for a more global history of science, and the decolonization of museums and archives, the connection of activism, research, and teaching seems more critical than ever, not least because so many projects fail to engage with such goals. This panel interrogates how we position ourselves in respect to research and teaching activities under a whole new set of obligations and exigencies inherent to an activist requirement. It seems vital to us as historians, anthropologists, and epistemologists of science, not simply to follow the 'new normal' of activist research, but to problematize its pertinence in different cases. The panel presents in-depth explorations of four research and teaching trajectories to raise the following questions for discussion: What characterizes adequate or good activist research? How can broad activist agendas be connected to particular contexts and vulnerabilities as we encounter them in the world? How can activist perspectives reshape not just the content but also the mediation of the history of science?

Teaching a Global History of Science: Challenges and Opportunities

Simon Werrett (University College London)

Material Humanities. Challenges of object-based research and teaching

Margarete Vöhringer (University of Goettingen)

Activism in the Context of Development- Collaboration Research?

Katrin Solhdju (KU Leuven)

Exploring the history of disability with my students

Anna Maerker (King's College, London)

Chair: Erin Beeston (University of Manchester)

6B: Science, Religion and Non-Religion

Hopkinson Lecture Theatre, Dept. of History and Philosophy of Science

The evolution of young men: conceptions of race, age and gender in the Christian evolutionism of Henry Drummond (1851-1897).

Diarmid Finnegan (Queen's University Belfast)

Diverse Secularist revolts: "Life" and materialism in Paris, Vienna and Cambridge between the wars

Robert Bud (Emeritus Keeper, Science Museum)

"The Department of Mainstream Moonbattery": Epistemic Values and Christian Reconstructionist Science Denialism, 1970s to Present

Mallory Hrehor (University of Cambridge)

"Profitable Servants": The Parable of the Talents in the Hartlib Circle

Beth Kidd (University College London)

Chair: Kostas Tampakis (National Hellenic Research Foundation)

6C: Practicing Meteorology: At Home and Abroad

Bentley Room, Pitt Building

Session Abstract: This panel draws from Steven Shapin's claim that 'the transparency of technician's roles in making scientific knowledge reflects both historical and modern attitudes toward the value of skilled work'. The technicians or assistants of his study of early-modern England were 'doubly invisible' he argued, ignored by both contemporaries and historians. This is now changing as more work is on the lives of ordinary workers, Indigenous workforces or female workforces in histories of science, as part of a general shift toward emphasising the socio-cultural contexts of how (and where) scientific knowledge was produced. This panel seeks to add to this conversation by drawing attention to the experience of labour in four different times and spaces but, all linked in some way to Britain and British meteorological history through the institution of the meteorological service, at home and abroad.

Exploring the role of meteorological scientists in nation-building in Ireland, Malaysia and Singapore, the role of ordinary people in creating nationwide meteorological networks or, the role of women as the backbone of meteorological institutions, this panel argues collectively that although the previously written histories of meteorology highlight the collaboration and competition through which science was leveraged to expand empire, consolidate power, drive modern warfare or aviation, the experiences of practicing this science reveal the reality of practicing science. Practicing meteorology was not always a tidy, organised discipline with clearly defined protocols, but an attempt to quantify the ever changing environment with enough accuracy and speed for forecasters to grasp patterns and predict evolving weather systems.

Meteorology at the End of Empire: British Malaya, c.1940-1960

Fiona Williamson (Singapore Management University)

Historical geographies of British Rain: Observers, Averages, Maps

Simon Naylor (University of Glasgow)

The abolition of the temporary computers at Greenwich Observatory, 1936

Lee T. Macdonald (History of Science Museum, University of Oxford)

Forecasters and Supercomputers: Exploring the Communication of Meterology and Climate Change in Ireland

Katerina Zouboulakis (Trinity College Dublin)

Discussant/Chair: Tom Simpson (Warwick University)

6D: Roundtable: History of science and technology in the twenty-first century museum

Whipple Museum, Learning Resource Centre, Dept. of History and Philosophy of Science

Session Abstract: The Science Museum is embarking on a major galley project that will take visitors on a journey through 250 years of significant scientific and technological change that shaped our modern world. A reimagining of the Science Museum's flagship gallery Making the Modern World, which opened in 2000, this new gallery benefits from 25 years of reflection and new work: in academic scholarship, into audience behaviours, and about the rise of the digital society. The gallery aims to present a new history of science, technology and commerce which will become the Science Museum's statement for the next quarter century.

Inspired by this new Science Museum project, this panel brings together academics and museum professionals to reflect and share their experiences of communicating history of science and technology in the public sphere. The question of what makes an appropriate historiography for a new twenty-first century gallery of science and technology has significance beyond the public display itself. It has implications for the discipline, for collections management, material culture studies and for the vast collections held in reserve for research benefit.

Rachel Boon (Science Museum, London)
Tim Boon (Science Museum, London & University College London)
Rebekah Higgitt (National Museums Scotland)
Joshua Nall (Whipple Museum, University of Cambridge)
Juan-Andres Leon (Science Museum, London)

Chair: Elena Canadelli (University of Padua)

6E: Science and Politics in the 1970s and 1980s

Syndics Room, Pitt Building

Battle of the Models: Conflicting Visions of the Future Within the Dutch Central Planning Bureau, 1965–1980

Thomas Kayzel (Sciences Po Paris)

What type of industry would British biotechnology be? The 1980 decision not to locate a national biotech company in Cambridge

Alistair Sponsel

Documenting the 'Cambridge Phenomenon': an archive of technology and development in a university town

Katrina Dean & Peter Rees (University of Cambridge)

From 'Policy for Science' to 'Science for Policy': The Villach 1985 Conference and the Political Shift on Climate Change

Carolina Granado (Universitat Autònoma de Barcelona)

Chair: Jon Agar (University College London)

6F: Conceptualising Turbulence: Bodily Resilience, Flowing Particles, and Uncertain Prognoses in Pre-Modern Medicine

Seminar Room 2, Dept. of History and Philosophy of Science

Session Abstract: This panel examines how pre-modern medicine conceptualised turbulence, focusing on resilience, flowing particles, and prognostic uncertainty across Greek, Arabic, and Latin traditions. The contributions investigate how these frameworks disrupted traditional understandings of the body and disease, highlighting moments of conceptual instability and transformation.

Fabrizio Bigotti investigates the Aristotelian concept of "potentia resistiva" and its adoption in Galenic medicine. He argues that this notion, which frames health as the body's capacity to resist disturbances, became central to understanding the dynamics of health and disease within a matter-and-form framework.

Anna Gili extends this discussion by analysing the Arabic reception of Galen's and Aristotle's ideas on health and disease. Through key translations and medical texts from the tenth to twelfth centuries, she shows how "resistance to disease" became a cornerstone of a dynamic, processual understanding of health, contrasting earlier static definitions.

David Miguel Soares Mesquita explores Estêvão Rodrigues de Castro's theory of flowing particles as a departure from the Aristotelian matter-and-form composite. Castro's rejection of formless matter in favour of particulate substances marked a significant shift in how the body was conceptualised, challenging traditional notions of identity, cohesion, and vitality.

Claudio Azzarito examines Prospero Alpini's use of semiotics to interpret prognostic signs in "De praesagenda vita et morte aegrotantium". Alpini's work focuses on the interpretation of symptoms and their role in navigating the uncertainties of disease progression.

Together, these contributions address how pre-modern physicians and philosophers theorised turbulence in health and disease, illustrating the conceptual and practical challenges posed by shifting frameworks of resilience, materiality, and uncertainty.

Fabrizio Bigotti (Centre for the Study of Medicine and the Body in the Renaissance [CSMBR] - Pisa)
Anna Gili (University of Padua/Julius-Maximilians-Universität Würzburg)
David Mesquita (University of Lisbon)
Claudio Azzarito (Warwick University)

Chair: Fabrizio Bigotti (Centre for the Study of Medicine and the Body in the Renaissance, Institutio Santoriana)

6G: Craftsmen, Scholars, Pirates and Chessmen

Seminar Room 1, Dept. of History and Philosophy of Science

An Alternative Perspective on Mo Zi's Scientific Argumentations

Po-Hung Liu (National Chin-Yi University of Technology, Taiwan)

Scientific Astronomy and Horoscopes in Medieval Japan

Jeffrey Kotyk (Max Planck Institute for the History of Science)

Artisans and Pirates

Büşra Dede (Universitat Autònoma de Barcelona)

An Islamicate Variation of the Josephus Problem: Intersections of Mathematics, Chess, and Culture

Majideh Qazizadeh (University of Exeter)

Chair: Jörg Matthias Determann (Virginia Commonwealth University)

7A: Transformations of science journals after World War II [Session 1 of 2]

Newton Room, Pitt Building

Session Abstract: This double session (see also 8A) explores transformations of scientific journals in the decades after World War II. The rapid growth of science and the proliferation of disciplines went hand in hand with an expansion of journals, with vastly more titles publishing many more articles. Journals became commercialised, as entrepreneurial publishers seized lucrative opportunities in an increasingly international market and learned-society publishers followed suit. New printing technologies revolutionised the speed, cost and quality of production. English came to dominate academic science; refereeing (or peer review) was adopted as a standard editorial practice; and citation indexes and impact factors were introduced. Publishing articles became ever more important for scientific careers and reputations, and journal editors gained power; evaluating and measuring articles took up ever more time. Yet alternative media of communication—from newspapers to medical giveaways, and photocopied preprints to USENET newsgroups—offered faster and further-reaching means of claiming discoveries. Editors and publishers (as well as universities and learned societies) worked to ensure that journal articles retained and enhanced their special social and epistemological status, even as researchers experimented with other ways to communicate with each other and with wider publics. This double session seeks to promote research on these transformations while exploring how journals responded to and shaped wider change.

'Pergamonsters': Predatory science publishing, 1950s–1960s

Alrun Schmidtke (Humboldt University, Berlin)

'Ghetto journalism'? The Nature-Times *News Service and* The Times *science report*

Nick Hopwood (University of Cambridge)

The co-construction of peer review and publication metrics

Alex Csiszar (Harvard University)

Chair: Aileen Fyfe (University of St. Andrews)

7B: Science Fiction, Science Fans, and Public Culture

Hopkinson Lecture Theatre, Dept. of History and Philosophy of Science

Imaginary futures: science, fans and fictions

Jim Endersby (University of Sussex)

Isaac Asimov and Science Education in Twentieth-Century America

Jörg Matthias Determann (Virginia Commonwealth University)

Run for your Life! Tracing the Evolution of Survival Horror Videogames

Efram Sera-Shriar (University of Copenhagen)

Chair: Sarah Dillon (University of Cambridge)

7C: (Dis)-Ability

Bentley Room, Pitt Building

From Refugee Scholars to Paralympic Games: Ludwig Guttmann's (1899-1980) entangled stories
Agustí Nieto-Galan (Universitat Autònoma de Barcelona)

Broken Clocks? Light, the profoundly blind and making chronobiology matter in the late 20th century
Kristin Hussey (Newcastle University)

Instituting the Speech and Hearing Sciences in India, c. 1955-75
Thomas Parkinson (University of Cambridge)

Chair: Nathan Bossoh (University of Southampton)

7D: Museums and Collections I

Whipple Museum, Learning Resource Centre, Dept. of History and Philosophy of Science

Rediscovering the collections of Thomas Pennant in the Natural History Museum's collections.
Stephanie Holt (Natural History Museum & University of Oxford)

The Uses of a Face and a Name: Francis Leggatt Chantrey's Sculpture of Sir Joesph Banks, 1814-37
Jake William Bransgrove (University of Cambridge)

Natural Objects In-Between: Knowledge Infrastructures of a Collection of Galls in the Early 20th Century
Luca Tonetti (University of Padua)

Chair: Guy Sechrist (University of Tennessee)

7E: Life in the Ocean

Syndics Room, Pitt Building

Decoding animal light in lab and field: Visions of luminous biology in the interwar United States
Nuno M. Oliveira (University of Cambridge)

At Arms' Lengths: Octopus Consciousness as a Scientific Artifact
Shira Shmuely (Max Planck Institute for the History of Science)

Ethel Sarel Barton Gepp: a phycologist's work revealed through her algal collection, archival documents, and publications
Claudia Addabbo (University of Padua)

Chair: Daniella McCahey (Texas Tech University)

7F: Surveillance and Standardization

Seminar Room 2, Dept. of History and Philosophy of Science

A History of Dimensions from Descartes to SI

Jim Grozier (History of Physics Group)

Metrication and mesures usuelles: a survey of the metre's tacit history

Svit Komel (University of Ljubljana)

Looking down on refugees: aerial photography (and archaeology) in the history of the refugee camp

Benjamin Thomas White (University of Glasgow)

Chair: James Sumner (University of Manchester)

7G: Research Interviews in the History of Science and Medicine: Reflections and New Directions

Seminar Room 1, Dept. of History and Philosophy of Science

Session Abstract: How do historians of science and medicine use research interviews, and more importantly, how should they use them? When should an interview be transcribed and made public and when should it remain off-record? Should historians of science and medicine follow the same guidelines as oral historians in their interview practices? While these methods can look the same, we contend they serve very different purposes. We understand a research interview as an interview conducted within the logic of a research project, not primarily produced for publishing or archiving in a collection, but for other primary uses. Already in the 1990s, historians of science and medicine such as Soraya Chadarevian and Tilly Tansey reflected on the place of interviews as sources and on the practice of doing such interviews. However, recent changes to the research landscape have raised substantial questions for scholars in this field. Today historians face new challenges posed by digitalization. New forms of source criticism and new methodological reflections are needed to make sense of these rapid changes in practice. With this panel we want to describe a particular domain of scholarly practice: using research interviews in the history of science and medicine. What do historians of science and medicine do when they conduct a research interview? What do we want to use these interviews for in the history of science?

Personal Reflections with Research Interviews in the History of the Life Sciences

Soraya de Chadarevian (University of California, Los Angeles)

Narrating the field: Labour and the politics of memory in oral histories of science

Ana Carolina Vimieiro Gomes (Federal University of Minas Gerais, Brazil)
& Rosanna Dent (University of Cambridge)

On the Social Functions of Interviewing

Cameron Brinitzer (Max Planck Institute for the History of Science)

Where do we fit? Some reflections on practice and project design

Dmitri Myelnikov (University of Cambridge)

Chair: Alfred Freeborn (Max Planck Institute for the History of Science, Berlin)

8A: Transformations of Science Journals after World War II (2 of 2)

Newton Room, Pitt Building

Session Abstract: see above session 7A

Instructions to authors: The expanding scope of journal editors' requirements

Aileen Fyfe (University of St Andrews)

'The profits and risks entirely in our hands': The British Journal of Anaesthesia*, Macmillan Publishers and commercialising journal publishing from 1974*

Eleanor Shaw (University of Manchester)

Academic endorsement of public claims: The Orce Man controversy and the role of journals in late twentieth-century science communication

Miquel Carandell Baruzzi (Autonomous University of Barcelona)

Chair: Nick Hopwood (University of Cambridge)

8B: Roundtable: Cropscapes and Temporalities

Hopkinson Lecture Theatre, Dept. of History and Philosophy of Science

Session Abstract: Crops are living organisms that co-exist with humans in processes of mutual engineering that have shaped histories, and how histories – notably histories of science and technology – are told. Our collective research project, Moving Crops and the Scales of History (Yale University Press, 2024) proposes the concept of cropscapes, the ecologies and assemblages of non-humans and humans within which a particular crop flourishes or fails in a particular place or time, as a tool for rethinking how the different scales of history intermesh. The roundtable focuses on temporality as one key scale by which history is written, presenting cropscapes that complicate both historical and historiographical understandings of time. The case of tobacco shows how the 'natural' rhythms of a plant were made and remade by social and legal change. Recognising how the human domestic cycle and the life of a cocoa tree coincide illuminates the dynamics of Ghana's expanding cocoa frontier and economy. Under the Raj, elephants were relegated from warriors to labourers; nevertheless, an elephants'-eye history of Indian tea-scapes reveals how their agency and life-cycle shaped the colonial plantation system and its products. Finally, we show how novel rhythms of rice-farming practices introduced by Asians during Cold War technical demonstrations became part of the rice-farming repertoire in West Africa, reignited each farming season when farming conditions aligned. We briefly present each cropscape (5-7 minutes) to demonstrate how the cropscape analysis complicates scientific history of time, and invite conversation with the audience.

Barbara Hahn (Texas Tech University)
Francesca Bray (University of Edinburgh)
John Bosco Lourdusamy (Indian Institute of Technology Madras)
Yi-Tang Lin (University of Zurich)

Chair: Pei Jiang (University of Cambridge)

8C: Roundtable: Using Natural History collections to answer the big questions of our time

Bentley Room, Pitt Building

Session Abstract: Collections-Connections-Communities invites you to join us for a roundtable discussion with a panel of researchers and curators from all career stages to reflect on the histories and futures of natural history collections in collections-led research, and their place at the intersection of the 'material', 'global' and 'digital' turns in the history of science.

Recent research on natural history collections in Europe, including those in Cambridge, is shining a spotlight on how colonial histories of exploitation and extraction enabled the accumulation of collections and how collecting institutions played an active part in this. At the same time, big data initiatives such as DiSSCo (Distributed System of Scientific Collections) are digitally aggregating natural science collections to create a 'knowledge base' of biodiversity data ('1,5 billion specimens ... in 1 European collection').

The panel will be asked to reflect on:

- How could natural history collections enable collaborative, transnational, equitable partnerships around collections that make a difference to communities?
- How could these collections provide a convening space for interdisciplinary and participatory research?
- What kinds of knowledge can these collections generate in the 21st century?

The Collections-Connections-Communities Strategic Research Initiative at the University of Cambridge brings together researchers in Cambridge and beyond around the collections across the Botanic Garden, libraries, archives and museums. In 2025, CCC is launching a major research programme in Natural History Humanities, centred around the globally significant natural history collections that are cared for in Cambridge, seeking to explore the relationship between humans and nature and empower collections-led research in addressing global challenges.

Eva Namusoke (University of Cambridge)
Mika Hyman (University of Cambridge)
Daniel Margocsy (University of Cambridge)
Isabelle Charmantier (Linnean Society, London)

Chair: Sam Brockington (University of Cambridge)

8D: Museums and Collections II

Whipple Museum, Learning Resource Centre, Dept. of History and Philosophy of Science

Lost in Translocation: Chinese Sundials in British Collections and Teleological Histories of Science

Zhiyu Chen (University of Cambridge)

Unpacking Stakeholder Engagement: Insights from the 'Teeth' Exhibition at the Medical Museion

Nanna Luders Kaalund (Medical Museion, University of Copenhagen)

Statistical Aesthetics: Grammars of Information Design at the Deutsches Hygiene Museum Dresden

Brianne Wesolowski (Leiden University)

Chair: Nathan Bossoh (University of Southampton)

8E: Oceanography

Syndics Room, Pitt Building

Oceanography existed in the eighteenth-century, and that might matter for how we see marine environments

Jip van Besouw (University of Sevilla)

Continued display of State activity": The Discovery Investigations and Inter-War State Science in the British Antarctic

Daniella McCahey (Texas Tech University)

Langevin and Chilowsky: a conflict of cultures at the genesis of ultrasonics

Francis Duck (University of Bath)

Chair: David Munns (CUNY)

8F: Politics, Ideology and Science

Seminar Room 2, Dept. of History and Philosophy of Science

Did labour or leisure make science? The politics of history in the 'planning-of-science' debate, 1931-1956

Sam Phoenix Clarke (University of Cambridge)

The Grass Is Always Greener on the Other Side: Late Ottoman Perceptions of Science in Europe

Meric Tanik (Columbia University)

"Like another St. Basil": Science as an anticommunist weapon in Cold War Greece

Kostas Tampakis (National Hellenic Research Foundation)

Chair: Eoin Carter (University of Cambridge)

8G: Between Life and Death: Notes on Liminality

Seminar Room 1, Dept. of History and Philosophy of Science

Session Abstract: This panel explores the complex and fluid intersections between life, death, and the material world. At the heart of this panel is the notion of liminality, the space in between, where life and death coexist, interact, and transform. By engaging with metaphysical, ecological, and scientific frameworks, the papers collectively investigate how the thresholds between these states are not fixed but permeable and subject to reimagining. Moreover, this panel engages with the blurred boundary between the material and immaterial in these liminal zones. Whether it's the odylic light of the aurora, the decomposition of human bodies into more-than-human ecosystems or the spectral ecology of the slaughterhouse, the papers explore how material forces—magnetic, electrical, organic, industrial—carry both life and death within them. Together, these papers offer a reimagining of life's boundaries, presenting new ways of understanding how matter, memory, and energy transcend the binary of life and death.

Aurora and Aura: Bridging Life and Death in Nineteenth Century Vitalist Thought

Fiona Amery (University of Cambridge)

Material Afterlives: Matter on the Edge of Life and Death

Troy Fielder (University of Cambridge)

Spectral ecologies: on the afterlives of animal death

Ezra Grosz (University of Cambridge)

Chair: Amy C. Chambers (Manchester Metropolitan University)

Thursday 10th July 14:00-16:00

9A: Locating labour, knowledge, and community in the history of food crop innovation

Newton Room, Pitt Building

Session Abstract: Crop plant innovation—the genesis of novelty in the plants used to furnish grains, tubers, fruits, vegetables, and other produce—is essential to the success of contemporary agricultural systems. This is true of smallholder production in economically and environmentally marginalized spaces, where farmers continuously exchange, adopt, and adapt diverse seeds of an equally diverse array of species. It is also true of vast industrial monocrops of maize or soy whose origins lie in part in transgenic manipulation undertaken by transnational firms. In a world where pests, diseases, climate, and markets all shift and change, crops must too, and successful farmers are, by and large, those best positioned to take advantage of crop innovation. For all its centrality to diets and economies, histories of crop innovation have yet to capture most of the knowledge, tools, and labor mobilized in this work. The contributions to this panel are part of a larger collective project that aims to present more inclusive accounts of how distinct varieties of grains, tubers, fruits, vegetables, and other crops arrive at farms, markets, and kitchens across the globe. In contrast to accounts focused on individual plant breeders and specific moments of genetic transformation, the papers foreground generational contributions, tacit local knowledge, collective management, community processing techniques, and broader political economies.

Washed Away: Quality and Colonial Knowledge in 19th Century Cacao Processing

Mika Hyman (University of Cambridge)

Local Seed Knowledge in Foreign Agricultural Aid: The Stories of Field Technicians

Yi-Tang Lin (University of Zurich)

Sowing Change: Tracing China's Foxtail Millet Breeding from 1920 Onwards

Pei Jiang (University of Cambridge)

Discussant/Chair: Helen Anne Curry (Georgia Tech)

9B: Science, Policy and Empire

Hopkinson Lecture Theatre, Dept. of History and Philosophy of Science

The concrete master race: technology, work and control in the canal system
Eóin Phillips (Ramon Llull University)

Research Grants and Collaboration in UK Science, c.1880-1900
Danielle Farrier (University of St Andrews)

"It is necessary to remind ourselves that man minus his social heritage is feral man": tracing the history of heritage in colonial science and government in (Trans)Jordan, 1880-1950.
Charlotte Vekemans (Ghent University)

Chair: Fiona Williamson (Singapore Management University)

9C: American Science in the Postwar Era

Bentley Room, Pitt Building

Where were they? The origins of the Search for Extraterrestrial Intelligence (SETI) revisited
Robert Poole (University of Lancashire)

Science and the Alliance of Progress: The Latin American Scientific Board of the National Academy of Science
Daniele Cozzoli (Pompeu Fabra University)

Making History Useful Again: Robert McNamara, the US Department of Defense and Project Hindsight (1965-67)
Michael Weatherburn (Imperial College, London) & Leo McCann (University of York)

Chair: Amy C. Chambers (Manchester Metropolitan University)

9D: World Fairs and their Heritage in 19th-Century Europe

Whipple Museum, Learning Resource Centre, Dept. of History and Philosophy of Science

Session Abstract: This section explores the multifaceted role of World Fairs in 19th-century Europe as catalysts for constructing notions of internationalism, nationalism, and identity, which have persisted well into the 21st century. By examining the representation of diverse groups involved in organising, exhibiting, and frequenting World Fairs, we unravel the complex interplay between imperialism, colonialism, and the evolution of national narratives based on the display of knowledge and technology in a temporary environment and how they consolidated in cultural identity debates until today.

World Fairs served as platforms for nations to assert their cultural and technological superiority, often glorifying colonial exploits and reinforcing hierarchies of power. A popular option to display a nation's achievements, World Fairs were multi-layered events instrumentalising various aspects spanning from architecture and music to "live exhibits" of individuals from colonies to create immersive displays of epistemic superiority. Although short-lived, the remnants of World Fairs often persisted as landmarks.

Although World Fairs gained significant attention from art and architectural historians, current debates on decolonising European epistemic heritage need to pay more attention to the connection between the narrative of national superiority of science and technology and the long-term influence of World Fairs. The participants of this section aim to offer a discussion of late-19th-century European World Fairs from a multi-layered perspective to shed light on how World Fairs created specific narratives of epistemic superiority beyond the mere display of technology, how these narratives were adapted by more permanent institutions carrying them into our present, and how we can deconstruct such narratives eventually contributing to a broader decolonisation of our cultural and epistemic heritage.

After the World Fair is before the World Fair: The Integration of the 1883 Amsterdam World Fair into Dutch museums

Alexander Stoeger (University of Saarland)

European Inter-Nationalisms at the Vienna Exhibition for Music and Theatre (1892)

Signe Rotter-Broman (FU Berlin)

The Multifaceted China in the 1873 Vienna World's Fair

Zihao Song (University of Vienna)

Constructing Cultural Identity by Architecture. Japan at the World's Fairs

Beate Löffler (TU Dortmund University)

Chair: Sarah Qidwai (University of York)

Thursday 10th July 14:00-16:00

9E: Scientific Life and Society

Syndics Room, Pitt Building

A prosopography of the membership of three natural history societies in the midlands, c. 1870-1911

Ali Hatapçı (Université Bourgogne Europe)

Lessons from the 'success of mediocrity': Henry Dircks and the status of the inventor in mid-nineteenth-century Britain

Ben Marsden (University of Aberdeen)

Androgyny and Genius: Havelock Ellis' Vision of Female Intellectuals

Victoria Molinari (IMF-CSIC)

J. Arthur Thomson: Building a Career in Late Victorian Life Science

Peter Bowler (Queen's University Belfast)

Chair: Jon Topham (University of Leeds)

9G: Astronomy in Practice

Seminar Room 1, Dept. of History and Philosophy of Science

The Dark Sides of the Sun: Early 19th Century Sunspot Observations and the Nature of the Central Star

Janna K. Mueller (University of Cambridge)

'I anxiously hope that it may be my good fortune to again be his "companion" on such an occasion': Richarda Airy and the British solar eclipse expeditions

Meg Briers (Max Planck Institute for the History of Science)

"How a brigade can tackle an eclipse": Norman Lockyer, the Royal Navy, and the 1900 Eclipse Expedition

Beatrice Steele (University of Exeter)

Protector of telescopes: the dome

Gustav Holmberg (History of Science and Ideas, University of Gothenburg)

Chair: Jesse Garrison (University College London)

New Book Series
Science and Technology in International Affairs

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Science and Technology in International Affairs is a series of innovative studies focusing on the influence that science and technology have played and continued to have in international affairs. The series takes an interdisciplinary approach to decenter traditional histories of science and geopolitics, illuminate underrepresented historical actors, and reveal new networks of power. Above all, the series aims at building novel global narratives in the recognition that over the last century science and technology have been important forces for change in societies and a key driver for globalization.

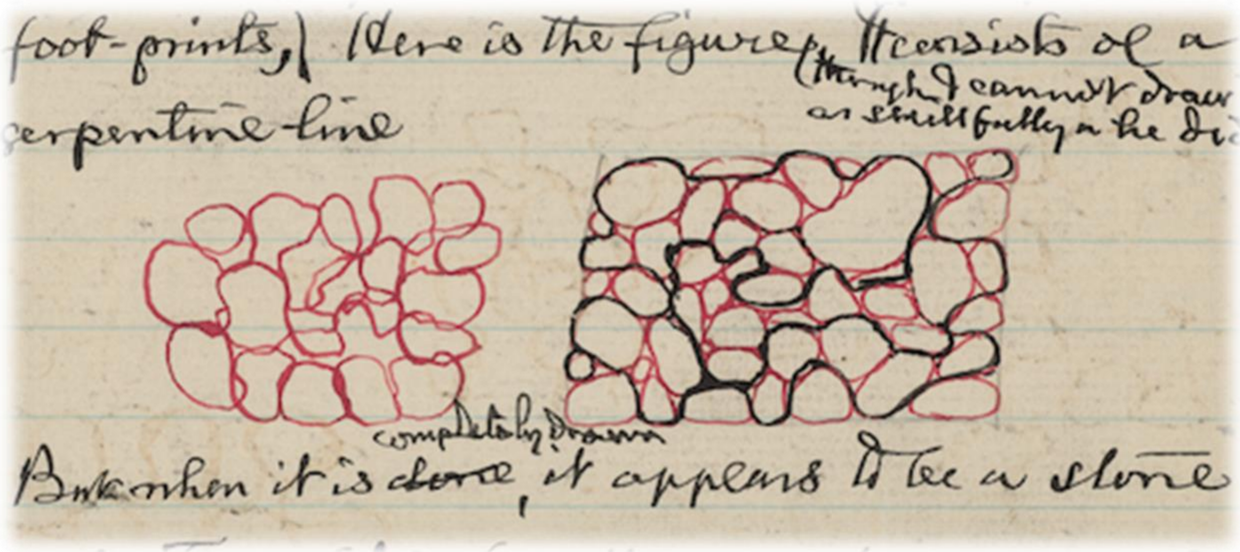
The series broadens the initiatives of the Commission for Science, Technology, and Diplomacy (STAND), therefore the works anticipated in this series would thus expand STAND's efforts to give a critical, historically informed perspective to the study of the interplay between science, technology and international affairs, hence going beyond the simplistic understanding of these interactions as 'science diplomacy'. The latter has served as a buzzword for recent international initiatives but has not led to explore or explain enough their complex entanglement. Hence, the series seeks to add critical historical depth to the study of these interactions, also challenging established approaches and bringing new voices into a truly global history of science, technology, and international relations.

BSHS Presidential Address details

Babbage Lecture Theatre, Sir David Attenborough Building
Starting at 18:15 (Tuesday 8th July)

Images as Experiments

BSHS Presidential Lecture



Charles Sanders Peirce, MS 315 "Harvard Lectures on Pragmatism", Lecture VII (1903), p. 5.
The Houghton Library, Harvard University.

Chiara Ambrosio
Professor of History and Philosophy of Science

Department of Science and Technology Studies
University College London

What would an integrated history and philosophy of scientific images look like? I propose that a fruitful way to address this question is by reconceptualising the making and uses of images as experimental practices. My approach is grounded in pragmatist conceptions of the roles of experiment and experience in scientific inquiry. Despite being primarily known as philosophers, the Pragmatists did not just *theorise* experiments: they actively carried them out – in the laboratory as well as through images on paper. Starting from how one of them, the American scientist and philosopher Charles S. Peirce, deployed images in his empirical studies and philosophical arguments, I propose that a capaciously pragmatist view of experiment offers a new lens to revisit the conjectural and mobile roles of images in scientific practice, reconnecting them and all their materiality to broader histories of experience.

BSHS Presidential Reception

Whipple Museum and Department of the History and Philosophy of Science

Sponsored by Cambridge University Press

Please note: this event is only open to speakers at the conference due to restrictions on capacity in the HPS building. ***Only those with Green conference badges may attend this event.***

Open from 19:00-21:00 the reception will use all the spaces of the HPS building; the Whipple Museum, the Old Library, and Seminar Rooms 1 and 2. Please enter via the main entrance as for other conference sessions. Accessible access is via the Whipple Museum accessible entrance at the back of the building.

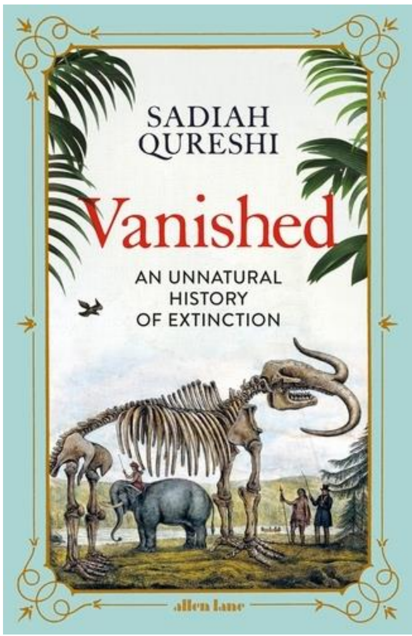
Wine and nibbles will be served in the museum.

