#### **Departmental Seminars**

Seminars are held on **Thursdays from 4.30 to 6.00pm in Seminar Room 2**, Department of History and Philosophy of Science, Free School Lane, Cambridge. There is tea beforehand from 4pm in Seminar Room 1.

Organised by Helen Curry.

24 April	Harvey Brown (University of Oxford) How trees defy gravity: conceptual and historical remarks on the theory of the ascent of sap
1 May	<b>Emma Perkins (HPS, Cambridge)</b> 'For the sake of ornament': iconography in Tycho Brahe's <i>Astronomiae</i> <i>instauratae mechanica</i>
8 May	Jennifer Tucker (Wesleyan University) Facing facts: the great Tichborne trials and the rise of modern visual evidence

15 May Nancy Cartwright (Durham University and UCSD) There are mechanisms – and then there are mechanisms

Department of History and Philosophy of Science, University of Cambridge Free School Lane, Cambridge CB2 3RH

Seminar Programmes are sent out at the start of every term to the names on our mailing list. Please contact the Department if you would like to be added to or removed from the mailing list, or if you change your address.

Seminar information is also available at www.hps.cam.ac.uk/seminars

#### Abstracts

#### 24 April Harvey Brown (University of Oxford)

How trees defy gravity: conceptual and historical remarks on the theory of the ascent of sap

The ability of trees to suck water from roots to leaves, sometimes to heights of over a hundred meters, is remarkable given the absence of any mechanical pump. In this talk I deal with a number of issues, of both a historical and conceptual nature, in the orthodox Cohesion-Tension (CT) theory of the ascent of sap in trees. The theory relies chiefly on the exceptional cohesive and adhesive properties of water, the structural properties of trees, and the role of evaporation ('transpiration') from leaves. But it is not the whole story. Plant scientists have been aware since the inception of the theory in the late 19th century that further processes are at work in order to 'prime' the trees, the main such process – growth itself – being so obvious to them that it is often omitted from the story.

#### 1 May **Emma Perkins (HPS, Cambridge)** 'For the sake of ornament': iconography in Tycho Brahe's *Astronomiae instauratae mechanica*

In 1598, having lost the favour of the Danish king and consequently the vast income that supported his astronomical observatories, Tycho Brahe published his *Astronomiae instauratae mechanica*. Dedicated to Holy Roman Emperor Rudolph II and circulated among the highest nobility in Europe, this lavish publication provided detailed descriptions and illustrations of Tycho's astronomical instruments in an attempt to procure patronage. These instruments have long been celebrated by historians of astronomy for their innovative design and capacity for precision measurement, yet their often highly decorative appearance, apparent from the striking images provided in the *Mechanica*, is frequently dismissed as mere ornament. By considering a selection of instruments, I will argue that far from being an irrelevant luxury, the iconography employed by Tycho was in fact a vital means of self-presentation, through which he attempted to convey not only his superiority as an astronomer, but the underlying worth of his endeavour. His instruments thus provided a particularly appropriate medium through which to appeal for financial support. This argues for a more sophisticated appreciation of Tycho's instruments and instruments in the Renaissance more generally, not simply as tools of precision measurement, but also as vehicles for self-expression and promotion.

#### 8 May Jennifer Tucker (Wesleyan University)

Facing facts: the great Tichborne trials and the rise of modern visual evidence

The paper investigates the role of photography and other forms of visual evidence and display in the celebrated 19th-century trials in Britain of the 'Tichborne Claimant'. Familiar to historians as the longest legal proceedings of the Victorian age, a popular cause that attracted working-class support, the Tichborne trials (1871–1874) were also a landmark in the emergence of modern visual culture, concepts of evidence and new methods of historical narration. Analysis of some of the central images from the case frames a discussion of historical methodologies at the heart of current Victorian visual studies, history of science and technology, public history, legal studies and social and cultural history.

