



AAHPSSS 2023

University of Sydney, AUS

AAHPSSS 2023 WELCOME



PRESIDENT'S ADDRESS 2023

Welcome delegates to the 2023 AAHPSSS conference at the University of Sydney. I'd like to thank CHASS for the invitation to participate with our sister professional societies and hope you all get an opportunity to participate in some of the other activities on offer as part of this bigger event.

AAHPSSS 2023 has a typically wide-ranging programme on offer for attendees. There are half a dozen sessions in the history of science, medicine and engineering across the three days of the conference, along with several in the philosophy of science and the metasciences

There are also four organized panel discussions, the first of which is on nuclear power, AUKUS and the new cold war, which I'll be leading on Wednesday morning. A second panel discussion on the future of HPS in Australia will be held in the first session on Thursday. The third panel is focused on re-centring the lived experience of people who identify as mentally ill, neurodivergent and disabled in the research that's conducted about them. That will be held during the late morning session on Thursday. The fourth panel on Friday morning confronts the challenges presented by synthetic biology in relation to so-called 'negative emissions technologies' (NETs), and how they should be conceptualized and implemented. That session will be preceded by a plenary featuring Jane Calvert from the University of Edinburgh, who will explore questions about the places and spaces in which STS is practiced, and what they mean for the future of STS.

There are two other plenary sessions, the first of which is on Wednesday morning featuring Indigenous scholar Mitch Gibbs (USyd), who'll provide us with an overview of First Nations' knowledge of Australian shellfish. The second plenary on Wednesday afternoon features Natalie Koehle (USyd), who will be urging us to rethink Eurasian connections in the history of medicine.

Our Dyason Lecturer this year is Rachael Brown from ANU, who on Wednesday evening will be providing an overview of developments in the philosophy of biology since the 1970s, along with the current state of knowledge in the field. I hope you can join us for this free event.

A postgraduate workshop will be held on Thursday afternoon, while the AAHPSSS AGM will occur during the lunch break on Thursday. Please consider whether you might like to join the executive committee or participate in the postgraduate workshop.

The conference dinner will take place Wednesday night, so anyone intending to join us that evening should let us know as soon as possible. Two CHASS organized events are open to AAHPSSS attendees on Thursday and Friday evenings, along with some of the other professional society sessions, about which we will be able to tell you more when the conference opens.

AAHPSSS 2023 WELCOME

I want finally to thank our executive committee for their time and effort in bringing us all together. Most of that work has been done by our secretary, Martin Bush, vice-president, Roberta Pala, and treasurer, Gemma Smart, along with the indefatigable John Wilkins, who will be retiring from his long stint as webmaster for AAHPSSS in January 2024. I'd also like to thank Lucia C. Neco for her work designing this year's conference programme, and the student volunteers who'll be assisting attendees with any queries they may have over the next few days.

Dr Adam Lucas

President

Australasian Association for the History, Philosophy, and Social Studies of Science

About AAHPSSS

AAHPSSS is the Australasian Association for the History, Philosophy, and Social Studies of Science, and covers all aspects of science studies broadly construed. It is a not-for-profit association, with the mission to advance the history, philosophy and social studies of science and technology. Membership is open to anyone interested in science studies, including residents of countries outside Australia and New Zealand. The Association has been active since 1967.

More information, including how to join and a list of the current committee can be found at the AAHPSSS website: aahpsss.net.au

About CHASS

The Council for the Humanities, Arts and Social Sciences (CHASS) exists to raise awareness of Humanities, Arts and Social Sciences (HASS) and their critical role in building the societies of the future. Throughout our history, we have sought to shape reform and positive change both drawing upon and gaining recognition for the strengths of the sector.

About the 2023 Congress

The University of Sydney, through its Faculty of Arts and Social Sciences, is hosting the Congress of the Humanities, Arts and Social Sciences (HASS), November 27 - December 1, 2023. The Congress of the HASS brings together the peak bodies and discipline associations in HASS to run workshops and conferences under one banner, hosted by a leading university in HASS scholarship and education. The inaugural Congress took place at the University of Melbourne in 2022 with 22 associations taking part. It attracted over 2000 delegates.

AAHPSSS 2023 WELCOME

Whova App

The 2023 Congress of the Humanities, Arts and Social Sciences is utilising the Whova app for the program of all participating organisations, including AAHPSSS. All delegates should be automatically registered to the event – let an AAHPSSS organiser know if this is not the case. It is not compulsory to use the app to attend AAHPSSS. If you do choose to use the app you will be able to access the program for AAHPSSS and all other conferences and public events, build a personalised schedule, and access online sessions for the conferences for which you are registered. There are also a variety of social features to connect delegates across all conferences.

Code of Conduct

We are committed to providing an environment free of harassment and discrimination for everyone, regardless of gender, race, ethnicity, sexual orientation, gender identity, gender expression, disability, age, appearance, religion, or other group status. For the purposes of this conferences, attendees can contribute to creating a safe and inclusive environment by:

- Not assuming a person's gender until they have disclosed it to you
- Respecting anyone's choice of gender pronouns.
- Not defaulting to male pronouns for ungendered subjects.
- Framing discussions as openly and inclusively as possible and being aware of how language or images may be perceived by others.
- Issuing content warnings if your talk or slides might be distressing.
- Engaging respectfully – do not talk over other speakers, keep your talk to the time allocated, keep questions concise so that multiple people can engage.

Chairs will be responsible for ensuring compliance with the Code of Conduct during conference sessions. Any serious breaches should be reported to a current member of the AAHPSSS Committee and may lead to conference registration being cancelled and/or expulsion from AAHPSSS.

AAHPSSS 2023

VENUE

General information

The Old Teachers College can be found on the corner of Western Av and Manning Road and is highlighted on the map below.



Accessibility

- Ramp and lift access through the north entrance of the Old Teachers College on Manning Road.
- Disability parking in front of the north entrance and also next to the Quad.
- Accessible bathrooms with automatic doors.
- Hearing Loops in all rooms.
- Captions available via Zoom.



North entrance with ramp and lift access on Manning Road along with disability parking in front.

AAHPSSS 2023

VENUE

Wi-Fi details

Connect to free Wi-Fi through the UniSydney-Guest network without needing a login.

Food and coffee

Ralphs café is recommended for good food and coffee nearby.

Manning Bar has a variety of basic food options.

The Courtyard Restaurant and Bar has high quality food and alcoholic drink options.

Parking

There is only paid parking on campus which requires the CellOpark app:
<https://www.cellopark.com.au/Site/about/>

The campus is also surrounded by streets with mostly 1-2 hour parking.

There is free parking found on Arundel Street (noted on the map), however it fills up quite quickly in the morning so there is no guarantee of finding a park.

Public Transport

The closest train station is Redfern south-east of campus which is a 15-20 min walk to the Old Teachers College.

There are many buses that stop on a nearby bus stop on Parramatta Rd/Great Western Highway (note on the map, opposite Officeworks).

More info about the best ways of getting to campus can be found here:
<https://www.sydney.edu.au/about-us/campuses/getting-to-campus.html>

AAHPSSS 2023 COMMITTEE

2021 – 2023

President: Adam Lucas
University of Wollongong

Vice-President: Roberta Pala
University of Sydney

Secretary: Martin Bush
University of Melbourne

Treasurer: Gemma Lucy Smart
University of Sydney

Postgraduate Representative: Jules Rankin
University of Sydney

Communications Officer: John Wilkins
University of Melbourne

Committee Member: Lucia C. Neco
University of Western Australia

Committee Member: Ian Tasker
University of Western Sydney

AAHPSSS 2023 SCHEDULE

	WED	THU	FRI
8:30am - 9:30am	Registration	Registration	Registration
9:30am - 11:00am	Conference welcome (OTC 448) Plenary Mitch Gibbs (University of Sydney) The Importance of Culture in Changing Education	Panel discussion The Future of HPS in Australia (OTC 448)	Plenary (OTC 448) Jane Calvert (University of Edinburgh) A Place for Science and Technology Studies
11:00am - 11:30am	Morning Tea (OTC Hall)	Morning Tea (OTC Hall)	Morning Tea (OTC Courtyard)
11:30am - 1:00pm	Concurrent Sessions Histories of Scientific Programs (OTC 436) Philosophies of Kinds & Collectives (OTC 442) Nuclear Powered Networks, AUKUS & The New Cold War (OTC 448)	Concurrent Sessions Metascience – Progress (OTC 442) Histories of 19th C. Medicine – Practice (OTC 427) Neurodiversity, Madness & Disability: Putting Lived Experience at the Forefront (OTC 448)	Concurrent Sessions Synthetic Biology & the Challenges to STS & Environmental Humanities (OTC 448) Complexity & Communication (OTC 442) Histories of Science and Engineering (OTC 436)
1:00pm - 2:15pm	Lunch (OTC Hall)	Lunch (OTC Hall)	Lunch (OTC Courtyard)
2:15pm - 3:45pm	Concurrent Sessions Histories of Early Modern European Science (OTC 436) Histories of 19th C. Medicine – Public Health (OTC 427) Philosophy Of Temporality (OTC 442)	Concurrent Sessions Integrated HPS (OTC 448) Metascience – Measurements (OTC 442) Psychology & Psychiatry – Histories (OTC 427)	Diversity in HPS (OTC 448)
3:45pm - 4:15pm	Afternoon Tea (OTC Hall)	Afternoon Tea (OTC Hall)	Afternoon Tea (OTC Courtyard)
4:15pm - 5:45pm	Plenary Natalie Koehle (University of Sydney) Rethinking Eurasian Connections in the History of Medicine (OTC 448)	Postgraduate Workshop (OTC 448)	Conference closing
5:45 pm - 7:30 pm	Dyason Lecture Rachael Brown (ANU) Fifty Years of Philosophy of Biology: Where are we now? (Eastern Avenue LT 315)	CHASS Shared Plenary and Social Function (Wallace Lecture Theatre)	
8:00 pm - 9:30pm	Conference Dinner (Exotik Latin)		

Fifty Years of Philosophy of Biology: Where are we now?



Dr Rachael Brown

Director of Centre for
Philosophy of the Sciences,
ANU

Wednesday 29 November, 6:00 pm
Eastern Avenue Lecture Theatre 315

Abstract

David Hull's *Philosophy of Biological Science* (1974) is often cited as a watershed in the establishment of philosophy of biology as a discipline. In the almost 50 years since its publication the discipline has grown to be one of the core areas in philosophy of science and a widely accepted part of mainstream philosophy. In this talk, I take a birds-eye view on the contemporary discipline, its heterogeneity, and unifying features. In doing so I consider what it is that philosophers of biology care about, what is distinctive about the field, and the hallmarks of success for the discipline. This discussion has broader implications for how we understand contemporary philosophy of science and history and philosophy of science in general.

Bio

Dr Rachael Brown works primarily at the intersection of the philosophy of biology, philosophy of cognitive science, and philosophy of science. She is particularly interested in the evolution of cognition and behaviour; the relationship between Evo-devo and the Neo-Darwinian Synthesis; model-based reasoning in biology and philosophy; and methodological issues in the study of animal behaviour and cognition.

The importance of culture in changing education



Mitch Gibbs, University of Sydney
9:30 am, Wednesday 29 November, OTC 448

Abstract

We live in a changing world, from climates to technologies but our education systems seem to have been left in the past. The more nation's/academia develop connections with Indigenous communities the more we are seeing Indigenous knowledges be at the forefront of academia, especially when concerning our environments. But what does this mean for the educational systems within Universities, the students coming through and the research being done. We need to start by opening up universities and allowing different experiences and expertise be widely acknowledged and accepted. Different ways of teaching can promote different ways of knowing, allowing students to be engaged in the material and being part of the change that our nation needs for the future.

Bio

Mitchell Gibbs is currently working as a postdoctoral researcher in the School of Geosciences, at the University of Sydney. Mitchell holds a PhD degree in Marine Biology/Biochemistry. Mitchell Gibbs is a Thunghutti man through kinship of the Dunghutti nation

Rethinking Eurasian Connections in the History of Medicine



Natalie Koehle, University of Sydney
4:15 pm, Wednesday 29 November, OTC 448

Abstract

Contemporary historians of Chinese medicine agree that medieval Chinese medicine had strong links to the rest of the world, with many of its most common *materia medica* being of Arabic and West Asian origin. At the same time, they maintain that the medical theories of medieval Chinese medicine remained entirely disconnected from foreign traditions of healing. This talk questions this scholarly consensus. It outlines the strong resemblances with Galenic medical theories found in a little-known Yuan period medical treatise, *On the Art of Nourishing Life* (1338), and argues that these resemblances were the result of an hitherto overlooked knowledge transmission, that is the transmission of Galenic medical ideas to pre-modern China. Although at first sight, the treatise appears to be composed entirely within the framework of traditional Chinese medicine, it is actually a translation: Its author has rearranged preexisting emic notions and concepts and put them to work to ‘translate’ some of the core theories of Galenic medicine into a Chinese medical framework. Based on these findings, I will argue that (1) in contrast to the current scholarly consensus Chinese medicine did not develop in isolation; it was inextricably entwined with the history of Eurasian medical traditions long before encountering Western medicine in the 19th–20th century. (2) Galenic humoral theories were not alien to Chinese medicine; they were an important vehicle for the Eurasian transfer of medical ideas.

