

# The Nature of Evidence How Well Do 'Facts' Travel?

ANNUAL REPORT 2006-2007



THE LONDON SCHOOL  
OF ECONOMICS AND  
POLITICAL SCIENCE ■

# **The Nature of Evidence: How Well Do 'Facts' Travel? Funded by the Leverhulme Trust and ESRC (Grant F/07004/Z)**

## **3<sup>rd</sup> Year Progress Report**

Period 1<sup>st</sup> September 2006-31<sup>st</sup> August 2007

This third year of the project has seen two successful workshops and the development of shared conceptual materials for the project team, while at the same time all team members have been working hard on their own research topics. We have become more active this year in disseminating the work of the project, and have found that participants at our workshops and audiences at seminars and conferences have been both surprised by our research question and then intrigued by the project work. These developments form the basis for this report, replacing our previous way of reporting that was organised around subject clusters.

## **Research Personnel**

The most significant change this year in the research team was the sudden death of one of our senior members, Professor Stephan Epstein. The project team this year has consisted of the following (post-doc fellows indicated by \*), with their main research topics within the project noted beside them:

Dr Jon Adams\*: *popularizations of science in science writing and in fiction*

Dr Peter Howlett: *the transfer of facts during the Green Revolution and in current agricultural extension work in India*

Dr Sabina Leonelli\*: *travelling of small facts in the development of bigger ontologies in biology*

Dr Erika Mattila\*: *epidemiological models as a site where facts are transferred and transformed*

Professor Mary S. Morgan: *facts that travel free from authorship in economics*

Dr Ed Ramsden\*: *how facts about rat behaviour travel to discussions about human behaviour*

Dr Simona Valeriani\*: *transfer of technological facts in building and architectural history*

Dr Patrick Wallis: *tacit knowledge facts in assessing the quality of materials and in apprenticeship training in early modern period*

Dr David Haycock, a postdoc fellow funded by a Wellcome grant, has worked alongside the project again this year on *facts about age in early modern times*.

Four PhD students have been working in the group this year (\* indicates funded by the project).

Albane Forestier: *knowledge transfer networks amongst merchants trading the Atlantic*

Julia Mensink\*: *the marketing and use of poverty measures as facts that travel*

Ashley Millar: *the European reception for facts about China's political economy in the early modern period*

Aashish Velkar: *industrial standardization during the mid nineteenth century, and agricultural extension facts in modern India with P. Howlett*

The project has continued to benefit from the participation of three academic visitors:

Dr Rachel Ankeny, School of History and Politics, University of Adelaide, Australia

Dr Ir Marcel Boumans, University of Amsterdam, Faculty of Economics

Professor Martina Merz, Department of Sociology, University of Luzern, Switzerland

## **Research Workshops**

The original design of the project anticipated that each post-doctoral research officer would have a workshop associated with their own research topic. As we worked out the format, we decided that each such event would involve not only members of the expert community in that researcher's field, but also others – particularly our project visitors – whose expertise was complementary and who would provide papers and commentary that would have wider relevance to our project as a whole.

Our first such workshop, entitled *The Fact/Fiction Ratio in Science Writing* and held 12-13th April 2007, was designed and hosted by Dr Jon Adams whose own research is primarily concerned with how sciences are popularised, and what non-scientists do with the scientific facts that they acquire. There are many ways and orders to report this workshop which speaks to its success in covering a considerable amount of ground under a generous and – it turned out – stimulating workshop title. Simon Singh, author and filmmaker, demonstrated how he popularised a difficult piece of mathematics for the basis of his documentary film of his book, *Fermat's Last Theorem*; while David Kirby (Leeds University) demonstrated how certain scientific facts were reconstructed in and promoted through Hollywood films. Heather Schell (George Washington University) discussed the ways in which evolutionary biology was used to support the content of romance novels; novelist Clair Dudman explained how she integrated the scientific notebooks and diaries of Alfred Wegener to create a single voice for the geologist in her biographical novel about him; and Joan Richards (Brown University) reflected on the parallel tasks of writing the scientific biography of the de Morgan family tree alongside narrative writing about her own family experiences. Historical and philosophical reflections were offered by Geoffrey Cantor (Leeds University) on the history of facts about light, and Greg Radick (also Leeds University) on the role of counterfactuals in Darwin's work. Where David Warsh (economic journalist) discussed the facts about a recent revolution in economic theory, Jon Turney discussed the role of narratives in science writing, and Jane Gregory (UCL) demonstrated and explained the interrelation of fiction and fact in science fiction written by astronomers.