Keynote Lecture details

Babbage Lecture Theatre, Sir David Attenborough Building
Starting at 18:15 (Wednesday 9th July)

Book Launch:
‘*Vanished: An Unnatural History of Extinction*’

Professor Sadiah Qureshi
(Chair of Modern British History, University of Manchester)
introduced by Helen Macdonald, with Q&A lead by Sarah Qidwai



Anyone alive today is among a tiny fraction of the once living: over 90% of species that ever existed are now extinct. How did we come to think of ourselves as survivors in a world where species can vanish forever, or as capable of pushing our planet to the verge of a sixth mass extinction?

Extinction, Sadiah Qureshi shows us, is a surprisingly modern concept – and a phenomenon that’s not as natural as we might think. In Europe until the late eighteenth century, species were considered perfect and unchanging creations of God. Then in the age of revolutions, scientists gathered enough fossil evidence to determine that mammoth bones, for example, were not just large elephants but a lost species that once roamed the Earth alongside ancient humans. Extinction went from being regarded as theologically dangerous to pervasive, and even inevitable.

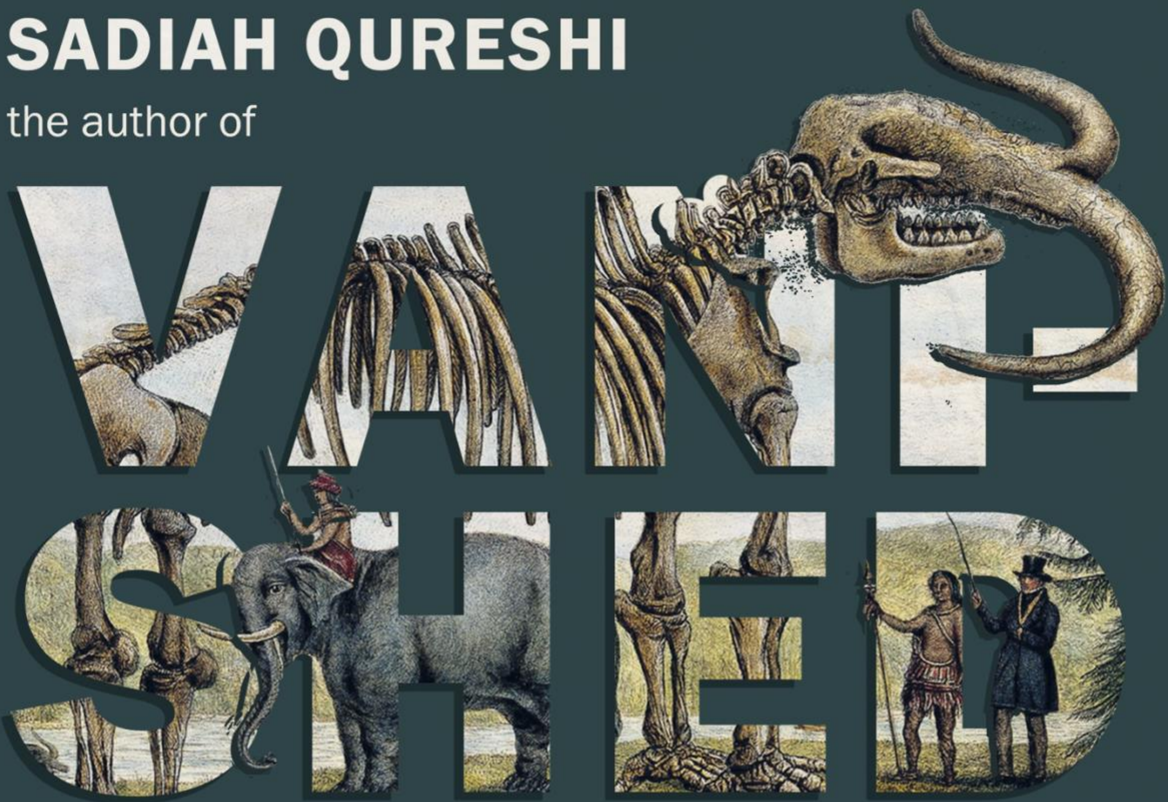
Yet *Vanished* shows us that extinction is more than a scientific idea; it’s a political choice that has led to devasting consequences. Europeans and Americans quickly used the notion that extinction was a natural process to justify persecution and genocide, predicting that nations from Newfoundland’s Beothuk to Aboriginal Australians were doomed to die out from imperial expansion.

Exploring the tangled and unnatural histories of extinction and empire, *Vanished* weaves together pioneering original research and breath-taking storytelling to show us extinction is both an evolutionary process and a human act: one which illuminates our past and may alter our future.

a public lecture by

SADIAH QURESHI

the author of



VANISHED: AN UNNATURAL HISTORY OF EXTINCTION

with an introduction by
Helen Macdonald
the author of *H is for Hawk*

Admission free

Wednesday, July 9 - 18:00

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Ethel Sarel Barton Gepp: a phycologist's work revealed through her algal collection, archival documents, and publications

Claudia Addabbo
University of Padua

Abstract

In the biographical and scientific note written in 1923, the Italian phycologists Achille Forti (1878-1937) and Giovanni Battista De Toni (1864-1924) highlighted the scientific contributions of the English phycologist Ethel Sarel Barton Gepp (1864-1922) [De Toni, Forti, 1923; Britten, 1922]. Her early studies and publications were dedicated to algal galls [Barton, 1891; 1892]; later she focused on certain genera of marine algae, including the genus Halimeda, on which she published an important monograph [Barton, 1901], studying specimens from the "Siboga Expedition" (1899-1900), as well as from various institutions.

In 1902, Barton married Antony Gepp (1862-1955), who worked at the Natural History Museum in London as a phycologist. That same year, the couple visited the Botanical Garden of Padua (Italy). Forti and De Toni were delighted to meet them and reciprocated the visit in London the following year, beginning a long-standing correspondence and exchange of information and materials.

The Archive of the Natural History Museum in London houses the documents, correspondence, and notes of the couple, and the Museum itself holds the samples collected and gathered by them.

By conducting an integrated study of archival materials, publications, and the phycological collection of Ethel Sarel Barton Gepp, my research seeks to shed new light on the life and work of this understudied algologist, and her contributions to the field – also in relation to her husband. Moreover, it also aims to reconstruct her network with botanists and scientists throughout Europe, of which the correspondence with De Toni and Forti is just one example.

Return to the sessions overview

‘Somewhat arcane expressions’: George Evelyn Hutchinson (1903-1991) and the evolution of homosexuality.

Pieter R. Adriaens
Institute of Philosophy, KU Leuven

Abstract

Homosexuality is one of the showpieces in the curiosity cabinet of contemporary evolutionists. Why does it continue to exist if it is true that it goes back beyond the beginning of humanity; if genes contribute to its development; and if homosexuals leave little or no offspring? How did homosexuality manage to elude natural selection? In this talk, I map out the history of this paradox, following its roots all the way to a cautious first formulation by the American ecologist and polymath George Evelyn Hutchinson in the late 1950s. First, I focus on the origins of Hutchinson’s interest in the topic, tracing it back to his own biographical and academic background as well as his correspondence with anthropologist Margaret Mead. Then I consider the theoretical requirements of Hutchinson’s analysis, including Theodosius Dobzhansky’s work on balancing selection (1930s); Franz Kallmann’s twin studies into the genetics of homosexuality (1940s), derided by Hutchinson because of their ‘somewhat arcane expressions’; and Alfred Kinsey’s controversial prevalence figures (1950s). Finally, I scrutinize Hutchinson’s own solution to the paradox – a solution that, though ‘somewhat arcane’ itself, took the form of a heterozygote advantage hypothesis, based on one of Dobzhansky’s variants of balancing selection. His suggestion seemed indeed to be that some variants of the genes associated with homosexuality may well be involved in the expression of traits that actually, and unlike homosexuality, boost their carriers’ reproductive success.

Return to the sessions overview

Science policy from Major to Blair

Jon Agar
University College London

Abstract

Drawing on research that underpins a new book project that is a successor to Science Policy under Thatcher (UCL Press, 2019), this paper identifies the main issues and developments around both policy-for-science and science-for-policy during the administrations led by the Conservative prime minister John Major (1990-1997) and New Labour prime minister Tony Blair (1997-2007). Commentators at the time, as well as historians of British politics since, have noticed continuities between Thatcher, Major and New Labour. With the release of new primary sources, this received wisdom deserves scrutiny in general, and specifically, in this paper, in the area of science policy.

Return to the sessions overview

Aurora and Aura: Bridging Life and Death in Nineteenth Century Vitalist Thought

Fiona Amery
University of Cambridge

Abstract

The connection between aurora and aura extends beyond mere parapraxis. Within nineteenth century vitalist thought, the aurora borealis became emblematic of invisible transcendental forces, bridging dimensions and reflecting Walter Benjamin's later description of 'aura' as "a strange weave of space and time" (1931, p. 518). Baron Karl Von Reichenbach regarded the polar light as "a vast manifestation of magnetic odylic flame, odylic vapour, and odylic light" (1850, p. 545), a theory he supported with analogue experiments. The aurora, like odylic light, was conceived as both material and immaterial, composed of the same enigmatic forces—magnetic and electrical—that bridged the physical and metaphysical realms. At around the same time, female clairvoyants emphasised the aurora as both a metaphorical and literal manifestation of a bridge to the dead, invoking distorted versions of indigenous Scandinavian tradition. Within these works, the polar atmosphere emerged as a site of transcendence. Meanwhile, discourse on the aurora's aura echoed contemporaneous discussions surrounding its air of unknowability and the challenges it posed to artists and scientists at the limits of visual representation and communicable experience. I will explore these connections and reflect on the role of the atmosphere as a threshold or permeable medium.

Return to the sessions overview

How to Spot a Newtonian: The Case of David Hume

Lewis Ashman
University of Edinburgh

Abstract

How do you tell a Newtonian when you see one? Despite the familiarity and prominence of the term 'Newtonian' in the history of science, scholars have paid surprisingly little attention to this question. Typically, a Newtonian is taken to be a follower of Isaac Newton, committed to the truth of his science, and 'Newtonianism' the broader phenomenon whereby Newtonian science gained assent and rose to intellectual supremacy. This paper argues for a narrower definition of Newtonians and Newtonianism with reference to the Scottish philosopher David Hume, who principally admired Newton's causal nescience but wrote very little directly about Newtonian science. Thinking with Hume, who has long been designated a Newtonian on fairly thin grounds, is fruitful for reconsidering how we study Newton's reception wherever he was read. The paper explores various ways in which Newtonians have been and might be identified across time and space. It suggests that rather than looking for committed followers (which Hume was not) we are better off seeking out points of explicit engagement with Newton and his signature ideas, among both his admirers and critics.

Return to the sessions overview

Robert Greene on the Homogeneity of Light and Heterogeneity of Matter

Ovidiu Babeș
Free University Brussels

Abstract

Robert Greene is a less known anti-Newtonian natural philosopher active in Cambridge at the beginning of the eighteenth century. This presentation examines Greene's anti-Newtonian theory of light and its role within Greene's rejection of corpuscular philosophy. Greene advanced an anti-corpuscular philosophy grounded in a direct realist philosophy of mind and an anti-Lockean theory of knowledge. He argued against abstract notions, claiming that concepts such as vacuum, motion, solidity and homogenous matter are "creatures of the mind" which cannot account for the causal structure of nature. This attack, in turn, lead Greene to develop a theory of light which explicitly contradicts Cartesian and Newtonian explanations of light and colours. Greene rejected the Cartesian view that light instantly propagates through the motion of heavenly subtle matter, as well as the Cartesian account of colours as determined by the porous structure of bodies. Against Newton, Greene argued that white light is not a heterogenous mixture of rays of different refrangibility. Instead, light is a homogenous being in which coloured rays are not prior to the phenomenon of refraction. Instead, colours are connate properties of light that are accidentally produced in some instances of refraction. Greene justified his claim by several experimental variations involving transparent prisms and opaque bodies. Importantly, Greene used his alternative anti-Cartesian and anti-Newtonian account of light as support for his systematic non-corpuscularian natural philosophy. His natural philosophy assumes that matter is a non-homogenous being, whose parts have distinct properties that are irreducible to mechanical and corpuscularian frameworks.

Return to the sessions overview

‘Independent from physical experiment or geometrical demonstration’: Spring watches, mechanical principles, and the search for an absolute measure of time in 17th Century Europe

Yoav Beirach
Max Planck Institute for the history of science, Berlin

Abstract

The second half of the 17th Century in Europe was full of priority disputes and patent rights quarrels over time keeping technologies. Some of these disputes received a fair share of attention in the literature, but these mark only a fraction of what was happening on ground; new designs were being made on a monthly basis, the mass production of pendulum clocks, spring-based watches and other devices was accelerating, and the terms according to which one should talk about and evaluate the measurement of time were constantly negotiated. My talk will focus on two mostly overlooked aspects of this vast endeavour; first, the division of labour and ownership between the clockmakers and the inventors, natural philosophers, mathematicians or astronomers who commissioned and paid for their work. Second, the extent to which their joint practical efforts were entangled with the theoretical debate on the nature of time measurement itself. Previous work has showed that the spread of clocks and watches was intimately connected with the commodification of time, reorganization of labour and finance, the rise of capitalism and the deep political and social changes Europe was going through. In continuation with this work, a closer look into the correspondences, debates and quarrels between the makers themselves sheds new light on the scientific epistemology which emerged alongside these processes, leading to the naturalisation of a new concept of time as an equally divided, quantified and measurable entity.

Return to the sessions overview

Re-electrified texts: analysing the Electrical Age using a digital humanities toolkit

Daniel Belteki
Science Museum

Abstract

How can digital tools enable us to get an overview of patterns and trends in long-running historical journals, while at the same time also allowing the detailed analysis of individual articles and sentences? The paper engages with this question by exploring the transformation of the Electrical Age journal into a machine-readable format readily available for computational analysis. It builds upon previous work done by the Congruence Engine Project that examined the applications of computer vision tools, generative AI, and large language models to the analysis of domestic appliances advertisements within the same journal. The first part of the paper highlights the necessary practical steps that are needed for the creation of such a corpus of text (and visual materials), and how the decisions taken during this process shape the type of research it enables. The second part discusses how the tools can highlight long-term patterns and trends about the emergence and disappearance of key terms, the presence of contributors, and spatial coverage within the contents of the journal. The final part of the paper focuses on how we can analyse smaller parts of the texts further within the larger context of the journal and in relation to digitally available historical collections. Throughout the paper, critical reflections are provided on how generative AI tools can be applied to the analysis of the journal's content, assist in the pre-processing of historical sources for computational analysis, and guide in the selection of digital tools.

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Speaking with the Dead? Psychical Research and Mediumship in Republican China (1912-1949)

Luis Fernando Bernardi Junqueira
University of Cambridge

Abstract

Is it possible to speak with disembodied souls? If so, what rationale supports this possibility, and what implications does it hold for the living? The phenomenon of spirit communication sparked widespread controversy among Chinese intellectuals during the first half of the 20th century, especially when it came down to two traditional Chinese mediumistic practices that exhibited striking similarities to Western spiritualist séances: fuji 扶乩 (spirit-writing) and guanwang 關亡 (speaking with the dead). As psychical research gained traction among early 20th-century Chinese elites eager to integrate science, mental healing and spiritual pursuits, questions surrounding paranormal powers and extraordinary phenomena became central to Chinese intellectual discourse.

This paper examines the three theoretical camps – the spiritualist, the physicalist and the psychic – that dominated Republican-era debates about the reality of mediumship and the mechanisms behind its causes. Chinese spiritualists viewed phenomena such as mediums capturing the souls of the deceased through photographic cameras as evidence of an afterlife. In contrast, physical-psychical researchers theorised that under hypnotism, a medium's brain could tune into information from other minds via 'ether', while the psychic group attributed the possibility of mediumship to the works of the subliminal mind, seen as the individual manifestation of the Universal Mind. In this paper, I show that Chinese intellectuals were not merely inventing new explanations for old phenomena but actively engaging in contemporary scientific debates among psychical researchers in Europe, North America and Japan regarding the reality of human-spirit interactions and the hidden powers of the mind.

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A (rough) step-by-step guide on how you can get to think of genetic evolution like Julian Huxley: from Oxford to the Modern Synthesis 1906-1942

Stefan Berhardt-Radu
University of Leeds

Abstract

Much has been said about the narrative of the eclipse of Darwinism – that alternative theories overshadowed the theory of evolution by natural selection from the late 19th-century until the 1930s. Along with recent literature, here I shall argue that, for all its merits, the narrative simplifies Darwinists like Julian Huxley (1887-1975). To understand the historical contingencies of Huxley's thinking, I argue that we need to backtrack the development of his views from his time at Oxford in 1906-1909. The first step: we need to root Huxley in the debate around the Unicellular hypothesis, the view that multicellular organisms evolved from single-celled organisms. We can do this by exploring Huxley's education, specifically his undergraduate lectures. The second step: we need to understand the ways in which Huxley conceptualised the evolution of multicellulars from unicellulars by reading his essays. The third step: note the parallels that Huxley saw between evolution from unicellulars to multicellulars and evolution from single genes to 'gene-systems', or multi-gene machineries. The fourth rougher step: analyse his iconic and trendsetting 1942 *Evolution: The Modern Synthesis* in this new light. What do we get? Not just a biology that was founded on a cellular and embryological conception of evolution, that I term (after Huxley) 'epigenetic', but also more attention to how, and how not, we may eclipse the contingencies of why and how a Darwinist, a Huxley, organised their knowledge the way they did.

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J. Arthur Thomson: Building a Career in Late Victorian Life Science

Peter Bowler
Queen's University Belfast

Abstract

J. Arthur Thomson was appointed to the Regius Chair of Natural History at the University of Aberdeen in 1899, giving him a secure position from which he established a reputation as a teacher and popular writer. Gaining the chair was the culmination of a complex early career which throws light on the challenges facing anyone from a modest background seeking a professional identity in this period. As a 'son of the manse' he still hoped for a career as a minister even while enrolled to study natural history at the University of Edinburgh from 1876. Courses at the university could be taken on a part-time basis, allowing him to study theology and do zoological work abroad before eventually gaining his M.A. in 1884. By this time he was teaching extra-mural courses with Patrick Geddes and working toward the publication of their controversial Evolution of Sex in 1889. During the 1890s he taught courses in zoology at the School of Medicine and the Veterinary College in Edinburgh, gaining a reputation as an effective lecturer while at the same time being recognized as a contributor to Geddes' cultural activities. He also reported on the international literature for the Zoological Record. His research gradually focused on literature reviews and technical descriptions of Alcyonarian corals, but he was well prepared for a career that would combine teaching with popular writing and public lecturing.

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The Uses of a Face and a Name: Francis Leggatt Chantrey's Sculpture of Sir Joseph Banks, 1814-37.

Jake William Bransgrove
University of Cambridge

Abstract

Sir Joseph Banks (1743-1820) is best remembered for his role as the naturalist on James Cook's voyage of *Endeavour*, for establishing Kew gardens as a botanical clearing house of global repute, and for his unbending support of learned enquiry during a long tenure as President of the Royal Society (1778-1820). As President, Banks was also an *ex-officio* trustee of the British Museum. His long relationship with the Museum is substantiated in part by material with some connection to the man which has found its way into its collection, as well as those of present-day institutions formerly a part of it. In addition to the two portrait busts currently on display in the Enlightenment Gallery, this includes the full-length statue (dating to 1821-27), financed by a public subscription and sculpted by Francis Leggatt Chantrey (1781–1841). This is now located at the Natural History Museum, South Kensington, but it was originally intended for the Museum in Bloomsbury. By engaging with histories of portraiture and patronage, this paper will examine Chantrey's statue of Banks alone and in relation to a series of earlier busts (sculpted 1814-37) informing the design, establishing the circumstances of their production and importance to those commissioning them. These were public objects, and the conditions of their production public acts. Considering the circumstances of their making therefore presents an opportunity to consider the role of sculpture in disseminating the likenesses of public figures, and the reasons for individual and institutional support in its creation.

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Newton in Nagasaki: Science Translation and the Cosmology of Change

Lewis Bremner
University of Cambridge

Abstract

This paper explores the beginnings of Newtonianism in Japan. It focuses mainly on the work of the Nagasaki-based scholar and interpreter Shizuki Tadao, particularly his three-volume manuscript, *Rekishō shinsho* ('New Book on Calendrical Phenomena', 1802). Nominally a translation of John Keill's *Introduction to True Physics* and *Introduction to True Astronomy*, Shizuki's work introduced Newtonian concepts such as optics and universal gravitation to a Japanese audience. However, his critical adaptations often diverged from Keill's original, indicating a creative and reflective engagement with scientific knowledge. This paper highlights how Shizuki not only translated but also transformed Newtonian thought, leaving a legacy within early modern Japanese science.

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‘I anxiously hope that it may be my good fortune to again be his “companion” on such an occasion’: Richarda Airy and the British solar eclipse expeditions

Megan Briers
Max Planck Institute for the History of Science

Abstract

George Airy is naturally associated with Victorian solar eclipse expeditions. His leadership, organisation and government connections are recognised as key for establishing expeditions as a regular practice of British astronomy. Despite brief acknowledgement in historical literature that women participated in these expeditions, little has been said about the importance of George’s wife, Richarda – as an observer, an example for other women in the field and a contributor to eclipse investigations beyond expeditions. Placing Richarda Airy in the centre of the narrative, this paper will consider how gender and family practices intertwined with and shaped the early eclipse expeditions between 1842 and 1860.

Established family practices of sharing work and travelling together provided the model for the Airys’ 1842 expedition. I will analyse how gender shaped Richarda’s involvement – from her observation instructions to the equipment allocated to observers. Richarda contributed observations of one of the key phenomena of this eclipse – the unexpected red prominences. Considering how the Airys worked together and credited contributions in scientific endeavours more generally, I will also suggest that Richarda had a previously unacknowledged role in the visual representations of the corona.

The expeditions gradually garnered support from organisations including the BAAS and the British Government. Concurrently, the positions of Richarda and other women were questioned and arguably became more restricted in terms of observing opportunities. However, the paper will demonstrate the ways women still interacted with and capitalized on eclipse investigations – including conducting corona replication experiments and building communities around the expeditions.

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On the Social Functions of Interviewing

Cameron Brinitzer
Max Planck Institute for the History of Science

Abstract

Cameron Brinitzer narrates his journey into the community of researchers trying to study cultural evolution through a series of encounters and conversations with key actors. In a personal and deeply reflexive register, Brinitzer shows how his numerous research interviews, many of which remain untranscribed, some misplaced or lost, generated a social network of relations within which a particular field of historical inquiry could be constructed. In particular, these conversations enabled a richer political contextualization of how an influential research program into cultural evolution emerged in the 1970s directly from critiques of the possible racial basis of intelligence. Starting in a baby lab in New York, Brinitzer's first steps into ethnographic research led him to France and numerous conversations with the "Paris School" of cultural evolution, before conducting a longer stay at a laboratory in Budapest, then traveling westward to talk with a key figure in the more model-driven "California School" in a small town in Wiltshire in south-west England. Alongside these numerous conversations, some more formal, some more impromptu, Brinitzer explains how he also pieced together, using passing comments as well as more traditional textual sources, the place and politics of another important researcher beyond his network of interviewees. In concluding this journey through a series of research interviews, Brinitzer draws from traditions of historical epistemology and theory to argue for the interview as both an entry-point into the contemporary and spontaneous epistemology of the scientist, as well as a site where the historian's narrative is prefigured in aesthetic and ethical ways through its encounter with the living.

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Monkey business: colonial bioprospecting and animal knowledge under the Dutch East India Company (1600-1800)

Anna Bruins
University of Warwick

Abstract

Bioprospecting, or the scientific examination of plants with commercial goals of (trans)plantation in mind, was an essential instrument for early modern European trading companies in expanding their global power. Unravelling the environmental and botanical circumstances under which specific plants grew well made it possible for these companies to develop independent agricultural industries, allowing them to provide food and medicine for their employees and the global market - a process leading to financial gain for some, loss of freedom for many, and far-reaching changes to the environments they inhabited.

Discussing a selection of different kinds of travel writing, such as published books, journal entries, and internal reports, this presentation considers the position of bioprospecting in the operations of the Dutch East India Company (VOC). Special attention will be given to the role played by animals. Some species, such as the oxen drawing ploughs, were instrumental contributors to the agricultural successes of the VOC. By contrast, other animals were sabotaging early planting endeavours – think of woodworms damaging the ships, or monkey populations feasting on fruits grown in the Company's orchards. To colonial bioprospectors, gaining knowledge of these animals and their behaviour was therefore essential. But how did such knowledge come about? Was indigenous expertise consulted? And what do encounters with the more-than-human reveal about colonial attitudes towards nature? It will be argued that inclusion of animals as actants in our conversations on bioprospecting will give us a more comprehensive and inclusive understanding of colonial knowledge production and circulation.

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Diverse Secularist revolts: "Life" and materialism in Paris, Vienna and Cambridge between the wars

Robert Bud
Emeritus Keeper, Science Museum

Abstract

Between nineteenth-century Darwinism and present conflicts, there is a gap in understanding of science's relation with religion. Bowler's work is a rare exception, and the treatment of the Scopes trial in America is often treated as an isolated incident. There was no inevitable rise of secularism, but diverse debates over the status of religion were closely linked to science. In France and Austria, the standing of the Catholic church was at stake, under very different conditions, and in Britain the status and future of the Church of England were vigorously contested. The soul, its immortality and immateriality, was challenged by materialist interpretations of findings in genetics and embryology, by ambitious scientists, and new institutions. The nature of these challenges was quite different according to the political context. In France the left-wing founders of the Institut de Biologie Physico-Chimique, hardened Dreyfusards, were closely allied with socialist governments and such initiatives as CNRS, and the Palais de la decouverte. In Vienna leaders of the Biologische Versuchsanstalt, also privately funded initially, were part of a radical secular movement including the Vienna Circle and radical sociology competing with a far more powerful clerisy. The 1934 victory of Austro-fascism and subsequent Anschluss led to the emigration of many of scientism's brightest lights. In Cambridge, the scientist "open conspirators" including Bernal, Hopkinson and their students sought to undermine the establishment by replacing "superstition" with their own interpretations of life. In America, the establishment Rockefeller Foundation used science in alliance with liberal modernist Protestantism to fight fundamentalism.

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Harvey’s Legacy in Verse: The Poetical Depiction of Blood Circulation in Sir Richard Blackmore’s "Creation" (1712)

Benedetta Burgio
Catholic University of Milan

Abstract

The discovery of blood circulation marked a turning point in the history of medicine, with William Harvey's "De Motu Cordis" (1628) hailed as a revolutionary text by physicians and intellectuals alike. This paper examines the poetical portrayal of the cardio-vascular system in Sir Richard Blackmore's (1654–1729) "Creation" (1712). Paying tribute to the pioneering work of William Harvey (1578–1657), Marcello Malpighi (1628–1694), and other contemporaries, Blackmore provided an informed but popular synthesis of blood circulation. As a poet-physician, Blackmore made ample use of his medical expertise to offer a vivid and compelling illustration of the circulatory system. In particular, this essay will show how Blackmore's work draws on state-of-the-art physiology and anatomy, blending empiricism and poetry in an original manner. Indeed, "Creation" also served as a medium to popularise scientific knowledge. Blackmore's commitment to circulating natural philosophy and medicine is expressed both in the poem's preface and in his medical treatises, which aimed to reach a non-specialist readership. After introducing the history of cardio-vascular studies, this paper situates "Creation" within the context of late-seventeenth-century mechanical medical theories and reflects on poetry's role in communicating science.

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Sociology, Sex, and Social Democracy: the politics of intimacy in the British Third Way

Lise Butler
City St. George's, University of London

Abstract

In the 1990s, the sociologist Anthony Giddens' concept of the 'Third Way' provided an intellectual framework for social democrats in Britain and other countries to reconcile economic liberalism with the welfare state. Giddens' conception of the Third Way, as articulated in Beyond Left and Right (1994) and The Third Way (1998), was rooted in a concept of 'social reflexivity', a condition of late modernity according to which individuals no longer accepted social roles decided by tradition or class, but adapted behaviours and identities in response to changing information and social conditions. An important arena in which Giddens' ideas about reflexivity were developed was sex: his 1992 The Transformation of Intimacy: Sexuality, Love and Eroticism in Modern Societies argued that sexual expression and identity were no longer contained within traditional structures of marriage and family, but were secularized, privatized and redefined as features of the self.

This paper takes Giddens thinking on sex and intimacy seriously as part of his political and policy thinking, asking how his ideas about reflexive sexuality shaped British social democratic thought in the 1990s. Examining seminars hosted by the Institute for Public Policy Research in the 1990s, which brought together social theorists like Giddens and Gøsta Esping Anderson with feminist writers and policy makers like Anna Coote and Patricia Hewitt, this paper will ask how intimacy and marriage were reconceptualised by social democratic policy makers, and shaped ideas about marriage, family, and gender in the lead up to the Blair government.

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The Fifteenth Experiment: Anti-Newtonian prismatic experiments in 1750s London

Cosimo Calabrò
McGill University

Abstract

Between 1750 and 1751, the French engraver of anatomical coloured prints, Jacques-Fabien Gautier (1716-1785), published the 2-volume Chroa-Genesie ou Generation des Couleurs, Contre le Systeme de Newton in Paris. Therein he detailed and visualized numerous prismatic experiments, vehemently arguing against Newton's theories of Light and Colour formulated in the Opticks. Crucial to Gautier's experimental evidence was his prismatic apparatus.

I focus concretely on the Fifteenth Experiment because Gautier considered it to be the "most decisive" one. He also provides the surname of an individual who supposedly replicated this experiment in London. Locations where people interested in gathering information about experiments done with Gautier's prisms were also mentioned in Gautier's advertisements of his anatomical prints.

The publication of Chroa-Genesie, and the concurrent controversy between Gautier and the Newtonians playing out in the pages of Le Mercure de France and The Gentleman's Magazine, raise two major issues. First, to what extent did Gautier's claims for the scientific compliance of his own prisms shape his theory of Light and Colour? In this context I trace the origin of Chroa-Genesie while interrogating the position of the prisms as intermediaries between epistemological theories and experiential practices.

The second issue addresses the possibility of the presence of an anti-Newtonian network operating in London in the mid-eighteenth century. While this cohort remains to be fully delineated and its relevance fully evaluated, its presence could recalibrate our understanding of the reception of Newton's chromatic theory.

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Academic endorsement of public claims: The Orce Man controversy and the role of journals in late twentieth-century science communication

Miquel Carandell Baruzzi
Autonomous University of Barcelona

Abstract

On 26 March 1997, Leandro Torres, mayor of Orce, a village near Granada, Spain, sent a letter to Leslie Aiello, editor of the *Journal of Human Evolution*, the most prestigious scientific publication in the field. Torres was worried. Spanish newspapers were trailing the forthcoming publication of a paper claiming that the Orce Man was not a human ancestor. A bone of contention since the early 1980s, the Orce Man discussion reappeared cyclically in Spanish newspapers. This time, a publication in a reputable international journal was presented as a definitive closure for the controversy. Aiello responded the next day: the paper was still undergoing the peer-review process. Furthermore, an opportunity had already been given to Josep Gibert, the main defender of the humanity of the Orce remains, to prepare a response. What did it mean for each of those actors, as well as for the public, that a specific claim was published in a scientific journal? How did politicians, journalists, scientists and the public perceive and use the journal's academic prestige? How did the journal attempt to preserve its reputation and epistemological status? Using the case of the Orce Man and considering human evolution in general as a scientific discipline prone to public discussion, this paper aims to illuminate the role of scientific publications in late twentieth-century scientific practice and public communication.