Bio

Natalie is a lecturer in History and Philosophy of Science at Sydney University. She researches the history of Chinese medicine with comparative interests in the history of Indian and medieval Greco-Islamic medical traditions. She works on two book projects: one on the history of Donkey Hide Gelatin (ejiao 阿膠), and one on the global history of Chinese phlegm (tan 痰). Her recent publications include an article on Galenic medicine in 14th century China in the *Bulletin of the History of Medicine*, entitled “The Many Colors of Excrement: Galen and the History of Chinese Phlegm”, an essay on [anatomical images in 13th century China](#), and an experimental edited volume, *Fluid Matter(s): A Cross-cultural Examination of the Imagination of the Humoral Body*, which explores the use of interactive, image-based storytelling for academic communication.

A Place for Science and Technology Studies



Jane Calvert, University of Edinburgh
9:30 pm, Friday 01 December, OTC 448

Abstract

In its early days, the scientific laboratory was the preferred site for research in science and technology studies (STS). But things have changed. In my social scientific investigation of synthetic biology over the last 15 years I have spent time in large anonymous conference rooms, classrooms in need of a coat of paint, esoteric studios for artistic research, glass-walled government meeting rooms, artisan coffee houses, and high-ceilinged libraries. This has led me to the question: where does STS belong? In this talk, I journey through these different rooms, exploring the possibilities and limitations of each, and the opportunities they provide for observation, intervention, and collaboration with scientists and engineers. I end by asking whether there is a place for STS, whether STS has to create new spaces, or whether it is fated to be forever itinerant.



Bio

Jane is a Professor of Science and Technology Studies at the University of Edinburgh. Her research is on the social studies of the life sciences, particularly synthetic biology. She works in close collaboration with scientists, engineers, policy makers, artists and designers.

AAHPSSS 2023 EVENTS

Conference Dinner

An informal conference dinner will be held at 7:45 pm on **Wednesday 29th November**, immediately following the Dyason Lecture by Dr Rachael Brown. It will be at Exotik Latin, 284 King St, Newtown. There will be a set menu available, for \$55 per person (including one drink), with vegetarian/vegan option. Ordering a la carte will also be possible. Attendees are asked to confirm if they will be attending the dinner upon registration on Wednesday.

The Future of HPS in Australia

Thursday 30 November, 9:30 am, OTC 448

Rachael Brown, Fiona Fidler, Emma Kowal, Dominic Murphy

A panel discussion on the future of History and Philosophy of Science, and science studies more broadly, in Australia, including the Heads of HPS at the University of Sydney and the University of Melbourne, Dominic Murphy and Fiona Fidler, the founder of the Science and Society Network at Deakin University, Emma Kowal, and our Dyason Lecturer, Rachael Brown, the Director of the Centre for Philosophy of the Sciences, ANU.

2023 AAHPSSS Annual General Meeting

Thursday 30 November, 1:00 pm, OTC Hall

The 2023 AGM will be held over lunch on Thursday. The AGM is for members of AAHPSSS to discuss the future of the society and to elect the new committee for the 2025 conference. Financial members of AAHPSSS have received notification of this meeting. If you have not received information about the AGM and believe you should have, or wish to join AAHPSSS, please speak to one of the current committee.

Postgraduate workshop

Thursday 30 November, 4:15 pm, OTC 448

The postgraduate workshop will be an interactive seminar with Early Career Researchers within the History and Philosophy of Science aimed at postgraduates. The aim of the session is to provide a space for the panel members and postgraduates to support one another and discuss the best ways to navigate academia as an early career HPS scholar.

Congress of HASS shared plenary panel: The Future of HASS Research**Thursday 30 November, 5.45pm**

The panel will be a facilitated discussion reflecting on HASS research is faring and likely to fare in the near future, including its role in addressing contemporary and future challenges and the likely funding context HASS researchers will face. The Federal Government's acceptance of the recommendations of the recent Review of the Australian Research Council Act provides a background for the discussion.

- Anika Gauja (Executive Director for Economic, Social and Behavioural Sciences, Australian Research Council)
- Terry Flew (Australian Research Council Laureate Fellow – Professor of Cultural Studies, University of Sydney)
- Kylie Brass (Director of Policy and Research, Australian Academy of the Humanities)

This panel will be followed by a social event. Both panel and social are free to attend but registration is required through the CHASS website.

Diversity and Inclusion in HPS**Friday 1 December, 2:15 pm, OTC 448**

Join Gemma Lucy Smart and Lucia C. Neco, accompanied by special guests, for a candid panel discussion on diversity and inclusion within HPS and the broader academic landscape.

Considering that the structure of academia was historically tailored to serve a particular demographic, this panel aims to address the challenges faced by those navigating academia outside this conventional framework—such as women, LGBTQI+ individuals, people of color, First Nations scholars, Neurodivergent individuals, those identifying as Mad, individuals with disabilities, and those managing caregiving responsibilities

During this panel session, we will leverage the AAHPSSS Conference platform to initiate conversations about our lived and living experiences, sharing valuable tips for navigating academia. Our focus will be on addressing both challenges and opportunities. Conference attendees who identify as women or in a minority group are invited to attend.

This session is confidential and will not be recorded.



AAHPSSS 2023 CONCURRENT SESSIONS



11:15 AM**Histories of scientific programs (OTC 436)**

Carl Sciglitano, *Unravelling the Values and Priorities of Simulation Producers and Users*

Sophie Ritson, *Communicating Uncertainty: The curious case of the 750 GeV bump at the LHC*

Rebecca Johnson, *Echoes in Silicon: Humanity's Imprint on GenAI*

Philosophy of kinds and collectives (OTC 442)

Sandy Boucher, *Epistemic stances and biological kinds*

Rebecca Mann, *Splitting the Problem of Biological Individuality: A Spatial and Temporal Problem*

Nuclear powered networks, AUKUS and the new cold war (OTC 448)

Adam Lucas

Mark Diesendorf

Darrin Durant

2:15 PM**Histories of Early Modern European Science (OTC 436)**

Randall Albury, *The Crocodile and its 'Social Network' as Understood in Europe c. 1500*

Gerhard Wiesenfeldt, *Huygens on the Barge: Relativity of Motion in the Life World of 17th Century Holland*

Ellen McLinden, *Academic Competition and Crusade: conflict and cohesion at the University of Halle 1694–1730*

Histories of 19th Century Medicine – Public Health (OTC 427)

Alison Moore, *Individual Preventive Health Practices and Self-Medication in Nineteenth-Century France*

Divya Gopalakrishnan, *Venereal Disease a threat to 'public health'? : A history of colonial sanitary measures in the nineteenth century Madras Presidency (South India)*

Stephen Ames, *From Physics to Metaphysics, A New Way*

Philosophies of temporality (OTC 442)

David Kaplan, *The role of behaviour in understanding neural representation and computation*

Martin Leckey, *The "arrow of time" and a new entropy measure from quantum mechanical spontaneous collapse*

Jules Rankin, *The Predictive Processing of Flow*

11:15 AM

Metascience - progress (OTC 442)

Carmelina Contarino, *The Secret Life of Exploratory Research*
Alex Holcombe, *Do standard authorship practices slow scientific progress?*

Histories of 19th Century Medicine – practice (OTC 427)

Caitlin Mahar, *Good Deaths: Nineteenth-Century Foundations of Medical Care of the Dying & Euthanasia*
Chris Orrell, *Medical Journals and the Construction of Medicine in Australian Colonies in the 19th Century*
Bill Palmer, *Alfred Payson Gage (1836-1903); teacher, communicator and champion of experimental physics*

Neurodiversity, Madness and Disability: Putting Lived Experience at the Forefront (OTC 448)

Gemma Lucy Smart, *Narratives of Madness and Mental Distress*
Alan Jurgens, *Body Social Models of Disability*
Marilyn Stendera, *Institutions, Time and Neurodiversity*

2:15 PM

Integrated HPS (OTC 448)

Samara Greenwood, *Introducing a Three Mode Framework for Analysing Context-to-Science Relations*
Kristian Camilleri, *What Good are Historical Case Studies for the Philosophy of Science?*
John Wilkins, *Worldviews and their [im]plausibility*

Metascience - measurements (OTC 442)

Wendy Higgins, *Metascience, philosophy, and psychological measurements*
Robert Ross, *Inattentive and insincere participants: Underappreciated sources of systematic error in psychology research*
Ian Hesketh, *Cultivating Darwin's Scientific Gardener: John Scott, Botany, and the Physiological Test*

Psychology and psychiatry - histories

Zoe Cosker, *Conceptualising 'care': mental health law in Victorian Hansard, 1959-2014*
Jacinthe Flore, *The vagus nerve as an agent of balance: Sketching a cultural history*
Sara Campolonghi, *Psychiatry as a medical discipline: Epistemological and theoretical issues*

11:30 AM

Synthetic Biology and the Challenges to STS and Environmental Humanities

Josh Wodak, *Gambling on Unknown Unknowns: Risk Ethics for a Climate Change Technofix*

Daniele Fulvi, *Hubris vs. Humility: Negotiating HASS and STEM Worldviews through Synthetic Biology*

Henry Dixson, *Responsible Innovation in Synthetic Biology: Public Reflections*

Histories of astronomy and engineering

Ian Tasker, *The appointment and forced retirement of a government astronomer*

Martin Bush, *The Polysemic Planetarium*

Ian Wills, *Engineering: The dark art of mixing science, mathematics and whatever else comes to hand*

Complexity and communication

Apurba Chaterjee, *Visualising Spaces of Pestilence: Malaria and the Environment in Late Colonial India*

Jonathon Sandeford, *A Paradigm Shift: The Social, Intellectual, and Technological Nexus that instigated Abdominal Surgery*

Philippa Barr, *The Complexities of Disgust: From Pathogen Avoidance to Identity Formation*

AAHPSSS 2023 ABSTRACTS

Organized sessions

Nuclear powered networks, AUKUS and the new cold war

Wednesday 29 November, 11:30 am, OTC 442

Adam Lucas, Darrin Durant, and Michelle Fahy

Nuclear matters of concern now sit at the centre of networks of influence and processes of depoliticization in Australia. Under the guise of 'national security', a cone of quietism surrounds what is popularly referred to as 'the AUKUS deal'. Over the last twelve months it has become increasingly obvious that the incoming Labor Government's commitment to AUKUS is not only problematic because it will oblige Australia to spend hundreds of billions of dollars over three or more decades to acquire a handful of nuclear-powered submarines from the US and UK, but because it threatens Australia's relations with its Asia-Pacific neighbours as well as the government's ability to meet what are arguably far more pressing domestic and international priorities. Perhaps most controversially, Labor's support for the deal has helped galvanize proponents of nuclear reactors who see them as a business-as-usual part of Australia's decarbonisation efforts, as well as those who want to see a broader and deeper integration of US and Australian strategic interests and those who favour expanding defence- and nuclear-related research and teaching at Australian universities. Larger questions about why Labor seems to be preferring 'military deterrence' over diplomacy while further integrating Australia's defence capabilities into US strategic planning and what this means for Australia's future independence and national sovereignty have been largely brushed aside, as have questions about what will happen to the high-level nuclear waste from the submarines' reactors and exactly which countries' defence contractors will be the major beneficiaries of the deal. The theme of this open panel discussion is to interrogate questions that are not currently being publicly aired about these various nuclear entanglements. Our jumping off point will be what we already know about networks of influence in the fossil fuel sector. How do the political and economic interests of dominant corporations in the energy, resources and defence sectors aim to achieve their goals and what are some of their common strategies? Drawing on insights from our previous work on networks of influence, we will explore how nuclear networks of influence currently operate in Australia. We begin by establishing how such networks are premised on the expectation of growing geopolitical tensions between Russia, China, and the United States rather than on the far more pressing and urgent need to decarbonise our societies. Australian foreign and defence policy is increasingly being integrated into US geopolitical planning and strategic posturing. The speed and secrecy of these decisions raises concerns about the legitimacy of the decision-making processes involved. We will examine some of the networks of actors involved in developing and advocating for AUKUS, together with its implications for Australian sovereignty and democratic oversight, including the fact that military projects are now being linked to commercial nuclear projects. We will discuss how our efforts to decarbonise via renewables have been resisted for some time by business-as-usual interests, including a critical interrogation of the way material and political commitments tied up with the current push for commercial nuclear power work against the roll-out of renewables.

Adam Lucas will identify those former US and Australian defence officials, politicians and senior officers currently advising or working for defence interests in Australia, and describe some theoretical and methodological tools that can be used to usefully interrogate the composition and extent of the interest coalitions currently promoting nuclear capabilities in Australia's defence and education sectors.

Michelle Fahy will outline the history of the submarine procurement process by the Australian Navy, including the French negotiations. She will also present insights from her research on undue influence by fossil fuel and defence interests and suggest questions we should be asking about undue influence by nuclear interests.

Darrin Durant will discuss some of the political and material commitments tied up with the push for commercial nuclear power in Australia that constitute a business-as-usual corralling of the potential for renewables development.

Neurodiversity, Madness and Disability: Putting Lived Experience at the Forefront

Thursday 30 November, 2:15pm, OTC 448

Alan Jurgens, Gemma Lucy Smart, and Marilyn Stendera

There is an urgent need for research on neurodiversity, madness and disability to be grounded in, and led by, the lived experience of people who may identify as mad, mentally ill, psychiatric survivors, consumers, service users, patients, neurodivergent, and/or disabled. This panel session brings together philosophers working across these areas with the aim to promote lived experience led and informed research on these topics in a safe and engaging environment for neurodivergent, mad and disabled people. While each of the panellist will be discussing their own work in relation to the central topics, there are a few common threads across their work. Most centrally is the repeated theme that there needs to be a move away from individualism in our analyses of, discussions about, and support for neurodiversity, madness and disability. To that end, the central focus of the panel is not in itself the talks of these different presenters, but rather the dialogue between panellists and the audience. For this reason, the presentations will be kept short in order maximally facilitate the interaction between panellists and audience members, and amongst audience members themselves.