This was a workshop in which a coherent whole emerged out of what initially seemed a motley collection of topics and types of expertise. The development of our thinking was evident in the contrast between our starting and ending discussion. We had begun our two days with Jon Adams' opening contribution on the fact-fiction ratio found in the novels of Michael Crichton, with the reaction from the workshop participants that there was a very clear distinction to be made between facts and non-facts, even if such literary work appeared to dissolve it. In the closing commentary by two University of Amsterdam visitors, Harro Maas suggested that scientific facts needed some kinds of fictional or imaginative devices (counterfactuals, voice, narrative) to enable them to speak for themselves and to travel well, even while scientists and science scholars are disturbed by such blurring of the distinctions between fact and fiction. Following him, Marcel Boumans expressed the workshop's trajectory in a succinct equation when he suggested that – to begin with – we saw facts needing some kind of additional materials before they could travel well: fictions were facts plus something else, so:  $\text{fact/fiction} < 1$ . According to his commentary, we ended the two days with the idea that facts were partly constituted by something neutral (like an observation) and needed some fictional elements to turn them into facts, something like local context, or detail, or "colour" (in the journalists' sense), that is:  $\text{fact/fiction} > 1$ .

Our second workshop, *Facts at the Frontier: Crossing Boundaries Between Natural and Social, Animal and Human*, held 16-17th April 2007, was designed and hosted by Dr Ed Ramsden whose research looks at how facts about the behaviour of rats under experimental conditions have crossed boundaries into a number of other fields. The animal/human boundary, and the natural-/social-science boundaries are highly permeable, as this workshop showed most convincingly. The intersection of facts about small mammals and humans, and the transfer of facts between their studies, was treated by Paul Erickson and Gregg Mitman on rabbits, Karen Rader on mice, and Neil Pemberton and Mick Worboys on rabies in dogs – while the much broader intersections of facts about societies were discussed by Abigail Lustig in terms of ant colonies. Ethology and zoology proved an equally beguiling canvas for Richard Burckhardt and Erika Milam, while Françoise Baylis discussed the ethical questions arising from the facts of mixed animal/human organisms (chimeras) in stem cell research, and Rasmus Winther offered a formal treatment of such human-animal intersections.

This workshop had a less eclectic set of contributions and contributors than our fact/fiction one, but the opening paper by Ed Ramsden that dealt with transfers not just from animal to human, but to urban planning, building design, and science fiction was matched by a similar breadth in final commentaries by Thomas Gieryn and Martina Merz from the sociology of science. They opened up a discussion about the ways in which facts travel (did they need something like rails?), about what it means to travel well (intact or changed?), and about the nature of the boundaries that they faced (permeable and mutable, or fixed?).

## Shared Conceptual Resources

Our two workshops, our interactions with so many visitors, and our brainstorming at the workshops (organised by Peter Howlett) were all instrumental in prompting work during the summer period on developing conceptual materials for the project as a whole. All the team members, including PhD students, contributed to brainstorming sessions that developed our ideas about the following five questions:

### *1) What are the facts that are travelling?*

The research has so far progressed by taking a community's view (from the communities we each study) about what constitute their facts, rather than by the project members imposing any definition or prescribed view about what counts as facts in any particular time, place or discipline. Nevertheless we have found it useful to develop a set of adjectives to describe the different kinds of facts used, and to suggest the work such facts do for the community.

### *2) What is being travelled through?*

The two basic concerns here might well be treated in metaphorical terms: Do facts travel through empty space, or through/across a landscape? And, what is the nature of the boundaries or barriers? Despite these geographical and topological metaphors, no one interpretation seems sufficient: we can construct the terrain in sociological terms, in terms of the elements of practice, or in cognitive terms.

### *3) What kinds of processes and vehicles of travel are involved?*

We found it most useful here to think of facts that travel well arriving in different sorts of packages or vehicles: narratives, theories, patterns, images, artefacts, skills, expertises, and so forth. This invokes not only the material objects or forms within which facts may travel, and the processes they undergo in travel, but also the agency of those people involved and their social arrangements.

### *4) What are the characteristics of facts that make them travel?*

The answer continues on from the discussion above, but is more explicitly concerned with the attributes of facts that make them amenable to travelling or not. Here we found many possible attributes in the various different cases we studied, which lead us in turn to questions about the stability of facts, and their functions in their new sites.

### *5) What happens to facts as they travel?*

Again, our research is suggestive of multiple answers. Facts can retain their integrity or adapt to their new surrounding. They can increase or decrease in scope, usability, reliability and so forth, as they travel. All this relates back to our earlier questions about the characteristics of facts, and how those that travel change or maintain their characteristics and attributes.

These concept forming discussions emphasise how this project is concerned not with the production of facts - of fundamental concern to many discussions

of scientific evidence in the recent past - but what happens to them after production: that is, how, and how well, facts travel from their production site to various other sites of usage, be they scientific, policy, or lay public.