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(Re)inventing the Interdisciplinary Wheel? Environmental collaboration in past and present

Angela Cassidy
Egenis/CRPR, University of Exeter

Abstract

In 1976, Francesco Castri, the founder of UNESCO's Man and the Biosphere (MAB) programme, laid out three "imperatives for success" in interdisciplinary research, which he argued was required for environmental research. These were: i) focus on specific, shared problems; ii) find a topical scope (in time and space) that works for natural and human systems; iii) ensure that responsibility is shared, and that research about people (ie social science) does not take the form of "some sort of postnatal benediction" to natural science agendas. While MAB persisted and now exists primarily as the famous UNESCO Biosphere Reserves, Castri's advice did not – at least not formally. In this paper, we reflect upon collective remembering - and forgetting – about collaboration across generations of environmental scholarship. This includes the MAB programme and institutional examples including UEA's School of Environmental Sciences. We will also draw on emerging findings from the RENEWing Biodiversity project, in which we are investigating inter and transdisciplinary collaboration in the present day through 'embedded STS' study of RENEW, alongside oral histories with those who have worked across disciplines through their lifetimes. This points to the importance of practices including crossing, flattening, caring, tinkering and scaffolding: disrupting institutional structures in ways which, we argue, may *necessarily* be temporary, and highlighting the need for reflection on the difficult 'elephants in the room' in such work. We close by asking how the collaborative contributions of nonhuman actors can be documented, and discuss our plans for ensuring that our work will be accessible and useful for future generations of interdisciplinary researchers.

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The Nature of the Glass Electrode: Learning from Errors

Hasok Chang
University of Cambridge

Klaus Ruthenberg
Coburg University

Abstract

In an attempt to find a model for the electrophysiological behaviour of biological membranes the biochemist Max Cremer in 1906 unexpectedly discovered the principle of the glass electrode for acidity measurements. During the 1930s this device developed into an extraordinary successful apparatus by becoming the central part of pH meters for measuring acidity, with countless worldwide applications in research, quality control and environmental chemistry. Up to the present, pH determination remains the most frequently used type of measurement in the chemical sciences.

Intriguingly, the theoretical understanding of the function of the glass electrode has been subject to intense debates until at least the 1970s. At the heart of the challenge is the fact that the glass electrode can be taken as a reliable indicator of acidity (understood as hydrogen-ion concentration) only to the extent to which it matches the behavior of hydrogen electrodes. Many factors, including acidity itself, interfere with this desired correspondence, generating various types of "errors". The chemical and physical functioning of the glass electrode is complex, and as late as the 1960s there were at least four competing theoretical frameworks for its understanding, with no clear consensus. The glass electrode not only tells a story about the measurement of acidity, but also points to a much more general feature of scientific knowledge: the measurement of a fundamental quantity often relies on material processes that are not only complex but highly contingent.

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Personal Reflections with Research Interviews in the History of the Life Sciences

Soraya De Chadarevian
University Of California, Los Angeles

Abstract

A key difference between life history interviews and research interviews in the history of science is the role of the interviewer. While the oral historian might be trained to follow a script for biographical interviews, research interviews are motivated by the specific questions of the historian, which might not be primarily focused on the biography of the interviewee. Therefore, the research interview can be seen as being both less personal with regards to the personal life history of the interviewee, and more personal with respect to the foregrounding of the specific interests of the interviewer. Soraya de Chadarevian was one of the first historians of science to systematically reflect on this and other differences between life history interviews and research interviews. In this contribution, Soraya de Chadarevian reflects on being interviewed by the historian and philosopher of medicine Lara Keuck and on her approach to research interviews in her historical practice. This contribution highlights how her personal approach has developed and changed over the past three decades, and reflects on the methodological implications that can be distilled from this experience.

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Lost in Translocation: Chinese Sundials in British Collections and Teleological Histories of Science

Zhiyu Chen
University of Cambridge

Abstract

Britain is home to at least forty portable sundials made in China around the eighteenth century. Nearly half of these are associated with well-known collectors of scientific instruments: Lewis Evans (1853–1930), Sir James Caird (1864–1954), and Robert Whipple (1871–1953), whose collections were central to the disciplinary construction of History of Science in the early twentieth century. Ranging widely in material, size, and mechanism, these Chinese sundials offer historians the opportunity to study the cross-cultural mobility of scientific instruments. Yet, previous studies of Chinese sundials, most notably by Joseph Needham and by Eduardo Proverbio, have focused on the resemblance between some Chinese dials and their European counterparts. Rather than illustrating yet again how difficult it is to adjudicate questions of primacy and originality in the history of science, especially in the case of material culture, this paper argues for a more nuanced and inclusive framing of knowledge production, communication, and exchange in the eighteenth and nineteenth centuries. I will demonstrate that these Chinese sundials were the result of both Jesuit influences and artisanal responses to an increasingly connected global landscape. I focus on artisanal communities, who produced these sundials during a period of changing political and cultural balance. This allows me to explore the construction and articulation of concepts like traditions, progress, and exotica, not by the merchants of the East India Company and upper Chinese and European society, but by historical actors who worked within highly localised socio-linguistic communities.

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Testing and toxicity: how pesticides went from the laboratory to use in the field

Sabine Clarke
University of York

Abstract

Why didn't actors in the past realise that DDT was so dangerous? Various explanations have been proposed, often concerned with failures related to the prosecution or communication of scientific research. The assumption is researchers should have thoroughly explored the way that DDT worked. But this is not what historians of technology tell us about invention. This paper takes the insights of Vincenti and others to explore the significance of "testing" as the key activity that preceded the uptake of synthetic insecticides. Testing and research are rather different activities. If research begins with the question, "How does this work?" then testing asks, "Does it work?". Importantly testing is usually also concerned with establishing, "Is it better than X?". The fact that tests are often comparative is key to grasping why new toxins were deemed useful. When BHC was tested as a locust poison the questions asked by researchers did not include "How does BHC achieve its toxic effects?" but rather, "How does BHC compare to arsenic in terms of its efficacy, cheapness and threat to cattle and goats?". BHC was investigated in a very simple way to see if performed better than another substance, without much attention to the underlying mechanism of action. BHC was evaluated as a substitute. Looking carefully at "testing" allows us to see that it was not necessarily ignorance or carelessness or pressure from business that led to the use of toxic chemicals in the past but the protocols of testing that prevailed at the time.

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Science and the Alliance of Progress: The Latin American Scientific Board of the National Academy of Science

Daniele Cozzoli
Pompeu Fabra University

Abstract

At the beginning of his mandate, Kennedy launched the Alliance of Progress, a massive programme to extend US social progress and economic prosperity to Latin America and contrast the spreading of communism in the area. One of the goals of the programme was to establish scientific collaboration with Latin American scientists in the fields of medicine, agriculture, physics, astronomy and desalinization and to strengthen cooperation between US and Latin American laboratories. One year later it was created the LASB (Latin America Scientific Board) at the NAS to help AID (the Agency for International Development) to fulfil the objectives of the Alliance for Progress.

This presentation explores how both US scientists and Washington policymakers shaped the aims and scopes of the Alliance for Progress. Tasks of the NAS went beyond scientific cooperation, as LASB had to provide information on scientific and technological innovation helpful for all the objectives of the programme. This presentation sets out to show that US scientists felt that international cooperation with their Latin American colleagues had become a priority, above all after Kennedy's murder. They helped their Latin American colleagues participate in international ventures, such as the International Biological Programme and tried to persuade AID officials to invest in cooperation in research instead than primary and secondary education programmes. In doing so, this presentation aims to refine the picture of the Alliance of Progress, which is often considered as an economic failure.

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The co-construction of peer review and publication metrics

Alex Csiszar
Harvard University

Abstract

Although scientific journals loomed large in the natural sciences throughout the twentieth century, for most of that time they remained diverse in terms of their formats, editorial practices and languages used. While that diversity never truly disappeared, it did narrow toward the end of the century, particularly as refereeing processes and English became increasingly dominant outside English-speaking countries. This paper will investigate one factor in this narrowing: the rise in the 1960s of the Institute for Scientific Information (ISI) and its suite of bibliographical products, including Current Contents, the Science Citation Index and Journal Citation Reports. Its founder, Eugene Garfield, spent a significant portion of each year traveling the world to market his company's products. Many of these trips involved informal negotiations about including certain publications in ISI's indexes alongside his promoting particular formats and practices as conditions of inclusion. As publishing metrics came to prominence, strongly associated with ISI, these conditions became a source of significant controversy. The extensive archival record of Garfield's trips, and his correspondence with advocates of 'science in developing countries', provide insight into how standards such as 'peer review' were exported beyond the USA and Britain. Among the surprising results of this story is that it may not be quite right to view metrics as a regime of evaluation that arose later to compete with 'traditional editorial peer review'. Rather, in this global perspective, the rise of citation metrics was co-constituted with the notion that refereeing was a minimum standard of scientific journals.

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Astronomy in the Imperial Palace, late Ming and early Qing: instruments and observatories in the 17th century

Christopher Cullen
University of Cambridge

Abstract

It is well known that for more than two thousand years one important element in maintaining the prestige of successive Chinese emperors was the production by imperial astronomical officials of a complex luni-solar calendar, copies of which were distributed to the population. The personal involvement of some Chinese emperors in astronomy is less well known. During a three month period in the Palace Museum, Beijing, in late 2024, I was able to examine a number of astronomical instruments presented to the first two emperors of the Qing dynasty (1644-1911) by Jesuit missionary astronomers. I shall describe the historical context and main features of these instruments, and give a short account of experiments I was able to conduct using a replica of one of them. I shall connect this account with documentary evidence of the existence of other instruments, now lost, which were presented to the last emperor of the Ming dynasty (1368-1644). I was also able to consider evidence of the existence of a palace observatory in addition to the observatory of the imperial Astronomical Bureau, whose 17th-18th century instruments are still in place on a remaining portion of the now demolished city wall of Beijing.

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Let it Rain: on the Complex Relationship between Scientist and Scientific Institution in the Case of 20th Century Romanian Pluviculture Experiments

Daniela Dandes
University of Manchester

Abstract

Artificial rainmaking represented one of the most coveted, yet challenging scientific endeavours humankind has considered to solve in the first half of the 20th century. As it was explained in the 1930 Science article "Patents for Rain-Making Devices", Issue 1859: "IF you could make rain in any desired amount to order, you would undoubtedly become, to-day, the most famous person in the world, beside earning a fabulous fortune." But within the history of pluviculture, this statement does not reflect the unsupportive realities a scientist working within weather control had to endure. This paper brings to light the factualities of early rainmaking efforts as scientific practices through Romania's first official uranium-backed rainfall experiments of scientist Ștefania Mărăcineanu in the 1927-1944 period, in particular relating to the institutional interactions between scientist and scientific organisations such as the Romanian National Meteorology Institute. By presenting the official structures and actions that animated the interplay before, during and after the notorious national and international experiments, the analysis aims to deconstruct larger institutional undercurrents within one of the most understudied loci of intellectual production, Eastern Europe.

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Documenting the 'Cambridge Phenomenon': an archive of technology and development in a university town

Katrina Dean & Peter Rees
University of Cambridge

Abstract

Innovation is everywhere in Cambridge, but where is its archive? The 'Cambridge Phenomenon' describes the development of technological innovation and entrepreneurship in Cambridge. The Cambridge History of Innovation Project (CHIP) is curating a public archive documenting Cambridge's technology innovation from the 1960s to the present. This talk reports on findings from the archival survey conducted by CHIP to find out what historical records have survived as well as the early results of archival collecting and oral history interviews, drawing out some of the research themes and questions supported by the archive.

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Artisans and Pirates

Büşra Dede
Universitat Autònoma de Barcelona

Abstract

The production of scientific knowledge came to include the production of effects, or productive knowledge. Thus, the three areas of knowledge, episteme, praxis, and technē, which had been separate in the Aristotelian scheme, became linked in an entirely new way in the early modern period.

The emergence of a new philosophy - what eventually came to be called "science" - represents a momentous transformation in attitudes toward nature and toward the material world. This transformation involved a whole new set of beliefs about and practices involving nature. One of the most important components of this shift was that in the early modern period the pursuit of natural knowledge became active and began to involve the body; that is, one had to observe, record, and engage bodily with nature. This represents a transitional process in which artisanal epistemology is incorporated into a new discourse about nature.

Based on this understanding, I would like to talk about a class that has an important place in the history of early modern Ottoman science, and that I first introduced in my doctoral thesis, titled "ARTISANS AND PIRATES: Cosmography and Nautical Science in Early Modern Ottoman Mediterranean (1453-1595)": the "Artisanal Pirates". These people are remembered today with the maps and practical instruments they produced with their experiences.

For example, it is inevitable that Piri Reis, one of these people who has a very significant place in the history of early modern Ottoman science, is remembered as both an artisanal pirate and a scientist. Because he left behind The First (1513) and the Second (1528) World Maps and Kitâb-ı Bahriyye (The Book of Navigation, 1520)with the experience he gained over the years. Thanks to this, he is known as the founder of Ottoman cartography. On this occasion, based on the philosophy, I mentioned above, I would like to take part in your program with a presentation in which I talk about the "artisanal pirates," who have a momentous place in the history of early modern Ottoman science, and more specifically Piri Reis and his works.

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Isaac Asimov and Science Education in Twentieth-Century America

Jörg Matthias Determann
Virginia Commonwealth University

Abstracts

Isaac Asimov (1920–92) is best known as a writer of science fiction. However, he also enjoyed a long tenure as associate professor of biochemistry at Boston University. Combining these two roles, he was an early and major advocate for teaching science with science fiction (SF). An author of hard science fiction himself, he argued that SF should have a strong basis in facts of nature. Long before earning his doctorate at Columbia University in 1948, he was already critical of stories that violated the laws of science, for instance, by featuring giant insects. Once he secured a faculty position at Boston University, he contributed regularly to the Journal of Chemical Education, covering such topics as the radioactivity of the human body and protein isomerism. Through hundreds of books and almost innumerable contributions to magazines, he subsequently developed a reputation as a great explainer. In 1968, Asimov also published a seminal article in The Physics Teacher entitled "Try Science Fiction as a Teaching Aid." The following decade saw a boom in the teaching of science fiction across schools and universities, and his works were studied widely for their academic merits. In many reviews, he dissected the science fiction blockbusters of the day, including Star Wars and Close Encounters of the Third Kind. While seeking to separate fact from fiction in these productions, he also bridged the two cultures of the humanities and the sciences. As such, he was a significant proponent of interdisciplinary education.

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Reconfiguring natural philosophy: Willem Jacob ’s Gravesande's narrowing of 'physica'

Steffen Ducheyne
Vrije Universiteit Brussel

Abstract

The Leiden Professor of Astronomy and Mathematics Willem Jacob ’s Gravesande (1688–1742) is commonly known as an important trailblazer in the diffusion of Isaac Newton’s natural philosophy on the Continent. What is less appreciated is that he contributed to an important disciplinary and epistemological reconfiguration within natural philosophy. He did so, I shall argue, by radicalizing some of Newton’s methodological precepts. ’s Gravesande argued that 'physica' should not meddle with cosmogonical questions; that in physics only the properties, and not the metaphysical substances, of bodies are knowable; and that the laws of nature are to conceived of as mere empirical regularities. In doing so, he pleaded for a new and more narrow form of physics. As a result, a clear division of labour between physics, on the one hand, and religion and metaphysics, on the other, was installed at the university of Leiden. Given this division of labor, ’s Gravesande hope was that an end could be put to the heated discussions that the University of Leiden witnessed earlier during the Cartesianismusstreit. In short, his hope was that natural philosophy could be transformed from a disruptive into a stabilizing force. One of my central claims is that Newton’s views and methods, along with their underlying distinctions, seamlessly aligned with both the University of Leiden’s institutional-religious policy, according to which professors and students were urged to separate theology from philosophy, and 's Gravesande's own natural philosophical agenda.

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Langevin and Chilowsky: a conflict of cultures at the genesis of ultrasonics

Francis Duck
University of Bath

Abstract

Constantin Chilowsky's proposal for underwater detection, 'On the possibility of vision under water' reached Paul Langevin in Paris in January 1915. This presentation will explore the interaction between these two men as they developed ultrasonic technologies from scratch, first to detect submarines and then for depth sounding. Langevin, from the back-streets of Montmarte and a product of the new French education system, had an international scientific reputation, contributing seminal work on kinetics, dia-magnetism and relativity, and had already been nominated for a Nobel Prize for his work on gas ionisation. Chilowsky, from a privileged Russian family, deported for distributing pro-Lenin publicity, was an inventor who eventually filed about fifty patents on topics as diverse as audio recording, heavy engine fuel and artificial pearls. His income depended on selling patent rights and licensing his intellectual property. Conversely, Langevin believed that all scientific knowledge should be freely exchanged for the common good. Langevin soon replaced the Chilowski's magnetic diaphragm with a 'singing condenser' as a source of ultrasound, followed by his better-known piezoelectric quartz transducer. While Walter Cady correctly described Langevin in 1946 as the "originator of the science and art of modern ultrasonics", nether the French 'Langevin-Chilowsky Mission' nor the start of British Asdics, nor probably the rapid post-WWI commercial development of ultrasonic echo-sounding, would have been initiated without Chilowsky's personal drive to capitalise on his original proposal. This work forms part of our new biography of Langevin: Bensaude-Vincent B, Duck F. Paul Langevin, physicist and social activist. Springer Nature. 2025.

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The Fair and the Foul: William Thomson's Electrometers and the Challenges of Atmospheric Electricity

Katy Duncan
Royal Institution of Great Britain

Abstract

This talk explores William Thomson's attempts to understand fair weather electricity (FWE) in the mid-nineteenth century. While FWE remained an unsolved problem during Thomson's time, it played a critical role in driving advancements in instrument design and electrical theory.

The first half of the talk examines how Thomson's interest in atmospheric electricity emerged and its connection to his electrometer development. By modelling the Earth as a Leyden jar, Thomson envisioned global FWE monitoring as a path to understanding electrical phenomena. His efforts culminated in 1860, despite numerous setbacks; he called for a worldwide observational network during a Friday Evening Discourse at the Royal Institution in May, and in his entry in Nichol's Cyclopaedia published that year.

The second half of the talk investigates the practical challenges of implementing Thomson's vision across his colonial "electrogeodesy" network. Observers from Nova Scotia to Dodabetta faced significant obstacles, including geographic and climatic variability, as well as the limitations of the instruments themselves. Notwithstanding these struggles, Thomson's electrometer became a standard tool in studying FWE and contributed to developments across a range of electrical sciences.

This case study demonstrates how studies of atmospheric sciences, which transcend traditional laboratory and field divides, reveal unexpected trajectories in the history of physics. Thomson's efforts highlight the material difficulties of studying global phenomena, and the difficulties in universalising methodological approaches.

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Tracing Local Botanical Knowledge: London Horticultural Society collectors in the mid-nineteenth century Americas

Sarah Easterby-Smith
University of St. Andrews

Elena Romero-Passerin
University of Exeter

Abstract

Between 1821 and 1862, the London Horticultural Society (LHS) organized fifteen expeditions of individual plant collectors. Sent across the globe and tasked with bringing back as many specimens and seeds as they could, the collectors relied heavily on the help and cooperation of local populations to carry out their mission. Each collector was also required by the LHS to write a detailed account of their travels. Their journals and letters provide rare insights into how non-British landscapes and peoples were perceived by members of the European labouring classes.

This paper unpicks the accounts written by LHS collectors sent to the Americas and Pacific in the 1820s and 30s, focusing on the experiences of people such as James McRae (c. 1792-1830) and John Forbes (1799-1823). We show how social class and scientific training acted upon the way they perceived both people and plants. We also propose methods for recontextualising their accounts in order to identify the local botanical (or 'Indigenous') knowledge buried within.

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Imaginary futures: science, fans and fictions

Jim Endersby
University of Sussex

Abstract

Various early-twentieth-century publics responded enthusiastically to new ideas about biology (including Mendelian genetics and eugenics, but more often the now, largely forgotten Mutation Theory). Science fiction writers and readers, socialists, feminists and utopians are among those who seized on the amazing new possibility of rapid – potentially controllable – evolution. This paper will explore the idea that the ways in which science escaped from the lab to be appropriated for various (often wildly imaginative) ends might be understood by thinking about interpretation and appropriation as forms of fandom. Studying the adventures of scientific ideas after they escaped the control of their disciplinary (and historical) gatekeepers acknowledges the agency of non-scientists and gives us a richer picture of how science becomes part of public culture. In a period when Science Fiction fans often described themselves as "science fans", and shared their fascination with policy makers and modernist novelists, new biologies provided a range of tools with which to imagine alternative futures.

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Research Grants and Collaboration in UK Science, c.1880-1900

Danielle Farrier
University of St Andrews

Abstract

Collaborative scientific research is most often associated with the advancements of the twentieth century, much attention being placed on the rise in co-authorship as well as the transition to 'Big Science'. Traditionally, histories of nineteenth-century science have focused on 'the man of science', the solo researcher, or even the lone genius. Yet, that image of science ignores that in the final two decades of the nineteenth century around a quarter of funds awarded for research from the Government Grant (managed by the Royal Society of London) went to some form of collaborative research.

This paper takes an analysis of grant recipients to look at the ways that researchers were working together in the final decades of the nineteenth century. Primarily using grant records held by the Royal Society and drawing upon the grant-making practices of the British Association for the Advancement of Science, it will show that records of grant funding, like co-authorship statistics, can be used to discuss the nature and prevalence of scientific collaboration.

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Lacerated Hands and Soaked Clothes: The Somatic Realities of Victorian Field Science

Lena Ferriday
King's College London

Abstract

In 1856, the author George Henry Lewes visited Devon, armed with direction from texts that surveyed the marine ecology of the South-West coast. Yet his first day in Ilfracombe revealed the stark contrast between his textual preparation and the embodied 'realities' of fieldwork. He wrote 'It was quickly forced on my conviction that [to undertake rockpool fieldwork] ... you must make up your mind to lacerated hands, even if you escape bruises, to utter soakings, to unusual gymnastics in wriggling yourself into impossible places.' Throughout his writing, Lewes continued to emphasise that specimens could only be extracted during specific interactions between the researcher's body and their physical surroundings.

By the late nineteenth century, naturalists like Lewes began publishing texts that exposed the somatic requirements of fieldwork. With advancements in transport technology, these texts were no longer intended solely for 'armchair travellers' but for readers eager to imitate the fieldwork practices they read about. This paper situates this period as a critical moment in British naturalism when researchers explicitly emphasised the body's significance in processes of scientific knowledge-making. In doing so, it challenges historiographical narratives that cast Victorian life scientists as striving for disembodied 'objectivity' free from personal influence. Instead, it innovatively demonstrates that engaging with embodied and sensory histories enriches our understanding of the interplay between physical experience and Victorian scientific inquiry.

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Material Afterlives: Matter on the Edge of Life and Death

Troy Fielder
University of Cambridge

Abstact

Beneath our feet, organic and inorganic matter churns: roots break through rocks, isopods gorge on plant matter, bacteria putrefy and water carves. Soil forms at the joint between stone and air. From a planetary perspective, this thin layer of earth seems inert; up close, it reveals itself to be a vibrant assemblage of living and dying beings – a 'Critical Zone' (Latour and Weibel, 2020). Recently, some of the processes and organisms that make up this zone have been isolated, extracted, and put to work in human deathcare practices. First legalised in the US in 2019, human composting, or terramation, converts human remains into a 'soil-like substance' that can be collected by the bereaved or, in some cases, used as high-value organic material for ecological restoration. Tracing the development of this practice, and responding to the call to develop a "view from the inside" (Arènes et al., 2018 p.122) of geo- and biophysical processes, I will unpick what it means for the human body to be entered into a lively collaboration with nonhuman others to produce more-than-human soil. Ultimately, I will explore what happens when flesh is made earth and matter slips between death and life.

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A journey from tropical to frozen territories: the Malaspina & Bustamante expedition between Vava'u and the Falklands Islands (1793-1794)

Marcelo Fabián Figueroa
CONICET, Argentina

Abstract

This paper focuses on exploration history through the relationship between spatial and sanitary dynamics within Alessandro Malaspina and José de Bustamante y Guerra expedition (1789-1794). It pays attention to the navigation performed by the Spanish expedition between Vava'u and Falkland Islands since May 1793 to January 1794, which was based on the survey of chosen territorial spots located on the Pacific and Atlantic basins.

The Spanish expedition produced a corpus of documents -instructions, logbooks, etc- devoted to systematize the relationship between exploration and disease which was framed on the spatial dynamics of transoceanic navigation. This issue, sketched as a consequence of the organization and development of the Spanish travel, linked the navigation between Northern and Southern hemispheres and the disembarking in distant tropical and frozen territories.

As historical anthropology of the social practices has remarked, knowledge production is an outcome of spatial and social strictures which configure knowledge practices. This article is placed within this conceptual framework. By viewing the relationship between preservation of health and discipline through a spatial perspective this article supports the following arguments: firstly, instructions issued by Alessandro Malaspina attempted to codify bodily behavior of the Spanish expedition in order to organize everyday life's crew during offshore and onshore time. Secondly, logbooks contained information about sanitary and discipline strictures which faced the geographical goals depending on the social and ecological features of the territories. Thirdly, sanitary and discipline issues conditioned the itinerary and the rhythm of the geographical inspection.

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The evolution of young men: conceptions of race, age and gender in the Christian evolutionism of Henry Drummond (1851-1897).

Diarmid Finnegan
Queen's University Belfast

Abstract

Henry Drummond (1851-1897) is a familiar name to historians of popular evolutionism in the late Victorian period. Two of his books, Natural Law in the Spiritual World (1883) and The Lowell Lectures on the Ascent of Man (1894), were runaway bestsellers, not only the Anglophone world but also, in translation, well beyond it. Both books have received sustained scholarly treatment (e.g. Dixon (2008), Lightman (2010), Livingstone (2014), Miller (2018), Moore (1985), Scott (2004)). Less attention, however, has been paid to Drummond's other efforts to infuse evolutionary thinking into wider culture, not least among emerging generations of young men. Through carefully staged talks, and through a range of strategic publications, Drummond crafted a message about Christ and evolution for 'young men' facing a post-Darwinian world. This presentation will explore how Drummond's popular evolutionism reconceptualised and propagated Christian ideas of age, gender and race through public talks, periodical articles and pamphlets which had, like his books, a remarkable international reach.

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Monitoring plutonium exposures with political machines in the Cold War

Clara Florensa
IMF-CSIC

Abstract

As Kate Brown states in her Manual for Survival: A Chernobyl Guide to the Future (2019), whole-body counters (WBCs) used to detect internal contamination from gamma-ray emitters were viewed by some scientists as “political machines.” Despite their relative efficiency, they were employed to downplay the radiation exposure of those affected by the Chernobyl disaster, to underdiagnose its effects, and consequently to allocate fewer resources for treatment, remediation, and compensation.

In this paper, I argue that the success of WBCs for gamma emitters as both scientific and political tools encouraged investment in WBCs to detect alpha emitters -such as plutonium- in vivo. Within the context of the so-called "plutonium problem," which was prioritised in the political agendas of nuclear powers in the mid-1960s, these instruments were conceived as "techno-scientific promises" aimed at solving it. The immense scientific and technical challenge they posed turned them into an extremely long-lived yet unfulfilled promise, albeit one that proved very useful.

My case study focuses on the WBC for plutonium that the US gifted to Spain after the Palomares nuclear accident in 1966, which involved four US nuclear bombs and contaminated a large, inhabited area of southern Spain with plutonium. I examine the political use of this machine in various roles: in its public debut, in its unmet function of monitoring the inhabitants of Palomares, in its role within the emerging Spanish nuclear industry, in the management of remediation and compensation in other plutonium-contaminated areas abroad, and in the establishment of international radiological protection standards and protocols.

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The expanding scope of journal editors' requirements

Aileen Fyfe
University of St. Andrews

Abstract

As gatekeepers to publication, the editors of scientific journals have a certain power over researchers who seek to communicate their discoveries and build their careers. Since the mid-twentieth century, editors have provided increasing amounts of guidance, or 'instructions', to would-be authors, and these documents reveal changes over time in editorial attitudes to what authors needed to know or ought to do. Authors were rarely given many details about the criteria for evaluating their manuscripts, although the growing use of peer review in this period can be seen in occasional descriptions of the editorial process. In the 1950s, most sets of instructions focused on the physical preparation of typescripts for submission, ranging from margins and line-spacing, to the presentation of bibliographic references and images, and the use of standardised units and nomenclature. By the 1970s, however, and particularly in the biomedical sciences, editors were beginning to use their positions to regulate the practices of research, as well as authorship. Were experiments being carried out ethically? Was credit allocated fairly between all those who had contributed to team-based research? At the same time, in an increasingly competitive publishing landscape, editors were trying harder to persuade authors to submit to their journal (rather than another)—while also demanding that papers must be submitted 'exclusively'. This is the back-story to the present-day role of journal editors in policing research misconduct; as well as an investigation into the establishment of scholarly norms.

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Between the two waves: re-interpreting the Electrical Association for Women (1924-1986) in international context

Graeme Gooday
University of Leeds

Abstract

The 'Electric Dreams' project led by the IET Archives to mark the centenary of the UK's Electrical Association for Women (EAW) has prompted useful revisions to Pursell's 1999 account, 'Domesticating Modernity', concerning why the EAW was launched in November 1924; what it accomplished, and why it ceased to exist six decades later. As an offshoot of the Women's Engineering Society (founded 1919), the EAW created an unprecedently large female workforce of technical demonstrators and lecturers on electricity; ran an industrially recognised qualification scheme for electro-technical employment; created a substantial literature on home electrification, and a significantly raised electrical consumers' awareness of their legal rights. The EAW's main period of activity, however, fell between the two 'waves' of feminism: while it enabled independent professional standing for many thousands of UK women (First Wave Feminism), by the 1960s-70s the UK's EAW struggled to find a viable gendering for its role as the prerogatives of the domestic sphere were rejected by Second Wave feminism. The recent digitization of the EAW's Electrical Age journal opens up a huge resource (c.10 million words) to help us better understand this complex and shifting gendering of mid-20th Century electrification. Moreover, the Electrical Age's multi-source journalism included extensive international reportage of women's electro-technical activities in global contexts beyond the reach of conventional Euro-American feminist historiography. This paper concludes by analysing the Electrical Age's coverage of Trinidad & Tobago's independently-operating EAW, launched in 1961 and still operative today - illustrative of women's longue durée cross-cultural role in energy management.

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Narrating the field: Labour and the politics of memory in oral histories of science

Ana Carolina Vimieiro Gomes
Federal University of Minas Gerais, Brazil

Rosanna Dent
University of Cambridge

Abstract

Carol Vimiero & Rosanna Dent take up the challenge to historians of science, medicine and technology to make more analytic use of their interviews beyond their documentary function by exploring their potential for deeper understandings of the social, emotional and ethical dimensions of scientific practice. The speakers compare how two particular actors in the field of human genetics in Brazil used their interviews with Dent to control how their careers were memorialised, albeit in very different ways. In 2012 Dent met with the then 83-year-old human geneticist Francisco M. Salzano in Porto Alegre to conduct several oral history interviews, returning the next year to do the same with Salzano's long-standing collaborator, the field technician Girley Simoes. Framed from the outset as archival interviews which Dent would use as part of her doctoral research, these recordings and transcripts, along with several others, were later made public in an online collection with the help of historian Ana Carolina and a team of students at the Universidade Federal do Rio Grande do Sul. Together, Dent and Carolina carefully analyze these interviews for how they reveal what Salzano and Simoes respectively found important to memorialize, how the former, well-rehearsed and experienced in interviewing, often deflected and neutralized polemical aspects, while the latter conspiratorially highlighted the social tensions and invisible labor in field work. They also reflect on Dent's own learning process through the interviews and the different relationships and interactive flows she established with the two interviewees.

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Science and Art in Campi Phlegraei: William Hamilton's Volcanological Study at the Royal Society in the 18th Century

Ana González
Università degli Studi della Campania, Luigi Vanvitelli

Abstract

The integration of art and science during the Early Modern period is exemplified in William Hamilton's Campi Phlegraei, a work that combines volcanology inquiry with artistic representation. Hamilton, a British diplomat stationed in Naples during the latter half of the 18th century, was a member of the Royal Society and, among his many duties, dedicated himself to the study of volcanic activity in the region. His observations of the Vesuvius and its surrounding areas were meticulously documented in letters sent to the Royal Society, providing an invaluable account of volcanic phenomena and their broader implications.

This proposal examines Campi Phlegraei, a specimen from the Westmorland Collection of the Real Academia de Bellas Artes de San Fernando in Madrid, as a paradigm of the relationship between art and science, with particular emphasis on the visual representations commissioned by Hamilton to Pietro Fabris to illustrate his findings. These illustrations not only complemented his scientific descriptions but were also adapted to the artistic demands of the 18th-century aristocratic public. This approach demonstrates how visual art served as a critical tool for circulate scientific knowledge and increase its accessibility during the Enlightenment.

The objectives of this study are to explore the role of interdisciplinary methods in Hamilton's work and to assess the impact of his contributions to the Royal Society's understanding of vulcanology. Furthermore, it seeks to situate Campi Phlegraei within the broader context of 18th-century scientific practices, underscoring the relevance of integrating art and science in the pursuit of knowledge.