Gemma Lucy Smart: Narratives of Madness and Mental Distress

Utilising lived experience led research (as part of the Re;mindings Histories group), Gemma Lucy Smart examines how ableist master narratives are often used as ways to distinguish between normal and abnormal behaviour (and people). By taking a pluralist approach to explanation in psychiatry, in this panel Smart will argue that alternative narratives from Mad Pride and critical psychiatry offer important sites of resistance and healing for madness and Disability.

Alan Jurgens: Body Social Models of Disability

Operating within neurodiversity and enactivist frameworks, Alan Jurgens argues models of disability should avoid employing an individualistic methodology. Arguing instead that models of disability should take a wide approach that is centred on individuals' relationships with their environments, as ableist socio-material environments are often the source of the difference between disability and disorder or disfunction.

Marilyn Stendera: Institutions, Time and Neurodiversity

Analyses of the role that time plays in lived experiences of neurodiversity often focus on classifying particular ways of navigating time as 'atypical', overlooking systemic factors. Drawing on critical phenomenology and the philosophy of time, Marilyn Stendera argues that we instead need to interrogate the reductive, ableist ways in which institutions operationalise, structure, and allocate time.

Synthetic Biology and the Challenges to STS and Environmental Humanities

Friday 1 December, 11:30am, OTC 448

Josh Wodak, Daniele Fulvi, and Henry Dixon

In light of the hysteresis and acceleration of the climate crisis, climate overshoot has only recently been acknowledged as inevitable. As the IPCC belatedly reports, current pledges are not even remotely on track to limit global warming to 1.5°C above pre-industrial levels. Moreover, The IPCC Sixth Assessment Report (2022) defines Negative Emission Technologies (NETs) as “unavoidable” – together with more ambitious emissions reduction targets – if climate change mitigation is to be attempted. And yet, discussion of this assumption in STS and Environmental Humanities is scant in proportion to the world-shattering consequences of whether NETs can be invented and implemented at scale, and in time, to sequester sufficient existing Greenhouse Gases (GHGs) – as well as prevent future emissions. Additionally, the implementation of NETs brings serious concerns in relation to climate change mitigation and climate justice issues, hence posing a veritable challenge to STS scholars and environmental humanists. In this context, Synthetic Biology recently emerged as a potentially game-changing NET, due to its potential in biodiversity conservation and in reducing global warming. In fact, through Synthetic Biology it could be possible to bioengineer trees, plants, algae, bacteria and/or microbes, to drawdown existing GHGs and prevent future emissions. However, the potential breakthrough represented by Synthetic Biology requires a critical and multidisciplinary engagement that moves from undeniable imminence of climate overshoot and the now-unavoidable necessity to integrate NETs in climate change mitigation attempts. Against this background, this panel discusses the emerging role of Synthetic Biology in the STS and Environmental Humanities, with a specific focus on the notions of existential risk and uncertainty, hubris and humility, and responsible innovation.

Josh Wodak: Gambling on Unknown Unknowns: Risk Ethics for a Climate Change Technofix

This presentation provides a critical analysis of the risk ethics of imminent climate overshoot, in relation to the interventionist gambles proposed by NETs through Synthetic Biology and Climate Engineering. That is: when potentially efficacious action has not only been reduced to gambling, but a manner of gambling where predictability and probability exceed the limits of what can be known, in conjunction with what can be known about what can be known... Therein, the presentation contemplates the unthinkable questions that our current situation demands we ask, and perhaps even try to answer.

Daniele Fulvi: Hubris vs. Humility: Negotiating HASS and STEM Worldviews through Synthetic Biology

Environmental humanists and social scientists who are willing to meaningfully collaborate on Global Environmental Change (GEC) issues can play a key role in shaping humane and pluralistic responses to the climate crisis. However, meaningful engagement with the crisis also requires a negotiation of worldviews between HASS and STEM scholars, given that the former tend to advocate for humility, whereas the latter tend to favour hubris. Synthetic Biology represents an apt case study for such negotiation: in fact, due to its multidisciplinary nature, Synthetic Biology not only highlights the existing barriers to such negotiation, but also shows how the apparently irreconcilable gap between hubris and humility is not commensurate with the predicament of the current climate crisis – where NETs are inevitable, and yet will probably remain ineffectual.

Henry Dixon: Responsible Innovation in Synthetic Biology: Public Reflections

This talk presents findings from a recently completed national public focus group study: “Responsible Innovation in Synthetic Biology: Public Reflections.” This collaboration between ANU and CSIRO's Responsible Innovation Future Science Platform asked Australians from across the country to go beyond ‘acceptance vs. non-acceptance’ of synthetic biology. Here, they freely discuss this emerging discipline and applications to various issues.

Presenter abstracts and bios

(alphabetical order by last name)

Randall Albury

Wednesday 29 November, 11:30am, OTC 436

The Crocodile and its 'Social Network' as Understood in Europe c. 1500

The information about crocodiles that was generally available to educated European readers around 1500 consisted of what scholars in later times would regard as a heterogeneous mix of elements with little, if any, coherence – a jumble of material derived from disparate sources such as ancient natural philosophy, traditional beliefs, travellers' accounts (including both hearsay reports and personal observations), and moralising fables. Without attempting to address all aspects of European crocodile lore that was current during the period in question, my presentation considers the way in which this lore enabled the crocodile's place in the world to be defined by its 'social network' – its system of relationships with a small set of other living beings that were understood to have either a natural affinity or a natural antipathy toward it. So, notwithstanding the diversity of sources of information on which it is based, this network presents a coherent characterisation of the crocodile. In doing so, it demonstrates a way of organising knowledge about nature that is unlike the more comprehensive approach, aiming at exhaustive enumeration, that will become standardised for natural history around the middle of the sixteenth century, and even more unlike the positive zoology that develops in later centuries.

Bio

Currently Emeritus Professor (HPS), UNSW, and Adjunct Professor (History), UNE. Engaged in teaching and research in the history of science and medicine at the University of New South Wales for 25 years, then moved to academic management positions at the University of New England. Retired at the end of 2004 but continued research activity, now including Renaissance intellectual history as well as earlier fields of interest. Recent publications: W. R. Albury, 'The Contra-Amorem Tradition in the Renaissance,' in C. S. O'Brien and J. Dillon, eds, *Platonic Love from Antiquity to the Renaissance* (Cambridge: CUP, 2002), pp. 238–257; W. R. Albury and G. M. Weisz, 'Were Camptodactyly and Boutonniere Deformity considered Pathological in late Fifteenth Century Italy? – Evidence from the Sculptures of Francesco di Simone Ferrucci (1437–1493)', *Rheumatology International*, forthcoming.

Stephen Ames

Wednesday 29 November, 2:15pm, OTC 442

From Physics to Metaphysics, A New Way

This paper responds to Professor Brian Cox's 2021 BBC series 'Universe' where at the end of the fifth episode Cox, having rightly acclaimed scientific inquiry for gaining knowledge of this vast universe from this tiny speck of a planet, also claimed that the big questions like 'why is there anything at all?' and 'why are we here?' are not philosophical or theological questions. Rather, they are scientific questions because they are questions about nature. This is Cox's scientific naturalism. I argue that Cox is scientifically excellent, but philosophically and theologically mistaken.

This paper seeks feedback on the motivation and justification for the new move from physics to metaphysics. Naturalism is the view that nature is all there is, and scientific naturalism is the view that nature answer to all the objects, relations and processes that are established in mature natural science. There is no supernatural, no angels, no gods, no God. The most powerful form of naturalism is physicalism, which claims the only way to find out about the world is to use the methods and epistemic standards of the natural sciences and that all there is, is what physics says there is, or complex configurations of the same. The motivation for this metaphysical claim is the vast expansion of successful natural scientific explanations to more

and more of the world. The justification for this metaphysical claim is the inductive argument that this success underwrites the expectation that everything about our universe will be explained in naturalistic terms.

This paper challenges this naturalism by drawing on the work of Professor V. J. Stenger, especially his book, especially his book *The Comprehensible Cosmos* (2006). There Stenger derives nearly all the laws of physics L in classical, relativistic and quantum mechanics. The L are well known so the interest is in how Stenger performs the derivations. They proceed from premises based on physical knowledge (PK) and on a principle Stenger invokes, the principle of 'point-of-view-invariance' (PPOVI) used by physicists in their inquiries. I call this result R represented as, $R: PPOVI, PK \Rightarrow L$.

The move from R to metaphysics is motivated by R having the apparent oddity that L , operating from the Big Bang, are derivable from premises that include something that appears billions of years later, namely physicists using the above principle. The move signalled in the title is only justified if it can overcome two obvious blockers: #1 that R is explicable wholly explicable within the resources of the natural sciences; #2 that R is a brute-fact. Either way, further seeking an explanation of R is not justified. I show these blockers logically cannot hold. This shows there is an oddity about R deserving of an explanation. Seeking a metaphysical explanation of R is therefore justified. That search is guided by the question what minimally must be assumed to explain R . The paper concludes with a brief indication of an answer and addresses several objections.

Bio

Stephen Ames is an Honorary Fellow in History and Philosophy of Science at The University of Melbourne, having a PhD in physics and a PhD in philosophy of science, both from the university. From 2001- 2020, he co-designed and co-lectured with his atheist colleagues to students from across the university, a second-year subject, 'God and the Natural Sciences'. He is a priest in the Anglican Church, at St Paul's Cathedral, Melbourne, and a fellow of ISCAST- Christianity & Science in Conversation.

Philippa Barr

Friday, 1 December, 11:30am, OTC 442

Individual Preventive Health Practices and Self-Medication in Nineteenth-Century France

For the past two decades, there have been various theses and antitheses regarding the idea that the disgust reaction evolved to support pathogen avoidance. Pathogen avoidance theory maintains that human self-preservation is dependent on avoiding, sublimating or destroying microbes. This antibiotic worldview has been challenged by probiotic sentiments and other efforts to reevaluate human and microbial relations. Moreover the range of situations and circumstances which can provoke disgust are much wider than mere pathogen avoidance and – importantly – the expression of disgust is not always triggered by pathogenic objects. It is rather informed by whatever that culture and time consider symbolic of anomaly or disorder. Taking Heather Paxon's formulation of microbiopolitics, this project will explore research in probiotic tendencies and more than antibiotic relations and their implications disgust and the way it has been theorised as an evolutionary form of pathogen avoidance.

The paper begins by examining the theories surrounding the evolutionary origins of disgust. Some scholars, like Panksepp, argue that disgust evolved as an adaptive mechanism to support pathogen avoidance. This perspective posits that disgust is a universal affective process, shared not only among humans but also in all mammals, serving to identify and avoid conditions that may lead to disease. In contrast, other scholars, exemplified by Rozin et al., propose that disgust is a learned reaction influenced by cultural norms. This view suggests that what is considered disgusting is shaped by cultural practices and beliefs, leading to variations in disgust responses across different societies.

An essential aspect explored in this study is the recent research on the cultural shift from antibiotic to probiotic notions of self and culture. This shift challenges the traditional assumption that pathogen avoidance is always beneficial. Instead, it emphasizes the importance of a balanced human-microbe relationship and the potential harm caused by excessive pathogen avoidance. This section highlights the significance of embracing a more flexible approach to living with microbes to avoid dysbiosis and maintain a healthy microbiome. Drawing from Barrett's concept of disgust as a means to preserve and produce identity, the paper investigates how disgust responses extend beyond pathogen avoidance. Disgust can also be triggered by elements that challenge societal norms and values, contributing to the formation of human identity. This exploration delves into the interplay between disgust, existential threats, and the construction of individual and collective identities. In further elaboration, the study considers Douglas's perspective on hygienic rules, which posits that disgust-related behaviors hold symbolic meanings beyond their practical implications. Historical events disease outbreaks, such as the 1900 Sydney plague, are analyzed to illustrate how societal uncertainties can manifest in culturally specific ways, leading to the marginalization of certain practices or groups. This examination sheds light on how disgust serves as a mechanism to safeguard cultural norms and create boundaries between the self and the perceived disorderly elements of society. This paper seeks to stimulate further discussions and investigations into the profound relationship between affective reactions, identity, social and biotic relations, shaping our understanding of ourselves and our shared world.

Bio

Philippa is multilingual and has extensive experience working in publishing, technology and academia in Australia and in Europe. Her current interests include the symbolism and perception of disease, chemical and biological pollution. She is currently developing a series of publications from her research in Australia, Italy and the UK. Her first book called *Uncertainty and Emotion in the 1900 Sydney Plague* will be published by Cambridge University Press on December 4th 2023. She has a research position in the School of History at ANU and a professional role as lead learning designer in Learning Futures at Western Sydney University.

Sandy Boucher

Wednesday 29 November, 11:30am, OTC 442

Epistemic stances and biological kinds

The problem of natural kinds - in biology in particular - has been much discussed in recent philosophy of science. In this paper I offer a fresh perspective on the debate that connects it with issues of contemporary concern in scientific ontology and naturalised metaphysics. I draw on Chakravartty's recent work, in which he suggests that while it may be uncontroversial that, for the naturalised metaphysician, our ontology ought to be based on science, the nature and adventurousness of the 'metaphysical inferences' from science she is willing to endorse is typically a function of her 'epistemic stance'. Those who adopt the empiricist stance endorse quite limited inferences, that don't transcend the observable. Those who adopt the scientific-realist stance are wont to endorse more extravagant inferences that commit them to the existence of entities, properties and processes that go well beyond what we can observe. But these stances are, he suggests, a function of one's values and may be equally rationally permissible.