#### 15 May Nancy Cartwright (Durham University and UCSD)

There are mechanisms – and then there are mechanisms

Mechanisms are all the rage in philosophy of science now and in a number of scientific domains as well. What then is a mechanism? I shall describe three senses common in philosophy: 1) invariant relations (sponsored by James Woodward), 2) causal processes (probably the usual sense in medical literature) and 3) relatively fixed arrangements of parts that act together to afford or explain causal regularities (defended by William Bechtel and by MDC: Machamer, Craver and Darden). I claim these are distinct senses. But Peter Menzies claims that by employing a 'structural equations' framework, one can in one fell swoop use 1) the invariant-relations idea to give a much needed explication of the idea of 'action' central to 3) and thereby give a much needed account of how mechanisms in sense 3) explain causal regularities.

I think Menzies is really dealing with 2) causal processes all along; his account has no space for 3) parts and their actions. But we need to keep this third sense of 'mechanism' centre-stage because it is correct that it is mechanisms in this sense that underwrite the familiar causal processes we rely on throughout daily life and much of science and policy. Without attention to the mechanisms (sense 3)) that afford causal regularities we have no idea how far they stretch nor when and where they will break down. Looking at Menzies' valiant attempt, as I shall do, and seeing how, if I am right, it fails shows just how true this is. I shall illustrate with some examples from child welfare and development policy.

### **Cabinet of Natural History**

This research seminar is concerned with all aspects of the history of natural history and the field and environmental sciences. Seminars are held on **Mondays at 1pm in Seminar Room 1.** You are welcome to bring your lunch with you.

Organised by Natalie Lawrence.

28 April	Sachiko Kusukawa (Trinity College, Cambridge) William Courten (1642–1702) and natural history
5 May	Lee Jung (Needham Research Institute) Between universalism and regionalism: Nakai Takenoshin's research on colonial Korean plants and Japanese universal systematics
12 May	Mimi Winick (Rutgers, The State University of New Jersey) Studied enchantment: the conjectural method in late Victorian scholarship
19 May	<b>Michael Bravo (Scott Polar Research Institute)</b> Apollonian vision and polar projections: some reflections on cosmography, instruments and empire
26 May	<b>Francis Neary (HPS, Cambridge)</b> The sources of Charles Darwin's work on animal reasoning
2 June	<b>Thomas le Roux (Maison Française d'Oxford)</b> Industrial pollution and politics in France: the great shift, 1750–1830

Friday 13 June Cabinet Party, 12.30–3pm, Caius Fellows' Garden Speaker: James Hall (HPS, Cambridge)

#### **Twentieth Century Think Tank**

The Twentieth Century Think Tank (TCTT) offers broad coverage of 20th- and 21st-century topics in the history, philosophy and sociology of science, technology and medicine. The regular programme of papers and discussions takes place on Thursday (fortnightly) over lunch.

Think Tank meetings are held **every other Thursday**, **1–2pm in Seminar Room 2**. All welcome! Organised by Richard Staley.

- 1 May Helen Curry (HPS, Cambridge) X-rayed maize and mutant marigolds: a history of early plant biotechnologies
- 15 May **Donald MacKenzie (University of Edinburgh)** A sociology of algorithms: high-frequency trading and the shaping of markets (draft paper online)

# Seminars at CRASSH

### **Global Science**

Science operates on a global stage, but this is not a recent phenomenon. Our research group explores the relationship between global history and science studies. Science here is broadly construed. Histories of natural knowledge, technology and medicine all fall under the remit of this group. By adopting this approach we look to invite discussion on the relationship between the politics of globalisation and the making of the very category of 'science'. What counts as science is precisely the product of a series of uneven historical encounters. Often the transit of scientific material, from books to barometers, relied on the lopsided development of colonialism and global capitalism. We therefore hope to trace, not only the movement of science across borders, but also the limits of the apparent globalisation of scientific knowledge.

In 2013–2014 we bring together speakers from history, geography and anthropology. By drawing on academics from across disciplines, we offer a new base for the growing network of academics working on global histories of science.

Seminars are held on alternate Tuesdays, 12.00–2.00pm in Room SG1, Alison Richard Building, West Road. Organised by James Poskett, James Hall and others.