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From 'Policy for Science' to 'Science for Policy': The Villach 1985 Conference and the Political Shift on Climate Change

Carolina Granado
Universitat Autònoma de Barcelona (UAB)

Abstract

The 1985 Villach Conference marked a critical turning point in the politicisation of climate change, yet it remains surprisingly underexplored in the historiography of science. This paper examines how this pivotal meeting influenced the science-policy interface during the early stages of international climate governance.

The central argument of my paper is that the Villach Conference provided climate scientists with a significant role in political debates on climate change. Previously, scientists' role in assessments was primarily confined to determining whether knowledge was sufficiently certain to warrant political action. At Villach, however, scientists adopted a more active role, advocating for political action. Moreover, this paper will show that discourses emerging from the conference challenged the conventional linear model—in which scientists merely provide knowledge for policymakers to act upon—by advocating for a more dynamic and collaborative relationship. The conference's recommendations, including stronger collaboration between scientists and policymakers and regular climate assessments, laid the groundwork for key assessment institutions such as the Advisory Group on Greenhouse Gases (1986–1990) and the still-existing Intergovernmental Panel on Climate Change (1986-). By doing so, Villach redefined the interplay between science and politics in global climate governance.

Villach's legacy lies in its dual contribution: reshaping the scientific community's approach to advocacy and positioning climate change as a global political priority. This case study underscores the importance of historicising the early stages of global climate governance and highlights the transformative role of scientific conferences in triggering international policy responses.

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Spectral ecologies: on the afterlives of animal death

Ezra Grosz
University of Cambridge

Abstract

My research considers 'spectral ecologies': unforeseen combinations of flora and fauna that emerge in sites of socioecological violence, yet whose presence points to the possibility of life in capitalist ruin. My MPhil project applies these two temporal threads to the socioecological relations surrounding a disused slaughterhouse in Somerset. I will first investigate how the traces of industrial animal slaughter persist in the matter of contamination and the memory of livestock. I will then examine how urban wildlife make use of the architectures of the slaughterhouse – once intended to facilitate the death and disassembly of livestock – to foster life. To do so, I will use a combination of archival, ethnographic and ethological methods, and an interdisciplinary approach, drawing on the history of science, environmental history, and more-than-human and animal(s') geographies.

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A History of Dimensions from Descartes to SI

Jim Grozier
History of Physics Group

Abstract

Dimensions, in the sense in which the word is used today, first appeared in the work of Descartes, and later Wallis, in the 17th century as qualitative categories for measurements. Two centuries later Fourier used them in a quantitative sense, in work that could be described as the foundation of modern dimensional analysis. Later James Clerk Maxwell, James Thomson and others developed dimensional formulae which appeared to simultaneously embrace both these contrasting views of the nature of dimensions. Percy Bridgman's classic work, published in 1922, summarised the way dimensions were regarded at that time, and also their use in dimensional analysis.

In this talk I will cover the development of dimensions and dimensional analysis during that 300 year period, and will argue that ideas about the nature of dimensions were unduly constrained by over-adherence to "mechanical reductionism" until the advent of the SI definitions in the late 20th century.

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A prosopography of the membership of three natural history societies in the midlands, c. 1870-1911

Ali Hatapçı
Université Bourgogne Europe

Abstract

Local scientific societies marked the urban culture of many British towns in the second half of the nineteenth century. Every town of some standing took pride in the existence and flourishing state of a scientific society, usually studying its natural history and/or archaeology. Since David E. Allen's Naturalist in Britain (1976), a large body of work has been published on these societies. In this secondary literature, however, some regions are represented disproportionately, such as the north of England which emerges as the most studied region. To remedy this imbalance, in this paper I focus on the midlands, a heterogenous region whose demographics and economy were markedly different from the north. In order to study the impact of such regional differences on local scientific societies, I will focus on the membership of three midland societies over a thirty-year period. Through a prosopography of the membership of the natural history societies in Birmingham, Hereford, and North Staffordshire in 1881, 1901, and 1911, this paper aims to contribute to the discussion on the historical geographies of science and professionalisation/amateurisation of science. With the aim of revealing the collective biography of the members of these societies, the publications and other archives of the societies as well as local newspaper reports will be used.

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Travellers In Relativity And Relativism in the fin de siècle

Emily Hayes
Oxford Brookes University

Abstract

Historical narratives argue for an incipient and transdisciplinary 'culture' of Victorian relativity in the late nineteenth century and before the more famous special and general theories of relativity in physics, as well as the cultural relativism seen in anthropology. By diversifying and expanding the spatial and temporal dimensions of histories of relativities from Immanuel Kant onwards, this paper argues that historical geographies of magic lantern technologies, in their practical uses as image projectors and as transporters and makers of metaphors, informed practices of relativity and relativism. Travellers and geographers' work across a range of fields near and far contributed to this phenomenon. In Britain the discourse and emergent academic discipline, and school subject of, geography, which was nurtured by institutional hubs and in popular publications and performances, was sustained by a range of geographical practitioners and travellers active in different sectors and disciplines. Light projecting devices, including magic lanterns, contributed to incipient concepts, images, expressions, performances and material forms of physical and cultural relativities. In reconfiguring and rescaling national and transnational geographies of discursive and disciplinary communities, these devices shaped scientific, artistic and literary spheres across the illusory physical and human abyss, as well as widespread philosophical values. More than has been recognised in histories and philosophes of science, geography and anthropology, there were older, multiple and widespread historical geographies of relativity and relativism pertaining to varying, changing and provisional schemes of nature, spatialities, temporalities and spatio-temporal frames of reference.

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Gustave Loisel, Stanley Flower and the emergence of the "global zoo" around 1900

Oliver Hochadel
IMF-CSIC, Barcelona

Abstract

By 1900 there were over a hundred zoos on all five continents. Probably no one had visited more of these zoos in person than the French embryologist Gustave Loisel (1864-1933) and the long-time director of the Giza Zoo, near Cairo, Stanley S. Flower (1871-1946). Not only were the two zoo reformers the first to come up with long lists and detailed descriptions that claimed to include all zoos world-wide. Both were also convinced that only exchanges between zoos would allow to solve the numerous problems they faced to keep the captive animals alive. Loisel and Flower understood the increasing number of zoos as one large network, long before zoos organized themselves formally on a supranational level (1935).

Focusing on the writings of Loisel and Flower, this paper will describe how the idea of the zoo as "global institution" evolved just before 1914. Loisel was particularly interested in zoos in North and South America, Flower in zoos in British-India. Given the severe crisis of many European zoos around 1900 what role did Loisel and Flower adjudicate to these non-European zoos in the ongoing reform discussions? What role did the globalization of the trade of "exotic" animals in the emergence of the "global zoo" play? The paper will also stress the differences between Loisel (a "one-man-enterprise") and the colonial officer Flower, well integrated into the machinery of the British Empire. The methodological novelty of the paper is to treat zoos within the framework of a global history of science.

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Protector of telescopes: the dome

Gustav Holmberg
History of Science and Ideas, University of Gothenburg

Abstract

This presentation focuses on a part of the material culture of 20th century astronomy: the dome. Telescopes are complex combinations of delicate technologies: optics, electronics, high-precision mechanical constructions &c., often on a large scale. They are exposed to the environment, both when in use and when not in use; strong winds, snow, rainfall, high and low temperatures impact the telescopes. The dome shields these fragile technologies and are at the same time emblematic for the public image of astronomy: showing for non-astronomers that here is an observatory.

The paper uses the construction of a new observatory at Saltsjöbaden, near Stockholm, inaugurated in 1931, as an empirical example of how domes were a central part of the construction of a new observatory. Drawing on rich archival material, it studies how design decisions were made; how the firm of Grubb Parsons interacted with the Stockholm astronomers in constructing the two large (several tonnes) domes shielding the 40 inch reflector and 20/24 inch double refractor; how the firm of Grubb Parsons drew on experiences from constructing large domes for other observatories around the world; how the domes were shipped to and assembled at Saltsjöbaden; how the dome constructions were accommodated with the Royal Swedish Academy of Sciences architect's visions for the new observatory.

Zooming out, the paper also uses the Stockholm case for raising further questions about domes in the history of astronomy, applicable to other observatories.

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The Migration Mystery: Avian Minds and Movement in the Nineteenth Century

Matthew Holmes
Independent Scholar

Abstract

In 1896 the British zoologist Alfred Newton declared that the seasonal migration of birds remained one of the greatest mysteries in the animal kingdom. Scholars have documented how, in the late nineteenth and early twentieth centuries, the use of bird banding and founding of ornithological stations provided new information on the extent and timing of avian movement. However, the role of the mind in migration was also of considerable interest to nineteenth-century naturalists and ornithologists. In this paper, I argue that discussions on migration were shaped by wider scientific debates over the presence of "reason" and "instinct" in animals. Drawing upon contemporary archives, books, and periodicals, I explore how Anglo-American naturalists attempted to explain the ability of birds to time their movements and successfully navigate across great distances through concepts such as natural selection, inherited knowledge, and even animal telepathy.

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Rediscovering the collections of Thomas Pennant in the Natural History Museum's collections.

Stephanie Holt
Natural History Museum & University of Oxford

Abstract

Thomas Pennant (1726-1798) was a Welsh naturalist, travel writer, and antiquarian. To facilitate his work, he was an avid correspondent in, and collector of, natural history. Many of Thomas Pennant's natural history collections were donated to the Natural History Museum between 1911-1918 by the then Earl of Denbigh. In line with Museum policy, these were dispersed between the various relevant departments across earth and life sciences. However, with a collection of over 80 million specimens to care for, the passage of over 100 years, and numerous curators overseeing the specimens, the collection as an entity tied to one person has become harder to trace. As part of the Curious Travellers project, we are reconnecting Pennant's collection digitally through discovering and telling narratives of their collection, history, and modern conservation (both species and specimen). This talk will highlight some of these treasures of the Museum's collections, and, 6 months into this 1-year project, discuss the processes we have been going through to refocus attention on Pennant, his work, his associates, and his collection.

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‘Ghetto journalism’? The *Nature*-*Times* News Service and *The Times* science report

Nick Hopwood
University of Cambridge

Abstract

Historians of journals and of newspapers would benefit from developing more of a conversation about science, not least for the 1960s and 1970s, when competition increased (as signalled by embargoes such as the Ingelfinger rule) and so, it seems, did cooperation. This talk offers a first history of the *Nature*-*Times* News Service, an arrangement by which the British newspaper of record paid Macmillan, owner of the increasingly dominant general science weekly, for contributions to a daily column. Launched in 1967 by *Nature* editor John Maddox to benefit readers of ‘both journals’ and ‘turn science into news’, ‘nothing we have done this year’ gave his *Times* counterpart William Rees-Mogg ‘greater satisfaction’. Until 1983—and then in a swan song from 1987 to 1990—the reports offered future household names their first, exciting experiences of a large readership. But already in 1976 a rival reporter, writing in *Nature*, called this ‘ghetto journalism’ ‘a good illustration of some of the major faults and failings of science writing and attitudes towards it today’. For historians, some seven thousand reports do not just define what became the least newsy of an expanding range of options for science coverage in and beyond dedicated columns and pages. Surviving records of the agreements and disagreements between *The Times* and *Nature*, and among *Times* staff, also illustrate debates over financing, writing, editing and positioning newspaper science, its target audience and that of a general science magazine, during a transformative time for papers and journals alike.

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“The Department of Mainstream Moonbattery”: Epistemic Values and Christian Reconstructionist Science Denialism, 1970s to Present.

Mallory Hrehor
University of Cambridge

Abstract

Many view epistemic values as a crucial aspect of good and fruitful scientific inquiry. These kinds of values, such as consistency and empirical adequacy, are often seen to be the hallmarks of good theories, potentially aiding in some kind of demarcation between “good” or “bad” theories. My aim in this paper is to examine the use of these epistemic values in groups which are often classified as “science denialist”. I will be looking, in particular, at a group of Christian reconstructionists based in the Pacific Northwest in the U.S. from the late 1970’s to the present. This group gets classified as a science denialist group due to its rejection of evolution and climate change, its belief that the earth is less than 6,000 years old, and its anti-mask and anti-vax position during the 2020 pandemic. This group has started its own, quickly expanding, education movement, with over 475 affiliated K-12 schools. By examining the vast output of literature from this group on their beliefs around science, as well as the science curriculum they have published through their own publishing house, it can be shown that this group also highly prioritizes epistemic virtues, like consistency and empirical adequacy. In fact, I will argue that, based on the literature from this group, their extreme emphasis on these epistemic virtues actually contributes to their science denialism, which opens up avenues for questioning whether epistemic virtues, like consistency and empirical adequacy, should be seen as universally beneficial in scientific theories.

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Broken Clocks? Light, the profoundly blind and making chronobiology matter in the late 20th century

Kristin Hussey
Newcastle University

Abstract

Chronobiology emerged as a distinct discipline of the life sciences in the 1950s and 60s – bringing together a group of interdisciplinary researchers who were interested in rhythmic phenomena in living systems. In this period, scientists attempted to uncover the mechanisms behind the 'body clock' – unravelling whether or not daily (circadian) rhythms were internal (endogenous) or a response to environmental stimuli (exogenous). However, the clinical relevance of this work was hazy. What could actually be done to fix a 'broken' body clock? And who exactly would such therapeutic interventions benefit?

This is a paper about profoundly blind people as subjects of (and participants in) rhythms research in the second half of the twentieth century. While today it may seem obvious that the blind would be of interest to chronobiologists, in the late twentieth century, the connection between light and the body clock had not yet been articulated. From the 1940s, researchers became interested in whether blind people might offer a living model for 'biological darkness' – illuminating what happens when the brain does not receive light signals but the subject lives on a 'normal' schedule. In this paper, I will track the evolution of experiments studying rhythmicity in the profoundly blind – culminating in creation of a new diagnosis, Non-24 Sleep Wake Disorder (N24SWD) and the development of the first (and still only) circadian drug, Hetlioz. I will trace how three blind people acted as collaborators to help push research into N24SWD forward and finally put to bed the 'light' controversy for chronobiologists.

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Washed Away: Quality and Colonial Knowledge in 19th Century Cacao Processing

Mika Hyman
University of Cambridge

Abstract

This paper takes a sample of "washed and fermented" 1894 Dominican cacao seeds (beans), from Kew's Economic Botany Collection as a starting point for considering debates around the value, use, and quality of cacao in British imperial markets. Alongside genetic selection, post-harvest processes are key for developing cacao's flavour for use in chocolate production. In the 19th century, colonial administrators and agronomists throughout the British Empire pursued ways to improve the quality and price of their beans, including incorporating washing techniques. Washing has been broadly overlooked in histories of cacao production, yet it had been popular among farming communities, despite the high amounts of labour often involved. British botanists frequently admonished the method, but washed cacao could fetch high prices on the market, raising questions about how seeds were evaluated. In addition to exploring what washing entailed and its role in cacao cultivation alongside agricultural, I will examine how the technique was discussed by different actors. By probing the evolving debates around washing, this essay will explore the changing interactions between indigenous and colonial knowledge while also considering longstanding questions around flavour, aesthetics and valuation.

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Scientific Instruments in the Beijing Palace Museum Collection: Itineraries, Display and Uses

Catherine Jami
CNRS

Abstract

In the early 17th century, European style scientific instruments began to be imported into China, and to be made there. Later in that century, they took on a new significance as diplomatic presents, when King Louis XIV (r. 1643-1715) sent Jesuit experts in mathematics to the Qing court as his envoys to the Kangxi emperor (r. 1662-1722). During the decades that followed, more instruments imported from Europe entered the imperial collection, and some were reproduced in the palace workshops. They were collected and displayed by several generations of Qing emperors.

Kangxi keenly studied European instruments, and demonstrated to his courtiers and officials his mastery of these instruments and the control over heaven and earth that they symbolised. He also had some of them copied and used in the cartographic survey of the Chinese empire that resulted in the Huangyu quanlantu 皇輿全覽圖 (Map [giving] a complete view of imperial territories, 1718).

His grandson, the Qianlong emperor (r. 1736-1795), had the most impressive instruments listed in a catalogue of court ritual objects (Huangchao liqi tushi 皇朝禮器圖式, Illustrated Models of Court Ritual Objects, 1759). He also ordered them to be used in making an updated map of the empire (1766).

Drawing on French and Chinese textual sources, as well as on some of the instruments preserved in the Palace Museum, I shall trace the making, purchase, travel to Beijing, location and use within the Qing court of some of the instruments imported during the Kangxi reign.

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Natural History at the Mount School York:
The Communal Practices of Quaker Girls (1902-1928)

Hong Jiang
Sichuan University

Abstract

The Mount School York, also known as Friends' Girls' School, is a private Quaker school dating back to 1785. This paper focuses on natural history practices of the Mountteenager girls between 1902—the year Winifred Sturge was appointed headmistress—and 1928, when the Natural History Society of the school was dissolved and became a branch of the Scientific Society. I argue that natural history at the school was a communal activity rooted in the Victorian culture of amateur natural history, particularly prevalent among girls and women. It was also a part of the practical and moral education of both Quaker boys and girls. Accordingly, the paper begins with a contextual discussion of how the Victorian culture and Quaker values shaped the Mount girls' practices of natural history in the early twentieth century. Then I focus on the relationship between the making of community and the organized activities of natural history. The Natural History Society, The Mount Magazine, lectures, annual exhibitions and nature excursions all acted as vehicles for community building. In the third section, I move to the girls' personal practices of natural history, taking Amy Wallis as a case study. Their natural history diaries and notes, illustrations, pressed specimens and albums were an essential part of their membership in the Mount School community, and also enriched their own lives after leaving the school. However, the final dissolution of the Natural History Society mirrored the decline of amateur natural history and the permeation of the professionalization of science into school communities.

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Sowing Change: Tracing China's Foxtail Millet Breeding from 1920 Onwards

Pei Jiang
University of Cambridge

Abstract

This research investigates the historical and technological evolution of foxtail millet breeding in China, situating its significance within the broader context of agrarian transformation. This transformation includes power relations that influence the governance and regulation of various forms of life, particularly seeds and crops. One notable strategy in manipulating non-human life involves plant breeders leveraging biotechnologies to control plant metabolism and evolution. Through a comprehensive analysis of archival materials and oral histories, the research traces the development of foxtail millet breeding technologies from the 1920s onwards, with a focus on key innovations such as systematic breeding, mutation breeding, hybridisation, and precision breeding. These technological advancements are examined in relation to agro-industrial shifts and socio-economic dynamics, particularly in northwest China, where government policies have positioned millet as a strategic crop for sustainable agriculture. By exploring the political, ecological, and technological dimensions of breeding practices, the study highlights their transformative impact on rural livelihoods and agricultural systems. The analysis aims to elucidate how advances in breeding technologies and the cultivation of new varieties have emerged as significant drivers of socio-economic change and the transformation of agrarian politics.

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Unpacking Stakeholder Engagement: Insights from the 'Teeth' Exhibition at the Medical Museion

Nanna Luders Kaalund
Medical Museion, University of Copenhagen

Abstract

Stakeholder engagement has become a key focus for museums seeking to foster meaningful dialogue with diverse audiences and collaborators. However, the term “stakeholder” remains conceptually fluid, shaped by its origins in business studies and later adapted across fields like science communication and museum studies. This presentation explores the theoretical and practical dimensions of stakeholder engagement in STEM museum contexts, using the ‘Teeth’ exhibition at the Medical Museion as a case study.

The ‘Teeth’ exhibit, a temporary exhibition addressing the intersections of dental health, culture, and identity, provides an ideal framework for examining how museums engage a broad spectrum of stakeholders. From curators and researchers to local interest groups and public audiences, the project’s collaborative design reflects a deliberate attempt to use different forms engagement processes during the exhibition design phase. Drawing from participant observation and interviews, the research highlights the challenges and opportunities of working with diverse stakeholders before and after an exhibition launch. Particular attention is paid to power dynamics, the evolving nature of stakeholder relationships, and how these factors influence the narrative and interpretative strategies of the exhibition. The presentation concludes with reflections on the broader implications of stakeholder engagement for museums, emphasizing how such approaches can reimagine the museum as a space for knowledge co-production and community-building. Insights from this case study will offer actionable strategies for enhancing stakeholder collaboration and inform future practice within the Medical Museion and beyond.

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Darwin on Ottoman Soil: The Reception and the Early Debates of Darwinian Evolution

Selin Kara
Aksaray University

Abstract

This study investigates the reception and early debates surrounding Darwinian evolution in Ottoman Turkey. Ottoman intellectuals were introduced to the theory of evolution through German materialists in the early 1870s, and the first discussions on Darwin emerged in the late 1870s. Within the scope of the study, Hasan Tahsin's works "Târîh-i Terakkî" (1879) and "Târîh-i Tekvîn Yâhûd Hilkat" (1892) were studied, which discuss evolution from a Darwinian perspective and introduce key concepts such as "natural selection" and "common descent" in Turkish for the first time. It also analyzes Ethem Necdet's "Tekâmül ve Kanunları" (1913), skillfully comparing various evolutionary theories and defending Darwinian evolution. These texts are reviewed within their social context, considering the period's socio-political conditions. By employing internalist and externalist methodologies, the study interprets the transfer and development of scientific knowledge in its historical setting. Ultimately, this research questions the understanding of the term "evolution" among late Ottoman thinkers and explores how Darwinian terminology was utilized and received. The findings highlight the significance of these debates not only for Turkish intellectual history but also for a deeper understanding of the global reception of evolutionary ideas.

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Battle of the Models: Conflicting Visions of the Future Within the Dutch Central Planning Bureau, 1965–1980

Thomas Kayzel
Sciences Po Paris

Abstract

The postwar years witnessed a surge in new modeling and statistical techniques aimed at predicting the future. By the 1960s, with the institutional backing of the United Nations and the Organisation for Economic Co-operation and Development (OECD), these techniques were rapidly adapted to integrate social, cultural, and environmental factors into economic planning models. At the same time, they expanded their scope to address issues on a global scale. As Jenny Andersson has argued, the development of these models represented a radical new approach to imagining the future, fundamentally reshaping how global politics were conceived. This paper examines the application of these planning tools in developing long-term forecasting models within one specific government advisory agency: the Dutch Central Planning Bureau (CPB) during the late 1960s and 1970s. Notably, the CPB developed two distinct types of models, spearheaded by different teams within the institute, which were based on vastly divergent epistemological foundations: a neoclassical growth model based on the work of Robert Solow and a System Dynamics model inspired by the ideas of Jay Forrester. These models, I will argue, did not only compete on epistemological grounds, but also implied different visions on the politics and "the economy," on based on growth, the other on ecology. Although the neoclassical growth model won out in the end, parts of the system dynamics model were incorporated into the growth model. As I will show, this partial resolution of the conflict was only possible with a newly emerging conception of technology, one rooted in information technology.

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Televising Behaviour: The Production Culture of a Zoological Film Unit, 1958–64

Miles Kempton
University of Cambridge

Abstract

The Granada TV–Zoological Society Film Unit produced a steady stream of programmes for ITV in the years following the launch of Britain's first commercial channel. Unlike rival BBC's offering—overwhelmingly bird films narrated by gentlemanly naturalists—Granada focused explicitly on animal behaviour. Its shows were fast paced, using montage to encourage comparison across the animal kingdom, and driven by lively soundtracks. In dedicated facilities at the zoo, an eclectic team of researchers, producers, cinematographers, and editors drawn from the worlds of zoology and broadcasting realised these programmes. In this talk, I use previously unseen archives to piece together the production culture and broadcasting career of this innovative unit. I highlight the roles of hitherto neglected actors and fraught relations between factions with different conceptions of the unit's remit and purpose. A major force in the popular culture of postwar animal behaviour, I examine the unit's varied contributions to academic zoology and the broadcasting of animal life. The unit's production culture exemplifies how deeply the mass media and the sciences of animal behaviour were interwoven during TV's formative decade.

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“Profitable Servants”: The Parable of the Talents in the Hartlib Circle

Beth Kidd
University College London

Abstract

This paper analyses the significance of the Parable of the Talents to the seventeenth-century intellectual movement led by Samuel Hartlib and his circle. References to the parable feature throughout decades of correspondence and publications, yet have received little analysis in the history of science.

In the parable, a master entrusts wealth to his servants before departing on a journey. He rewards those who increase their wealth but reprimands the servant who buries his coin out of fear. During the Middle Ages, these “talents” were interpreted as spiritual gifts—such as the gospels—that could be “multiplied” for God’s glory through preaching. Following the Reformation, the term expanded to include personal abilities that could also generate material wealth. The master’s act of “accounting” also gained relevance in a Millenarian context anticipating God’s reckoning.

Using Boltanski and Thévenot's notion of “Economies of Worth,” this paper argues that the adaptability of the concept of “talent” was well-suited to Hartlib’s evolving reformist agenda. Initially grounded in theological ideals and aspirations for state sponsorship, the movement was eventually forced to support private experimental “projecters” vulnerable to accusations of self-interest.

This paper contributes to ongoing debates about Hartlib's motivations, which scholars have tended to view either through Millenarian ideals or economic interests. More recent scholarship suggests that Hartlib’s network sought to harmonise personal ambition and enrichment with a Christian vision of public good—an alignment foundational to modern science and capitalism. This analysis explores how the parable’s analogical structure offered a cohesive framework for articulating and legitimising this outlook.

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The Invention of the Physicist: Encyclopaedias as a Site for Metascience in 19th Century Britain.

Alex King
University of Leeds

Abstract

William Whewell's coining of the term "scientist" in an 1834 review of Mary Somerville is a widely noted milestone in the emergence of the scientific identity which we now use to define contemporary science and its practitioners. Less discussed is his use of the word "physicist" in the same article.

Whewell's meta-scientific endeavours were not unique, and came during a period in which the direction and purpose of the sciences were commonly debated in correspondence and in print. This paper aims to demonstrate how encyclopaedias and other reference works were often key sites of this meta-scientific discussion in early to mid 19th century Britain, as well as offer a window into contemporary debates about the purpose of scientific sub-disciplines, as well as the boundaries between them. It also aims to demonstrate the centrality of the physical sciences to this debate. I argue that most of the perceived problems that motivated Whewell to coin "scientist" concerned the discipline we would now call physics.

I examine the Penny Cyclopaedia in particular, and the meta-scientific views of its primary author for topics we would now consider physics, the mathematician Augustus De Morgan. I use the Penny Cyclopaedia to highlight the difficulties in identifying a shared disciplinary identity or methodology for practitioners in the physical sciences in Britain before the popularisation of the label "physicist".

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Thailand in the Nuclear Age: An Experimental Laboratory, Knowledge Appropriation, and the 1973 Popular Uprising

Kwanchanok Kittiwanich
University of Manchester

Abstract

This study examines the appropriation and dissemination of nuclear knowledge in Thailand between the 1960s and 1980s. By analysing four key projects led by the Office of Atoms for Peace—rice irradiation, sterile insect techniques for mosquito control, nuclear power development, and the Kra Canal—the study reveals Thailand's role in the production of knowledge within regional and global scientific networks. These efforts addressed food security, national healthcare, and diplomacy, reflecting Thailand's priorities and context. At the regional level, Thailand initiated impactful projects that fostered collaboration across Southeast Asia, particularly in the Kra Canal and nuclear power plant projects. At the global level, key supporters such as the IAEA, USAEC, SEATO, USOM, FAO, and OECD advanced Thailand's pilot studies, aligning with shared objectives to address food shortages and mosquito-borne diseases while promoting a development strategy to counter communism. However, the momentum of these projects was halted by the 1973 uprising, marked by resistance to U.S. and Japanese influence, which provoked widespread criticism of the Office of Atoms for Peace's activities. This disruption demonstrates the dynamic and contested nature of nuclear knowledge in Thailand, shaped by collaboration and resistance. By uncovering lesser-known aspects of Thailand's nuclear efforts, this study broadens the understanding of Cold War science diplomacy, which often focuses on interactions between dominant and peripheral nations. It offers a more nuanced perspective on the circulation of scientific knowledge in the nuclear age, positioning Thailand as an experimental laboratory and a unique actor in global science diplomacy during the Cold War.

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Metrication and mesures usuelles: a survey of the metre's tacit history

Svit Komel
University of Ljubljana

Abstract

The introduction of the metric system in revolutionary France is usually seen as the culmination of the Enlightened "quantifying spirit", replacing local, customary units with a universal system of measurement. To revise this seemingly straightforward march of reason, the presentation examines the work invested in reforming measurement practices by centering on a hitherto overlooked phase in metrication: the "mesures usuelles". Enacted between 1812 and 1840, this reform allowed the use in retail commerce of a parallel set of base units, which followed a non-decimal system of division. These units bore the same name as Parisian pre-metric standards, but their value was calibrated to metric units. Despite representing the longest phase of metrication, historians have dismissed the "mesures" as a setback and "assault on the integrity of the metric system". Yet the "mesures" were crucial for instituting the metric system. Metrication began with surveyors inventorying local measures across France, disqualifying some as obsolete, while promoting others into representative regional units. The "mesures", bearing the names of old units, but with their values rounded to the new metric regime, were intended to make this selective documentation and rectification of "old" measures inconspicuous. Concomitantly, as a synthesis between metric values and non-decimal systems of division, the "mesures" were to facilitate the adoption of metric units—highly counter-intuitive and consequently unpopular among non-experts—in everyday transactions. Through repeated use, the "mesures" would engender a new practical knowledge, allowing metric units to become established as the new usual, habitual measures.

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Scientific Astronomy and Horoscopes in Medieval Japan

Jeffrey Kotyk
Max Planck Institute for the History of Science

Abstract

Horoscopy was transmitted to China starting in the late eighth century from Indian and Indo-Iranian sources. In the following century, horoscopy was brought to Japan, where a lineage of Buddhist monks monopolized the professional practice of astrology. There are only two known horoscopes that survive in Japan from the premodern period. These were produced for individuals born in 1113 and 1268 respectively. The astrologer-monks who drafted them also included data about the motions and positions of each of the planets, as well as the ascending lunar node and lunar apogee, which were treated as pseudo-planets. However, they did all this using a flat-earth cosmology with no reference to terrestrial latitude, which is a major difference from Hellenistic and Indian models. The state calendars and systems of astronomy throughout the centuries also did not officially include either the node or the apogee. Nevertheless, the Japanese calculations for the planets and pseudo-planets were relatively accurate. This paper will discuss how Japanese monks created horoscopes, their accuracy, and the materials they used for making calculations.

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“Machines Without the Certainty of Machinery”: Agency and Computational Labor in the Great Trigonometrical Survey

S. Prashant Kumar
University of Chicago

Abstract

All across central India, in states like Jharkhand, data centers which produce labelled text and image corpuses for artificial intelligence have begun to appear. While seemingly new, these sites bear an uncanny resemblance to colonial-era data gathering projects. In this talk I want to establish links between the present moment and an earlier, underexplored history of rationalised, machine-minding labor. I am interested in the "native observers" employed, during the colonial period, by magnetic and tidal observatories to record data. Under the Raj, surveyors and administrators used the term “native agency” to refer to work performed by Indians. If ‘native’ labour was necessary for operations, it was also suspect, both as far as quality and veracity. Error correction via attempts to theorise the extent and utility of "native agency" was thought to hold the solution. The use of the word agency in official reports of striking, especially since we now think of the word in almost emancipatory terms, as referring to the suppressed capacity for self determination under colonial rule. I argue that the survey's production of data via collective observation has important genealogical links to the present moment. The contradictions inherent in this project of mapping "native agency" resembles the outsourced "humans-in-the-loop" labour schemes which produce data sets for machine learning models.

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The Idea of "Chinese origin of Western Learning" and the Response to Western Meteorology in Late 19th-century China

Xinyue LI
University of Manchester

Abstract

This paper explores how Western knowledge was grafted onto a society with rich intellectual tradition, which, same as modern science, claimed universal. It focuses on the attempt to accommodate knowledge about air into the idea of qi, a core concept in ancient Chinese cosmology, contextualizing in a flourishing intellectual current that asserted the "Chinese origin of Western Learning" during the 1890s.

Historians have argued the autochthony was entirely political rhetoric and ideology. Foreign aggression precipitated China's Self-Strengthening Movement from the mid-19th century. Its reform, learning Western science and technology, intrigued opposition from conservative groups who disdained Western techniques and were concerned about the intellectual and moral degradation caused by the barbarian ideas. Reformers employed ostensible Chinese origins of Western science as a political expedient to persuade the conservative.