In the biological kinds literature we can discern a spectrum of epistemic stances from an empiricism with regard to species and kinds that typically takes the form of pluralism or nominalism, through to species (or higher-taxa) realism - a form of standard scientific realism (the epistemic stance that licenses ontological commitment to the explicit but unobservable subject matter of science) - through to the metaphysics-of-science stance,

which licenses belief in the existence of the implicit subject matter of biology, such as natural kinds and essences. Indeed some (such as Alexander Bird), who adopt the latter stance, in their a priori speculations about the metaphysical status of kinds (whether they are universals, or are sui generis, etc.) arguably risk veering off the cliff of naturalised metaphysics into traditional, armchair metaphysics territory.

The epistemic-stance framing helps to illuminate the metaphysical and epistemological commitments of the various positions taken in the recent debates about natural kinds in biology (and elsewhere), and opens up the space for a theoretically-motivated pluralism with respect to the value-laden epistemic stances that yield different first-order ontological views in this domain. This work is part of a larger book project on philosophical stances and the metaphysics of biology.

Bio

Sandy Boucher is Lecturer in the Philosophy of Science at the University of New England. His research interests are mainly in the philosophy of biology (especially functions and teleology, the units of selection, species, natural kinds, macroevolution and paleobiology) and general philosophy of science (especially the scientific realism debate), but he also works on issues in metaphilosophy and epistemology. He has published several papers on empiricism and the concept of a philosophical stance. Current research projects include work on pragmatism in the scientific realism debate; functionalism and structuralism in biology; arguments for realism about the units of selection; and a book project on the metaphysics of biology (under contract with Palgrave-Macmillan). After receiving his Ph.D. his first position was as a researcher on the IARPA (Intelligence Advanced Research Projects Activity) Critical Thinking and Argument Mapping Project at the University of Melbourne. Before coming to UNE he taught at the University of Connecticut, University of Melbourne, and La Trobe University. He is Associate Editor of the Australasian Journal of Philosophy.

Martin Bush

Friday, 1 December, 11:30am, OTC 436

The Polysemic Planetarium

The planetarium projector has been described as the most important device for communicating astronomy in the twentieth century. Recently, attention has been given not just to the projector itself but to the space in which it operates. Planetariums in the early twentieth century – and since – have used space to create affective response in viewers, to represent the historical trajectory of astronomy and to highlight the cultural significance of the planetarium. An important way of understanding this relationship between the observer and space is through the concept of the cinematic dispositif. Yet it is important to note that the idea of space itself can take on many meanings, including deep space, internal space, geometric space and institutional space. This paper will outline several different conceptions of the space of the planetarium and draw lessons on how these usages reflect the cultural importance of popular astronomy in the early twentieth century.

Bio

Martin Bush is a Senior Research Fellow in the School of Historical and Philosophical Studies at the University of Melbourne. Martin is a historian of the cultural history of popular science with interests including popular astronomy in Australia in the era of the lantern slide, visual communication of science, planetariums, and the science communication work of the Ngarrindjeri Australian David Unaipon. Martin is also a metaresearcher with experience in the qualitative analysis of expert reasoning, public trust in science and public reasoning practices.

Kristian Camilleri**Thursday 30 November, 2:15 pm, OTC 448****What Good are Historical Case Studies for the Philosophy of Science?**

How should historical case studies inform the philosophy of science? This question has been the subject of much debate and disagreement ever since Thomas Kuhn's *Structure of Scientific Revolutions*. While Kuhn would later express reservations about whether history could play a substantive role in philosophy of science, by the 1970s many philosophers would acknowledge the importance, and even the necessity, of using historical case studies to support philosophical claims. The last twenty years has witnessed a resurgence of interest in methodological questions concerning the relationship of history and philosophy of science, resulting in a series of 'manifestos' for doing integrated HPS. In this paper, I examine some of the lessons we have learned from this scholarship, while at the same time, noting that philosophers have, on the whole, found it difficult to practice what they preach. While there has undoubtedly been some excellent work produced in recent years, the formidable difficulties of integrating history and philosophy of science remain very much evident in the fact that one and the same historical case study can be, and often is, used to support diametrically opposed philosophical viewpoints. In this paper, I propose a number of historiographical and philosophical reasons for why this is so, and offer a few tentative suggestions for how we might remedy this situation in the interests of furthering the project of integrated HPS.

Bio

Dr Kristian Camilleri is a Senior Lecturer in History and Philosophy of Science Program in the School of Historical and Philosophical Studies. After completing his Bachelor of Science, he completed a PhD in HPS at Melbourne University. Since then Kristian has established himself as a leading scholar in the history and philosophy of modern physics, and has published extensively on the history of quantum mechanics. He has also written on the role of metaphors in science and the epistemology of thought experiments. Kristian coordinates and teaches a range of subjects at undergraduate level in the HPS program at the University of Melbourne, and has supervised several Masters and PhD theses. He is currently in the process of completing a book manuscript with the working title, *Quantum Mechanics and its Discontents: The Making of an Orthodoxy*.

Sara Campolonghi**Thursday 30 November, 2:15pm, OTC 427****Psychiatry as a medical discipline: Epistemological and theoretical issues**

Psychiatry is concerned with "mental disorders" intended as dysfunctions of the mind; however, as a medical discipline, psychiatry follows the organic medical model, which is concerned with the pathology of functions in the body. This problematic and equivocal positioning has led contemporary psychiatry to implicitly operate in an epistemic void and to perpetuate fundamental theoretical and operational issues that present great ethical implications and create more illness than effective treatment and relief. Nevertheless, the discipline continues to operate worldwide, enjoying a high degree of institutional support and social legitimization. This paper illustrates the main epistemological and theoretical issues of psychiatry, the "mind" as its object of study, and psychiatric diagnosis, classification, and treatment. It concludes with a discussion of the implications of abandoning psychiatry's biological framework in mental health care, and the possibility for psychiatry to find its own specific, unique, legitimate space of knowledge and practice.

Bio

Dr Sara Campolonghi is a psychologist and early career researcher with a particular interest in the philosophy of medicine and the mind. She obtained a master's degree in clinical and community psychology from the University of Padova, Italy in 2007 with a thesis on the risk

factors and multi-disciplinary management for bronchial asthma, and graduated with a PhD in Health from Deakin University, Australia in 2022 with a qualitative study exploring fathers' constructions of food choices, healthy eating, and their role in the family food context, from a life course, identity, and gender perspective. Sara has been working as a psychologist, healthy eating coach, and in the promotion of health since 2010 and collaborated with national and international Lyme disease associations and coalitions for patients' rights since 2020. She is also a teacher of Italian L2, a visual artist, and a singer.

Apurba Chatterjee

Friday 1 December, 11:30am, OTC 442

Visualising Spaces of Pestilence: Malaria and the Environment in Late Colonial India

In 1897, Ronald Ross, a Surgeon Major at the colonial Indian Medical Service, discovered that mosquitoes communicated malarial parasites between human bodies. While Ross' findings were nothing less than revolutionary in the scientific world, it took some time before they received the colonial government's attention. This paper will look at how images generated by scientific research on malaria came to inform the British Indian administration and its approach to public health and hygiene. The prevention of malaria, as informed by Ross' research, generated a need to re-evaluate the British understandings of Indian environment. Here, I examine the role of imagery in malarial surveys conducted by the colonial government. Images aided the knowledge and understanding of malarial infestations and shaped the government's responses to those realities on the ground. I specifically deal with the manner whereby scientific research fed into colonial official publications, for example, the relationship between malarial survey reports and pedagogical pamphlets and textbooks, as well as bureaucratic documents, to track how the colonial government promoted and deployed scientific illustrations and photographs, relating to the disease. My results not only present a chequered history of British responses to malaria in India, but also point to how problematising visuality complicates ideas about the relationship between medicine and British imperialism.

Bio

Apurba Chatterjee is Wellcome Humanities and Social Science Fellow at the University of Reading who works on the British Empire, India, Histories of Medicine and Science, Visual Culture, Postcolonialism, and New Imperial History.

Carmelina Contarino

Thursday 30 November, 11:30am, OTC 442

The Secret Life of Exploratory Research

This talk is about exploratory research and its role in science. Specifically, it is about what scientists perceive the role of exploratory research to be. To address this question, I will report preliminary analysis of interviews with ~20 psychologists who are actively engaged in responses to the 'replication crisis'.

The 'replication crisis' refers to a decade (or so) long episode in life and social sciences, usually understood as beginning in ~2011 but with some aspects, particularly statistical aspects, having a much longer history. Many solutions to the crisis—e.g., changes to statistical and publishing practices—have been implemented or proposed by open science and metascience reform groups, and they almost exclusively relate to improving hypothesis testing research. This focus on hypothesis testing, sometimes called 'confirmatory' research, persists despite widespread recognition from these same groups that the presentation of exploratory work as confirmatory is a major contributor to false discoveries and failures to replicate. Fidler et al. (2018) have argued that reform efforts should not just focus on reforming hypothesis testing to fix the 'crisis'. They must also focus on creating legitimate space for exploratory work.

Scheel et al. (2021) also questioned the overwhelming focus on hypothesis testing amongst researchers and reformers advocating for greater emphasis and awareness of exploratory research methods in psychology. Scheel et al. (in prep) have also begun empirical investigations of how researchers understand their own work and whether they can pinpoint when they are in 'exploratory' or 'confirmatory' roles. My work directly follows from and extends her research.

On the surface, the way reform advocates, and perhaps psychologists more broadly, talk about exploratory research seems at odds with contemporary philosophy of science, for example, Chang's notion of 'epistemic iteration'. Chang (2004) argues that the benefits of epistemic iteration are threefold. Firstly, epistemic enrichment, which builds on existing theories and knowledge, improves theoretical accuracy and the validation and improvement of scientific standards. Secondly, it is a self-corrective tool that clarifies errors in theories and standards, disproving or negating them through epistemic enrichment. Finally, it acts as an avenue of social cohesion, building both consensus and pluralism to strengthen the community and the scientific knowledge it produces while also acting as a link in the continuum of the scientific canon.

My goal in undertaking the current project was to delve deeper into conversations with psychologists who are active in reform efforts (for example, members of the Society for Improving Psychological Science or conference attendees at the Association for Interdisciplinary Metaresearch and Open Science) to learn more about how their understanding of exploratory research and how their interpretation applies for their work. How they define it, what kind of value they assign to it, when and where they think it takes place, and, importantly, whether they recognise exploratory and confirmatory research modes as being part of the iterative process, described by Chang, both in their own work and in expanding the work of others.

Bio

Carmelina is currently undertaking her BA (Hons) thesis in the History and Philosophy of Science at the University of Melbourne under the supervision of Professor Fiona Fidler. Her thesis focuses on the understanding researchers have of exploratory research and what impact this has on epistemic iteration. Carmelina writes for the SHAPS Forum and works as a research associate at the Centre for Artificial Intelligence and Digital Ethics (CAIDE), and as a tutor at the Melbourne Law School. Carmelina is a former board member of AIMOS and a member of AAHPSSS.

Zoe Cosker

Thursday 30 November, 2:15pm, OTC 427

Conceptualising 'care': mental health law in Victorian Hansard, 1958–2014

The question of how to characterise psychiatry is a source of contention. There is a tension between psychiatry's perceived role as delivering care to patients and the legal powers that enable members of the profession to use coercive approaches to certain categories of patients. 'Care' as an evolving concept in psychiatry has been addressed by scholars such as Hide and Bourke (2013) and coercive powers have been explored by theorists ranging from the classic works of Foucault (2006), Goffman (1961), and Szasz (1961) through to contemporary work by legal scholars such as Weller (2013). However, how this tension between care and coercion has been understood and articulated historically is under-examined, particularly how it has been thought of by the legislators granting these powers to psychiatrists through modern mental health laws. The question of what concepts underpin this legislation and how these concepts have evolved is under-addressed, particularly in the Victorian context.

This talk discusses the concepts that support psychiatric legislation and looks at how they have evolved alongside legislative change in the Victorian context, specifically exploring the

concept of 'care' in relation to the granting of coercive legal powers to psychiatrists. I will argue that the concept of care is central to the history of psychiatric law-making, but that its use by legislators evolved between 1958 and 2014. To do this, I draw on contemporary digital methods to examine discreet periods of debate in the Victorian Parliament in the years surrounding the making of the Mental Health Acts of 1959, 1986, and 2014. Through a 'distant reading' of Hansard records I will develop an account of what these conceptualisations of care are and how, for instance, different notions such as control, recovery, and authority are related to care in these debates. This approach will generate an account of change over time, which will be visually represented using concept diagrams. In doing so, I expand the historiography exploring how mental health law is made and why, and supplement recent work on community care in Australia. My work offers insights into the ways in which psychiatry has been thought of by those who grant psychiatrists the legal powers that form a crucial part of modern psychiatric practice and remain a source of ongoing contention.

Bio

I am a first-year PhD student in HPS at the University of Melbourne. My thesis, entitled 'Care and Coercion: A Comparative History of Mental Health Law in Victoria and in England and Wales, 1954-2014', looks at the making of mental health laws in the two jurisdictions through examination of written sources from those making the law, those implementing the law, and those treated via legal mechanisms established in law: policymakers, psychiatrists, and patients. Prior to moving to Australia in 2023, I completed my MA at the University of Sheffield in 2018 with a dissertation focused on concepts of psychiatric patients' rights in England and Wales between 1959 and 1983 with reference to debates surrounding the making of two Mental Health Acts.

Henry Dixon

Friday 1 December, 11:30am, OTC 448

Responsible Innovation in Synthetic Biology: Public Reflections

This talk presents findings from a recently completed national public focus group study: "Responsible Innovation in Synthetic Biology: Public Reflections." This collaboration between ANU and CSIRO's Responsible Innovation Future Science Platform asked Australians from across the country to go beyond 'acceptance vs. non-acceptance' of synthetic biology. Here, they freely discuss this emerging discipline and applications to various issues.