Website: www.crassh.cam.ac.uk/programmes/global-science

- 29 April Diederick Raven (Utrecht University) Simon Schaffer (HPS, Cambridge) The Needham Question: an anthropological answer
- 13 May Dhruv Raina (Jawaharlal Nehru University) George Gheverghese Joseph (University of Manchester) The modernity of calculus in India and beyond: 19th-century beginnings, late 20thcentury debates
- 27 May Sadiah Qureshi (University of Birmingham)
   Britta Schilling (History, Cambridge)
   'Exterminate all the brutes': modern settler colonialism and the future of endangered races

# 10 June Clare Griffin (HPS, Cambridge)'Is that a magic herb?' The role of European science in 17th-century Russian witchcraft trials

### Things: Comparing Material Cultures, 1500–1900

The seminar meets alternate Wednesdays, 12.00–2.00pm in Room SG1, Alison Richard Building, West Road. Organised by Michelle Wallis, Sophie Waring and others.

Website: www.crassh.cam.ac.uk/programmes/things

- 7 May Maya Corry (History of Art, Cambridge) Victoria Mills (Darwin College, Cambridge) Gendered things
- 21 May Anna Maerker (King's College London) Margaret Carlyle (HPS, Cambridge) Bodily things
- 4 June Elizabeth Haines (Royal Holloway, University of London, and the Science Museum) Juliette Kristensen (Goldsmiths, University of London) Matthew Paskins (UCL) 100 hours of things: materiality, expertise and encountering objects

# Field Notes: Histories of Archaeology and Anthropology

The seminar meets alternate Mondays, 5.00–7.00pm in Room SG1, Alison Richard Building, West Road. Organised by William Carruthers and others.

Website: www.crassh.cam.ac.uk/programmes/field-notes

- 28 April Khadija von Zinnenburg Carroll (Installation artist) Adrien Sina (Curator and art historian) Michal Murawski (Social Anthropology, Cambridge) Nikolai Ssorin-Chaikov (Social Anthropology, Cambridge) Movements between art and anthropology: conceptual art and ethnographic inquiry
- 12 May Jennifer Baird (Birkbeck, University of London) Sudeshna Guha (Asian and Middle Eastern Studies, Cambridge) Still lifes and stage sets: authority and authenticity in archaeological photographs

Wednesday 28 May in Seminar Room S1

Martijn Eickhoff (Radboud University Nijmegen) Helen Roche (Lucy Cavendish College, Cambridge) Witness to a Greater Germanic past? The SS-Ahnenerbe and the archaeological research sites of Dolni Věstonice and Solone

Thursday 29 May in Seminar Room SG2 Marianne Sommer (University of Lucerne) Jim Secord (HPS, Cambridge) Paper trails: objects, narratives and visualizations of human deep time in early 20th-century America

# Graduate workshops and seminars

## **HPS History Workshop**

Need help writing a tricky part of your argument? Need some fresh ideas and references? Or simply want to see how your early-career colleagues approach the writing process? The History Workshop is an informal setting to discuss our written works-in-progress on any area of the history of science, technology and medicine, and share feedback. A draft PhD chapter, article or conference paper will be circulated by email before each meeting. We'll then discuss it together over tea and biscuits at **5pm on alternate Wednesdays in Seminar Room 1**.

Please contact Andreas Sommer or Seb Falk if you are interested in sharing your work in this forum, or would like to be added to the mailing list to receive the papers before the seminars.

- 7 May Michael McGovern (HPS, Cambridge) The first Human Genome Project: computers and the mapping of human genes, 1950–1970
- 21 May **Caitlin Doherty (HPS, Cambridge)** Pastoral modernism: the flying machine's arrival over the English countryside
- 4 June Federico Morganti (Sapienza University of Rome) The unknowable, the new reformation, and the rationale for religious freedom: the place of religion in Spencer's philosophy
- 18 June Linda Ratschiller (University of Fribourg, Switzerland) Imagining ill bodies: the Basel Mission doctors and images from the Gold Coast, 1885–1914

# **HPS Philosophy Workshop**

Would you like to get feedback on your work-in-progress in a friendly and supportive atmosphere? Texts will be circulated one week in advance and discussed over tea and biscuits in **Seminar Room 1 on alternate Fridays, 12–1pm**. Share a draft of your MPhil essay, PhD chapter, potential article, or any research-in-progress in the philosophy of science, broadly construed. Organised by Toby Bryant.

## **Graduate Training**

Training workshops for the Department's graduate students and postdoctoral researchers are held throughout the academic year. Most, but not all, are on **Fridays at 1pm**.