The intellectual agitation on how to deal with Western imports remained and came to the fore, especially after the catastrophic defeat to Japan in 1895. Some systematic attempts emerged to demonstrate Western indebtedness to China. They were critiqued by historians as far-fetched. This paper will avoid the retrospective view. By examining how Chinese scholars negotiated the mechanical idea of air with the idea of qi in Chinese cosmology, I argue such practice sheds light on how people with a different cosmology would perceive entirely new and challenging knowledge. It also shows how Chinese scholars adjusted the indigenous intellectual system to accommodate the alien knowledge.

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From Backyard to Integration: The Transforming Role of Farmers and the Circulation of Knowledge in China's Poultry Industry History Since the 1980s

Yixuan Li
The University of Manchester

Abstract

In traditional backyard farming, farmers established close relationships with animals and incorporated poultry husbandry into wider household economies in rural China. These practices, grounded in indigenous knowledge, began to shift in the 1980s with the introduction of modern farming science and technologies through state-led agricultural reforms, training programmes organised by livestock bureaus, and the transnational influence of foreign companies promoting integrated production systems. Farmers encountered new knowledge and farming practices, such as the use of antibiotics as feed additives and breeding techniques to rear the commercial broilers, which were disseminated through training workshops, industry newspapers, and foreign corporate outreach.

Based on the primary sources collected from the local agriculture gazetteers and oral history interviews with the local poultry business entrepreneurs, this paper examines the transformation of farmers' roles and practices during the industrialisation of China's poultry industry, focusing on how traditional backyard farming was reshaped by the introduction of new scientific knowledge, production models, policy changes, and global influences after the domestic economic reform and opening up. By looking at the changing role of chicken caretakers during the development of intensive animal farming, this study highlights the interplay between local and global contexts and the multifaceted processes of knowledge circulation, exchange, and adaptation in rural China.

Ultimately, this research analyses how farmers have participated in the integrated broiler industry and negotiated the transformation of rural livelihoods, contributing to broader discussions on the role of traditional knowledge in the history of contemporary agricultural modernisation.

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Local Seed Knowledge in Foreign Agricultural Aid: The Stories of Field Technicians

Yi-Tang Lin
University of Zurich

Abstract

Based on archival materials and oral stories from Sierra Leone, this essay emphasizes the critical tacit knowledge contributed by local technicians to the efforts of foreign aid agencies in the country. One prominent figure in this context is Mr. Alie Kamara, the son of a local farmer, who began his career as a laborer at the renowned Rokupr Rice Research Station. Over time, he advanced to the role of field technician, collaborating with Dr. I.C. Mahapatra, a rice scientist with the IITA/FAO Rice Project, during the 1970s and 1980s. Kamara acted as the custodian of rice seeds introduced from Malaysia, memorizing their biological characteristics and overseeing the identification of seeds for agronomic trials. Following the Civil War, when numerous Non-Governmental Organizations (NGOs) re-entered Sierra Leone, Kamara's extensive knowledge of seeds positioned him as the staff in charge in Rokupr, responsible for providing seeds to these organizations. His expertise, like that of many others, exemplifies the indispensable local knowledge upon which international agricultural aid initiatives depended.

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An Alternative Perspective on Mo Zi's Scientific Argumentations

Po-Hung Liu
National Chin-Yi University of Technology, Taiwan

Abstract

Mo Zi (墨子, c. 476–376 BCE), originally trained as a carpenter, was an influential philosopher during China's pre-Qin period. Mohism, the school of thought he founded, was one of the most prominent intellectual traditions of the time, rivaling Confucianism. However, it lost influence after the Han Dynasty due to political factors. The Mozi, an anthology attributed to Mo Zi and his followers, was likely compiled over time by multiple authors. While it received little philosophical attention until the Qing Dynasty (1644–1912), the Mozi stands out for its interdisciplinary content, addressing not only philosophy but also science, technology, engineering, and mathematics, particularly in its Canon section (e.g., discussions of space and time). Interpretations of these texts, however, remain inconsistent and divergent, largely due to significant textual corruption and fragmentation. For instance, the definition of a straight line in the Mozi—requiring three points to be aligned—is both ambiguous and more convoluted than Euclid's definition in Elements. Scholars have attempted to resolve such issues using a range of approaches, including literal interpretations, ancient Chinese mathematics (e.g., Liu Hui's The Sea Island Mathematical Manual), and modern Western mathematical frameworks (e.g., Hilbert's axioms). In this talk, I will introduce key scientific concepts from the Mozi and propose an alternative interpretation of these contentious arguments. Specifically, I will explore the possibility of understanding these ideas from the technical perspective of craftsmen, offering a synthesis of diverse viewpoints.

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Distributing Electric Dreams: the digitisation of the Electrical Age (for Women)

Anne Locker & Asha Gage
IET Archives

Abstract

2024 marked the centenary of the foundation of the Electrical Association for Women, one of the first consumer organisations in the UK and a leading voice for women in the new technology of domestic electricity. In 1926, it began publishing its journal, The Electrical Age (first published as The Electrical Age for Women), which ran until the organisation folded in 1986. This journal contains a wealth of consumer information, advertisements, social commentary and technical coverage during a period of dramatic social and technical change.

As part of the EAW's centenary celebration, the IET Archives digitised the full run of the Electrical Age from 1926-1986. These are now available as downloadable PDFs on the IET Archives website. This paper looks at the process of digitising the journal, the challenges of making it fully accessible online and some of the research projects that have already used this rich resource on subjects including, women as campaigners and organisers, the interaction between industry and the consumer, women's careers and the history of architecture and design.

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Constructing Cultural Identity by Architecture. Japan at the World's Fairs

Beate Löffler
TU Dortmund University

Abstract

Initially, Japan came to participate in the Great London Exposition of 1862 involuntarily due to a collection of objects obtained and submitted by Rutherford Alcock, the current British consul in Japan. Alcock aimed at educating the British in tastefully applied arts and probably at impressing the audience with his exotic findings. This representation of Japanese culture, however, dismayed the members of a diplomatic mission led by Takenouchi Yasunori, visiting London and the fair, for its lack of sophistication.

Starting with Paris in 1867, the following decades saw a constant and mostly consciously and clearly staged presence of the modernising far-east Asian country. Part of this presence was architectural representations of Japaneseness, buildings that not only aimed to appeal to the audience but also reflected the Japanese search for a modern cultural identity.

This process resulted not only in the emergence of institutions such as today's Tokyo National Museum. It also involved the cross-cultural negotiation of epistemic systems of art and architecture and, not least, resulted in the publication of Histoire de l'art du Japon in Paris in 1900, manifesting Japan's claim to artistic equality.

My paper sketches Japan's architectural contributions at the World's Fairs as part of a negotiation of national culture in the global power struggle based on claims of epistemic equality or even superiority. It shows the ambivalent success in making Japan seen and discussed as an artistically relevant and independent nation, while at the same time promoting cultural exceptionalism and nationalism.

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Journal Impact Factor and Eugene Garfield's Algorithmic Historiography

Lai Ma
University College Dublin

Abstract

Journal Impact Factor (JIF) plays a vital role in the history of science since its applications in the 1970s. The JIF has been a gold standard for valuing and evaluating scientific knowledge and essentially an arbitrator of knowledge making. Through reward systems and funding programmes, the JIF can be a deciding factor as to what kinds of knowledge deserve exploring and investing, or otherwise sidelined or deemed worthless. The JIF is sometimes declared a necessity and others a nuisance. Its uses have been both celebrated and condemned. But Eugene Garfield, the inventor of JIF, did not intend the metric to change the course of history of science; rather, it was envisioned as a tool for algorithmic historiography. Influenced by J. D. Bernal's The Social Function of Science (1939), Garfield had great hopes that historians of science would utilize his invention: Science Citation Index (SCI), which was initially compiled to tackle the information crisis brought by the proliferation of scientific publications after the Second World War, then further propelled by the launch of Sputnik in the Cold War period. This paper traces the invention of JIF: on the one hand, how and why it was invented during a time when the communication of scientific information was a national priority in the United States, and on the other hand, Eugene Garfield's vision for algorithmic historiography.

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The abolition of the temporary computers at Greenwich Observatory, 1936

Lee T. Macdonald
History of Science Museum, University of Oxford

Abstract

Since George Airy's time as Astronomer Royal in the mid-nineteenth century, the Royal Observatory at Greenwich had relied on a substantial number of junior staff, known as 'temporary' or 'supernumerary' computers, to carry out the routine calculations required to extract usable scientific results from raw astronomical data. The computers generally started at Greenwich as teenage boys. They were paid very low wages and most of them had to leave the observatory when they reached the age of 21. After 1900, computers found it increasingly difficult to secure other jobs after leaving. Working at the Royal Observatory became less attractive to bright local boys, which made it more difficult for the Astronomers Royal to recruit good candidates.

Harold Spencer Jones changed all this after he became Astronomer Royal in 1933. By 1936 he had succeeded in abolishing practically all the temporary computer positions, and had persuaded the Admiralty to substitute these with permanent posts. Some posts were occupied by women, in stark contrast to the all-male body of staff working under George Airy. Yet this did not lead to better career prospects for women at the Royal Observatory. Moreover, up to and even after the Second World War, the permanent positions were often occupied by school-leavers, male and female. It is possible to argue that the tradition of employing young 'computers' was still alive at the Royal Observatory in the mid-twentieth century.

Newnham's Legacies of Eugenics: The Role of Newnham College in the Production and Dissemination of Eugenics

Jules Macome
University of Cambridge

Abstract

This paper critically examines Newnham's role in the production and promotion of eugenics. In the late 19th and early 20th century, Newnham College played a significant role in advancing heredity and genetics. William Bateson, the person who coined the term 'genetics' and who most adamantly promoted Mendelian inheritance, collaborated extensively with Newnham members. Given that women did not typically receive funding at the time, they seized the opportunity presented by Bateson to carry out scientific research on an emerging (and underfunded) scientific field. Edith Rebecca Saunders was Bateson's lifelong collaborator. Their Mendelian views backed the idea of "heredity as destiny": genetic material determines the phenotype (including behavior) of the organism. Mendelism was used to ground and justify eugenic beliefs about improving society by managing reproduction. Bateson and Saunders created collaborative spaces like "The Pack" and "The Marshall Ward Society", to discuss heredity, genetics, and presumably, eugenics. They founded the Genetical Society in 1919, of which many Newnhamites became early members. These scientific groups overlapped with the Eugenics Education Society: many at the time were member of both (e.g., Saunders, Arthur Balfour, and R. A. Fisher), and the ideas developed in each were likely considered scientifically compatible and synergetic. This paper explores how Newnham's feminist agenda advanced women in science while simultaneously supporting problematic eugenicist beliefs. The contribution of this work is highlighting the tension between progress in women's education and complicity in eugenicist discourse, offering a nuanced reassessment of Newnham's legacy which contrasts with narratives that praise women's role in the history of science (e.g., Richmond 2006).

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Exploring the history of disability with my students

Anna Maerker
King's College, London

Abstract

In this talk I reflect on my experiences developing new teaching in the history of disability as a recently disabled historian of STM. Disability history and disability studies have strong roots in disability activism, but whether the teaching of disability history itself constitutes activism remains an open question, which different practitioners of "DisHist" answer in different ways, ranging from strong emphases on historical writing as a continuation of political activism to more distanced approaches focusing on disability as an intellectually stimulating historiographical concept. For students this is a timely subject as they are generally more open to self-identifying as disabled than past generations, and are keen to acquire analytical concepts and vocabularies to articulate their experiences and to situate them within larger historical and political contexts. In particular, I want to reflect on what the history of STM can contribute to the teaching of disability history, and vice-versa, what historians with a background in HPS/STS can learn from experienced practitioners of disability history. Examples include, for instance, the specific ways in which HPS/STS has engaged with material culture and users' perspectives on technologies, the parallels and intersections of decolonization and the introduction of disability as a key analytical category, debates about the benefits and problems of using medical, legal, and activists' definitions of "disability", and the challenges of community-led research. The talk will use examples from teaching at the UG and PG level, from a collaborative research project with UG students, and a collaborative workshop with UK colleagues.

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‘Drener Panchali’ and ‘Bapre ki Bhayanak Asvine Jhor’: Storm-Science, Improvement Infrastructures, and Crisis

Varun Mallik
University of Cambridge

Abstract

This paper analyses a series of cheap Bengali battala prints produced between the 1860s and 70s to think closely about the making of crises in the colonial context. Following the coining of the term “cyclone” by the colonial scientist Henry Piddington in 1848, the professionalization and institutionalization of the discipline of meteorology spearheaded the production of a range of literatures on storms and cyclones in the Bay of Bengal. By taking the case of two pamphlets—“The Song of the Drain” (1874) and “Oh God! What a Terrifying Storm” (1864), this paper looks at how the production of a useful and expert knowledge of storm-science that aimed to facilitate commercialization in the wider Indian Ocean arena remade cyclones as moments of crisis—both environmental and social. This it does through, first, the creation of improvement infrastructures of Storm Water Drainage systems that were implemented throughout the city of Calcutta, and second, through enumeration that put a value of risk and damage to this crisis. Thinking about empiricism and improvement not only helps us to see new aspects of the relationship between science and capitalism, but also how vernacular histories of climate and environment were shaped by it.

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Reviving and Repurposing: Surgical Innovation in Early Modern Italy

Silvia Marchiori
University of Cambridge

Abstract

In the early modern age, surgical practitioners brought forward technological innovation in unexpected ways, challenging notions of technological determinism and linear progress. Embedded in the humanistic culture of the time, erudite physicians like Giovanni Andrea Dalla Croce and Girolamo Fabrici d'Acquapendente transformed surgical practice by looking back to ancient texts. Before the large-scale archaeological excavations of the eighteenth and nineteenth centuries, reading ancient sources was often the only means to recover the material culture of the past, and the treatises by Celsus, Galen, and Albucasis provided detailed textual descriptions of the surgical tools in use in ancient Rome and Islamicate Iberia. The encounter with these texts turned erudite physicians into practice-oriented instrument makers, prompting them to resort to philological and exegetical practices to solve the interpretative challenges posed by textual knowledge. At the same time, Dalla Croce and Fabrici were active in the economically vibrant contexts of sixteenth-century Venice and Padua, where they lived and worked side by side with artisans. To overcome the hermeneutical difficulties of ancient texts, these physicians borrowed and translated the techniques and technologies used in artisanal workshops, repurposing the drills of masons and carpenters, the needles of tailors and cobblers, and the knots of luthiers. Focusing on the surgical treatises by Dalla Croce and Fabrici, this paper will provide a new definition of the 'material Renaissance', while showing that surgical inventions emerged away from ivory towers in the small urban environments of European cities.

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Lessons from the ‘success of mediocrity’: Henry Dircks and the status of the inventor in mid-nineteenth-century Britain

Ben Marsden
University of Aberdeen

Abstract

Henry Dircks is best known to historians of science as the co-inventor of the ‘Pepper’s Ghost’ theatrical illusion, or, as he called it, the Dircksian Phantasmagoria, and as the author of the controversial Perpetuum Mobile (1861), a collection which classified and documented perpetual motion schemes and opinions about the subject, both pro and con. This paper attempts sheds new light on a shadowy figure on the edge of numerous specialist groups but central to none. It investigates Dircks’s background in Liverpool’s industrial culture, his plans to re-connect mechanics’ institutes with literary and philosophical societies, his practice as a patent agent and legal commentator, his exploratory histories of invention and in inventors, and his quasi-autobiographical ‘photographic’ novel Joseph Anstey which promised, following the direction of Henry Brougham, valuable lessons from the ‘success of mediocrity’. It was panned by literary critics as an ‘utter failure’ and yet Dircks remains of interest. As a marginal figure and a serial bankrupt, desperate to enter the Fellowship of the Royal Society of London, Dircks illustrates the shifting boundaries of inventive culture in mid-nineteenth century Britain.

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“Continued display of State activity”: The Discovery Investigations and Inter-War State Science in the British Antarctic

Daniella McCahey
Texas Tech University

Abstract

In 1908, the British Empire began the process of formally claiming what would eventually be the majority of the Antarctic continent, as well as its surrounding waters. This watery territory, some of the world’s richest whaling and sealing grounds, was a source of enormous resources. In response to great attention paid to these waters by whalers and sealers around the world, the Colonial Office began managing the marine mammal population through licenses and taxes. But just like in their imperial settings elsewhere, the Colonial Office used science as both a way to better manage the territory and to justify their sovereignty claims over the region. In 1918, the Colonial Office launched the Discovery Investigations, based on the sub-Antarctic island of South Georgia, a series of marine science investigations meant to better maintain the Southern Ocean whale population. These sea and shore-based investigations lasted until the Second World War, eventually publishing 38 volumes of research on the Southern Ocean. In 1955, during a period when both Chile and Argentina contested the sovereignty of the Falkland Islands Dependencies, Great Britain filed a case with the International Court of Justice in which it used its history of funding marine science and whaling regulations to argue that by maintaining this fishery, it “actively maintained its titles,” and therefore deserved sovereignty. This paper will use the Discovery Investigations to demonstrate the linkage between science and the state in Antarctic geographies, arguing that the primary role of these marine scientists was to improve the status of the British Empire in the Antarctic, through developing stronger knowledge of the hydrography and the marine life and using that knowledge to legitimize their occupation of the Southern Ocean.

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Icepicks, Brains, and Nobel Prizes

Lukas J. Meier
Harvard University

Abstract

The idea of physically interfering with the brain to relieve psychiatric symptoms was first suggested in the 1880s by Swiss psychiatrist Gottlieb Burckhardt and subsequently transformed into the medical procedure nowadays known as 'lobotomy' by Portuguese Neurologist Egas Moniz. It involved drilling a hole in the skull, inserting a thin metal rod into the cerebral tissue and moving the sharp object around to destroy the white matter fibres of the frontal lobe. In 1949, Moniz received the Nobel Prize in medicine for pioneering the procedure.

Psychosurgery has been a controversial form of treatment ever since its inception, inducing drastic declines in patients' intellectual capabilities, reductions in their emotional ranges, and often even reversions to an infantile personality. A substantial fraction of patients also died from the procedure.

The Karolinska Institute was at the centre of these developments in several respects. Not only did its Nobel Assembly, by awarding Moniz the Nobel Prize, lend decisive trustworthiness to a procedure that several countries began to abandon only months later; it was also one of the main medical institutions carrying out this type of surgery. On the basis of substantial research in the university's archives in Stockholm, this talk will retrace the development of psychosurgery, taking into account the fates of individual patients, and unearthing sources that shed light on the Nobel Assembly's reasoning behind awarding the prize for a procedure that was highly controversial even at the time.

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Shared Illness, Shared Memory: How epidemics shaped domestic archives in colonial Yucatán

Olin Moctezuma-Burns
University of Cambridge

Abstract

Devastating epidemics regularly swept through colonial Yucatán, posing an existential threat to the diverse population of the peninsula—including Maya communities, enslaved Africans, and European settlers. These outbreaks were exacerbated by the disruption of Maya medical practices amid the memoricide and environmental destruction that resulted from the Spanish invasion. Yet, in the face of these crises, people across social and cultural divides came together to address them through domestic remedies, catalysing the conservation, exchange, and adaptation of recipes. Epidemics transformed domestic spaces into dynamic sites of medical pluralism and recipes became threads that connected diseased households, fostering collaboration and community resilience. This talk draws on Yucatec recipe books written between the seventeenth and nineteenth centuries, which blend Maya, European, and African traditions, to examine epidemic outbreaks as pivotal moments in the development of domestic archives. These manuscripts were preserved in secret for centuries as treasured family heirlooms to save them from destruction at the hands of the Spanish, but they were also shared and transcribed in moments of need, illuminating the entangled histories of illness, archiving, and resistance in the face of colonial violence. Tracing the interconnections between recipe books in Yucatec Maya and Spanish, this talk shows how recipes emerged not only as pragmatic responses to disease but also as acts of memory-keeping, transforming the experience of illness into a generative force to bridge the ruptures of colonialism.

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Androgyny and Genius: Havelock Ellis' Vision of Female Intellectuals

Victoria Molinari
IMF-CSIC

Abstract

The 18th century witnessed the emergence of Romantic Genius, a concept deeply intertwined with ideas of gender. Usually, this did not include the belief that women could be geniuses but that men of genius possessed both male and female mental characteristics. This equilibrium, combining 'masculine' creativity with 'feminine' conservation, was seen as vital for producing ideas that could advance civilisation while maintaining social stability.

Scholars, such as M. Nordau, backed the idea of the effeminate man of genius: fragile constitutions, feminine voices, and even marked beauty. Furthermore, most specialists, in line with C. Lombroso, argued that geniuses were celibate or even asexual, drawing a clear line between intellectual and moral characteristics and sexuality. While femininity was considered a necessary component of geniality, it was only acceptable when embodied by men: "There are no women of genius; the women of genius are men" (Lombroso, 1891). Havelock Ellis examined the possibility of female genius in his A Study of British Genius (1926) and took a more nuanced approach to this issue considering the impact of societal constraints. He attributed the rarity of female genius to early marriage and domestic obligations instead of biological dispositions. This presentation explores ideas on female genius at the end of the 19th century, focusing on their intersections with androgyny and asexuality. By examining Ellis's views on marriage and gender roles, I argue that these debates challenged traditional conceptions of gender, intellectual achievement, and societal progress.

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Establishing Cosmology, 1630-1731

Adam Mosley
Swansea University

Abstract

Until very recently, historians of the physical sciences have either treated 'cosmology' as a transhistorical category, or supposed that it was already present in antiquity. Either way, they have avoided accounting for its emergence as a distinct branch of natural philosophical or scientific enquiry. In this paper I will build on work carried out since 2019 which has traced the use of ‘cosmology’ as an epistemic and disciplinary category to German and Danish universities of the early seventeenth century. How, I ask, was the idea of ‘cosmology’ articulated by scholars such as Johann Heinrich Alsted, in his Encyclopaedia of 1630, transmitted to and transformed by two later authors, Nehemiah Grew (in the Cosmologia Sacra of 1701) and Christian Wolff (in the Cosmologia Generalis of 1731)? All three works, I shall argue, point to the need for a new history of cosmology, liberated from the traditional preoccupations of historians of astronomy.

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The Dark Sides of the Sun: Early 19th Century Sunspot Observations and the Nature of the Central Star

Janna K. Mueller
University of Cambridge

Abstract

In 1816, the "year without summer," global temperatures plunged, leading to failed harvests and food shortages, a series of events that is now attributed to the 1815 eruption of the volcano Mount Tambora. This episode has therefore primarily been studied within histories of meteorology and earth sciences. In 1816, there was, however, another possible explanation investigated. Some English and German astronomers sought the cause for low temperatures in the heavens: observing a slightly higher number of sunspots during the summer of 1816, they speculated about a potential link between solar activity and Earth's cooling.

This paper will examine sunspot observations and theories on their impact on terrestrial weather during that period. While sunspots had been observed for centuries, their interpretation varied from strange bodies orbiting the sun or swimming on its surface to being actual physical features of the sun itself. Analysing these later interpretations of the early 19th century reveals not only how astronomers of that time envisioned the Sun's structure, composition, and development, but also provide a case study to their understandings of the mechanisms of its heat and light and the solar influence on terrestrial phenomena. Furthermore, it highlights how pre-spectroscopic astronomy, traditionally focused on positional studies and celestial mechanics, began to adopt a more 'physical' approach, delving into the nature of celestial bodies as well as applying contemporary physical knowledge to the heavens.

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Fighting the Tyranny of Heredity: WOmen, Euthenics, and the Making of Better Enviornments

David Munns
CUNY

Abstract

One famed answer to the eternal question, are we a product of our genes or our environments? was eugenics. But another was euthenics, my subject. Euthenics was forged by Ellen Swallow Richards, and the group of Progressive Era women reformers who followed her. What was "euthenics"? It was the environmental complement to heredity, seeking to improve people through environmental agency and change. This talk thus addresses three major themes. First, the science and social projects led by women in the early twentieth century. The talk situates Richards euthenical project in the contexts of American science and progressive politics. Second, showing that the conceptualization of the environment was a vital part of the making of heredity in general, but eugenics in particular. The talk tracks euthenics' career over three decades its creation to its dismissal at the hands of Charles Davenport's Eugenics Records Office to its bricks-and-song institutionalization at Vassar College (where -- a super twist -- in the 1940s, Benjamin Spock encountered it so consequentially). Third, demonstrating that the silencing of environmental agency has been a feature of the rise of twentieth century biology, and outlining its consequences. Fighting the Tyranny of Heredity concludes that because ideas of heredity never traveled alone but were always shaped by views about environments the history of euthenics is an important contribution as our own era is once more stressing tailored medicine to individualized genetics over environmental improvements.

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“Maximum Security Quarantine”: Livestock disease, biosecurity and animal breeding in Aotearoa New Zealand, 1960–1990

Dmitriy Myelnikov
University of Cambridge

Abstract

This paper investigates farm animal quarantines and the knowledge recruited and produced in these liminal spaces to understand animal disease and genetics. I use the example of Matiu/Somes Island in Wellington Harbour, Aotearoa New Zealand, now a Department of Conservation scientific reserve whose ownership was restored to the Māori collective Taranaki Whānui ki te Upoko o te Ika in 2009. Through its history, however, the island served as a leper colony, a prisoner of war camp, and a livestock quarantine. In the 1970s and 80s, a “maximum security” station operated on Matiu/Somes Island for the importation of foreign livestock breeds. Using advanced technologies, from “hygiene lock” access to audio-recording notes to avoid moving paper, the station enacted the national regime of biosecurity, as it invoked the penal imagery and anxieties about migration also found in human quarantines.

How did veterinarians, breeders, and Ministry of Agriculture officials envision, design, and use quarantine facilities, and thereby balance the protection of domestic stock with the demand for new ‘exotic breeds’ from Continental Europe in the 1970s? Drawing on histories of reproduction, quarantines, and agriculture, this paper will focus on cattle to examine the tensions between the welfare of individual animals and the state of the national herd as they played out in animal disease control. I will also investigate how new reproductive technologies of embryo transfer and freezing changed ideas about disease transmission, making the state-of-the-art facilities obsolete in the 1980s.

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Where do we fit? Some reflections on practice and project design

Dmitriy Myelnikov
University of Cambridge

Abstract

What is special about historical research interviews in history of science and medicine, and how do they compare to the work of oral historians and social scientists? Dmitri Myelniko reflects in his contribution on three of his own interview projects, each taking a distinct shape. These were (1) interviewing individual scientists involved in early transgenic research; (2) a witness seminar on the cloning of Dolly the sheep, with published edited transcript; (3) interviews with animal technicians on the controversial topic of animal research and the reform of relevant UK regulations in the 1980s. Myelnikov addresses methodological and pragmatic aspects of these projects, especially concerns to do with anonymity and recovering memories of practice, as well as institutional challenges for placing historical research interviews among the more familiar and structured projects in the social sciences, notably around questions of anonymity. He suggests that we have most to learn from oral historians in thinking about research ethics and empowering the interviewee to decide what they want to happen to the recording and transcript, and whether and how they want to claim credit. At the same time, Myelnikov argues, we can make different choices when it comes to designing, interpreting and publishing our interviews.

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Historical geographies of British Rain: Observers, Averages, Maps

Simon Naylor
University of Glasgow

Abstract

This paper examines efforts in the late nineteenth and early twentieth centuries to better understand British rain. Meteorologists had attempted to investigate some of these topics prior to the 1850s, but observation points remained few and inadequately distributed. This was especially problematic for an atmospheric phenomenon that seemed so local; where rainfall totals varied significantly over short distances. The means to gain a better understanding of British rain was a national rainfall observatory network. It was established by George Symons in the 1860s and became known as the British Rainfall Organisation (BRO). It relied almost exclusively on volunteer labour – on individuals being willing to purchase a rain gauge, situate it in a suitable location (usually in domestic gardens), monitor it on a regular basis (to be fitted in around family and working lives) and supply the returns to Symons in London on an annual basis. A great deal of labour went into the management of this volunteer network. Organisers set out to promote uniformity of approach and accuracy of measurement across the network, while defining and mitigating against errors. What was a poor or faulty rainfall reading and how could it be known and managed? One crucial response was the pursuit of the statistical mean as an indicator of trustworthiness, while maps of rainfall averages were promoted as visual and geographical expressions of trust in numbers.

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The Making of the ‘Modern Thai Mind’: Mental Hygiene, Child Guidance, Social Psychiatry, and Revolution

Krittapak Ngamvaseenont
University of Manchester

Abstract

This paper examines the role and impact of mental hygiene and social psychiatry in a crucial turn of Thai psychiatry, as it began to shift its focus from the asylum to the emerging contemporary Thai society during the early Cold War period. In 1929, Luang Vichien Patayakom became the first Thai psychiatrist to receive training in the West, supported by the Rockefeller Foundation. The foundation sent him to study under Adolf Meyer and other pioneers of the mental hygiene movement in America. Patayakom began promoting mental hygiene following the 1932 Siamese Revolution. His ideas emphasised the implications of mental hygiene for shaping the ideal type of citizen, fostering social conformity, and maintaining social order. In the early 1940s, a second generation of Thai psychiatrists trained under Meyer and his pupils. Among them was Phon Sangsingkeo, who later became the president of the WFMH. Sangsingkeo’s ideas combined mental hygiene, child guidance, Meyerian psychiatry, psychoanalysis, and transcultural psychiatry. His approach focused on interpersonal relations and the negative effects of industrialisation and urbanisation on mental health, especially in rural Thai society. In the late 1950s, another political revolution in Thailand, combined with American development projects as part of an anti-communist strategy, led to rapid social and economic changes in Thailand. These changes caused Sangsingkeo’s ideas to gain prominence. His aim was to configure and organise the Thai mind within the context of rapid modernisation. His approach on the social determinants of mental illness dominated the development of Thai psychiatry throughout the 1960s.

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From Refugee Scholars to Paralympic Games: Ludwig Guttmann's (1899-1980) entangled stories

Agustí Nieto-Galan
Universitat Autònoma de Barcelona

Abstract

In 1939, Jewish neurologist Ludwig Guttmann (1899-1980) quitted Breslau to escape from Nazi prosecution. He manged to reach Britain and benefited from the support of the Society for the Protection of Science and Learning (SPSL), which had been founded in 1933 by a group of distinguished British academics as a reaction against the dismissal of thousands of foreign scholars because of their religion, political opinion. Once in Britain, Guttmann developed an impressive scientific career with national and international resonances during and after the Second World War. He promoted sport as ideal therapeutics for spinal cord injuries and other neurological disabilities.

Benefiting from Guttmann's correspondence with the SPSL, this paper explores Guttmann's arrival at Oxford as a refugee and his work on spinal injury research at the Radcliffe Infirmary. It describes his involvement in the war effort through the foundation, in 1943, of Stoke Mandeville Hospital, in Buckinghamshire, for the rehabilitation of soldiers with spine injuries. Finally, the paper will sketch the international projection of Guttmann's medicine through the foundation of the Paralympic Games. It will also approach Guttmann's scientific influence abroad through the case of Guttmann's Institute in Barcelona in the 1960s. A fresh, new approach to Guttmann's case will help us to revisit processes of knowledge circulation, now with a stronger global perspective. It will also bring to the fore the valuable, and often neglected, epistemological contribution of refugee scholars as relevant historical actors.

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Decoding animal light in lab and field: Visions of luminous biology in the interwar United States

Nuno M. Oliveira
University of Cambridge

Abstract

This talk will compare and contrast two research visions on animal light and the interwar research cultures that sustained them. By the end of the 1920s, E. Newton Harvey had made his laboratory at Princeton University the world centre for the study of bioluminescence and this peculiar phenomenon a respectable subject in physiology. Among other aspects, Harvey established experimental systems for identifying the molecular basis of biological light, consolidating the idea that it is the result of an oxidation reaction catalysed by a dedicated enzyme, and developed instruments to study the kinetics of light flashes of short duration along the same lines as investigations of nervous conduction and muscle contraction. This mechanical vision of luminous biology—experimental, quantitative and objective, but largely disconnected from natural context—was challenged by the explorer, naturalist and author William Beebe in accounts of his record-breaking deep-sea descents, the environment where animal light is most significant. Sealed in a hollow steel sphere with fused quartz portholes, tethered to a boat where the crew recorded his observations, Beebe saw animal light as extremely abundant, diverse, as active as "stars gone mad," and context dependent. Beebe's vision was explicitly subjective, aesthetic and emotional, which explains why his crew included artists to portrait what he saw. I will argue that while researchers like Harvey pioneered the scientific vision that gave rise to important branches of present-day life sciences such as molecular biology, Beebe's inspired many to become biologists and to care about nature, reflecting his romantic conception of life.