Bio

Dr. Henry Dixon is a multidisciplinary social and behavioural scientist. He has conducted research in ethnography and psychology (developmental, cognitive and cross-cultural). In government, he looked at issues of public trust in science, conservation attitudes, social license and engagement. As a postdoctoral research fellow at the ANU and visiting scientist at CSIRO, he investigated lay public interpretations and concerns around synthetic biology.

Darrin Durant

Wednesday 29 November, 11:30 am, OTC 442

Nuclear powered networks, AUKUS and the new cold war

Darrin Durant will discuss some of the political and material commitments tied up with the push for commercial nuclear power in Australia that constitute a business-as-usual corralling of the potential for renewables development.

Bio

Dr Darrin Durant is Senior Lecturer in Science and Technology Studies at the University of Melbourne. He has published widely on the relation between experts and citizens in democratic decision-making, disinformation and democracy, climate and energy politics, and nuclear waste disposal. His most recent book is *Experts and the Will of the People: Society,*

Populism and Science (Palgrave, 2020), and of relevance to the nuclear cycle is Nuclear Waste Management in Canada: Critical Issues, Critical Perspectives (UBC Press, 2009). He Tweets @DarrinADurant

Michelle Fahy

Wednesday 29 November, 11:30 am, OTC 442

Nuclear powered networks, AUKUS and the new cold war

Michelle Fahy will outline the history of the submarine procurement process by the Australian Navy, including the French negotiations. She will also present insights from her research on undue influence by fossil fuel and defence interests and suggest questions we should be asking about undue influence by nuclear interests.

Bio

Michelle Fahy is an independent journalist who has been investigating militarism and the arms trade since 2009.

She is the founder of Undue Influence, which focuses on links between the weapons industry and the Australian Government. Her work has appeared in Declassified Australia, Consortium News, Arena, Progressive International, and Michael West Media. You can view her archive and support her mostly unpaid work at: <https://undueinfluence.substack.com/>

Jacinthe Flore

Thursday 30 November, 2:15pm, OTC 427

The vagus nerve as an agent of balance: Sketching a cultural history

From the Latin *vagus*, meaning wandering, the vagus nerve (also known as the vagal nerve), is the key connector between the brain, heart, lungs, and abdominal organs. In recent years, the vagus nerve has received substantial attention, within wellness communities on and beyond social media, for its ability to improve physical and mental health. The vagus nerve has captured the imagination partly due to its apparent expansive functions, which include its role in the gut-brain nexus and the experience of depression and anxiety. The potentials of vagus nerve have resulted in the publication of multiple self-help books and social media posts purporting to assist in the revitalising and maximising of nerves, and the marketing of wearable devices for at-home vagus nerve stimulation.

Despite the contemporary interest in the vagus nerve, its history in neurology and in medicine more broadly, is less known. In this paper, I sketch a cultural history of the vagus nerve starting with the works of James Leonard Corning – an American neurologist with a keen interest in psychiatry. Corning is best remembered for using cocaine to pioneer a method for anaesthetising the nerves located around the central nervous system for surgery (neuraxial blockade). However, he also developed a device for stimulating the vagus nerve electrically – an approach that was spurned by his contemporaries but revitalised in the early twentieth century and further digitalised in the twenty-first century. This history is important because it illuminates how the concept of balance, through understandings of nerves as needing ‘resetting’, became associated with mental health and physical health. Current health policy debates on the enmeshment of mental health and physical health are not new and this long-established link has perhaps been forgotten. This history demonstrates that the connections between mental health and physical health were themselves structured around eighteenth and nineteenth-century understandings of nerves and balance.

Bio

Jacinthe Flore is a Lecturer in History and Philosophy of Science at the University of Melbourne. She is a historian of medicine and a science and technology studies scholar who has published two monographs: *A Genealogy of Appetite in the Sexual Sciences* (Palgrave Macmillan, 2020) and *The Artefacts of Digital Mental Health* (Palgrave Macmillan, 2023).

Daniele Fulvi

Friday 1 December, 2:15pm, OTC 427

Hubris vs. Humility: Negotiating HASS and STEM Worldviews through Synthetic Biology

Environmental humanists and social scientists who are willing to meaningfully collaborate on Global Environmental Change (GEC) issues can play a key role in shaping humane and pluralistic responses to the climate crisis. However, meaningful engagement with the crisis also requires a negotiation of worldviews between HASS and STEM scholars, given that the former tend to advocate for humility, whereas the latter tend to favour hubris. Synthetic Biology represents an apt case study for such negotiation: in fact, due to its multidisciplinary nature, Synthetic Biology not only highlights the existing barriers to such negotiation, but also shows how the apparently irreconcilable gap between hubris and humility is not commensurate with the predicament of the current climate crisis – where NETs are inevitable, and yet will probably remain ineffectual.

Bio

Dr. Daniele Fulvi is a Postdoctoral Research Fellow at the Institute for Culture and Society, Western Sydney University node of the ARC Centre of Excellence in Synthetic Biology. He is also a Visiting Fellow at the Department of Philosophy, Università Vita-Salute San Raffaele, Milano. His current research focuses on the ethical and social dimensions of synthetic biology applied to climate change mitigation. He also specialises in environmental ethics and modern and contemporary continental philosophy. His broad research interests revolve around key contemporary philosophical and ethical issues – such as rethinking the human-nature relationship and the meaning of human freedom in the Anthropocene.

Samara Greenwood

Thursday 30 November, 2:15 pm, OTC 448

Introducing a Three Mode Framework for Analysing Context-to-Science Relations

How do changes in large scale societal contexts, including social, political, and cultural conditions come to impact science? This is a complex and long-standing problem in the History and Philosophy of Science. In my ongoing research, I have found context-to-science relations do not appear deterministic or of a simple, single type. Rather, richer and more complex relations are evident, where changes in societal contexts come to shape (rather than determine) changes in science over extended periods of time and via multiple, inter-related pathways or 'modes'. In particular, I have found strong support for the following three modes of contextual shaping.

First, the 'Top-down' shaping of Disciplinary Conditions. In this mode, macro changes in political, social, or cultural conditions come to shape science via shifts in the supporting super-structures of science. These super-structures include both concrete conditions such as disciplinary funding, training, and institutions, as well as more subtle conditions, such as the demographics, epistemic priorities, social norms, and taken-for-granted assumptions of a particular scientific tradition.

Second, the 'Bottom-up' shaping of Scientific Sensibilities. In contrast to the broad structural shaping of the first mode, this second mode captures the ways in which social, political, or cultural changes can also come to shape science in a more 'grassroots' way via shifts in the personal sensibilities of scientists – both as unique individuals and as members of diverse social groups. Personal sensibilities consist of a variety of elements including the changing expectations, motivations, skills, interests, values, and perceptions scientists bring to their work.

Third, the 'Lateral' shaping of Domain Relations. Overlapping both the first and second modes is a third mode of shaping that focuses on the ways in which the relationship between scientific disciplines and parallel domains – such as social, political, or philosophical movements – can change over time. In this case, large scale societal changes may drive cer-

tain scientific and non-scientific domains into closer interaction, for example, physics and the military post World War II. Contrastingly, contextual changes may also drive domains apart, for example, science and religion during the Enlightenment period. Changed domain relations may then have a variety of 'knock-on' consequences for the practices and products of science.

In this presentation, I describe each mode of contextual shaping more fully, using a variety of examples drawn from the history of science. I then show how historical contingencies mean the strength, relevance, and combined effects of these modes will differ for any specific episode, using two contrasting case studies to illustrate. First, I look at the role of context in the mathematisation of natural philosophy in Early Modern Italy. Second, I look at the role of context in the changing study of primate social behaviour in 1970s USA. Overall, I aim to show how my research supports the view that relations between contextual change and scientific change involve a complex web of interactions, but – despite their complexity – we can develop a useful framework for understanding how such connections come to play a significant role in the ongoing shaping and reshaping of scientific work.

Bio

Samara Greenwood is a PhD Candidate in History and Philosophy of Science at the University of Melbourne. Samara's thesis explores the relationship between changing societal contexts and scientific practice using an Integrated HPS approach. Key research questions include: How can we distinguish between different levels of context? What are the various pathways through which science is shaped by large scale societal contexts? And how might we develop a richer, more multidimensional framework for understanding context-to-science relations?

Samara has presented her research at multiple international conferences, including the 2023 Integrated HPS Conference, held in South Carolina, USA, and the 2022 Society for the Philosophy of Science in Practice Conference, held in Ghent, Belgium. Samara is also co-host of The HPS Podcast and was awarded the Ian Langham Prize for the best presentation by a postgraduate at the 2021 AAHPSSS Conference.

Ian Hesketh

Thursday 30 November, 2:15 pm, OTC 442

Cultivating Darwin's Scientific Gardener: John Scott, Botany, and the Physiological Test

This paper explores the relationship between Charles Darwin and the Edinburgh gardener John Scott. It argues that in order to utilize Scott's experimental expertise and observations in support of his theory of evolution, Darwin sought to cultivate Scott as a respectable Darwinian. This involved getting Scott to situate his observations in a Darwinian framework while also projecting the same set of moral and epistemological characteristics or "epistemic virtues" that Darwin himself came to embrace, such as patience, self-denial, hard work, and empiricism. Scott not only proved to be receptive of these characteristics, he also appeared to provide demonstrable botanical evidence of speciation via selective breeding, thereby passing a key test that had been postulated to prove the theory of natural selection in the wake of the publishing of the *Origin of Species* (1859). What the paper argues, however, is that there were ultimate limits to what Scott was able to achieve that could not simply be overcome by projecting the appropriate epistemic virtues. Scott needed to show that these virtues were a product of his own experiences of fulfilling his duties as a man of lesser standing. This he was unable to do, which ultimately cast a shadow over his findings and perceived abilities.

Bio

Ian Hesketh is an associate professor of history in the School of Historical and Philosophical Inquiry at the University of Queensland. His research considers the relationship between science, history, and religion in the nineteenth and twentieth centuries. His most recent books

include *A History of Big History* (2023), *Victorian Jesus: J. R. Seeley, Religion, and the Cultural Significance of Anonymity* (2017), and the edited collection *Imagining the Darwinian Revolution: Historical Narratives of Evolution from the Nineteenth Century to the Present* (2022). He is currently working on projects on the history of Darwinism and on the Victorian physicist John Tyndall.

Wendy Higgins

Thursday 30 November, 2:15 pm, OTC 442

Metascience, philosophy, and psychological measurements

In psychological research, a tension exists between the conceptualisations of validity as a property of a test and validity as the extent to which a *test score* can be interpreted as a measurement of a particular psychological construct for a particular use. In practice, validity is often treated as a property of a test. Drawing on my review of the validity evidence reported in 1,461 studies that administered the Reading the Mind in the Eyes Test (one of the most widely used measures of social cognitive ability), I will argue that treating validity as a property of tests encourages poor measurement practices including infrequent reporting of validity evidence, dismissal of weak validity evidence, and the use of psychological tests in inappropriate contexts. These findings (a) demonstrate that a scoping review methodology can inform philosophical and meta-scientific debates about the construct validation of psychological measurements and (b) raise serious concerns about the credibility of research across the psychological sciences.

Bio

Wendy Higgins is currently completing a PhD in Cognitive Science with the School of Psychological Sciences at Macquarie University. Her research explores measurement practices in the psychological sciences, drawing on empirical, meta-scientific, and philosophical methods.

Alex Holcombe

Thursday 30 November, 11:30 am, OTC 442

Do standard authorship practices slow scientific progress?

In the last several decades, scientific progress may have slowed (Collison & Nielsen, 2018; Bhattacharya & Packalen, 2020). Whether or not this is true, it is useful to identify inhibitors of scientific progress. Some are likely to be in the incentive system that scientists are subject to. One feature of this is that career rewards and prestige have long been based almost exclusively on the documents that secure discovery claims – nowadays, journal articles.

The concept of authorship is a natural one for documents, and the incentive system has glommed onto this, rewarding the authors of journal articles without regard to non-authors who contribute to science. In addition to resulting in various injustices, I suggest that this has limited specialization in science.

Across a range of human endeavors, specialization speeds progress. As Kant put it in his *Groundwork of the Metaphysics of Morals* (1785), “when each worker sticks to one particular kind of work that needs to be handled differently from all the others, he can do it better and more easily than when one person does everything.” An inhibitor of scientific specialization, then, might slow the progress of science.

The authorship guidelines used by thousands of scientific journals require a person to contribute to the *writing* of an article in order to be recognized as an author. This has hindered the production of technicians, statisticians, and other specialists, which I suggest has slowed scientific progress. Recent changes, however, show promise in helping science realize its potential. These include cultural changes such as the movement for equity, diversity, and inclusion, together with policy reforms and technical solutions, which I will describe.

Bio

In the lab, Alex studies how humans perceive and process visual signals over time, especially for the perception of motion and position, and for attentional tracking, which he wrote about in *Attending to Moving Objects* (Cambridge University Press, 2023). Alex also has a strong interest in improving scientific practices and has been involved in Australia's Association for Interdisciplinary Meta-research and Open Science, the open-access Free Journal Network, the WikiJournal of Science, the *tenzing.club* web app to facilitate scientific collaborations, and the in-development MetaROR metascience platform. Alex received his PhD in psychology from Harvard University in 2000 and worked as a postdoc at the University of California San Diego and as a lecturer at Cardiff University (UK) before arriving at the University of Sydney.