The full programme is available at www.hps.cam.ac.uk/students/training.

# Reading and discussion groups

### **Coffee with Scientists**

The aim of this new group is to explore and enhance the interface between HPS and science. Many of us in HPS already have close engagements with science and scientists, but we do not often pull together our activities in those directions. We could benefit from more explicit discussions about the relationship between HPS and the sciences themselves, and from encouraging HPS-scholars and scientists to help each other's work. Many of our graduate students and postdocs currently work in isolation from scientists; they may benefit from the stimulation of interactions with colleagues and mentors from various science departments (in Cambridge and elsewhere), difficult to induce in our regular seminars and reading groups, which tend to be infused with standard HPS expectations, assumptions and customs.

During Easter Term 2014 we will meet on **alternate Fridays**, **2.30–4.00pm** (*please note* earlier time than last term) in Seminar Room 2, on the following dates: 25 April, 9 May, 23 May and 6 June. In addition, we may also organise evening meetings in social spaces outside the Department. Organised by Hasok Chang.

#### **Twentieth Century Reading Group**

This term, we continue exploring the themes of atomic lives and the atomic age. We will read selected chapters from the books below. Readings will be made available in advance in our Whipple Library box.

Meetings are held every other Thursday, 1–2pm in the Lodge Seminar Room.

Organised by Dmitriy Myelnikov and Kathryn Schoefert.

24 April Introduced by Michael McGovern

Hallam Stevens, *Life out of Sequence: A Data-Driven History of Bioinformatics* (Chicago: Chicago University Press, 2013) Chapter 1, 'Building Computers' Chapter 2, 'Making Knowledge'

8 May Introduced by Helen Curry

Gabrielle Hecht, *Being Nuclear: Africans and the Global Uranium Trade* (Cambridge, MA: MIT Press, 2012) Chapters to be confirmed

#### **Generation to Reproduction Reading Group**

This group discusses pre-circulated papers, classics as well as our own work, in the area of our Wellcome Trust strategic award in the history of medicine (www.reproduction.group.cam.ac.uk). We also hold work-in-progress sessions.

This term's meetings will be at **5.00–7.00pm** (tea from 4.50) on **Tuesdays 6 and 20 May in Seminar Room 1**.

#### **Nature and Culture Reading Group**

Meetings will take place on Tuesdays, 1.00–2.00pm in Seminar Room 1.

This term's reading group will focus on the theme of sex and gender. Please contact Beth Hannon if you have any difficulty locating the readings. All are very welcome to attend.

- 22 April Lloyd, Elisabeth (1993) 'Pre-Theoretical Assumptions in Evolutionary Explanations of Female Sexuality', *Philosophical Studies*, 69, pp. 139–53
   Longino, Helen (2012) 'Defining Behavior', *Studying Human Behavior*, Chicago: University of Chicago Press, Chapter 9, pp. 151–177
- 29 April Pinker, Steven (2002) 'Gender', *The Blank Slate*, London: Penguin, excerpt pp. 346–51
  Dupré, John (1986) 'Sex, Gender and Essence', *Midwest Studies in Philosophy*, 11, pp. 441–57
  - 6 May Jordan-Young, Rebecca M. (2010) 'Taking Context Seriously', *Brain Storm: The Flaws in the Science of Sex Differences*, Harvard University Press, Chapter 9, pp. 237–69
- 13 May Haslanger, Sally (2000) 'Gender and Race: (What) Are They? (What) Do We Want Them To Be?', *Noûs*, 34, pp. 31–55
- 20 May Wood, Wendy and Eagly, Alice (2002) 'A Cross-Cultural Analysis of the Behavior of Women and Men: Implications for the Origins of Sex Differences', *Psychological Bulletin*, 128, pp. 699–727
- 27 May Thompson, Melissa Emery (2009) 'Human Rape: Revising Evolutionary Perspectives' in Martin N. Muller and Richard W. Wrangham (eds) Sexual Coercion in Primates and Humans: An Evolutionary Perspective on Male Aggression against Females, Harvard: Harvard University Press, Chapter 14, pp. 346–76
- 3 June Strathern, Marilyn (1988) 'Anthropological Strategies', *The Gender of the Gift*, Berkeley: University of California Press, Excerpt pp. 3–8
  Strathern, Marilyn (1988) 'Groups: Sexual Antagonism in the New Guinea Highlands', *The Gender of the Gift*, Berkeley: University of California Press, Chapter 3, pp. 43–65
- 10 June Bach, Theodore (2012) 'Gender Is a Natural Kind with a Historical Essence', *Ethics*, 122, pp. 231–72