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Psy Expertise of Violence: a History of Shifting Attention

Stéphanie Pache
UQAM

Abstract

As most behaviors considered deviant, violence did not escape the examination by psy scientists. This presentation will examine the history of shifting focuses in this examination by examining the case of violence considered now to be "gender-based". I will retrace the ways behavioral sciences have looked at violence against women across the late modern and contemporary period. I will consider them in their social and scientific history, but this historical contextualization should not be understood as a perfect chronology, nor a progression, since these approaches co-exist, and even combine, to this day, in the scientific field and society in general, even though most shifts in these perspectives have emerged as a challenge to the previous ones. Based on a review of historical studies on violence and of scientific publications, I propose to organize these perspectives according to their etiological focus, or who is held responsible for the violent behavior. Subsequently, four perspectives can be identified: a) aggressor-centered, which focuses on the study of the aggressor and the factors that render a person aggressive; b) victim-centered, with attention to how someone becomes a victim of violence; c) interpersonal, emphasizing the interpersonal dynamics of violence and the idea of conflict; and d) violence-focused, which analyzes the violent event itself, often around the notion of trauma. Finally, I will argue that these distinctions are useful to link these shifting focuses to specific political and social perspectives and to understand the role of psy expertise in our contemporary understanding of violence.

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Instituting the Speech and Hearing Sciences in India, c. 1955-75

Thomas Parkinson
University of Cambridge

Abstract

This paper examines the emergence of the speech and hearing sciences in modern India. While deaf education was well-established in India by the 1950s, speech science and medicine (or 'logopedics') had no official therapeutic or educational institution representing it. This situation changed with the founding of the All India Institute of Speech and Hearing (AIISH) in 1966. I show in this presentation how this small institution for speech and hearing disabled people in Mysore emerged out of Cold War scientific diplomacy and transformations in Indian 'rehabilitative' culture. Drawing on unexpected archival material from the Institute of Logopedics in Wichita, Kansas, I chart how American logopedicians were enlisted by the US government, the World Health Organization (WHO), and the Indian Ministry of Health to inaugurate the first, specialist centre for studying and treating deaf and speech-disabled people. I draw on my interviews with the man who was proclaimed to be 'founding father of Indian speech pathology', Dr Natesh Rathna. I reveal which sorts of perspectives and preoccupations Indian logopedicians brought to their study of speech and hearing disabilities by offering a reading of the clinical and scientific materials produced by specialists at AIISH, and at other Indian audiological and speech-pathological settings. This paper represents the first major historical study of the emergence of the speech and hearing sciences in South Asia. It will be of interest to historians of science diplomacy, communication, sound, and disability.

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‘Get Into LANE’: Nuclear Energy in the Electrical Association for Women’s *Electrical* Age

Eleanor Peters
Historic Environment Scotland

Abstract

In February 1955, the British Government issued a White Paper announcing its 10-year programme for nuclear energy stations. The thirty-year-old EAW responded swiftly with unwavering support, echoing the industry’s assertion that the growing demand for electricity in post-war Britain could not be met without nuclear energy. Examining the decision by EAW directors Mary George (1956–1976) and Ann McMullan (1976–1986) to align the organisation with the nuclear industry—amid rising anti-nuclear sentiment and the growth of the Women’s Liberation and green movements—highlights a previously unacknowledged yet significant stance in EAW campaigning. Applying digital search tools to The Electrical Age enables an exploration of how the directors, editor, and contributors portrayed nuclear energy to readers. Such a systematic analysis of the Electrical Age reveals notable spikes in discussions of nuclear energy in 1977 and 1980, surpassing mentions of gas, coal, hydro, or wind power during the same periods.

This paper examines whether the EAW’s endorsement of electricity generation from nuclear power stations contributed to perceptions of the organisation as outdated—misaligned with contemporary feminist thought—and ultimately to its dissolution by 1986. By exploring these potential correlations, it investigates the tensions between technological innovation and feminist ideologies, particularly the role of women in negotiating diverse and often contentious perspectives on nuclear energy. More broadly, it contributes to historiographical debates about how nuclear energy was controlled, represented, and contested in Britain during the latter half of the twentieth century, with a specific focus on the implications for the EAW's legacy.

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The concrete master race: technology, work and control in the canal system

Eóin Phillips
Ramon Llull University

Abstract

This paper explores the relationship between work, imperial-technological projects and scientific representations of this relationship in the context of the extensive canal and dock building projects pursued by the British state in the period 1760-1820. A recurring feature in European historiographies of industrialisation and enlightenment has been the division between political and imperial transformation on the one hand and industrial revolution on the other. The historiography of British canal and dock building has followed this pattern: dominated as it is by what might be called 'dry' accounts of their development: 'dry' in the sense that they have largely been told as stories of national economic development and separated from the expanding European maritime expansion from the Atlantic to the Pacific and Indian Oceans; 'dry' too, because through this geographical separation, the environmental, political and social dimensions of their development have been ignored.

By taking the materiality of canal construction seriously, this paper aims to show how representations of canal building projects contrasted with the experience of those groups of workers who built and worked these extensive waterways. Tracing how certain forms of representation and repression led to the privileging of technology over labour and skill in European memories of waterways, the paper attempts to show not only the ways through which we might approach a labour history of technology and environment, but to suggest that this must be done through situating the achievements of 'dry' European innovation in the context of 'wet' schemes of colonial management and imperial expansion.

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Did labour or leisure make science? The politics of history in the 'planning-of-science' debate, 1931-1956

Sam Phoenix Clarke
University of Cambridge

Abstract

Britain in the middle of the twentieth century saw conflict between two broad camps of scientists regarding the issue of planning and state intervention in the organisation of science and technology. Socialist, communist and left-liberal scientists, organising around the 'Social Relations of Science' (Bernal, Hogben, Haldane), advocated for the active involvement of the state in scientific discovery and application, while right-liberal and conservative scientists, organising around the 'Society for Freedom in Science' (Baker, Polanyi, Tansley), opposed this, and held the market as the only guarantor of scientific freedom and progress.

Both sides mobilised the history of science as an argumentative resource in this conflict, writing histories of their disciplines to provide theoretical and rhetorical support for their particular political positions. The left wrote histories in a broadly externalist framework - stressing the role of political-economic contexts, social incentives, and culturally transmitted problem-sets, while the right's histories took an internalist tack - narrating science's history as a history of individual arguments, ideas, and solutions. In my paper, I will explore the politics of these histories through a key historiographical debate between the factions: whether was the wellspring of science in history was labour - as the craft and technique of the worker, or leisure - as the speculative curiosity of the cleric or aristocrat. In so doing, I will explore the political stakes and presuppositions of historiographical methods, provide a window into the politics of mid-century science, and contextualise the internalism-externalism debate in science's historiography through the political conflicts of this historical moment.

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Where were they? The origins of the Search for Extraterrestrial Intelligence (SETI) revisited

Robert Poole
University of Lancashire

Abstract

The first scientific conference about the search for extraterrestrial intelligence (SETI) took place at the Green Bank Observatory, West Virginia, in 1961. It generated the famous 'Drake equation', widely held to demonstrate that first contact by radio was feasible and perhaps imminent. The conference however has been more cited than studied. A study of the organisers' original papers reveals that the figures were carefully massaged in order to exaggerate the chances of success and so support the case for funding. The crucial assumption was the expected lifespan of advanced civilizations: would any nuclear-armed species survive long enough to sustain a dialogue with neighbours several light centuries away? The searchers flipped this question round to argue that those 'communicating civilizations' which survived would necessarily be peaceful, long-lived, and benign, with an average age of 50,000 years. If they could show humanity how to negotiate its own 'atomic crossroads', we too might join this advanced network. The conference signally lacked the biologists and social scientists who might have questioned these heroic assumptions. Carl Sagan, an influential advocate for SETI, expressed private doubts; had other disciplines been involved, he thought, the conclusions would have been rather different.

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An Islamicate Variation of the Josephus Problem: Intersections of Mathematics, Chess, and Culture

Majideh Qazizadeh
University of Exeter

Abstract

This paper examines a fascinating problem from a 14th-century Arabic chess manuscript by Ibn Abī Hajala, a North African Muslim scholar, currently kept at the John Rylands Library. The problem represents a variation of the Josephus Problem, a puzzle widely studied in modern mathematics and computer science. The Josephus Problem involves arranging individuals in a circle and eliminating them in a fixed sequence until only one remains. In this manuscript's example, two groups of chess pieces—symbolising Muslims and Christians—are positioned in a circle, with the goal of removing all Christian pieces while sparing the Muslim ones. Although inspired by chess, the puzzle transcends the game's boundaries, offering insights into mathematical problem-solving and glimpses into the era's religious and societal dynamics.

Despite its historical significance, the manuscript has received little scholarly attention, with its mathematical implications entirely overlooked. This puzzle is a rare medieval instance of the Josephus Problem, centuries before its systematic study in the 20th century. The French mathematician Claude-Gaspard Bachet proposed a solution only for a simpler version in 1612. Through an interdisciplinary lens, my presentation investigates both the mathematical framework of the problem and its cultural resonance, situating it within the broader context of late Islamic Andalusia, the Mamlūk territories and the Mediterranean world. It offers insights into how intellectual traditions both reflect and shape historical realities.

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Astrological Books and Aristocratic Culture in the Career of Blaise-François, comte de Pagan (1604-1665)

Oded Rabinovitch
Tel Aviv University

Abstract

Our understanding of the impact of the aristocratic culture on early modern science is currently based on two major institutions: the court (exemplified by Galileo and studied mostly in Italian and German contexts) and the notion of "gentlemanly culture" (exemplified by Boyle and studied especially in the English context).

Blaise-François, comte de Pagan, allows us to examine the relation of an aristocrat to early modern science from a different angle: book publishing in the French literary field. After a long career as a military engineer, Pagan authored texts on fortifications, geometry, and planetary orbits, as well as a conduct manual for the aristocracy. He therefore provides an especially apt case study for understanding the impact of noble military culture on seventeenth century science: instead of avoiding the putative "stigma" of print, Pagan relished opportunities for scientific authorship. Having already presented work on Pagan's astronomical texts, this paper focuses instead on Pagan's Natural Astrology (published 1659). It argues that Pagan's adaptation of previous astrological concepts and ideas reveals aristocratic sensibilities that prioritized his engagement with scientific culture in general and with previous astrological authors in particular.

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The social-justice case for spreading the word about the historical contingency of genetic knowledge

Gregory Radick
University of Leeds

Abstract

In 2022, the Journal of the American Medical Association published a "framework for promoting diversity, equity, and inclusion in genetics and genomics research." From start to finish the document exclusively concerns DNA: how to ensure that it comes from the widest range of populations; how to manage relationships with those populations so that the largest number of people participate; and how to maximize health benefits of the research for those populations. In this talk I'll first outline the case for a much more expansive conception of what a framework with that stated aim should address, emphasizing the importance of putting environments—inside and outside of bodies—centrestage, along with the modifiability of characters which depend as much on those environments as on a given stretch of DNA. I'll then turn to consider how new histories of genetics, if incorporated into standard genetics education in place of the usual "royal road from the Mendelian revolution to the molecular revolution to the genomics revolution" picture, can help both researchers and the rest of us take environments and modifiability far more seriously. I'll illustrate with a look at how the recent historiography has cast each of those "revolutions" in a new light by emphasizing the role of historical contingency in keeping environments and modifiability at the margins of genetic knowledge. I'll end with a call for historians of science to play their part not merely in producing such histories but in spreading the word about them.

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Towards a natural history of small science

Xavier Roqué
Universitat Autònoma de Barcelona

Abstract

Over the past decade, historians and sociologists of science have described small-scale research practices with a number of related categories, from minor to frugal through agile, slow, modest, ruinous, groovy, or thrifty, amongst others. What does this proliferation indicate? What do these categories have in common? How do they relate to the existing categories of small or little science? As part of an ongoing research project, I will present some elements of a natural history of small-scale research and attempt to account for the relation of small-scale practices in science and other fields of knowledge.

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European Inter-Nationalisms at the Vienna Exhibition for Music and Theatre (1892)

Signe Rotter-Broman
FU Berlin

Abstract

My paper is situated within the field of the history of knowledge (Wissensgeschichte) with a special focus on European music history. Its topic is the Internationale Ausstellung für Musik und Theaterwesen (International exhibition for music and theatre), arranged in 1892 on the grounds of the former Vienna World Exhibition of 1873. The monumental Rotunda housed an abounding wealth of objects: musical instruments, manuscripts, electric installations, requisites, and portraits of writers, composers, and actors. The organisers, among them representatives from the formative phase of musicology and theatre studies, aimed to gather knowledge about the two „sister arts" in the past and present, thereby showcasing Vienna as a cultural and industrial centre of the Habsburg Empire.

Whereas these features recently have received much scholarly attention, the exhibitions' „international" character has, for the most part, been taken for granted. My contribution focuses on the activities of the invited „nations" beyond Germany and Austria and asks for their practices of acting and thinking „inter-nationally" in relationship to music history and Wissensgeschichte. It is part of a larger book project on music at world exhibitions and the history of music-related knowledge on and in Europe around 1900.

My paper dives deeper into the aspects of combining industrial knowledge displays and cultural aspects, merging into a representation of national identity. It discusses displays of several European „nations", among them republican France, imperial England, newly-united Italy, tripartite Poland, and the Duchy of Bulgaria.

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Communities of Collecting: Networking Botanical Exchange in the Long Nineteenth Century

John Schaefer
University of Cambridge

Abstract

This paper examines the interplay of science and globalization through nineteenth-century British plant specimen exchange, focusing on the herbarium of the Royal Botanic Gardens, Kew. Applying social network analysis as an exploratory lens illuminates the overlooked contributions of local collectors, laborers, and intermediaries in the transcontinental movement of plants and knowledge.

The Kew Herbarium, central to imperial science, housed plant specimens acquired through colonial networks, representing complex relationships and power dynamics; yet historical narratives often privilege figures like William Hooker, his son Joseph Hooker, and Joseph's son-in-law William Thiselton-Dyer, whose combined directorships from 1841 to 1905 marked a period of significant expansion and collecting activity at Kew. By decentering these figures, this study maps the broader networks of individuals and institutions underpinning botanical exchange. A focus on nineteenth-century Australasian plant collecting networks underscores the interdependence of these colonial actors, who both navigated and contributed to evolving nomenclatural and classificatory systems.

Combining archival research with social network analysis, the study explores mesoscale patterns of plant collecting, leveraging specimen label data to visualize connections between collectors. Network analysis thus provides a guided means of "distant reading", and conversely, close reading informs the development of more nuanced and focused quantitative approaches in the history of science. Foregrounding the contributions of local collectors, horticulturalists, and other intermediaries, this research challenges the perception of Kew as the sole locus of British botanical progress and illustrates how the digitization of scientific plant specimens yields a novel lens for surveying Kew's colonial archives.

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‘Pergamonsters’: Predatory science publishing, 1950s–1960s

Alrun Schmidtke
Humboldt University, Berlin

Abstract

Pergamon Press, founded in London in 1951, came to exemplify a seemingly new business model: science publishing that applied international distribution strategies and explicitly focused on journals and serial publications, as against the mixed lists and domestic audiences of traditional publishing houses and less specialised academic publishers. The director of Pergamon Press regularly poached potential editors and authors through personal contacts and at academic events, describing his actions as those of a predator and jokingly referring to himself and his colleagues as ‘Pergamonsters’. Despite considerable scepticism from established UK institutions and individuals, many scientists supported Pergamon’s entrepreneurial stance. What were editors’ and authors’ stakes in publishing at the time, and what did they stand to gain from allegiance to the likes of Pergamon Press? Those who rejected Pergamon’s promises of efficiency and global reach showed familiarity with and confidence in traditional modes of publishing and related services to science. This talk offers insights into business at Pergamon in the 1950s and 1960s, based on my analysis of archival records from Pergamon, OUP, Wiley, Springer and others. As I will show, Pergamon Press was not the first publisher to identify scientific authors and their preferred publishing formats as core products, but it had a disproportionate impact on the publishing scene, not least due to its persistent attacks on traditional publishers as slow, inefficient or incapable of reaching international audiences.

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The Origins of the Darwinian Icon: The Tree of Life

Lizzie Schulz
University of Leeds

Abstract

The now-famous Darwinian Tree of Life was not available to the public during his time. Indeed, the only tree image that Darwin himself put into the world was found as a fold out in On the Origin of Species. This diagram is little known to those who aren't historians of evolutionary biology. Instead, the notion of Darwin's Tree of Life typically conjures images of his Notebook B, 'I think' diagram.

The Origin diagram and 'I think' diagram are very different morphologically, but they also diverge in their popularity. While the Origin diagram slightly gained popularity with the era of the Modern Synthesis, the Notebook B diagram especially became more popular with the second centenary of Darwin's life in 2009. More interesting is that multiple reprints of On the Origin of Species now do not even include the diagram, let alone as a fold out – is it that publishers and editors find it unnecessary to understand his theories? Conversely, the Notebook B diagram has become an icon of Darwinism, found as tote bags, tattoos, logos and more.

Why did the 'I think' diagram become this icon? What is more appealing about it than the Origin diagram? Why has the Origin diagram mostly faded away? This paper will track the reproduction of both the Origin and 'I think' images following their publications in 1859 and 1960, respectively. It will argue that the changes in popularity of these images reflect variation in how scientists and writers generally represent Darwinian theories of descent.

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Run for your Life! Tracing the Evolution of Survival Horror Videogames

Efram Sera-Shriar
University of Copenhagen

Abstract

In 1996 the Japanese videogame developer Capcom released Resident Evil. Christened by its lead designer Shinji Mikami as the world's first survival horror game, Resident Evil went on to become one of the most popular videogame franchises of all time. Today it has sold over 160 million copies worldwide, and grossed over 7 billion pounds. Its cultural impact is undeniable. And yet, despite being a ground-breaking title that pushed videogame technology to its limits, and ushered in a new generation of terrifying entertainment, there were many predecessors to Resident Evil that contained some of the core elements deemed as essential for the survival horror genre. Resident Evil's success is part of a much longer history of horror-themed videogames that dates back to the early 1970s. This paper will explore the evolution of survival horror videogames from Space Invaders (1978) to Resident Evil. It will situate this story against the backdrop of the videogame industry's technological history. It will pay close attention to transformations that occurred in videogame hardware and software, and explore changes to game designs and mechanics. Moreover, the paper will also consider the cultural dimensions of this history and consider the impact society, politics and religion had on the development of horror-themed videogames during this period.

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‘The profits and risks entirely in our hands’: The *British Journal of Anaesthesia*, Macmillan Publishers and commercialising journal publishing from 1974

Eleanor Shaw
University of Manchester

Abstract

The *British Journal of Anaesthesia* limped out of the postwar period, having barely survived severe paper rationing and a sense of organisational lethargy. Reinvigorated by a fresh editorial team, by 1974 the journal was successful enough to attract a new, comparatively lucrative, publishing contract with Macmillan. The contract was the culmination of an internal search for success and stability that had been ongoing since the 1950s, but was possible due to the rapid expansion and commercialisation of academic journals in the postwar years. The new contract led to a new era for the journal, and, for the first time, profits. The implementation of a new constitution, gestures towards a more formal peer review system, and the upgrading of printing and editing services all brought the journal in line with the emerging norms of international academic journals. Following signing with Macmillan, the journal increasingly focused on basic science, and reoriented itself to communicating with an international community of academics, and comparing itself to non-specialist international academic journals. While remarkably successful in generating commercial success, these measures also had the effect of alienating the journal from its original audience, practicing anaesthetists in UK hospitals. In achieving long-standing goals of commercial success and international regard, the journal had inadvertently diverged from its founding commitment to the specialism of anaesthesia. In the following years, attempts to keep this original audience engaged while competing in the international academic marketplace reshaped the journal’s mission.

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At Arms’ Lengths: Octopus Consciousness as a Scientific Artifact

Shira Shmuely
Max Planck Institute for the History of Science

Abstract

In 2022 the UK passed the Animal Welfare (Sentience) Act, which extends some legal protections to cephalopods (squid, octopus, cuttlefish, and nautilus) - a consideration that would have been unimaginable a century earlier. For most of the twentieth-century, cephalopods were excluded from the protections of animal welfare laws. A shift occurred in 1980 when UK policymakers considered expanding existing legislation on animal experimentation to include the common octopus. It then took another three decades before octopuses and related species came under animal welfare law in several countries and regions. How and why did invertebrates' sentience come to be debated by various publics, activists, and lawmakers, and what does this tell us about the relationship between scientific knowledge and animal ethics? Compared to vertebrates, mollusks have received less attention from historians of science. But they played a central role in the development of pre and post Darwinian ideas about extinction and species development. Twentieth-century explorations in neurobiology and behavioral studies have led to new insights into the unique mental capacities of octopuses, and stimulated engineers in designing soft robotics. Today, octopuses represent both vestiges of the past and harbingers of the future, inspiring speculative science and cutting-edge philosophy of mind. This presentation examines the evolving idea of octopus consciousness in the history of science, tracing the shifting questions that the bodies of these creatures triggered among scientists in the UK and beyond from nineteenth-century evolutionary biology to contemporary philosophy of mind.

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Success as vulnerability: the crisis of epidemic dengue in Singapore, 1985 – 2000

Timothy Sim
HPS, University of Cambridge

Abstract

In the early 1980s, scientists and public health officials from around the world hailed Singapore as a model for the control of dengue fever. Between 1965 and 1985, health authorities successfully controlled dengue by suppressing the density of Aedes aegypti mosquitoes. However, after 1985, annual epidemics of dengue swept through the country despite low mosquito densities, leaving authorities scrambling for answers.

This paper analyses contemporary explanations given for the return of dengue fever from 1985 – 2000. Although health officials offered various explanations, including a fall in population immunity, changes in mosquito behaviour, and public apathy, they were united by the idea that success at controlling dengue only increased vulnerability to future epidemics and thus required constant vigilance. For instance, authorities asserted that since dengue had been controlled so well in the past, the population had lost its immunity to the disease, allowing for quicker epidemic spread in the present. Preventing this required even stricter mosquito control, which in turn generated more vulnerability, creating a vicious cycle.

This link between success and vulnerability exemplified a wider "crisis mentality" in Singaporean politics that was used to justify heavy government intervention in the lives of citizens, even as it deflected responsibility for failures away from the state. Drawing on the literature about mobilizing crisis in politics and in science, I suggest that the Singaporean dengue control program is a revealing example of what it means to think of public health in terms of the constant risk of failure and resurgence.

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The City as Experiment: Sydney and the Rat-Flea Theory of Plague, 1900-1907

Jules Skotnes-Brown
University of St Andrews

Abstract

In 1900, Chief Medical Officer of New South Wales, John Ashburton Thompson attempted to transform the whole of Sydney into a grand epidemiological field experiment to test the rat-flea theory of plague. Convinced by the French bacteriologist Paul-Louis Simond, when plague arrived in Sydney in 1900, Ashburton Thompson sought to use the city as a case study to prove that the disease was spread by rats and fleas. This view was controversial and contrasted with the work of many epidemiologists in India, who argued that the rat was only a single pathological element within a number of potential causes such as grain, soil, miasma, and person-to-person contagion. This paper examines how Ashburton Thompson framed Sydney as a neutral and "natural" site in which to test this theory in the field. It shows how he constructed a racialised hierarchy of observation and evidence, arguing that since Sydney's population was almost entirely white, reliable observations on the true nature of plague could be made, unlike in India where a supposedly "uncivilised" population produced distorted results. Through following the reception of Ashburton Thompson's research and its impacts on the adoption of the rat-flea theory, this paper thus demonstrates the role played by race and class in twentieth century epidemiology.

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Post Office Horizon System – a scandal of mismanagement or a technology working too well?

Melanie Smallman
UCL

Abstract

Between 2000 and 2015, the UK Post Office wrongfully prosecuted more than 700 of their own sub-postmasters for fraud, subsequently found to be the result of errors manufactured by the Post Office's Horizon accounting software. Hundreds of sub-postmasters were sent to prison, forced to do community service and had their livelihoods and lives destroyed in what has come to be known as the UK's biggest miscarriage of justice.

The scandal has been characterised as the result of significant mismanagement and incompetence within the Post Office and Horizon's developers Fujitsu, and a lack of accountability on the part of those who were in positions of authority and responsibility. In this paper, I will argue that this account does not tell the whole story.

Instead, following the thread from the Horizon Scandal back to the earliest incarnation of this software, examining the government papers around the creation of a benefits payment swipe card in the early 1990s and the parliamentary debates and public discourses that surrounded it, I will show how ideas of human behaviour and criminality – and how institutions should respond – became encoded and reproduced in a technology and political environment, such that it became difficult to discriminate between the technology's efficient performance and its malfunction. This, I argue, coupled with institutional and political arrangements also reflecting these ideas, created a situation – that is increasingly common today with the growth of automation in public services - whereby the sub-postmasters were effectively guilty until proven innocent and miscarriages of justice followed.

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Activism in the Context of Development-Collaboration Research?

Katrin Solhdju
KU Leuven

Abstract

This talk reflects on the post- and decolonial potentials and neocolonial risks inherent to Development-Collaboration Research along the lines of "TradiMad", a project that I'm part of as a PI. This interdisciplinary project involving pharmacologists and anthropologists of medicine aims at a better understanding of the relationship between modern medicine and traditional healing practices in order to allow for better, 'integrative' medical care in Madagascar. As a newcomer to Development-Collaboration Research, I am irritated about the fact that post- and decolonial perspectives have so far remained largely absent within the complex application-procedure and official discussions between colleagues. This absence is quite unnerving because it allows adherence to well-established research agendas without ever having to address simultaneously ethically and epistemologically questionable omissions inherent in these routines. Omissions that are mainly based on the never rendered explicit, but consensual assumption that those parts of traditional healing practices that cannot be summed up in a biomedically recordable combination of molecules, must be considered as nothing but placebo effects: Rituals etc. might heal, but do so for "bad reasons". Going back to the crucial role procedures of disqualification have played within the history of modern medicine might help position oneself in the interdisciplinary and geopolitical dance of this and similar projects.

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The Multifaceted China in the 1873 Vienna World's Fair

Zihao Song
University of Vienna

Abstract

At the 1873 Vienna World's Fair, the Chinese government officially participated for the first time. However, almost all the preparatory work was managed by the Imperial Maritime Customs under British official Robert Hart, complicating the identity of the Chinese exhibition. On one hand, through the prism of foreign officials working for the Chinese government, a China shaped by non-Chinese perspectives was created. This was particularly evident in the process of scientifically classifying and documenting numerous exhibits at the organisers' request, marking the first time such an effort was undertaken by the Chinese Customs; on the other hand, this image of China influenced Viennese audiences and helped shape the Habsburg Monarchy's self-perception. This study first examines the gateway leading to the Chinese exhibition area. Its visual design and decoration not only express a strong sense of subjectivity but also construct the traditional East Asian international order, presenting it to visitors in both overt and subtle ways. Secondly, it focuses on how knowledge of Chinese exhibits and exotic cultures was observed and integrated into Viennese discourse during the fair. The study will examine the process of China and other Asian nations, often not seen as key participants, becoming essential elements in helping the Habsburg Monarchy construct its global narrative after 1867. In addition, adopting a history of knowledge approach, I will analyse media perceptions and professional reports of specific Chinese exhibits and assess how this process reinforced the dominant discourse of progress at the World's Fair.

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What type of industry would British biotechnology be? The 1980 decision not to locate a national biotech company in Cambridge

Alistair Sponsel

Abstract

When Britain's industrial development agency announced in 1980 that it would be creating a government-funded biotechnology company, coverage in Nature speculated that Cambridge would be the natural home for such a business. After all, the principal rationale for the company's existence was to commercialize discoveries made at the MRC Laboratory of Molecular Biology, and Cambridge was moreover the site of England's only established research park. However, biotechnology was scarcely a factor in the city's commercial landscape during the 1970s and 1980s, as illustrated by a privately shared lament from the director of the Cambridge Science Park in 1981, "In any other country there would already be 2 or 3 flourishing genetic engineering companies around a place like Cambridge; and it is so frustrating to see none here, while Genentech, Cetus and the rest make all the running in much less distinguished academic environments." The immediate source of his consternation was that the new publicly funded biotech company had spurned his university town for its very antithesis: the Slough Trading Estate. In this paper I use the 1980 founding of the Celltech company to excavate the range of then-possible futures for the nascent field of genetic engineering in the UK. To what extent would the biotechnology "industry" have geographical and even class affinities with the so-called smokestack industries that were statutorily forbidden in Cambridgeshire? I particularly highlight factors countervailing against the hyper-localization of commercial biotechnology around the LMB, ranging from the advantages offered by the industrial hinterland on the other side of London to the obstacles presented by political pressures and cultural attitudes in Cambridge.

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"How a brigade can tackle an eclipse": Norman Lockyer, the Royal Navy, and the 1900 Eclipse Expedition

Beatrice Steele
University of Exeter

Abstract

Using recently unearthed visual archives at the Norman Lockyer Observatory, this paper will explore the eclipse expedition of 1900, which took Lockyer and his party to Santa Pola, Spain. The lantern slides and negatives of the Santa Pola campsite reveal a fascinating network of relations between scientists, sailors, photographers, soldiers, tourists, and amateur astronomers. Upon examination of these archival materials, the sheer extent of the Royal Navy's investment in these endeavours becomes clear. However, the reasons for this intense interest from the British naval establishment have been somewhat neglected in social histories of eclipse expeditions. The Norman Lockyer Observatory's photographic collection includes much documentation of Lockyer's astronomical training programme for the sailors at his camp. These images, depicting men undertaking drills in solar observation, as well as engaging with cutting-edge instruments and new camera technology, help us to understand more about why the Royal Navy increasingly devoted significant funds and manpower to supporting eclipse expeditions.

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After the World Fair is before the World Fair: The Integration of the 1883 Amsterdam World Fair into Dutch museums

Alexander Stoeger
University of Saarland

Abstract

In this presentation, I will examine the significance of the Amsterdam International Colonial and Export Exhibition in 1883 in forming the Dutch national identity with a specific focus on its epistemic inclinations on the newly built Rijksmuseum. The paper investigates the structural organisation and collaborative efforts of various groups of interest involved in the fair, illustrating its objectives, the provenance of its exhibits, and the subsequent incorporation of these elements into the display cases, architecture, and overall image of Dutch museums upon the completion of the Rijksmuseum on the sight of the fair two years later.
Based on archival material such as government documents, official announcements, organisational documentation, prints and photographs from the Fair, and newspaper articles, I will discuss how participants aimed to create certain narratives of epistemic superiority and how the public perceived them regarding national identity and colonialism. Furthermore, I will illuminate how the construction of the Rijksmuseum in Amsterdam significantly shaped the Exhibition and its material and non-material heritage and how we need to address these aspects today to contribute to an active decolonisation of European heritage.

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From Monochrome to Colour: Giorgio Roster's Hand-Coloured Lantern Slides in 19th-Century Science.

Francesca Strobino
Libera Accademia di Belle Arti (LABA) Firenze

Abstract

Bridging the intersecting fields of photographic history, material culture, and the history of science, this paper examines Giorgio Roster's hand-coloured lantern slides within the context of his scientific and photographic practice. It situates these objects within broader debates on photographic objectivity and the use of photography in 19th- and early 20th-century science. Roster (1843–1927), a Professor of Hygiene and Applied Chemistry in Florence, was renowned for employing photography as a tool for observational science and public dissemination. As president of the Italian Photographic Society (1890–1894), he also actively contributed to the photographic community.

This study investigates how Roster's scientific expertise shaped his production of hand-coloured photographs, depicting phenomena such as rainbows, solar halos, and dyed bacterial specimens that monochromatic photography could not capture. Special attention is given to the crafted nature of his lantern slides, where Roster manually added colours and other details, creating hybrid photographic objects and entirely new subjects not present in the original negative.

Roster's practice serves as a pivotal case study to reassess the role of crafted photographic records in 19th-century science. It highlights how the presumed "mechanical objectivity" of photography was often mediated by the scientific authority of its creator and the institutional contexts in which photographs were displayed and discussed. This paper argues for a renewed appreciation of hand-coloured and crafted photographic objects as significant yet overlooked components of 19th-century scientific visual culture.

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Of contraptions and con-tricks: fakery considered as a mode of technological innovation

James Sumner
University of Manchester

Abstract

In the 1970s, the US robotics firm Quasar Industries built a remarkably impressive device: a publicity bandwagon that endured for several years around a nonexistent product. As demonstrated at trade fairs and on TV, Quasar's artificially intelligent talking androids seemed like science fiction made real, and not by any coincidence: they were effectively stage props, radio-controlled and voiced by hidden humans, as was evident to some observers at the time. Yet most media coverage took the demonstrations at face value, buying into the firm's vision of an imminent future in which mass-produced, affordable robots would serve as domestic servants, paramedics and security guards.