Rebecca Johnson

Wednesday 29 November, 11:30 am, OTC 436

Echoes in Silicon: Humanity's Imprint on GenAI

"Generative Artificial Intelligence (GenAI), as with all technology, serves as an extension of humanity. GenAI models enhance our communicative capacities and mirror our collective ethos, reflecting human values at every stage—design, evaluation, and deployment. It's widely acknowledged that these models can generate harmful stereotypes and socially inappropriate outputs [1–3]; a characteristic often attributed to embedded biases in the training data. One common explanation attributes these biases to unrepresentative training data, often skewed due to factors like uneven internet access or the dominance of model development in economically advanced nations.

Yet, biases infiltrate GenAI through diverse avenues: model architecture, evaluation metrics, fine-tuning processes, prompt engineering, and even the defined task goals. Each design or evaluation choice stems from human judgment. For example, determining what constitutes a "successful" model output is shaped by the developer's personal experiences and the prevailing socio-cultural milieu. These choices, consciously or not, root GenAI systems in broader sociotechnical landscapes, encompassing societal norms, political ideologies, economic dynamics, pre-existing inequalities, local regulations, and media narratives. The very interface of users with GenAI models through prompt engineering further highlights our latent biases. Model hypersensitivity to prompt nuances—word choices, syntax, spelling, grammar—reveals how human experiences can impact the narrative the model pursues. GenAI models have a tendency to "agree" with prompts or try to be "helpful", a phenomenon that is due to the foundational architecture[4]. Models are typically trained to predict and generate content based on patterns seen in their training data; therefore, when given a prompt, they seek to produce responses that align with the most likely continuation or agreement to that prompt. GenAI outputs can be viewed as silicon echoes of imprinted human normativity.

In this paper, I delve into two pivotal sources of normative bias in GenAI: prompt sensitivity and evaluation standards. By unpacking model responses to nuanced prompts, I aim to reveal how subtle alterations can dramatically shift the ethical stance of outputs. Moreover, I will critically assess prevalent evaluation metrics that purport to measure a model's reasoning capabilities; highlighting where human design biases in the development of these evaluations can cause inaccurate assessments of the machine's capabilities.

Understanding the depth of human imprints in GenAI is essential. It fosters a nuanced comprehension of these technological marvels in a value-pluralistic light. Such insight helps identify and counteract misleading evaluations, challenging misconceptions of autonomous machine "reasoning" and spotlighting their reflections of human-guided objectives. Moreover, this comprehension paves the way for more informed bias mitigation strategies during GenAI training, particularly with reinforcement learning methods like RLHF and RLAI. As

we demystify GenAI, highlighting its embodiment of our collective consciousness, we move towards a more informed, ethical engagement with this technological frontier. Ultimately, as GenAI mirrors our intricate human fabric, delving into this reflection becomes vital in understanding the profound symbiosis between humanity and technology."

Bio

Rebecca specialises in the ethics of generative AI (GenAI); with a keen emphasis on value alignment. Her investigative lens is sharply trained on the normative biases ingrained in GenAI models and their evaluative processes. As a final year PhD candidate at The University of Sydney's School of History and Philosophy of Science, Rebecca's insights found a global platform during her tenure at Google Research's Ethical AI team. where she was able to present her work internally on numerous occasions including at conferences in San Francisco, Silicon Valley, and Sydney. She has received scholarships from Stanford and MIT to participate in AI Ethics conferences in Palo Alto and Cambridge. She is a Managing Editor for The AI Ethics Journal and a Board Editor of the Springer AI and Ethics Journal. In April 2023, Rebecca convened and Chaired ChatLLM23 at The University of Sydney (generously funded by HPS and Student Life) which was Australia's largest conference to date on the ethical risks and impacts of GenAI. In July she followed this up with ChatRegs23 (funded by the Dean of Science), a pivotal thinktank addressing Australia's AI policy future. Rebecca also the founded the global group "PhD Students in AI Ethics" which consists of connecting over 600 members. In 2020 she was listed on the "100 brilliant women in AI ethics" by Lighthouse 3. She is known for her advocacy work for higher degree students, particularly a conference she ran for 400 PhD students and 100 industry and academic representatives called HDR connect in 2019 and her many years as a postgraduate student representative and elected councillor. Rebecca holds a Bachelor of Science, a Bachelor of Communication, and a Master's by Research.

Alan Jurgens

Thursday 30 November, 2:15pm, OTC 448

Body Social Models of Disability

Operating within neurodiversity and enactivist frameworks, Alan Jurgens argues models of disability should avoid employing an individualistic methodology. Arguing instead that models of disability should take a wide approach that is centred on individuals' relationships with their environments, as ableist socio-material environments are often the source of the difference between disability and disorder or disfunction.

Bio

Alan Jurgens completed his PhD in philosophy at the University of Wollongong where he is causal lecturer and tutor in philosophy and in the Masters of Autism program in the School of Education. His philosophical work has focused on social cognition and the relationships between neurodivergent individuals and educational institutions. He's also currently a research officer on a NSW Dept. of Ed. Priority Project grant to develop strategies and tools to assist schools to make adjustments for neurodivergent and disabled students.

Martin Leckey

Wednesday 29 November, 2:15 pm, OTC 442

The "arrow of time" and a new entropy measure from quantum mechanical spontaneous collapse

This paper is part of a project investigating the origin of the various physical "arrows of time", the asymmetry in time that occurs in myriad physical processes, such as aging or decay. We argue that all these asymmetries ultimately derive from quantum physics, and the "collapse of the wavefunction" in particular. We support versions of quantum theory known as spontaneous collapse theories in which the collapse of the wavefunction is an objective

physical process. Albert argues in *Time and Chance* (2009) that although the well-known spontaneous collapse theory of Ghirardi, Rimini and Weber can take us part of the way in explaining time asymmetry, the theory still requires the “Past Hypothesis”, the supposition that the universe began in a state of extremely low entropy. We have developed our own spontaneous collapse theory, based on a discrete quantum mechanics, and we argue that with this theory it is possible to derive the macroscopic arrow of time without the need for a Past Hypothesis.

Based on the new spontaneous collapse theory, we introduce a new objective measure of entropy for a single quantum system, which we call the wave function entropy. We argue that the usual Boltzmann entropy, and the von Neuman/Gibbs entropy, can be derived from this more fundamental objective entropy. They will not always have the same numerical value, but we suggest that the ensemble of systems picked out in the macroscopic entropy can be grounded in the potentialities implicit in the wave function.

In this paper we will examine von Neuman’s attempt to derive the macroscopic Boltzmann entropy from his own quantum entropy. We hope that this will shed light on the relation between the various measures of entropy that already exist, and help to show how these measures relate to our newly defined wave function entropy.

Bio

Martin Leckey is an Honorary Fellow in History and Philosophy of Science, School of Historical and Philosophical Studies, The University of Melbourne (mjleckey@unimelb.edu.au). He has a Bachelor of Science with Honours in physics, an MA in history and philosophy of science from the University of Melbourne, and a PhD in philosophy from Monash University. His PhD was on the metaphysics of space and time and quantum theory. This included looking at the consequences for quantum theory of adopting a completely discrete physics. This led to a modified quantum mechanics which provides a solution to the ‘measurement problem’. In recent years, he has collaborated with Adrian Flitney on developing the theory, working out its empirical consequences, and its relation to the “arrow of time” problem. Martin also has a long-term collaboration with emeritus professor John Bigelow, working on Platonist metaphysics in science, including laws of nature, modality, time and space. They have also written on Platonism in renaissance art. Martin also has interests in later Heidegger, and philosophy of disability.

Adam Lucas

Wednesday 29 November, 11:30 am, OTC 442

Nuclear powered networks, AUKUS and the new cold war

Adam Lucas will identify those former US and Australian defence officials, politicians and senior officers currently advising or working for defence interests in Australia, and describe some theoretical and methodological tools that can be used to usefully interrogate the composition and extent of the interest coalitions currently promoting nuclear capabilities in Australia’s defence and education sectors.

Bio

Dr Adam Lucas is Senior Lecturer in Science and Technology Studies at the University of Wollongong. His publications and research interests cover STS, the history of technology, political economy, physical and historical geography, and archaeology. His research on Australian energy policy has been published in *Energy Research and Social Science*, the *Journal of Australian Political Economy* and *The Conversation*. His research on Australian and international climate change policy has been published in *Climate Risk Management*, *The Handbook of Anti-Environmentalism* (Edward Elgar, 2022) and *Covid-19 and the Global Political Economy: Crises in the Twenty-First Century* (Routledge 2022). He is the editor of Brill’s ‘Technology and Change in History’ book series and a regular contributor to John Menadue’s

Pearls and Irritations online policy journal. He is currently president of AAHPSSS and a co-investigator in the School of Geographical and Earth Sciences at the University of Glasgow working on a 3.5 year research project funded by the Leverhulme Trust, some of which has been featured in New Scientist.

Caitlin Mahar

Thursday 30 November, 11:30 am, OTC 427

Good Deaths: Nineteenth-Century Foundations of Medical Care of the Dying & Euthanasia

This paper explores the foundations of modern medical management of the dying in the context of changing conceptions of the good death and suffering in the nineteenth century. In doing so it gestures to some of the ways understandings of what constitutes ethical care of the dying have changed over time. Through the writings of British pioneers of this new medical art it examines the complex and shifting relationship between religious and medical attitudes to pain – particularly as regards the ethics of administering strong analgesics to the dying. It argues that scientific and religious understandings of suffering should not be seen as antithetical. Instead it draws attention to the way they have intersected and informed one another, shaping – and continuing to shape – medical ethics as well as broader cultural norms regarding the best way to care for the terminally ill and ideas about what constitutes a good death.

Bio

Dr Caitlin Mahar lectures in history at Swinburne University of Technology. She completed a PhD in history at the University of Melbourne in 2016 in the course of which she was awarded the Society for the Social History of Medicine Roy Porter Essay Prize, the Australian and New Zealand Society for the History of Medicine Ben Haneman Memorial Award and the University of Melbourne's Dennis-Wettenhall Prize. Her book about the history of medical care of the dying and euthanasia activism, *The Good Death Through Time*, was published by Melbourne University Press earlier this year. Email: cmahar@swin.edu.au

Rebecca Mann

Wednesday 29 November, 11:30 am, OTC 442

Splitting the Problem of Biological Individuality: A Spatial and Temporal Problem

Despite the ever-growing interest in the problem of biological individuality, there is still little agreement about what criteria should underlie the concept. This is made evident by the disagreement about whether odd cases, like honey bee hives or slime moulds, are some kind of individual, be it evolutionary or organismal. I suggest that part of this difficulty is based on a misconception about the kind of question we are asking. When we ask, "What is a biological individual?", I propose that we are actually asking a two-pronged question that has separate (but still connected) spatial and temporal components. Spatial questions of biological individuality are concerned with the conditions that make some living entity a kind of individual at a time; whereas, temporal questions ask what criteria make some living entity the same individual over time.

Using the strange aggregate lifecycle of the cellular slime mould (*Dictyostelium discoideum*) as a case study, I will explore how splitting the problem of biological individuality into its spatial and temporal components provides a useful and informative framework for approaching such indeterminate cases. For *D. discoideum*, I suggest that we need to consider whether the multicellular aggregate slug, made up of single-celled amoeba, has the kind of spatial unity needed to be considered some sort of biological individual. Only then do we consider where the temporal boundaries of the slug may be and whether it has the right persistence conditions to be considered a biological individual at all.

It is uncontroversial that for a living entity to be considered a biological individual, it must

persist over time with spatial parts that are unified in some important way. However, it is mistaken to assume that temporal persistence and spatial unity always run together. As such, we should not presuppose that a solution to the problem of biological individuality that addresses only one part of the question (such as lifecycle-based solutions) will necessarily answer the other.

This two-pronged approach goes beyond looking at stereotypical odd cases like the cellular slime mould. All living entities, including so-called paradigm individual organisms like mammals, have both spatial and temporal components with indeterminate edges. What I hope to show, is that by splitting the problem of biological individuality in this way, scholars interested in the problem are incentivised to carefully explore the spatial (at a time) and temporal (over time) individuality questions and consider how they may come apart for different entities.

Bio

Rebecca C. Mann is currently completing her PhD in the School of History and Philosophy of Science at The University of Sydney under the supervision of Prof. Peter Godfrey-Smith. Rebecca's work looks at conceptual topics in the Philosophy of Biology with a focus on The Problem of Biological Individuality. Rebecca also has a Bachelor of Genetics with Honours from the Australian National University and a Diploma of Arts (Philosophy) from The University of Sydney. Rebecca has a keen interest in all of the weird and wonderful biological entities, with a special focus on eusocial insects like the honey bee *Apis mellifera*.