#### Philosophy and History of Physics Reading Group

We will meet at the usual time of **2.00–3.00pm on Tuesdays in Seminar Room 1**. During Easter Term we will read Hasok Chang, *Is Water H<sub>2</sub>O? Evidence, Realism and Pluralism* (Dordrecht: Springer, 2012).

Organised by Hasok Chang and Jeremy Butterfield.

#### Philosophy of Psychology Reading Group

We meet on Thursdays, 11am-12noon in Seminar Room 1. Organised by Riana Betzler.

- 24 April Prinz, J.J. (2005). 'Passionate Thoughts: The Emotional Embodiment of Moral Concepts'. In Pecher, D. & Dwaan, R. (eds.), *Grounding Cognition: The Role of Perception and Action in Memory, Language, and Thinking*. Cambridge University Press. Available as an ebook through the UL.
  - 1 May 11–12.30 (note the extended time) Saulo de Freitas Araujo (Federal University of Juiz de Fora, Brazil) will give a talk: 'Kant's influence on the development of Wilhelm Wundt's scientific psychology: integrating history and philosophy of psychology' Chair: Andreas Sommer

Abstract: That Kant has played a major role in the history of philosophy since the end of the 18th century is a well-known and undisputed claim. Not so obvious, though, and to a certain degree overlooked in the literature, is his influence on the historical development of the empirical sciences. My main goal is to disclose a very close relationship between Kant's critical philosophy and the historical development of scientific psychology, by focusing on Wilhelm Wundt, one of its leading figures in the second half of the 19th century. I will show that Wundt's reading of Kant's *Critique of Pure Reason* led him to question his early psychological programme, based on a theory of the unconscious, and later to reject it. In other words, I will argue that Kant interrupted Wundt's dogmatic slumber by showing him that logical forms cannot be confused with objects given in experience. Consequently, Wundt was forced to develop a new conception of scientific psychology, which made him famous and spread worldwide as a model of the 'new' psychology. This episode offers a good example of Kant's positive influence on psychological discussions in the 19th century, especially in the German tradition, and of how to integrate history and philosophy of psychology.

- 8 May Chapter 4: Three Fundamental Kinds of Concepts: Prototypes, Exemplars, Theories. In Machery, E. (2009). *Doing without Concepts*. Oxford: Oxford University Press.
- 15 May Chapter 8: Concept Eliminativism. In Machery, E. (2009). *Doing without Concepts*. Oxford: Oxford University Press.

#### **History and Theory Reading Group**

Meetings take place on **alternate Fridays**, **3.30 to 5.00pm in Seminar Room 1**. Organised by Megan Barford, Caitlin Doherty, Minwoo Seo and Eóin Phillips. All welcome!

- 2 May Ian Hacking, 'Our Neo Cartesian Bodies in Parts', *Critical Enquiry* 34:1 (2007): 78–105
- 16 May Jan Golinski, 'Sensibility and Climatic Pathology' in *British Weather and the Climate of Enlightenment* (Chicago, 2007)
- 30 May Helene Mialet, Hawking Incorporated (Chicago, 2012):1-45
- 13 June John Tresch, 'Introduction', *The Romantic Machine* (Chicago, 2012) and 'Even the Tools Will be Free' in Sibum et al, *Heavens on Earth* (Durham [NC], 2010)

## **CamPhor (Phenomenology) Reading Group**

This reading group examines issues at the intersection of Phenomenology and contemporary analytic philosophy, with a particular emphasis on Phenomenology's relevance to debates within the philosophy of science.

Photocopies of the relevant chapters can be made available by request.

Meetings are **every other Friday from 12–1pm in Seminar Room 1**. Please get in touch if you need access to any of the readings.

Organised by Andrew Buskell.