That future remained somehow still imminent in 2021, when Elon Musk announced that the Tesla corporation was developing a humanoid robot. The device, now in prototype under the name Optimus, is at one level substantially more "real" than the Quasar machine, performing some tasks without human help; its more sophisticated demonstrations, however, still rely on what's now euphemistically referred to as "teleoperation".

In this talk, I will consider how scams, hoaxes and other deliberate misrepresentations often have significant agency in defining technological visions and agendas for innovation. The boundaries between fakery and the various categories of what are typically seen as "honest" influences on technological change – real working demonstrations, untested proposals, acknowledged fantasies – turn out to be remarkably porous and negotiable. My aim here is not to legitimise fakery, but to understand and draw attention to the rhetorical mechanisms that allow unrealisable visions to gain long-term legitimacy.

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“Like another St. Basil”: Science as an anticommunist weapon in Cold War Greece

Kostas Tampakis
National Hellenic Research Foundation

Abstract

Dimitrios Kotsakis (1909-1986) and his mentor Stavros Plakidis (1893- 1990) where the two main astronomers working in Greece for more than half a century. Having studied in some of the best European observatories, Plakidis and later Kotsakis trained most of the astronomers who came after them, fought for and helped create new Astronomical Observatories and published astronomical observations in international journals. Alongside their scientific work, they had time to write popular books and to organize and deliver lectures for the general public. It is thus noteworthy that both astronomers were not only militant anticommunists, but were also deeply involved in Orthodox para-ecclesiastical organizations. This paper aims to discuss the relations between their astronomical work, their religious affiliations and their militant anti-materialism, in the context of pre-WW2 and Cold War era Greece.

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The Grass Is Always Greener on the Other Side: Late Ottoman Perceptions of Science in Europe

Meric Tanik
Columbia University

Abstract

This paper explores the late Ottoman fascination with European science and its unintended consequences.

Western European countries, frequently described as “developed nations” (memâlik-i müteraḳḳî) or “civilized nations” (memâlik-i mütemeddine), were regarded as paragons of progress. Their achievements were credited to scientific advancements, and their universities celebrated as incubators of great minds. In response, the financially constrained late Ottoman government invested heavily in recruiting foreign scientists and funding the education of Ottoman students abroad.

Yet, this idyllic view of European science and the Empire’s emphasis on external solutions created significant tensions. Ottoman students, despite excelling at prestigious universities and gaining international recognition, returned home to find their contributions undervalued. State-funded education abroad was often criticized as wasteful by policymakers and the public, while local scientists protested the preference for foreign experts, who earned salaries up to four times higher than their own. These dynamics not only marginalized domestic talent but also inhibited the Empire’s ability to harness its local resources effectively.

This paper employs vivid case studies to explore the far-reaching implications of the Ottoman admiration for a “hyperreal” scientific Europe. It argues that the belief that "everything is better on the other side" overshadowed the capabilities of domestic institutions. By analyzing this historical phenomenon, the paper sheds light on how self-perception and external admiration shaped the trajectory of science and expertise in the late Ottoman Empire.

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British Anti-Newtonianism: Hutchinsonians and the Limits of Universal Science

Derya Gürses Tarbuck
Bahçeşehir University

Abstract

This paper analyzes the Hutchinsonian critique of Newtonian science in eighteenth-century Britain, illustrating how anti-Newtonian perspectives challenged the universal claims of Newtonianism. It situates Hutchinsonianism within broader debates on science, religion, and authority, showing its implications for understanding global receptions of Newtonian thought. The study argues for the importance of anti-Newtonian movements in revealing the limitations of universal scientific models.

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Natural Objects In-Between: Knowledge Infrastructures of a Collection of Galls in the Early 20th Century

Luca Tonetti
University of Padua

Abstract

Since the 17th century, naturalists and enthusiasts have been intrigued by 'galls' – plant outgrowths caused by fungi, bacteria, insects, or mites. Alessandro Trotter (1874–1967), a student of the Italian mycologist Pier Andrea Saccardo (1845–1920), made significant contributions to the study of galls, bridging botany, entomology, and mycology. His collection, comprising over 6,500 specimens amassed between 1890 and 1940, is now housed at the Botanical Museum of the University of Padua. Saccardo's teaching was crucial in this endeavour. His pioneering work in fungal taxonomy transformed mycology into a rigorous scientific field. His innovations not only changed the classification and visualisation of fungi, focusing on microscopic details such as spores, but also influenced the way information was structured. His Sylloge fungorum, a comprehensive compilation of all fungi known at the time, was a major achievement with his students, including Trotter, playing a key role in its development. Just as fungi pushed the boundaries of traditional botanical study, galls presented a similar challenge, demanding fresh perspectives. This paper aims to illustrate how Saccardo's approach to fungi shaped Trotter's way of observing, studying and collecting galls, ultimately contributing to the development of a new cross-discipline called 'cecidology'. Three key aspects will be explored: 1) the recognition of galls as a distinct field of study requiring new methods, classifications, and practices; 2) the promotion of a diverse and global community to share and dispute knowledge about galls; 3) the compilation of a 'Sylloge' of galls, a research tool to manage information overload.

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Thing and Form c.1848: Seeing Sound, or what's in a Pendulum?

David Trippett
University of Cambridge

Abstract

Early nineteenth-century attempts to visualize sound waves are traceable across experimentalists from William Swan and John Tyndall, to Helmholtz, Jules Lissajous, and Édouard Léon-Scott de Martinville. A combination of optical and graphic methods proliferated during the 1850s-60s, all of which relied—directly or indirectly—on the isochrony of the pendulum. Following Léon Foucault's pendulum experiment in 1851 to demonstrate the imperceptible rotation of the earth, a flurry of attempts to capture the equivalent invisible motion of sound in space ensued. But from the outset, confusions arose over whether the resulting sinusoids and symmetrical patterns were to be understood as describing the shape of sound waves in themselves or merely as symbolic representations, implicating the role of the imagination and viewing technique in experimental work. This led some to doubt the validity of waveforms entirely, returning the discourse on sound to an Aristotelian distinction between immaterial form and material thing, which formed the basis of contentious debates in New York and at London's Musical Association between 1877-90.

Drawing on experimentalists, composers, mathematicians and early particle physicists, this talk traces debate and disagreement within attempts to visualize sound between Swan's Y-shaped pendulum in 1848 to Tisley's harmonograph in 1873, and its subsequent appropriation by the London Theosophical Society. It also explores Helmholtz's claim that within the century's culture of experimentation, it is the artist who 'has beheld the real', a proposition tested in wave-themed, programmatic keyboard works by Franz Liszt.

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Oceanography existed in the eighteenth-century, and that might matter for how we see marine environments

Jip van Besouw
University of Sevilla

Abstract

People, including scientists, have long thought of seas as vast, empty, and immutable spaces. Or so we are being told. The historiography of oceanography conventionally dates serious scientific interest in marine matters to the 1870s, when the Challenger Expedition scoured the seas for four years. In this talk, I challenge the view that seas were considered as blank slates before the nineteenth century. I do so by drawing on maps of, and treatises about, the seas from the first half of the eighteenth century. These documents show, first, the appearance of credible theories of changing seascapes and, second, that seas became part of conceptualizations of the global environment as a changing system.

This revision is not just a historical corrective. Its wider relevance lies in analogies between the eighteenth-century and the twentieth century when it comes to ways of imagining the seas. Most importantly, I wish to underline that concerns over environmental change were not new in the mid-twentieth century, when such threats as rising temperatures and acidification of marine environments became apparent. Fears and theories of environmental destruction, credible by the standards of their own time if not by ours, had long existed. Therefore, destruction of marine environments set in despite the fact that the sea's mutability had been topical for two centuries. Following Fressoz and Locher (2024), I argue that this realization urges us to analyze what specific theories, institutions, and technologies have been—and sometimes still are—responsible for the destruction of marine environments.

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Caricatures of Darwin and evolution

John van Wyhe
Director of Darwin Online

Abstract

Everyone has seen a the well-known caricatures of Charles Darwin and his theories. They have illustrated publications and documentaries for many years. But the sheer nature of reproducing them means taking them out of their original magazine, newspaper or book and therefore their original context and meanings. These are important clues for deciphering caricatures, as is an understanding of the tradition the caricature comes from or is influenced by. There are in fact many more caricatures of Darwin than previously known by scholars. By their nature caricatures are a relatively coherent genre of production and Darwin and evolution are enduring topics of interest. This talk will outline never-before-revealed extent of these caricatures and how they can sometimes confirm and sometimes challenge the interpretations of historians of science.

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"It is necessary to remind ourselves that man minus his social heritage is feral man": tracing the history of heritage in colonial science and government in (Trans)Jordan, 1880-1950.

Charlotte Vekemans
Ghent University

Abstract

The history of heritage is often framed as a universal human endeavor, progressively institutionalized through international law and collaboration in the 20th century. However, this perspective risks obscuring the colonial and scientific foundations of heritage practices. This paper examines the entanglement of early heritage practices with colonial governance, archaeology and anthropology in Jordan, in the late 19th and early 20th centuries. By tracing the first uses of the term "heritage" in English scholarly publications and British colonial interventions in Jordan, I argue that heritage is not something that has "always been with us" (Harvey, 2001; see also Smith, 2006; Gentry & Smith, 2019) but focus instead on its emergence as a scientific, colonial tool for classifying populations and reorganizing landscapes.

Heritage served as sites of scientific and colonial intervention, where colonial subjects were ranked in degrees of humanity through the analysis of their racial, hereditary characteristics, and their cultural heritage. Developing heritage as a scientific concept to account for cultural, non-hereditary, communalities – colonial scholars and governors employed heritage to reorganize territories to align with imperial visions of history. Drawing on colonial travelogues on (Trans)Jordan, 19th- and early 20th-century anthropological and archaeological scholarship on the region, and secondary literature on eugenicist thought in metropolitan Britain, this paper illuminates how heritage emerged as a scholarly concept, enmeshed in projects of control and power. By situating heritage within the context of colonial science, this paper challenges universalist narratives and highlights the need to critically reassess the colonial underpinnings of practices that continue to shape heritage development today.

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Institutionalisation of Botany and Rubber Plantations in Colonial Southern India

Surabhi Rani Verma
IIT Madras

Abstract

This paper aims to highlight the role of botanical science in successfully establishing Hevea rubber in colonial southern India. Conversely, it also explicates how rubber consolidated botany's place as one of the first branches of organised natural science in colonial India. With the rise of 'economic botany', there were important factors like botanical gardens, scientific advice, external and internal research on cultivation techniques and diseases, dissemination of information, campaigns and the intersection of related fields like meteorology and soil science. This paper will examine such factors with regard to rubber and how they resulted in India becoming part of a global network of botanical explorations and flows.

The precise identification and collection of Indian flora by early surgeon botanists were important to the company's trade in spices, dyes, and other plant products, and this necessitated the development of a network of botanical gardens. The Royal Botanic Garden at Kew, London, became the imperial centre, where all information collected from the colonies was reported for plant transfers. Rubber figured in a major way in these flows. The paper while examining the actual scientific/knowledge aspects will also explain the institutionalisation of the relevant sciences through various policies, initiatives and investments. It will thus highlight the intricate entanglement of botanical science in the material culture of the discipline and the dynamic relationship between plants, people, states, overseas expansions, imperialism and global economies from a connected history perspective.

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Material Humanities. Challenges of object-based research and teaching

Margarete Vöhringer
University of Goettingen

Abstract

Research through collections has been supported by science policy in Germany for over 10 years. As a result, a university museum was founded in Göttingen and my professorship for the materiality of knowledge was established, where I am trying to expand the curriculum across disciplines with object-based teaching. For this purpose, the material environments of the sciences (usually in the form of collections) are used as cognitive spaces, so that students are able to develop new research questions in interaction with the material. The talk will be about the promises that this expansion of the academic understanding of historical sources brings with it, as well as the resistances and questionable points that arise in the process. The activist discourse that I have to face here is decolonization, on the one hand in the sense of returning colonially acquired museum holdings and on the other hand in the sense of the required reinterpretations of these holdings. What is particularly special is that artistic activism plays a formative role in this context.

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Teaching history of science, medicine and technology in a STEM university context

Jennifer Wallis & Michael Weatherburn
Imperial College London

Abstract

The growing number of STEM-focused universities globally has led to the concomitant growth of accompanying or complementary social science, humanities and arts programmes. Interdisciplinarity is much discussed in educational circles, yet student experiences of interdisciplinarity remain under-examined. Drawing on 13 years of experience, this study will discuss the Imperial Horizons Humanities and Social Sciences programme, which offers STEM students modules on the history of science, technology and medicine, as well as languages and other humanities subjects. We will primarily consider the benefits and value of this programme, also outlining challenges encountered. Benefits include transferable skills such as source analysis and writing for various audiences, as well as the social benefits for students seeking intellectual stimulation beyond their chosen degree. In addition, Horizons History modules offer students the opportunity to discuss a range of historical topics with people beyond their discipline, as well as the chance to engage with teaching staff and other practitioners beyond STEM. As such, programmes like this are vital to students' preparation for professional and personal life, demonstrating the importance of interdisciplinarity, creativity, and adaptation. We will explore how, by introducing students to the history of the disciplines they are working within, we might foster a more nuanced and appreciative view of the connections between science, medicine, and history, as well as the relationship between science and the humanities more broadly.

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Strategic Futures: Science Policy, Management Consultancy and Futures Thinking under New Labour

Jacob Ward
Maastricht University

Abstract

This paper explores how futures thinking for science policy and management consultancy converged in the Blair government's first term. The paper will begin with a history of the Technology Foresight programme, which used the well-established futures techniques of Delphi surveys and scenario workshops to survey scientists, industrialists, and financiers across Britain about the potential of emerging sciences and technologies to "create wealth" and raise "quality of life".

The paper then moves onto investigate futures thinking as a management practice in the 1990s. This was especially pioneered by the California-based Global Business Network, and in the UK was deployed by the Henley Centre management consultancy, which advised business and government on how to use futures thinking for strategic advantage. The Henley Centre also cultivated ties to the new left as its founder, Bob Tyrell, sat on the advisory board for the centre-left think tank Demos.

These academic and managerial forms of futures thinking converged in the 1999 white paper, Modernising Government. This white paper pointed to the Foresight programme as a key example of the sort of "strategic thinking" that British government should be doing. The Cabinet Office's Performance & Innovation Unit, led by Demos co-founder Geoff Mulgan, thus created a cross-departmental "strategic futures" group, commissioning a futures survey of the UK from the Henley Centre and writing a futures methods toolkit for government. By the end of the decade, a futures practice that had begun as government science policy had been transformed into a managerial method for all government departments.

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Making History Useful Again: Robert McNamara, the US Department of Defense and Project Hindsight (1965-67)

Michael Weatherburn
Imperial College

Leo McCann
University of York

Abstract

The life and influence of the original 'whiz kid', Robert McNamara (1916-2009), head of Ford Motors, the US Department of Defense (DOD) and the World Bank, has been of interest to scholars of political, military, and business history. His career has also been widely covered by journalists and documentary film-makers, most notably in the Oscar-winning film 'The Fog of War' (2003). Commentary on McNamara is understandably dominated by the role he played in the disastrous U.S. military intervention in Southeast Asia. Less well known are historical experiments conducted under him at the DOD which sought to extract generalisable historical lessons from the DOD research and development (R&D) process. Detailed statistical studies retrospectively segmented nearly twenty years of experimental lab work to understand the relative importance of undirected and directed research in innovation development. Drawing on fresh archival and oral history evidence, this paper will present Project Hindsight afresh, including its impact on subsequent defence innovation.

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Neither Superstition Nor Science: Healing with Plants that Look Like You in Early Modern Europe

Xinyi Wen
University of Cambridge

Abstract

This paper analyses the 'doctrine of signatures' — the belief that a plant's visual resemblance to a human body part could indicate its medical effects — in early modern Europe and why and how this idea made sense to natural philosophers. Past historians often argued that the doctrine of signatures was an occult magical tradition that declined facing the 17th-century 'scientific revolution'. This paper shows that many 17th-century natural philosophers in the early Royal Society circle actually considered it an exciting new method of natural philosophy to be advanced despite controversies. Some aspired to use the theory of atoms to explain the plant-body resemblance, some used chymical elements, while some tried to develop the doctrine of signatures into a comprehensive method of deducing plants' medical virtues through microscopical observation. Some other natural philosophers objected as these attempts failed to locate the medical value of plants in precision. However, in vernacular medicine, many practitioners found this mechanised doctrine of signatures helpful for sorting and understanding remedies. Drawing on these debates, this paper approaches the doctrine of signatures as a set of heuristic procedures fluidly navigating different early modern cosmologies and ontologies. In doing so, it breaks away from the usual magic-science, superstition-reason dichotomic narrative attributed to certain fields of early modern knowledge and emphasises how different ideas and knowledge systems could radically recontextualise each other in the process of transmission.

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Teaching a Global History of Science: Challenges and Opportunities

Simon Werret
University College London

Abstract

This talk addresses the process of creating a new module in University College London alongside calls to ‘Decolonize the Curriculum’. Activism in this area has developed in a productive interaction with changing historiographies, including a turn to postcolonial histories of science, empire, and non-European natural knowledges. My course “What is a Global History of Science?” seeks to present a counter-narrative to traditional Eurocentric accounts of the development of modern science, by exploring common themes and particularities in natural knowledges in a variety of historical and geographical settings around the globe, in Africa, South America, India, Russia, and Japan. Developing the module, in dialogue with programs to decolonize the curriculum, raises questions, to be addressed in this presentation, concerning the identity of the lecturer, the power of language, relations between historical and contemporary inequities and injustices, and the status of science and education in modern universities.

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Statistical Aesthetics: Grammars of Information Design at the Deutsches Hygiene Museum Dresden

Brianne Wesolowski
Leiden University

Abstract

Statistical infographics shape how people come to understand the world. Seemingly ubiquitous, these data portraits are used in bureaucratic practices to manage government; they are used to harvest and track data across fields of science and social science; and they are generously deployed at places such as museums, exhibitions, and trade shows to provide knowledge to public audiences. Having emerged over the course of the nineteenth century, the pronounced presence of statistical infographics begs several questions: How do these graphics transmit knowledge? How do they shape the knowledge captured therein? How do they come to acquire the power of truth? Scholars have detailed the ways in which statistics came to be trusted using the ostensible objectivity of numbers: Easily transportable across time and space, numbers were unpolluted by any complicating human, "subjective" residues. Less studied, however, are the ways in which statistical infographics acquired trust and power precisely because they were intimately interwoven with the subjectivity of aesthetics. My paper uses particular examples of statistical infographics from the Deutsches Hygiene Museum in early twentieth-century Dresden, such as the bell curve and the bar chart, to show that statistical perspectives amplified a particular view of the individual for public audiences, one that guided viewers to understand their own bodies, lives, and health in relation to others. Moreover, I will suggest that the power of these infographics lie not only in their numerical, scientific authority, but in the ways that the aesthetics of these representations served to naturalize the information being transmitted.

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Looking down on refugees: aerial photography (and archaeology) in the history of the refugee camp

Benjamin Thomas White
University of Glasgow

Abstract

Aerial views of refugee camps are a standard visual shorthand for displacement. But what is the history of this way of seeing refugees?

This paper traces the entwined histories of aerial photography and the refugee camp back to the years after the first world war, when both emerged in their modern forms, as military technologies adapted to civilian or humanitarian ends. They were used together by the British and French empires to manage and control newly colonized populations and territories in the Middle East, then the global laboratory for the development of aerial photography. This enterprise extended to efforts colonize the region's ancient past through archaeology, whose practitioners took to the air—and also took an interest in displaced populations.

Aerial views of camps seem to have been less common in the 1940s and 50s, even though these decades saw encampment of refugees across the world and ever more aerial photography. But in the 1960s and 70s, aerial views of camps for the 'new refugees' of the decolonizing Global South were widely disseminated, as aerial photography was civilianized and globalized. And by the end of the twentieth century, aerial (and now satellite) photography was becoming a key tool for humanitarian practitioners planning and running refugee camps. Outlining this uneven history, the paper asks what aerial photography does to refugees when it is used to depict, and manage, camps that accommodate them.

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‘Dipterous angels’? Women and the study of flies at the turn of the twentieth century

Jill Whitelock
Cambridge University Library

Abstract

In the history of British entomology, flies are notable for their long absence as belonging to one of the so-called ‘neglected orders’. Likewise, with a few high-profile exceptions – such as Eleanor Glanville, Margaret Fountaine or Eleanor Ormerod – the contribution made by women is also largely hidden from view. In this paper, I will explore how the nature of flies – small, abundant and capable of breaking down boundaries between exterior and interior spaces – facilitated entomological work by a range of women. By reading the rich archive of the Cambridge dipterist and librarian Francis Jenkinson (1853–1923) ‘against the grain’, I will surface the different roles played by women in his entomological network, from family or friends, such as Ruth Darwin, to domestic staff, notably his housekeeper Annie Allard, and women in higher education, such as Alice (‘Alick’) Embleton, a research fellow at Newnham College and amongst the first women appointed as a Fellow of the Linnean Society. Cambridge, through the circle around George Verrall at Newmarket and David Sharp at the University Museum of Zoology, was at the forefront of advances in Diptera studies at the time. However, women were not members of the University and researchers such as Embleton had no automatic access to facilities such as lecture halls, libraries or labs, using instead the Balfour Biological Laboratory for Women. Flies – multitudinous, mobile and transgressive – enabled women to participate in entomology from beyond those sites from which they were traditionally excluded.

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Meteorology at the End of Empire: British Malaya c.1940-1960

Fiona Williamson
Singapore Management University

Abstract

The employment of Asian staff in British colonial meteorological institutions has a problematic history. With few exceptions, these staff were largely sidelined into junior or menial roles until the late 1940s, when socio-political changes and the transition to self-rule led to a shift in staffing policies in many former colonies. Looking at the case of the Malayan Meteorological Service (MMS) before and after World War Two, this paper takes a close look at the role of non-European staff in that service, examining the vital role they played and the story of how the war, budget cuts and, importantly, preparation for the end of British rule changed irrevocably their status.

This shift was accompanied by a dramatic change in the region's research programme for tropical meteorology - pioneered by local staff - who now had the opportunity to be educated in top-global universities. Before this, funding constraints and colonial agendas had dominated the direction of research, prioritising forecasting over above atmospheric research per se, despite the acknowledgement that knowledge of the tropical atmosphere was woefully lacking. This was to change from the 1950s, independence bringing new life to scientific research as well as to working opportunities in science.

This paper gives a very brief overview of these changes and argues that British policy held back tropical meteorology and potential tropical meteorologists due to the prioritisation of politics and imperial interest, over and above scientific interest.

Ukichiro Nakaya’s Journey Across the Lab-Field Divide

Floris Winckel
Rachel Carson Center, LMU Munich

Abstract

The tendency to contrast laboratories and fields has a decades-old tradition in the history of science. As Vanessa Heggie has argued, because fieldwork became a subject of interest after labwork, historians often assessed the former in terms of how it deviated from the latter, such as the porosity of its boundaries, the heterogeneity of its inhabitants, the extent of its control, and so forth. Scholars have tried to move past this binary perspective, highlighting the overlaps and entanglements between labs and fields and their associated scientific practices. A recent Isis Focus section calls for more historical and ethnographic contextualization of these respective spaces, again emphasizing treatment in their own terms. But its editors also remind us that the lab-field dichotomy was and remains an important way in which scientists describe their work. This dichotomy also remains useful for historical assessments of such work, for instance in cases where research could seemingly be carried out in either space. In this paper I look at one such case, namely the search for the relationship between snow-crystal shape and atmospheric conditions. The paper centres on the work of Japanese physicist Ukichiro Nakaya (1900-1962), who studied snow crystals both in typical lab spaces as well as field spaces. His work, particularly during the 1930s, provides a unique opportunity to assess the relative merits researchers ascribed to labs and fields, as well as the broader merits and limitations of the so-called lab-field divide in the historiography of science.

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Lifetimes: Animal Testing, Temporality and Lifespans

Alice Would
University of Bristol

Abstract

In the 1920s, the British epidemiologist and statistician Major Greenwood began testing on mice. He introduced diseases such as mouse typhoid to these rodents and recorded their fates: their lives, deaths, and frequent instances of cannibalism. Given the 'relative lengths of life of men and mice', he mused that mice populations – and the mouse body – could be mined to understand human epidemics. This was one of the first practical applications of comparative medical research.

This paper will argue that the life and times of different species converged to produce powerful ideas around progress, 'civilisation', and disease prevention. Animal testing is a useful case study of the ways in which conceptualisations of lifespan and temporality emerged in the early-twentieth century in a Western context. Animal lives were shortened through experimentation as part of the bid to lengthen human life expectancy. Their bodies were imagined simultaneously as proxies for the human body, and as creatures that were quite distant and Other. In this paper, I suggest the need to take the nonhuman role in this history seriously. Moreover, it is critical that historians conceptualise and think about time as it was experienced and imagined in the past. Grounding these ideas in the material changes to both human and nonhuman bodies can help us grapple with the significance of lifespan and time, past and present. Greenwood suggested his experiments provided 'a far sharper picture of the march in time of an epidemic disease than the confused palimpsest of human experience has given us.'

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Scientific Instruments Presented to Emperor Qianlong by the Macartney Embassy in 1793

Bin Xu
Palace Museum, Beijing

Abstract

A number of scientific instruments were included in the gifts presented by the Macartney Embassy to Emperor Qianlong in 1793. These included a planetarium, a reflecting telescope, an orrery, a pair of celestial and terrestrial globes, a set of clock and barometer, an air pump, and a large lens. At Macartney's insistence, these fragile instruments were not brought to Rehe with the Embassy, but were left in the Audience Hall of the Summer Palace (Yuanmingyuan 圓明園) in Beijing to be installed. On October 1st, Qianlong came back from Rehe to Yuanmingyuan and inspected these instruments, even watching some demonstrations made by the specialists of the Embassy.

Based on historical documents and images drawn by the Embassy as well as collections in museums, we can clarify the nature of these scientific instruments and analyze the reasons for their selection. Except for the planetarium, which was originally bought from Germany, most of the instruments are similar to King George III's own scientific apparatus. It shows the King’s interest in natural philosophy and the characteristics of the era of Enlightenment. In particular, the discovery of Uranus (Georgium Sidus) led to the selection of two orreries for presentation to Qianlong.

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‘Africa for the Chinese’: Francis Galton’s Early Eugenic Ideas and Settler Colonialism in the Late Nineteenth Century

Xianglong Zhu
University of Cambridge

Abstract

A rich body of literature has critically examined the origins and evolution of Francis Galton’s eugenic, hereditarian, and statistical ideas within the intellectual, political, and socio-economic contexts of Victorian Britain. However, these studies are mostly impact-focused and pay attention to nineteenth- and twentieth-century influence of the sciences in shaping the modern world. From the perspective of global history of science, I raise a commonly overlooked question in the existing literature on the history of eugenics: How was eugenics formed in the global flow of information before it became a global science and a widespread social movement? A lesser-known work by Galton — ‘Africa for the Chinese’ (The Times, 1869), in which Galton advised the British government to promote Chinese immigration to settle in and colonize East Africa, provides a significant clue to address this question. Drawing on English and Chinese sources, I will trace the global flow of information from and about China in Galton’s text and examine the relationship between science and colonialism beyond his early eugenic ideas. I will explain how Galton’s fascination with the Chinese was informed by misleading second-hand sources from Asia and his meritocratic beliefs acquired through previous education. I argue that Galton’s perception of human heredity was linked to his methods of acquiring and processing information before the establishment of eugenics as a scientific discipline. By forming a positive stereotype of Chinese immigrants through selective absorption of information, Galton validated his hereditarian and eugenic assertions.

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Masking Canines in China: Rabies Control, Moral Anxieties, and Blurred Human-Animal Boundaries, 1900s-50s

Meng Zhang
University of Manchester

Abstract

From the late nineteenth century onwards, influenced by bacteriological theories of rabies, both colonial and national authorities in China implemented widespread measures to control stray and domestic dogs, including the use of muzzles, registration systems, and mass vaccination campaigns. Unmuzzled dogs faced severe consequences: their owners could be fined, and the animals were often subject to execution by the police. Notably, Chinese authorities used the term "kouzhao"—commonly understood as "medical masks" used by humans—to refer to these canine muzzles. This deliberate choice of terminology created a widespread hatred towards masks, as "kouzhao" were also being specifically enforced on coolies and other lower-class populations during epidemics at that time.

My presentation will explore how these public health interventions, influenced by colonial and national agendas, attempted to shift the perception of dogs from loyal protectors, traditionally allowed to bark and bite intruders, to dangerous disease carriers. I argue that using "kouzhao" blurred the customary Chinese distinctions between animals and humans, violating cultural norms that animals should not use the same equipment as people. This further heightened moral anxieties, particularly among marginalized groups, who saw these epidemic control measures as oppressive. This linguistic and symbolic conflation of muzzled dogs and masked humans revealed deeper tensions surrounding state authority, public health, and the marginalization of both animals and people during this period.

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Forecasters and Supercomputers: Exploring the Communication of Meteorology and Climate Change in Ireland

Katerina Zouboulakis
Trinity College Dublin

Abstract

In the context of nation-building in the Republic of Ireland, the Saorstát (Free State) Meteorological Service was formed in 1936 and steadily developed into a modern institutionalised science. Leveraging their critical geographical positioning and ability to observe key meteorological phenomena approaching from the Atlantic, the Irish Meteorological Service secured a key role in European meteorology. Colloquially called the Irish Meteorological Service until it changed its name to Met Éireann in 1995, Irish meteorology was founded in close collaboration with the British Meteorological Office (BMO), with the BMO financially supporting the emerging Service. This collaborative relationship would continue throughout the twentieth century against a tumultuous political backdrop.

Drawing from photographs, broadcasting footage, and archival material in concert with oral history interviews, this work will focus on the period from 1975 to 1995 when supercomputing became integral to meteorology. The adoption of computerised and automated technologies was part of a broader effort to fashion meteorology into a professionalised objective field.

Through an exploration of the lived experiences of those working at the Irish Meteorological Service, this work aims to understand how the meteorologists, librarians, and forecasters inevitably left an imprint on meteorological practice. This period of technological transition highlights tensions between the tidiness of public broadcasts in contrast with the realities of scientific practice and the shifting relationship with data as meteorologists sought to quantify their environment.

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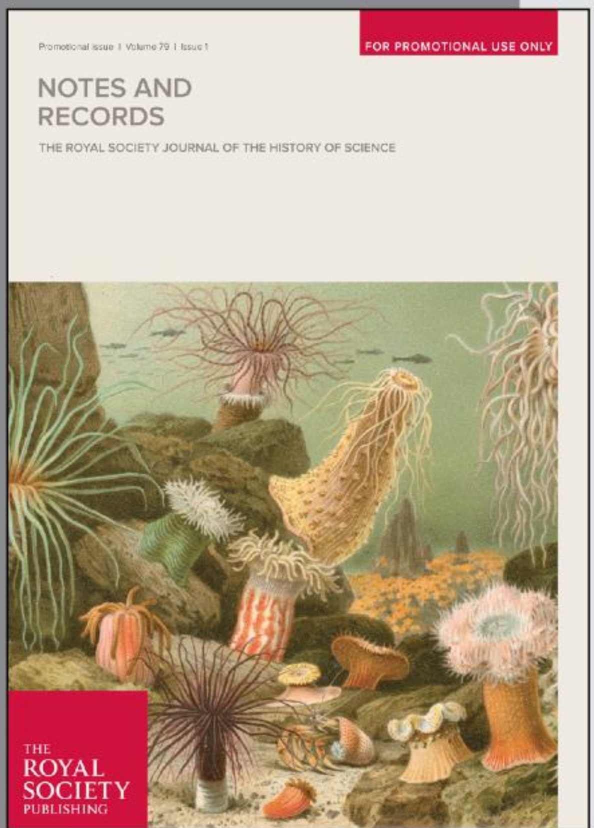
THE ROYAL SOCIETY PUBLISHING

Notes and Records: The Royal Society journal of the history of science ISSN: 0035–9149



Guidance for Speakers

Length of presentation

When preparing your presentation, please keep in mind the time you have been allotted. For stand-alone papers or papers in an organised panel, this will normally include both presentation time *and* the time for questions and discussions.

Please resist the temptation to exceed your allotted time or to abuse the patience of the audience by speaking or reading your presentation very fast in an attempt to fit in more material. BSHS conferences attract an international audience and very fast speech is an obstacle to communication between delegates with different first languages. A short presentation, which leaves more than the expected amount of time for questions and discussion, is preferable to one that has to be cut short in the middle without any questions at all.