Ellen McLinden

Wednesday 29 November, 2:15 pm, OTC 436

Academic Competition and Crusade: conflict and cohesion at the University of Halle 1694–1730

Why is it that early-modern scholars spent so much time warning against the dangers of philosophical squabbling, and yet spent a great deal of their time doing precisely that? In Brandenburg-Prussia, at the University of Halle, this apparent dichotomy is one of a number observable in numerous controversies engulfing scholars there, who published prolifically on the avoidance of conflict while themselves attracting a significant deal of it. These scholars were primarily philosophers and orthodox theologians, and it is tempting to demarcate them based on this qualification. In written output, authority and social control drew significant attention, while the many proclamations from university professors that reason should set the foundation for all academic dispute has invited identification of an "early enlightenment" taking place. There are subtleties and paradoxes within these controversies that such dualistic portraiture fails to satisfy, however. The image of enlightened scholars battling the binds of an inflexible religious orthodoxy, as in Christian Wolff's infamous spat with the Lutheran theologians, cannot account for the fact that some controversial university professors numbered among the pietist community, while Orthodox theologians were also included within the university faculty. When considering the prevalence of conflict itself, the possibility that early-modern scholars effaced their persona draws an intriguing image of political manoeuvring concealed beneath the published words of philosophical treatises, where controversy is just another machination. The suggestion that the early sciences developed behind a façade of insincerity holds some promise, but also seems to discount very real and serious consequences that could – and did – follow public dispute in German territories. The penalties for attracting controversy extended beyond collegial mistrust and professional jeopardy, into threats to life and livelihood. Yet at the same time, the conflict-prone University of Halle was a valuable asset for the Prussian state, and its scholars were lucrative drawcards for students from neighbouring states. This current of disagreement and dispute, bubbling beneath the network of scholars located at Halle, may present less of an interruption to

academic life than an illumination of the ideas that preoccupied these scholars most: duty and loyalty; trust and friendship, authority and social control. With a new university and a new sovereign, many of these areas of life were in flux or transition. When pursuing this avenue to understand the motivations of scholars in Halle during this period, the image that emerges of the university – both the institution and the people who formed it – is one of a mouldable entity caught in the nexus of a developing state and flourishing intellectual society that had settled within the territory of an orthodox Lutheran clergy.

Bio

Ellen McLinden is a PhD candidate at the University of Melbourne (in HPS) looking at conflict at the University of Halle, c. 1680 – 1730

Alison Downham Moore

Wednesday 29 November, 2:15 pm, OTC 427

Individual Preventive Health Practices and Self-Medication in Nineteenth-Century France

French medical hygiene writers in the nineteenth century encouraged urban elites and working people to manage their own health through dietary, exercise, sleep, bathing, behavioural and moral interventions. Many groups were defined as needing greater hygienic care, such as women (particularly during the life phases of reproductive change), older people, scholars and those of delicate or nervous temperament. Specific body parts and systems were also thought to have their own hygienic requirements, especially digestion and procreation. While French hygiene has attracted significant scholarly interest, much of this attention has focused on the public health and sanitation aspects of the medical specialism. However, the Paris and Montpellier university chairs of hygiene were not only concerned with the larger matters of societal and public health but with reforming individual habits and popular medical consciousness. Many referred to hygiene as “medicine without doctors”, and championed its development as a pathway toward the obsolescence of clinicians. Others wrote of “conditions that are dangerous to treat”, drawing on vitalist conceptions of the body’s self-healing capacities through the generation of productive crises. Hygiene, more than any other discipline, became the vector of medical popularisation (vulgarisation). But how far was self-treatment to extend, and where did pharmacological remedies fit in the hygienic care of the individual? French elites had long commonly self-medicated with a variety of emetic and purgative herbal remedies, as well as phlebotomy and enemas, informed by the view that vicious humours could be expelled by these means. While some medical writers encouraged such self-medication as part of individual hygienic regimes, others engaged in vigorous tirades against practices that derived from either historical antecedent, and were viewed as not sufficiently scientific.

This paper considers a range of hygiene works by both official medical professors, self-appointed experts and semi-certified health officers, reflecting on the different markets for hygiene knowledge and the relative reach of hygiene into different social classes, genders and ages. It focuses on the place of self-medication in hygienic advice and how it was impacted by the significantly increased diversity of medical products in the nineteenth century, following the development of colonial and global trade between continental Europe, the Middle East, Africa, Indian Subcontinent, East Asia and South America.

Bio

Alison Downham Moore is a medical humanities scholar and historian at Western Sydney University, where she is currently Associate Dean of Research in the School of Humanities and Communication Arts. She lives on Gundungurra country in the Blue Mountains NSW. She is author of 3 books, the most recent being *The French Invention of Menopause and the Medicalisation of Women’s Ageing: A History*, published by Oxford University Press in 2022, and has published in journals such as the *Journal of Global History*; *Modern Intellectual History*;

History of the Human Sciences; BMJ Medical Humanities; History & Anthropology; and the Journal of the History of Medicine and Allied Sciences. She is an Alumni Fellow of both the Hanse Wissenschaftskolleg in Germany and of the European Union's Marie Skłodowska-Curie Foundation, and is Managing Editor of *Lilith: A Feminist History Journal* published by ANU Press. She has recently begun working on a collaborative project with literary scholar Dr Manon Mathias at the University of Glasgow, focused on the history and culture of French hygiene (preventative health).

Christopher Orrell

Thursday 30 November, 11:30 am, OTC 427

Medical Journals and the Construction of Medicine in Australian Colonies in the 19th Century

By the late 19th century, periodical publication had exploded around the world, and the scientific journal had become a key method for the dissemination of new knowledge. In adopting the format of the scientific journal, medical practitioners gained new avenues for the curation and creation of new knowledge and professional identities. Across the Australian continent, the 19th century saw 30 individual medical journals enter publication.

Historical medical journals are increasingly being regarded as more than simply a vehicle for the dissemination of new knowledge, and are instead becoming recognised as valuable historical sources in and of themselves. Not only can they tell us about how new ideas were transmitted, but also how the bounds of emergent disciplines were drawn, and communities of practitioners formed. Yet, in the Australian context, journals remain underutilised sources, which have not seen significant study since the mid-20th century.

Using 19th century Australia as a case study, this paper argues that by moving beyond just the information contained within these journals, and by looking at them as historical artefacts in and of themselves, it is possible to achieve a deeper understanding of the development of the modern concepts of scientific medicine and a well-defined medical profession. By approaching these texts diachronically and using digital humanities methodologies to enable distant reading, I argue that new insights can be obtained into the culture of knowledge-making that produced these texts.

Bio

Christopher Orrell is a PhD candidate in the History and Philosophy of Science at the University of Melbourne. His research centres on the role of the medical journal in the construction of medical science and the professionalisation of medicine in the 19th century.

William Palmer

Thursday 30 November, 11:30 am, OTC 427

Alfred Payson Gage (1836–1903); teacher, communicator and champion of experimental physics

Alfred Payson Gage was born in Hopkins and New Hampshire on 15th April 1836. His parents, Sewell and Eliza (Morgan) Gage were farmers. His first employment, at the age of 16, was as a teacher in charge of a district school in Concord New Hampshire. He graduated with honours from Dartmouth College in 1859. After gaining some teaching experience he established the school in Laurenburg, North Carolina. The civil war forced him to sell the school in 1864 and after many adventures obtained a position at the Bunker Hill Grammar School in Charleston Massachusetts. In 1874, he was moved to the English High School in Boston to teach physics and drawing. In 1880 he set up a physics laboratory, which some sources claim was the first physical laboratory in America. He wrote several physics textbooks and physics laboratory manuals of a high quality. His books were extremely popular in America and were translated into other languages. Dartmouth College presented him with masters and doctor

qualifications for his work in promoting physics education. He died on 23rd of February 1903

Bio

Bill Palmer obtained his Bachelors degree (B.Sc General, Chemistry, Physics and Mathematics in 1959) and Teacher's Certificate at the University of Exeter (1960) and his Masters degrees from the University of East Anglia (1970) and the University of Oxford (1981); his PhD (2003) was obtained from the Curtin University, Australia. Apart from Australia, Bill has worked in Britain, Nigeria, Papua New Guinea and Western Samoa. He was a senior lecturer in the Faculty of Education, Health and Science at Charles Darwin University, Australia from 1989 until February 2007 when he retired after nearly fifty years in science education. Since 2007, he has had an honorary position as adjunct Research Associate at Curtin University of Technology, Perth, WA.

Divya Rama Gopalakrishnan

Wednesday 29 November, 2:15 pm, OTC 427

Venereal Disease a threat to 'public health'?: A history of colonial sanitary measures in the nineteenth century Madras Presidency (South India).

This paper presents the nineteenth-century colonial policies around public health, sanitary measures, and control of venereal disease in the Madras Presidency or colonial South India. It investigates how British colonial measures to curtail venereal diseases concurred with concerns about 'public health' in the 1860s and 1870s in the Madras Presidency and the city of Madras. Prior works on venereal diseases have focused on its effect on the British military and the confinement of prostitutes. Yet, comparatively less attention has been placed on colonial measures to control venereal diseases among the general Indian population. In this paper, I question the extent to which British 'public health' policies encompassed the Indian population and whether venereal diseases, a disease essentially associated with the British military in India came to be seen as a threat to 'public health'. Although there is a recent increase in scholarly interest in studying the medical and sanitary history of the Madras Presidency, very few have focused on the ways in which colonial morality influenced town planning and sanitary policies in the context of the Madras Presidency. The paper examines how 'public' opinions and notions of Victorian 'morality' shaped some of the sanitary policies and urban planning of Madras City when residents of Madras wanted to segregate the lock hospital; an institution which was meant to regulate the 'undesired' prostitutes. Earlier scholarship believed segregation was key to maintaining 'public health' in colonial cities, however, recent scholarship has questioned the notions of 'dual city' by highlighting the blurred lines. This paper also questions how far the colonial administration successfully maintained this segregation to maintain 'public health' in Madras.

Bio

Divya Rama Gopalakrishnan is a Junior Lecturer at La Trobe University and she did her PhD at the School of Historical and Philosophical Studies, University of Melbourne. Her thesis examines the control of venereal disease and sexual surveillance in colonial South India. She has recently published an article titled 'Gomastahs, Peons, Police and Chowdranies: The Role of Indian Subordinate in the Functioning of the Lock Hospitals and the Indian Contagious Diseases Act, 1805 to 1889' in *NTM Journal of the History of Science, Technology and Medicine* (Springer publication).

Jules Rankin

Wednesday 29 November, 2:15 pm, OTC 442

The Predictive Processing of Flow

This paper attempts to provide an account of our experience of Temporal Flow (TF) within the Predictive Processing program of cognitive science. Very broadly, this account argues that within a B-theoretic metaphysics, our experience of TF of is a result of the ubiquitous updating

of generative models by agents whose perception and cognition is described using a Hierarchical Bayesian inference framework. This account cuts across the usual perceptual/agential accounts of TF while maintaining much of what is philosophically attractive in both cases. I will end by discussing further implications and locating this account within the broader philosophy of time literature.

Bio

Jules is a PhD candidate at the School of History and Philosophy of Science at the USYD. His research interests are within the philosophy of time and his PhD aims to contribute to understanding the relationship between our scientific and manifest images of time. Jules is also the postgraduate representative for AAHPSSS and the School of History and Philosophy of Science at USYD.

Sophie Ritson

Wednesday 29 November, 11:30 am, OTC 436

Communicating Uncertainty: The curious case of the 750 GeV bump at the LHC

The Large Hadron Collider at CERN is one of the largest and most complex experiments ever built, consisting of a 27km ring in which protons are accelerated and made to collide in bunches of proton collisions in four detectors. Each of these detectors was independently built and is run by a large experimental collaboration: the ALICE, ATLAS, CMS, and LHCb experiments. In 2015 the CMS and ATLAS experiments each independently observed indications of a new resonance at 750 GeV. These observations generated a flurry of activity and preprints from theoretical physicists as well as global media coverage. Several physicists indicated that if the significance of the result increased with more data, to the point where a discovery claim could be made, then this would be more novel than the Nobel Prize winning discovery of the Higgs Boson. However, in 2016 it was revealed with more data that both observations were the result of statistical fluctuations. The New York Times ran the headline 'The Particle That Wasn't'. Oreskes, amongst others, has argued that trust in science is in part dependent on scientists and scientific communities being able to understand and articulate the limits of their research (Oreskes, 2010, 2021). In this paper I examine the communications from the theoretical physics community and from the experimental physics collaborations, in relation to the 750 GeV results, and explore the epistemologies presented.

Bio

Sophie Ritson's research focuses on the epistemology of contemporary scientific practices, with an emphasis on changing modes of research, scientific methodology, and science and values. In examining contemporary practices, Ritson's research seeks to develop a deeper understanding of the changing conditions and contexts of knowledge in 21st century science. Ritson has examined the string theory controversy, which is driven by non-empirical constraints. A further subject of their research is high-energy experimental particle physics at the Large Hadron Collider (LHC) at CERN in Switzerland, which, following a crisis in theory and an absence of new results, is now looking for new direction and is increasingly drawing upon machine learning techniques.

Robert Ross

Thursday 30 November, 2:15 pm, OTC 442

Inattentive and insincere participants: Underappreciated sources of systematic error in psychology research

Two key assumptions of psychology studies are that participants (a) understand what researchers are asking them to do and (b) provide sincere responses when completing questionnaires and other tasks. While data-quality checks are being used increasingly often to verify these assumptions, there are still numerous psychology studies being conducted with

inadequate data-quality checks – or no data-quality checks at all. In this talk I present evidence that low-quality psychological data can have effects that are considerably more pernicious than researchers tend to appreciate. Moreover, I argue that low-quality data are likely to be widespread and that philosophers, psychologists, meta-scientists and others need to carefully reconsider how they evaluate existing psychology research.

Bio

Robert Ross is a Research Fellow in the Department of Philosophy at Macquarie University. His research focuses on delusions, meta-science, misinformation, reasoning, and religion.

Jonathan Sandeford

Friday 1 December, 11:30 am, OTC 442

A Paradigm Shift: The Social, Intellectual, and Technological Nexus that instigated Abdominal Surgery.

The evolution of abdominal surgery from a minor and high-mortality practice in the 17th and 18th centuries to a well-established medical procedure in the 19th century was influenced by a complex interplay of social, intellectual, and technological factors. While advancements in anaesthesia, antisepsis, and asepsis are often attributed as key drivers of this transformation, a more nuanced perspective reveals the significant role played by broader societal changes, the merging of surgery and medicine, intellectual developments in surgical theory and education, as well as the rise of specialized surgical fields.