- 25 April Dreyfus, H.L. 'Merleau-Ponty and Recent Cognitive Science' in Carman, T. and Hansen, M.B.N. (eds.) *The Cambridge Companion to Merleau-Ponty*. Cambridge University Press: Cambridge (2005), pp. 129–150
  - 9 May Siewert, C. 'Intellectualism, Experience, and Motor Understanding' in Schear, J. (ed.) *Mind, Reason, and Being-in-the-World: The McDowell-Dreyfus Debate*. Routledge: London (2013), pp. 194–225

### **AD HOC Cambridge**

AD HOC is a history of chemistry reading group based in Cambridge and London. While our main focus is historical, we also consider the philosophical, sociological, public and educational dimensions of alchemy and chemistry.

AD HOC Cambridge meets several times per term, on **Mondays from 5.00 to 6.30pm** in the Department. For details, readings, or to join our mailing list, please contact Anke Timmermann.

28 April Robert Anderson (Clare Hall, Cambridge) Chemistry in workers' institutions

2 June Melanie Keene (Homerton College, Cambridge) Salim Al-Gailani (HPS, Cambridge) Chemistry education – books and objects in collaboration with the Whipple Museum and Whipple Library

#### Kant Reading Group

In Easter Term, the Kant Reading Group will meet as usual in the Lodge Seminar Room, 3.30– 5.00pm on Tuesdays. Programme TBC. Everyone welcome!

For information, and if you would like to be added to the mailing list, please contact Angela Breitenbach.

#### **Science and Literature Reading Group**

#### We meet on Mondays from 7.30 to 9pm in the Godwin Room at Clare College (Old Court).

Organised by Julie Barzilay (HPS), and Melanie Keene (Homerton College): please contact us if you would like to join the mailing list.

Copies of readings not available online (via www.hps.cam.ac.uk/seminars/slrg.html) will be put in the Science and Literature Reading Group box file in the Whipple Library. *All welcome!* 

This term we explore how scientific texts have been rewritten for juvenile audiences in the 19th, 20th and 21st centuries, as well as analysing a work written by two young people themselves.

#### 12 May What Mr Darwin Saw

Charles Darwin, *Journal of researches into the natural history and geology of the countries visited during the voyage of H.M.S.* Beagle *round the world* (1845 edn). Read the preface and chapter 1 (Porto Praya).

Wendell Phillips Garrison, *What Mr. Darwin Saw in His Voyage Round the World in the ship 'Beagle'* (1879). Read the introduction for parents, introduction for children, pages 29–33 in Part I ('The Horse') and pages 92–104 in Part II ('Man'). Feel free to skim the rest of the book.

Mick Manning and Brita Granström, What Mr Darwin Saw (2009).

#### 9 June Entomological adventures

The Adventures of Madalene and Louisa: pages from the album of L. and M.S. Pasley, Victorian entomologists.

Alexander Teixeira de Mattos, *The Life of the Fly...* by J. Henri Fabre (1913). Read chapter 7, 'The Pond', but feel free to skim the rest of the book as well.

Louise Seymour Hasbrouck, *Insect Adventures* by J. Henri Fabre (1917). Read the preface and chapter 1 ('My First Pond'). Feel free to skim the rest of the book.

# Language groups

## Latin Therapy

Latin Therapy is an informal reading group. All levels of Latin (including beginners) are very welcome. We meet **every Friday in the Lodge Seminar Room from 4.00 to 5.30pm**, to translate and discuss a text from the history of science, technology or medicine. If a primary source is giving you grief, we'd love to help you make sense of it over tea and biscuits! Thus we provide a free translation service for the Department, and a means for members to brush up their skills.

More information can be found at our website: www.hps.cam.ac.uk/latintherapy. To be added to the mailing list, or to suggest a text, please contact Seb Falk.

#### **Greek Therapy**

Greek Therapy meets every Wednesday during term time in the Lodge Seminar Room from 5.30 to 7pm.

We are an informal group for beginners and for experienced readers of Greek seeking to brush up their skills – all levels are welcome. Sessions usually involve a basic grammar session at the beginning followed by reading through a more advanced text (often, but not always, Plato); this term we will be reading selections from Herodotus. For more information or to be added to the mailing list, please email Liz Smith.