Printing

We are unable to guarantee that printing facilities will be available to delegates at the conference venue. If they are, we will normally inform delegates of this fact in advance, via the conference website. If you need a printed copy of your paper or notes in order to present, we recommend that you produce them in advance and bring them with you.
Slideshow presentations

Most presenters at BSHS conferences use slideware software for their presentation, and all presentation rooms will be equipped with laptops or PCs connected to projectors to facilitate this. Powerpoint is the most widely used software, and the most widely supported at conference venues. We recommend therefore, that delegates use Powerpoint or a fully compatible open source equivalent to produce their presentations. We cannot guarantee that slideshows that rely on the installation of other software or continuous internet access throughout the delivery will be supported.

Please do not assume that you will be able to beam your slideshow directly from your own laptop. Connecting and disconnecting laptops can cause delay and inconvenience to other speakers, and reduce the amount of time available for presenting in your session. You should therefore bring your slideshow to the conference on a memory stick and, ideally, have a backup copy available on a cloud server or in an email account.

On the day of the presentation, you should arrive at the room you are speaking in before the start of the session. If at all possible, load your presentation onto the room's laptop or PC before it starts.

Distressing content

BSHS supports the efforts of HSTM scholars to engage fearlessly with the past, without attempting to sanitize it. Many topics in HSTM concern historical injustices and tragedies that it is the responsibility of historians to understand and confront. Examples include the development and use of technologies of violence; experimentation on human subjects; pathologisation of bodily difference; and discredited theories of race, sexuality, and gender, and the policies and behaviours those theories have supported. Please bear in mind, however, that audience members may find images, texts, and even individual words relating to these subjects distressing. If you believe that anything in your presentation may be a cause of such distress, then please indicate this at the start of your presentation. If your historical sources use offensive language – for example, racial slurs – it is best to avoid speaking this language yourself, especially if you are not a member of the historically-targeted group. You might instead present the text on a slide, so that the audience can see it without hearing you repeat it; you might choose to censor the offensive terms by partly obscuring them, without fully concealing what was said or written.

In short, if your material is shocking, please warn the audience; do not set out to use your material to shock the audience yourself.

On the day of your presentation

If possible, arrive at the room in which you will be speaking some time before the start of the session, both in order to load your slideshow presentation onto the room's laptop or PC, and in order to introduce yourself to the chair of your session and discuss any requirements that you have for the session with them and the other speakers.

Photography and social media

If you would prefer that audience members not take photographs or videos during your presentation, and/or that they not tweet any of your remarks, please include this information on your first slide *and* tell the chair of your session when you meet them.

Responding to questions and comments

Both comments and questions are legitimate forms of engagement at BSHS conferences, and are usually friendly, collegial, and a sincere response to your intellectually-stimulating presentation. However, both questions and comments can sometimes be or seem to be hostile and/or self-serving on the part of the questioner or commentator. Do not feel obliged to respond if you find yourself in this situation. A simple 'thank you for your comment' or 'thank you for your question; I don't think I can answer it now' is sufficient. The chair of your session will try to ensure that a hostile or self-indulgent questioner/commentator gets no more than one attempt to misbehave, and your disarming reaction will signal to your chair that you would like to move on.

Programme changes, failure to book, and dropping out

The BSHS will endeavour to produce a draft of the conference programme by the time that booking opens, so that delegates can plan their travel and accommodation needs, but any such programme is *provisional* before booking closes. We will endeavour to accommodate reasonable requests for changes to the programme until the conference opens, but since all changes have consequences for *other* delegates, we may not be able to adjust the programme simply in order to accommodate a speaker preference.

Unless papers have been approved by the BSHS for remote presentation, it is a requirement of inclusion that at least one author books a place at the conference in order to present it in person. If no booking has been made by the advertised deadline, the BSHS reserves the right to withdraw the paper from the programme. Conversely, if you find yourself unable to attend the conference and need to withdraw your contribution, you should inform the following individuals as soon as you can:

(i) the BSHS Programmes Coordinator [programmes@bshs.org.uk] (if your paper has been accepted, but you have not yet booked a place at the conference]

(ii) the BSHS Programmes Coordinator [programmes@bshs.org.uk] *and* the BSHS Executive Secretary (office@bshs.org.uk) (if your paper has been accepted *and* you have booked a place at the conference)

(iii) the organiser(s) of your symposium, if you were scheduled to participate in an organised panel, roundtable discussion, workshop, or other session.

Guidance for Chairs

At BSHS Annual Conferences, Chairs of sessions play an important role in helping to ensure that each conference session runs smoothly and to time, and that it is a productive and positive experience for all participants, in line with the values and aims of the BSHS.

In summary, your role as Chair is to: (i) introduce the speakers, and ensure that they have an equal opportunity to present their work (ii) ensure that the speakers' requests regarding photography and tweeting of their presentation are respected (iii) manage the Q&A or discussion portion of the session, and ensure that all participants are treated respectfully and equitably (iv) make any announcements requested by the BSHS (v) inform the conference desk and/or AV support of any technical problems as soon as possible.

In advance of the session

Please arrive at the session room several minutes before the session starts, in order to meet with your speakers, check that they have loaded their slide presentations (if any) onto the room laptop or PC, and confirm with them (i) how they would like to be introduced (ii) whether they have any special requirements or requests, e.g. a request that photographs of their slides not be taken during their presentation.

The room should contain (i) a set of 'traffic light' cards for use during the speaker's presentations (ii) guidance on the projection equipment and how to report any technical problems.

At the start of the session

Please identify yourself at the start of the session, identify the session by its title, and announce any *unavoidable* changes to the advertised schedule for the session (due, for example, to the absence of a speaker) or special features of the session. These may include if, in an organised panel, questions will be taken after each speaker or at the end of the session or both, and how long, in a roundtable discussion, each panellist has been asked to speak for.

Introducing the speakers

Please check with the speakers how they wish to be introduced, but also try to make sure that your introductions are equitable: if you introduce one speaker by title, name, and institution, you should probably introduce all speakers that way. Do try to keep your introductions brief.
During the speakers' presentations

In a standard session, or an organised panel, your most important job during the presentations is to keep each speaker to the time allotted to them. Please use the 'traffic light' cards supplied for this purpose. You may also need to act if (i) the session suffers from any kind of disruption or technical difficult that affects the ability of the speakers to present or (ii) it becomes apparent that speakers' wishes regarding photography and social media reporting are not being respected.

Questions, comments, and discussion

As Chair, your job is also to manage the question and discussion period. When this happens will depend upon the type of session you are chairing and what has been decided and advertised in advance. In a standard session, time for questions will be included in the time available to each speaker. Please do not deviate from this format; it inconveniences delegates who, for whatever reason, need to leave or arrive after the session has started. In an organised panel, it may have been decided when the panel was proposed to have questions and discussion after each paper, or reserve these until the end.

As indicated in the Guidance to Speakers, both questions and comments are legitimate forms of response to a paper delivered in a standard session or organised panel, but speakers are not obliged to engage with hostile or self-indulgent questions or comments. As Chair, please take note if your speakers' responses indicate that they wish to move on. You may wish to instruct the audience that there is no automatic right to a follow-up question or comment, and so participants should ask their most pressing question first; whether or not a second question or comment is possible will depend on how many other participants have things they wish to say.

In selecting questioners, please strive to be equitable: avoid favouring one part of the room over others, because it falls more directly within your visual field; avoid favouring scholars you recognise over those you don't; avoid favouring senior scholars over junior ones; avoid favouring scholars of one gender, race, or ethnicity more than scholars of another. Please resist any temptation, if it occurs, to answer questions *on behalf of* a speaker. It is *not* the Chair's prerogative to ask the first question, but you may wish to be ready with a question or comment if (i) the audience is slow to start asking questions or (ii) the discussion favours one or more presenters in an organised panel or roundtable at the expense of others.

At the end of the session

Sessions do sometimes overrun due to the enthusiasm of their participants, but please ensure that the session ends as soon as possible after its scheduled close, so that delegates can benefit from the break and/or refreshments, and the room is available for the next scheduled event. If you have been asked by the BSHS to make an announcement at the end of the session, please do it after you have asked the audience to thank the speakers.

Please ensure that the 'traffic light' cards and equipment instructions are left in place for the Chair of the next session.

If you have any concerns about anything that happened during the session, please bring them to the attention of the conference officer at the BSHS Conference Desk at the earliest possible opportunity.

"I think we just have time for one more quick question."

Cartoon by Edward Steed, *The New Yorker.*

BSHS Social Media Policy

The British Society for the History of Science (BSHS) strives to be a community that welcomes and supports people of all backgrounds and identities. This includes, but is not limited to members of any race, ethnicity, culture, national origin, colour, immigration status, social and economic class, educational level, sex, sexual orientation, gender identity and expression, age, size, family status, political belief, religion, and mental and physical ability. We are committed to providing a welcoming and inspiring community for all.

We want every BSHS Annual Meeting to be a safe and productive environment for delegates. We expect all participants—attendees, speakers, sponsors and volunteers—to demonstrate appropriate behaviour at BSHS conferences, including BSHS-related social events and in related online communities and social media.

The BSHS often uses social media as a complementary channel for conference communication. Ideally, this encourages and perpetuates the intellectual exchange inspired by keynotes, guest speakers and conference delegates. It facilitates virtual attendance to BSHS events and helps resolve the dilemma of wanting to attend more than one panel at the same time. In order to ensure that conference social media use is a positive and affirmative experience for all users and non-users who are quoted and referenced throughout a BSHS event, we request that social media users adhere to the following guidelines:

- First and foremost, think before you post. Use common sense and courtesy when posting. The 'Golden Rule' is: post unto others as you would have them post unto you. Remember, we are a community of professionals and we should conduct ourselves professionally.

- Be generous with compliments and feel free to share interesting links to projects and materials, highlighting a colleague's research in a positive way. The tone of post should always be polite and respectful, as if you were speaking to the presenter directly.

- Questions, comments and constructive feedback should be made on social media in a courteous manner. When quoting or citing others' work, we ask users of social media to uphold our scholarly values of intellectual collegiality and accuracy, and to respect context at all times to avoid misrepresentation and appropriation.

- Please be prudent about posting unpublished research results. Respect the presenter's wishes: If a presenter says they would not like their paper to be posted to social media, then this should be adhered to. If a presenter is OK with posting of comments but asks you to refrain from posting pictures of their slides, please adhere to this as well.

- If a presenter has a social media handle, mention it in the first of your posts from the panel. Also include the conference hashtag (e.g. #BSHS2025) so others may find tweets relating to the conference and their work quickly. In some cases, it may be sensible to include information on the panel (e.g. panel #d4) as well. When quoting directly, always include the name of the scholar or their social handle.

- Questions and comments should always relate to the presenter's research and ideas only – not to their person or their mode of presentation. The strength of our community comes from its diversity.

According to our archival policy, we archive all posts using the conference hashtag. We may make them available via the BSHS website and they are deposited digitally in the BSHS archive.

These guidelines reflect our common understanding and goal of a collaborative, shared environment. We expect it to be followed in spirit as much as in the letter. In the case of inappropriate social media use, please inform a member of the BSHS Council and please do not engage at all with posts that may be in breach of these guidelines.

(Guidelines adapted with permission from *SHARP*)

Bookshop Guide to Cambridge

Cambridge University Press Bookshop - 1-2 Trinity St, Cambridge CB2 1SZ
(Open – T/W/Th 10:00-17:30) - https://www.cambridgebookshop.co.uk/

For new books

Waterstones – mainstream and academic bookseller - 22 Sidney St, Cambridge CB2 3HG
(Open – T/W/Th 9:00-19:00) - https://www.waterstones.com/bookshops/cambridge-sidney-str

Heffers (part of Blackwells chain) – academic bookseller - 20 Trinity St, Cambridge CB2 1TY
(Open – T/W/Th 9:00-19:00) - https://blackwells.co.uk/bookshop/home

Forbidden Planet – Graphic Novel/Comic Store - 28-30 Burleigh St, Cambridge CB1 1DG
(Open T/W/Th 10:00-18:00) - https://forbiddenplanet.com/

For Second-hand booksellers

G. David ~ Bookseller - Old-school shop selling antiquarian, second-hand and remaindered books, maps and prints since 1896 [often HPS books] - 16 St Edward's Passage, Cambridge CB2 3PJ
(Open T/W/Th 10:00-16:00) - https://www.gdavidbookseller.com/

The Haunted Bookshop – specialising in Children's and Illustrated - 9 St Edward's Passage, Cambridge CB2 3PJ
(Open T/W/Th 11:00-16:00) - http://www.sarahkeybooks.co.uk/

Oxfam Bookshop – specialising in second-hand, can be pricy - 28 Sidney St, Cambridge CB2 3HW
(Open T/W/Th 10:00-17:00) - https://www.oxfam.org.uk/shops/oxfam-bookshop-cambridge/

Books for Amnesty (Amnesty International) – good selection, cheap - 4 Mill Rd, Petersfield, Cambridge CB1 2AD
(Open T/W/Th 11:00-17:00) - https://www.amnesty.org.uk/second-hand-bookshop-cambridge

For Speciality Booksellers

Bodies in the Bookshop – new and second-hand Crime Fiction - 1A Botolph Ln, Cambridge CB2 3RD
(Open T/W/Th 11:00-17:00) - https://bodiesinthebookshop.co.uk/

BSHS Good Pub Guide to Cambridge

Cambridge has many pubs. A few are good, most are terrible student/tourist traps. Make sure your drinking passes with no corrections with this handy guide to good pubs near to the conference venues.

Eagle – 8 Bene't Street, CB2 3QN

Probably the most famous pub in Cambridge, with its galleried courtyard and back room ceiling covered with graffiti applied by World War Two airmen. This is also where Watson and Crick announced that, in nearby labs, they had worked out the double helical structure of DNA, the "secret of life". A window at the back of the pub has been open for 300 years - because it's believed a child died in the pub during a fire when the window couldn't be opened.

(Serves Food 12:00-22:00)

https://www.greeneking.co.uk/pubs/cambridgeshire/eagle

Pint Shop – 10 Peas Hill, Cambridge, CB2 3PP (close to Eagle)

When it opened, in November 2013, this was Cambridge's first new pub in over a decade but it started a trend. An impressive Georgian townhouse, where EM Forster once lived. Formerly used as Cambridge University's pensions office. Extensively refurbished with multiple rooms across three floors providing a variety of drinking and dining areas. The rear terraced patio garden provides for outdoor eating and drinking and is separated from the smokers' alley.

(Serves Food 12:00-21:00)

https://pintshop.co.uk/locations/cambridge/

BrewBoard Taproom – 4-5 Peas Hill, Cambridge, CB2 3PP (close to Eagle and Pint Shop)

Opening in late November 2024, initially as a Christmas pop-up, it continued into spring 2025 before applying to become a permanent venue. A former shop next door to the Arts Theatre converted into a bottle shop and taproom for local brewery, BrewBoard. Rotating selection of draught keg and cask beers, among all manner of other spirits, wines and soft drinks in a cracking central Cambridge location.

(No food)

https://www.brewboard.co.uk/peas-hill-taproom/

Mill – 14 Mill Lane, Cambridge, CB2 1RX

More commercial and mainstream than BSHS Pub Guide would usually suggest…however its on the river and near the conference venue. The bar now sports a wood-block top with eight handpumps one of which is for cider. The pub has a strong commitment to locally and regionally brewed beers. Barsham's beers are usually available as well as ones from Adnams and Oakham. Beers brewed at its sister pub, the Cambridge Brew House, by the Cambridge

Brewing Company may also appear. Tasty, cooked on the premises, food with locally sourced ingredients wherever possible. A vintage radiogram is used for playing vinyl records.

(Card payments only. Serves food until 9pm)

https://www.themillpubcambridge.com/

Granta – 14 Newnham Road, Cambridge, CB3 9EX

Further away than the other pubs here the Granta is on the other side of the river from the Mill. Popular with the HPS department the pub is a lovely place for a drink in the evening (can get very busy at peak hours). A veranda and patio garden both have lovely views over the Mill Pond. Punts can be hired next to the pub. Home cooked food served every day with occasional summer barbecues. Sometimes has Timmy Taylors Landlord on draft (if you know you know).

(Serves food 12:00-20:00)

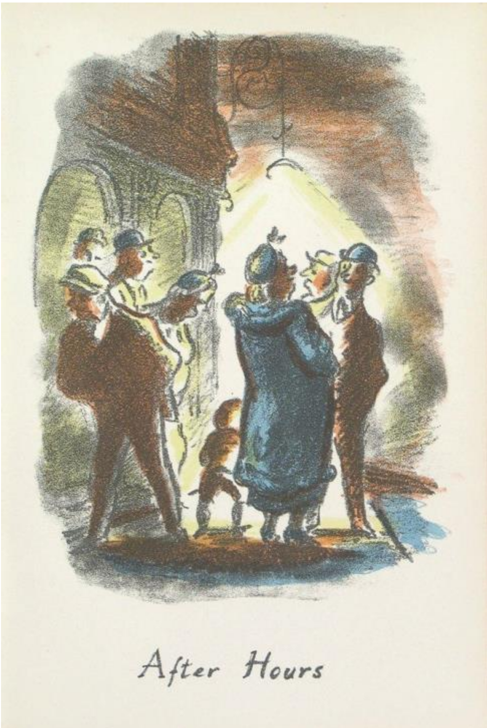
https://www.greeneking.co.uk/pubs/cambridgeshire/granta

Cambridge Tap – 32 St Andrew's Street, Cambridge, CB2 3AR

New bar in what was formerly a branch of the Cambridge Building Society. Opened in 2021 offering burgers, craft beer and cocktails. Two handpumps with McMullen's cask ale. The upstairs bar has views of Emmanuel College.

(Serves food 12:00-21:00)

https://www.mcmullens.co.uk/local-pub/cambridge-tap/



'After Hours', Edward Ardizzone, 1939

Coffee & Café Guide

Close to the Pitt Building/HPS

Fitzbillies - 51-53 Trumpington St, Cambridge CB2 1RG
http://www.fitzbillies.com/

Old-school bakery and cafe serving traditional pastries with artisan coffee. Sit in or takeaway – this is a Cambridge institution!

Espresso Lane - 1 Botolph Ln, Cambridge CB2 3RD
https://www.espressolane.co.uk/

If you want a quick coffee that's superior to conference coffee head here – you'll pass it walking between the Pitt and HPS. Really nice guy who runs it. Great way to start your conferencing day.

Trockel, Ulmann & Freunde - 13 Pembroke St, Cambridge CB2 3QY

This place is very very good. As one of its signs once said "Larger students are harder to kidnap...stay safe eat cake!" we hear this is a favourite of a certain famous Cambridge based Darwin scholar.

Website – you've got to be kidding! This place is under-the-radar.

Pages Coffee House - 40 Trumpington St, Cambridge CB2 1QY

Pages is your friendly neighbourhood coffee house, offering expertly crafted speciality coffee (with Monmouth Coffee Beans), delightful drinks, and freshly baked treats. Really nice place to relax.

https://www.pagescambridge.com/

Cafe Aristo - 16 Silver St, Cambridge CB3 9EL

Another nearby coffee shop – close to Pitt Building

http://www.cafearisto.co.uk/

As you would expect for any University town there are hundreds of coffee shops and cafés in Cambridge – if you want to venture further afield than these close by options above see - https://www.visitcambridge.org/place-categories/coffee-shops-tea-rooms/

Local Points of Interest

Nearest Supermarkets:

Tesco Express– essential groceries
Unit 3-5 Petty Cury, Cambridge CB2 3NE -(open 6am-10pm)
Unit 5&6 Christ's Ln, Cambridge CB1 1NP – (8am-11pm)

Marks and Spencer Food – slightly more upmarket
5 Market Hill, Cambridge CB2 3NJ (open 8am-7pm)
6-11 Sidney St, Cambridge CB2 3HH (open 8am-7pm)

Sainsbury's – slightly bigger than the above (nearest to Kings College)
42-45 Sidney St, Cambridge CB2 3HX (open 7:30am-10pm)

Chemist/Pharmacy:

Boots Pharmacy – medicines and toiletries
28 Petty Cury, Cambridge CB2 3ND (9am – 7pm)

Tourist Information:

Cambridge Tourist Information Centre - https://infocambridge.com/
The Guildhall, 11 Peas Hill, Cambridge CB2 3PP (open 10am – 5pm)

Essential Services

Campus Security: **+44 (0) 1223 331818**

Non-urgent enquiries at security@admin.cam.ac.uk

Kings College Porters: **+44 (0) 1223 331100**

Local Police/Ambulance/Fire Service: **if urgent ring 999**

Non-urgent: Police (101), Ambulance or Health enquiry (111)

Nearest Hospital Accident & Emergency (Emergency Room)

Addenbrooke's Hospital, Hills Rd, Cambridge CB2 0QQ – 24/7

Museums – *BSHS Reviews by Mika Hyman (Cambridge HPS PhD Student)*

For a google map with all the Museums clearly marked on it – [Click Here]
(for a printed map see maps section)

The Whipple Museum of the History of Science
https://www.whipplemuseum.cam.ac.uk/
Monday - Friday 12:30-16:30
Whipple Museum of the History of Science, Free School Lane, Cambridge CB2 3RH

Description
The Whipple Museum contains a rich collection of scientific instruments, models, pictures and other materials relating to the history of science.

BSHS Review
The Whipple Museum is a must visit for historians of science. A new special exhibition on Physics and Glass is a tribute to the art of the scientific glassblower. It is a chance to see highlights of the Whipple's collection of stunning glassware.

Cambridge Museum of Technology
https://www.museumoftechnology.com/
Friday-Sunday 10:30am-4pm
Cambridge Museum of Technology, The Old Pumping Station, Cheddars Lane, Cambridge,CB5 8LD

Description
The Cambridge Museum of Technology explores local industrial heritage. Housed in a converted late 19th c. sewage pump station, the collection showcases 19th c. engineering and technology.

BSHS Review
Although slightly far away, the museum is especially interesting for those interested in histories of technology and industry. There's a particularly impressive, preserved Steam Engine Room. In the lower yard of the museum, there's a fantastic coffee shop, Kerb Kollective, and a nice pizza place and brewery so you can make an afternoon of it!

Botanic Gardens
https://www.botanic.cam.ac.uk/
Monday-Sunday 10am-6pm
1 Brookside Cambridge CB2 1JE

Description
The Cambridge University Botanic Garden (CUBG) is home to over 8,000 plant species. Encounter these plants in spaces such as the wild meadows, the taxonomically organised systematic plant beds, and the greenhouses!

BSHS Review
CUBG offers some fascinating insights into the history of botany here in Cambridge and beyond. The chronological beds reveal the stories of how plants were introduced to the British Isles and when. The systematic beds were also one of the first horticultural features to be installed in the nineteenth century. They showcase plant classification and these beds are particularly vibrant during the summer months! There's a lovely cafe and giftshop too filled with botanical treats.

Museum of Zoology https://www.museum.zoo.cam.ac.uk/

Tuesday-Saturday: 10am-4.30pm

Museum of Zoology, Downing Street, Cambridge. CB2 3EJ

Description
With several thousand specimens ranging from elephants and dodos to birds, insects and molluscs, the Museum of Zoology is a rich and exciting collection in the centre of town.

BSHS Review
You can't miss the impressive 21 metre long Fin whale when you walk in. Keep walking in and you'll soon encounter a nine feet tall elephant, some Mammoth dung and beetles collected by Charles Darwin!

Museum of Archaeology and Anthropology https://maa.cam.ac.uk/

Tuesday to Saturday: 10am-5pm
Sunday: 12pm-5pm

Museum of Zoology, Downing Street, Cambridge. CB2 3EJ

Description
The Museum of Archaeology and Anthropology explores humanity's history over hundreds of thousands of years from around the world. As a local museum it also displays archaeological finds from the Cambridge region.

BSHS Review
In addition to the permeant collection, a new exhibition "Fault Lines: Imagining Indigenous Futures for Colonial Collections" highlights a collection of objects to ask key questions about the relationships between Indigenous communities and museums founded on colonial-era collections. Upstairs, "People and Stuff: A Subversive Collection" is a living art collection exploring dynamics between the past, ourselves, artefacts and places.

Museum of Classical Archaeology https://www.classics.cam.ac.uk/museum

Tuesday-Friday: 10am-5pm

Museum of Classical Archaeology
Faculty of Classics, Sidgwick Avenue
Cambridge, CB3 9DA

Description
The Museum of Classical Archaeology in Cambridge houses one of the largest plaster cast collections in the world. The galleries invite visitors to explore a world of Greek and Roman sculptures.

BSHS Review
For those interested in questions around interpretation and conservation, the Peplos Kore offers an intriguing story about the role of colour in classical archaeology.

Museums

Fitzwilliam Museum https://fitzmuseum.cam.ac.uk/

Tuesday-Saturday: 10am-5.00pm Sundays: 12-5pm

Fitzwilliam Museum, Trumpington Street Cambridge, CB2 1RB

Description
The Fitzwilliam Museum houses a world-renowned collection of over 500,000 artworks and historical artefacts.

BSHS Review
The exhibition What's New XXL, offers a chance to see some of the newest and biggest acquisitions in the collection including works by William Hogarth and Lucian Freud. Discovering Dürer brings together a selection of prints by the artist to explore the art and history of print-making.

Kettle's Yard https://www.kettlesyard.cam.ac.uk/

Tuesday - Sunday: 11am-5pm

Kettle's Yard, Castle Street Cambridge, CB3 0AQ

Description
Kettle's Yard is the University of Cambridge's modern and contemporary art gallery. It is a beautiful house with a striking collection of artworks; a gallery also showcases temporary exhibitions.

BSHS Review
The tour of the permanent collection is a must-do and there is also a nice café and gift store to enjoy before or after a collections visit. For those sticking around Cambridge after the conference, a new exhibition with works by Lubaina Himid promises to be excellent.

Sedgwick Museum of Earth Sciences https://sedgwickmuseum.cam.ac.uk/

Monday - Friday 10am-5pm
Saturday 10am-4pm

Sedgwick Museum of Earth Sciences Downing Street, Cambridge, CB2 3EQ

Description
The Sedgwick Museum holds more than a million rocks, fossils, minerals and associated archival material acquired over more than 250 years.

BSHS Review
A temporary exhibition, Breaking New Ground: Celebrating Past, Present and Future Women Earth Scientists at the University of Cambridge, celebrates the important role of women geologists. The Woodwardian collection is one of the world’s oldest intact geological collections and is historically unique.

Scott Polar Museum https://www.spri.cam.ac.uk/museum/

Tuesday-Saturday: 10am-4pm

The Polar Museum, Lensfield Rd
Cambridge, CB2 1ER

Description

The Scott Polar Museum showcases the materials used in and collected on polar expeditions.

BSHS Review

There are a number of fascinating objects from the collection to explore. These include fossil ferns, snow coggles used by Ernest Shackleton and a folding camera used by Robert Falcon Scott at the South Pole.

University Library https://www.lib.cam.ac.uk/

Monday - Friday: 9am-6:30pm
Saturday 9am-4:30pm

Cambridge University Library, West Road,
Cambridge, CB3 9DR

Description

The Cambridge University Library holds an impressive collection of manuscripts and rare books. Some of these are on display in special exhibitions.

BSHS Review

The 'Curious Cures' exhibition brings together Medieval texts, diagrams and case-notes from special collections cared for by Cambridge University Library and twelve Cambridge colleges.

FREE PUBLIC EXHIBITION

CURIOUS CURES
MEDICINE IN THE MEDIEVAL WORLD

Fascinated by health and wellbeing? So were our medieval ancestors.

Discover a time when unusual ingredients and questionable remedies mixed with genuine curiosity about how bodies function, creating a complex and intriguing world of ritual healing, herbal recipes, stargazing and surgery.

Come and see what the doctor ordered...

29 MARCH - 6 DECEMBER 2025
Open Monday to Saturday
See website for holiday closures

Booking essential
Entry is FREE and OPEN TO ALL!

www.lib.cam.ac.uk/exhibitions

@cambridgeuniversitylibrary
#CuriousCures

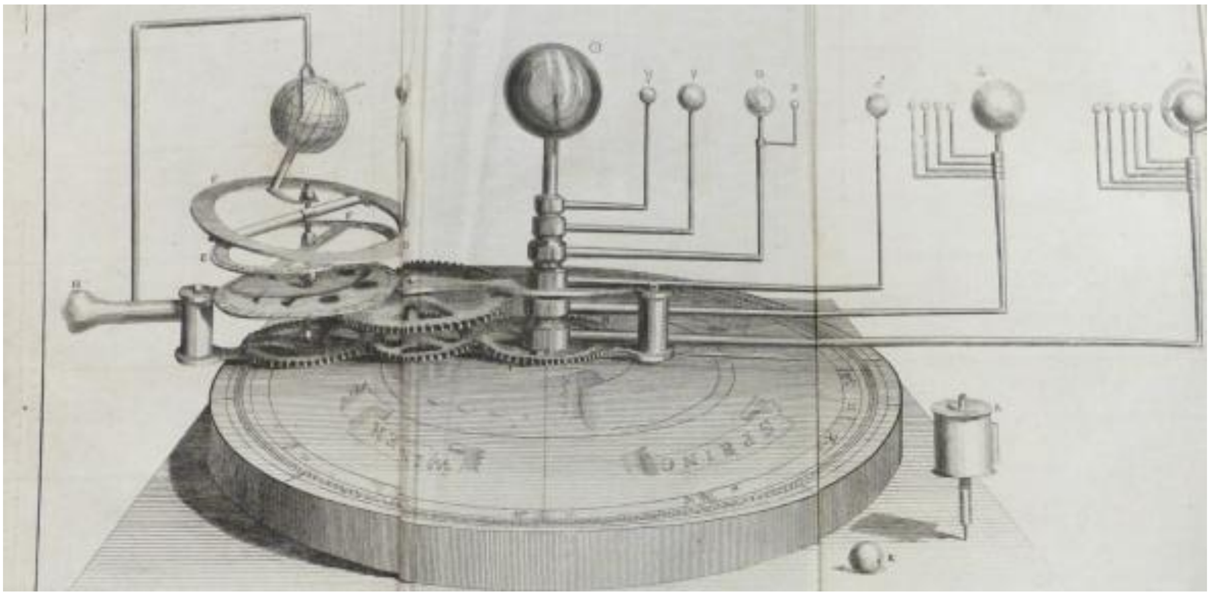
VISITOR INFORMATION

Our exhibition starts in our dedicated exhibition space and finishes within the main library North & South Gallery spaces. Booking tickets in advance ensures you can step inside our iconic 1934 Giles Gilbert Scott building to see the whole exhibition and stop for some refreshments in our Tea Room.

For accessibility information, visit www.lib.cam.ac.uk/accessibility. To use the reading rooms and to access all our collections, read about membership on the back page.

Curious to know more? Discover all the manuscripts in the exhibition and from across the Wellcome-funded research project on our digital library. Further explore medieval medicine with our recommended reading list www.lib.cam.ac.uk/exhibitions.

Special Collections in Cambridge



The Whipple Library, part of the Department of the History and Philosophy of Science maintains a directory of HPS – related special collections in the University of Cambridge.

DIRECTORY OF HPS RELATED SPECIAL COLLECTIONS
(https://www.whipplelib.hps.cam.ac.uk/resources/directory)

This is simply too vast to replicate here. This directory indicates the locations of key HPS-related special collections (rare books/manuscripts/papers) of the University of Cambridge. Its purpose is to assist researchers in negotiating the many different ways in which Cambridge collections are described/catalogued (or not catalogued). Rather than an exhaustive catalogue, it simply provides a starting point for researchers, enabling them to browse the vast range of HPS-related library materials that exist in Cambridge.

The Whipple Library itself is open to delegates to use during the conference. Here you will find printing facilities, an extensive collection of secondary sources, reliable wi-fi (Eduroam) and dedicated team of knowledgeable staff who can help with any library/collections related question you might have. Please bring any institutional ID you might have, or just Photo ID, you'll need to fill in a visitor form and then you are all set!

Whipple Library Website (https://www.whipplelib.hps.cam.ac.uk/)

Acknowledgements

Local Organiser: Jim Secord.

Student Volunteers: Mika Hyman,

BSHS Programmes Committee: *Programme Chairs:* Nathan Bossoh and Sam Robinson. *Programme Review Committee:* Elaine Leong, Katalin Straner, Jim Secord

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Thanks! That's All Folks!

'Disembarkation at Southend' Edward Ardizzone Archive, *undated.*


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