Social influences, such as the elevation of surgeons from craftsmen to esteemed professionals, fostered a climate conducive to further academic pursuit and abdominal surgery's crystallisation as a viable therapeutic. The establishment of independent surgical institutions and the merging of surgery and medicine brought surgeons onto equal footing with physicians. These developments were particularly evident in Britain and France, where surgical education transitioned from apprenticeships to formalized training and examinations, thus ensuring a higher quality of general education, theoretical knowledge and expertise. This led to a commensurate rise in personal stature and social cache.

Intellectual progress, spanning the 18th and 19th centuries, was equally pivotal in shaping abdominal surgery. The evolution of surgical theory, notably the transition from a localistic approach, such as bladder stones and lithotomy, to a more comprehensive understanding of diseases based on tissue-specific pathology, which provided a solid, theoretical foundation for resective surgery. This change in perspective facilitated the emergence of specialized surgical fields such as general surgery and gynaecology, who both significantly contributed to the advancement of abdominal surgery.

Technological breakthroughs, particularly anaesthesia, antisepsis, and asepsis, represented the catalyst which allowed many of the aforementioned developments to bear fruit. Anaesthesia eradicated the pain associated with surgery, allowing for more meticulous and effective procedures. Antisepsis and asepsis revolutionized infection control, significantly reducing postoperative complications. These innovations were the final steps to routine abdominal surgeries by minimizing patient suffering and improving surgical outcomes.

The evolution of abdominal surgery was a multifaceted process driven by a combination of social, intellectual, and technological advancements. The elevation of surgeons' status, the convergence of surgery and medicine, advancements in surgical education, the development of specialized surgical fields, and the advent of anaesthesia and infection control measures collectively transformed abdominal surgery from a risky and rare endeavour to a cornerstone of modern medical practice. Understanding the intricate interplay of these factors provides a comprehensive view of the historical trajectory of abdominal surgery and its enduring impact on medical care.

Bio

Jonathan is a dedicated Gynaecological Oncology Fellow currently working at the Lifehouse. However, his medical journey was far from concrete. Jonathan's interest began after he faced a painful decision when selecting his undergraduate pathway: medicine or history?

After initially selecting medicine, he realised that he didn't have to choose. This led him to pursue a deeper understanding of the intersection between the two disciplines. He continues to delve into medical as a fascinating facet of scientific history and human endeavour.

He completed the History of Medicine unit at the University of Edinburgh whilst on exchange, further enriching his knowledge and broadening his perspective. Eager to expand his horizons, he continued to explore medical history in his spare time while completing a specialty training program, performing medical research and two postgraduate degrees.

He hopes to one day formalise his passion by completing the Diploma in the History of Medicine of the Society of Apothecaries (DHMSA). Beyond his academic and professional achievements, Jonathan enjoys reading, cooking, and playing squash.

He has a penchant for sharing anecdotes about eponymous names of surgical instruments which, while reflecting his own enthusiasm, may not always be mirrored in medical students and junior doctors.

Carl Sciglitano

Wednesday 29 November, 11:30 am, OTC 436

Unravelling the Values and Priorities of Simulation Producers and Users

This paper investigates the historical socio-political conditions that shaped the evolution and advancement of computer simulations in geophysics and astrophysics from the 1950s through to the 1990s. Through a detailed exploration of simulations used in these fields, this study reveals the intricate role that socio-political factors have played in the shaping of simulation codes. The architecture of simulation software spans from messily crafted custom code to user-friendly off-the-shelf solutions, complete with accompanying manuals. Such configurations, I contend, are rooted in the unique values and priorities inherent in each field. Furthermore, they illustrate that the epistemology of simulations, in part, reflects the social and cultural dynamics of scientific practice. While most existing simulation literature focuses on philosophical and epistemological aspects, this paper attempts to break new ground by exploring the contingent factors that shaped the historical development of computer simulations in specific scientific domains.

Bio

Carl Joseph Sciglitano is a graduate student in the History & Philosophy of Science program. After completing his Master's degree in Science (Astronomy) at Swinburne University in 2018, Carl became interested in how scientists extend their epistemic gaze through technology, be it a telescope or a complex computer algorithm. It is this broad area that Carl is currently hoping to shape into a PhD thesis.

Gemma Lucy Smart

Thursday 30 November, 2:15pm, OTC 448

Narratives of Madness and Mental Distress

Utilising lived experience led research (as part of the *Re;minding Histories* group), Gemma Lucy Smart examines how ableist master narratives are often used as ways to distinguish between normal and abnormal behaviour (and people). By taking a pluralist approach to explanation in psychiatry, in this panel Smart will argue that alternative narratives from *Mad Pride* and critical psychiatry offer important sites of resistance and healing for madness and Disability.

Bio

Gemma Lucy Smart is a lived experience PhD scholar at The University of Sydney. She works on spirituality and critical perspectives in psychiatry during late 20th Century Australia with the Re;Minding Histories Lab. She's known for her philosophy of psychiatry research on Internet Gaming Disorder. She's a disability activist, musician, and poet.

Marilyn Stendera

Thursday 30 November, 2:15pm, OTC 448

Institutions, Time and Neurodiversity

Analyses of the role that time plays in lived experiences of neurodiversity often focus on classifying particular ways of navigating time as 'atypical', overlooking systemic factors. Drawing on critical phenomenology and the philosophy of time, Marilyn Stendera argues that we instead need to interrogate the reductive, ableist ways in which institutions operationalise, structure, and allocate time.

Bio

Marilyn Stendera is a lecturer in philosophy at the University of Wollongong; she previously taught at Deakin, Monash and the University of Melbourne, where she also completed her PhD. Her work focuses primarily on the phenomenological tradition, especially its intersections with philosophies of cognition and mind, and its conceptualisations of time.

Ian Tasker

Friday 1 December, 11:30am, OTC 436

The appointment and forced retirement of a government astronomer

When the Commonwealth government was formed in 1901, the Australian Constitution set out that it was responsible for the funding and oversight of internationally managed science, id est., astronomy, and meteorology, which state observatories at that time managed. However, the NSW government deliberated with the University of Sydney and the Commonwealth government to take over and fund their observatory during the appointment of W. Ernest Cooke and later his forced retirement.

Bio

Graduate Certificate in Research Studies – Astronomy Education Research 2007. Master in Research – Australian Colonial Astronomy and the Constitutional Debate (1912–1941), candidate 2023. My study fits into the broader societal conversation around research funding, given that the federal government has been slashing funding for academia during the current global pandemic. I am a member of the executive of the Australasian Association for the History, Philosophy and Social Studies of Science. I have published the paper 'Power, Politics and Personalities in Australian Astronomy: William Ernest Cooke and the Triangulation of and Pacific by Wireless Time Signals' and presented at the fifteenth biennial History of Astronomy Workshop, held at Notre Dame University in Indiana on June 21–24, 2023; Volunteer Aviation Radio Operator with the New South Wales Rural Fire Service.

Gerhard Wiesenfeldt

Wednesday 29 November, 2:15pm, OTC 436

Huygens on the Barge: Relativity of Motion in the Life World of 17th Century Holland

Christiaan Huygens' treatise *De motu corporum ex percussione* (*On the Motion of Colliding Bodies*, 1705) is widely considered to be a key work in the development of the classical principle of relativity, the idea that physical laws are independent of the system of reference used to describe motion. Central to Huygens' approach was a thought experiment contrasting two observers involved in the same experiment, one moving on a boat, the other standing on an embankment.

This talk will argue that Huygens' thought experiment was embedded in the life world of the early modern Netherlands, manifested in canal boat travel. Since the middle of the seventeenth century the trekvaart system had provided a reliable means of passenger transportation in the Dutch. Within a few decades, this system displayed core elements of modern mass travel associated with the expansion of the railroad. The experience of space in the canal boat travel corresponded to Huygens' abstract conceptualisation of space in his work on the relativity of motion. In turn, the trekvaart system was embedded in a much older tradition of water management and reconstruction of space in the Low Countries. The idea of a real space that was constructed according to abstract principles derived from Euclidean geometry was - while unusual in other countries of pre-modern Europe - integral to the Dutch life world since the high middle ages.

Bio

Gerhard Wiesenfeldt is a lecturer for History of Science in the School of Historical and Philosophical Studies. He has worked extensively on the history of physical sciences in the Dutch Republic as well as on the role of experimental sciences at early modern universities. His main research project is focussed on tracing the interrelation between practical mathematics and academic philosophy at the University of Leiden from 1600-1800. One aspect of this focus leads to a study of the epistemological role of family networks in early modern academia.

John Wilkins

Thursday 30 November, 2:15pm, OTC 448

Worldviews and their [im]plausibility

Since Kant used the word *Weltanschauungen* with reference to the mathematical sublime in the *Critique* (Part I, 255), this notion of a foundational grounding that determines, or at least influences, our way of experiencing and comprehending the world has been taken up, at first by Fichte and Schelling and later by theologians, as a fact of cognition. Englert (2022) calls this the "worldview maneuver", but by the end of the nineteenth century, this had become a doctrine, or theory, and I will call it the Worldview Theory (or WVT). Over a century after Kant, in 1908, James Orr wrote *A Christian view of God and the world*, which made the term and notion more or less ubiquitous.

Post-Kantian Idealist philosophy also had a WVT manoeuvre of its own. It in effect says that "although the existence of something independent of the mind is conceded, everything that we can know about this mind-independent "reality" is held to be so permeated by the creative, formative, or constructive activities of the mind (of some kind or other) that all claims to knowledge must be considered, in some sense, to be a form of self-knowledge" [Guyer and Horstmann, 2023) and this was echoed and amplified throughout the twentieth century, by linguists, anthropologists, psychoanalysts, educational theorists, political theorists of the Frankfurt School, and of course philosophy, with Wittgenstein in the *Investigations* and *On Certainty* one of the more influential amplifiers. And of course, in the philosophy of science, we have Kuhn's "paradigms", disciplinary matrices and their consequent incommensurabilities.

So a lot of weight is carried by the WVT. But just how plausible are worldviews? I will argue there is a spectrum ranging from hard determinism of beliefs and actions through to soft influences, and that WVT equivocates on this spectrum. I will argue further that the acquisition of belief structures inevitably occurs piecemeal, and that no overarching belief systems ever develop, or could. Finally, I will suggest that we actually acquire such views of the world as we typically have through the populating of our belief nets by picking prêt-à-porter beliefs from epistemic authorities.

For HPS, this has a number of obvious and subtle implications. If there is time, I will briefly cover some of these.

Bio

John Wilkins did his PhD at the University of Melbourne. He has researched and taught at the University of Queensland, the University of Sydney, the University of New South Wales, and the University of Melbourne. He has published 58 papers and several books: *Species: A History of the Idea* (2009), *Defining Species* (2009), *The Nature of Classification* (2013, with M. C. Ebach), *Species: The evolution of the Idea* (2018), *Understanding Species* (2023), and edited *Species Problems and Beyond* (2022, with F Zachos and I Pavlinov), and *Intelligent design and religion as a natural phenomenon* (2010). John is currently an Honorary Fellow at the University of Melbourne School of Historical and Philosophical Studies.

Ian Wills

Friday 1 December, 11:30am, OTC 436

Engineering: The dark art of mixing science, mathematics and whatever else comes to hand

A not unreasonable generalisation is that for engineers, getting to a solution is more important than how they get there. For engineers, the fundamental question is not: Is it true? but does it work? Engineers have been doing this for millennia, for the most part successfully, and yet it is only in the last few centuries that engineering can be said to have become scientific.

In public, contemporary engineers present their way of working as precise, mathematical, and scientific. While this image is not untrue, it is incomplete for in the design office, away from public view, more happens with engineering solutions drawing not only on science and mathematics but many other sources including regularities, empirical relationships and sometimes mirky resources like rules of thumb. This paper examines the merits and consequences of some sources of knowledge used by engineers, arguing that there is not a clear hierarchy with science at the top and rules of thumb at the bottom but rather that each has merits and risks. Of those risks, one of the most significant is knowing how trustworthy they are individually, in relation to each other, and in combination. This paper proposes an approach to dealing with this uncertainty.

Bio

Ian turned to the history and philosophy of science after a career in engineering. His PhD dissertation focused on the history and philosophy of technology using Thomas Edison's laboratory notebooks to understand the processes by which novel artefacts are created. He has recently published on this as *Thomas Edison : Success and Innovation through Failure* (Springer). His current research interests include the ways in which engineering knowledge is used, and the history of technology and manufacturing in twentieth century Australia.

Josh Wodak

Friday 1 December, 11:30am, OTC 448

Gambling on Unknown Unknowns: Risk Ethics for a Climate Change Technofix

This presentation provides a critical analysis of the risk ethics of imminent climate overshoot, in relation to the interventionist gambles proposed by NETs through Synthetic Biology and Climate Engineering. That is: when potentially efficacious action has not only been reduced to gambling, but a manner of gambling where predictability and probability exceed the limits of what can be known, in conjunction with what can be known about what can be known... Therein, the presentation contemplates the unthinkable questions that our current situation demands we ask, and perhaps even try to answer.

Bio

Dr. Joshua Wodak is a researcher, writer, and artist who works at the intersection of the Environmental Humanities and Science & Technology Studies. His research addresses the socio-cultural dimensions of the climate crisis and the Anthropocene, with a focus on the ethics and efficacy of conservation through technoscience, including Synthetic Biology, Assisted Evolution, and Climate Engineering. He is currently a Senior Research Fellow at the Institute for Culture and Society, Western Sydney University, and a Chief Investigator at the Australian Research Council Centre for Excellence in Synthetic Biology.