In summarising our preliminary answers to "How Well Do 'Facts' Travel?" we project that the answer lies in a combination of the characteristics of those facts that travel, their functional roles, and their packaging. But a more detailed generalisation is difficult to obtain - for, in different circumstances, different things happen!

## **Other Research Activities**

The research group has become very active in dissemination this year. Project members, including - significantly - our PhD students, have been giving papers about their work on the project: in seminars, workshops and at national and international conferences. These activities are all reported below under individual names. And, with the help of our participating visitors, we have organised conference sessions on the project at several conferences:

### **Project Conference Sessions Organised by Project Members**

September 2006

Expert Workshop 'Science and Social Movements' Organised by S. Leonelli with Pieter Dehon and Jeroen van Bouwel, chairs: M. S. Morgan and M. Merz. VU Brussels.

September 2006

'Scientific Facts: Whose Expertise?' Special double thematic session organised by S. Leonelli; speakers S. Leonelli and J. Adams (first part), and M. S. Morgan and M. Boumans (second part). International Conference 'Science and Democracy', Ghent (Belgium).

November 2006

*Producing Facts from Cases – Studying Others, Observing Ourselves.* Conference Session at the Society for Social Study of Science (4S), Vancouver, Canada. Organized by M. Merz with speakers: M. Merz, R. Ankeny, M.S. Morgan, Florence Weber (ENS-CEE, Paris); and Kath Checkland et al. (Manchester University).

November 2006

*Models and simulations: Vehicles for 'travelling facts'* . Thematic session at the Society for Social Study of Science (4S), Vancouver, Canada. Organised by E. Mattila. Presentations by Dr Leonelli, Dr Mattila and Dr Knuuttila (University of Helsinki).

November 2006

*Evidence and expert bias: Biased experts versus normative statisticians.*

Thematic session at the Society for Social Study of Science (4S), Vancouver, Canada. Organised by M. Boumans and M. S. Morgan. Presentations by J. Lentsch (Bielefeld University), J Reiss (Complutense University, Madrid), M. Boumans, A. Leibler (UCSD) and G. Cooper (Lehigh University), discussant: T. M. Porter (University of California, LA).

July 2007

'Bio-ontologies: A New Type of Theory in Biology?'. Special Thematic Session Biannual Meeting of the International Society for the History, Philosophy and Social Studies of Biology [ISHPSSB] Exeter, UK involving Dr Leonelli, Prof R. Ankeny, Prof M. Ashburner (University of Cambridge), discussant: M. Laubichler (Arizona State University).

August 2007

*How Do Practices Move Knowledge Around? Insights from 'Facts' Travelling across Disciplinary Domains;* Society for Philosophy of Science in Practice, University of Twente; Jointly organised with and presentations by Dr Leonelli, Dr Mattila, and Dr Ramsden, discussant: M. Merz.

We have also been preparing, along with the parallel Nature of Evidence project at UCL, for our big British Academy congress later this year (in December 07).

Jon Adams has continued to edit the working paper series and to develop public materials for the research team. He and Erika Mattila have been instrumental in developing our website: the main route for people to learn about this research. Ed Ramsden and Sabina Leonelli have been organising our weekly workshops - half of which are open (listed below) and include talks from outside speakers as well as project team members. Simona Valeriani has taken a maternity leave this year and been preparing for her own workshop in December. Our PhD students, Albane Forestier, Julia Mensink, Ashley Millar and Aashish Velkar have been invaluable particularly in organising the mechanics of our workshop meetings.

### **Working papers 2006/07**

This year includes contributions from one of our visitors: Boumans; one of the Department of Economic History's faculty members: Bakker; and one of the workshop invited papers (Erikson and Mitman).

*16/07 Battle in the Planning Office: Biased Experts Versus Normative Statisticians*

Marcel Boumans

17/07 *Trading Facts: Arrow's Fundamental Paradox and the Emergence of Global News Networks, 1750-1900*

Gerben Bakker

18/08 *Accurate Measurements and Design Standards: Consistency of Design and the Travel of 'Facts' Between Heterogenous Groups*

Aashish Velkar

19/07 *When Rabbits Became Humans (and Humans, Rabbits): Stability, Order and History in the Study of Populations*

Paul Erikson and Gregg Mitman

20/07 *Contesting Democracy: Scientific Popularisation and Popular Choice*

Jon Adams

### **Seminars 2006/07**

#### Public Seminars Michaelmas Term 2006:

25<sup>th</sup> October

Jon Adams (LSE):

*Some Persuasive Uses of Popular Science*

8<sup>th</sup> November

Richard Hamblyn (Nottingham University):

*Credible Facts: Eighteenth-century Scientific Journals and the Problem of 'Peer Review'*

22<sup>nd</sup> November

Ed Ramsden (LSE):

*Negotiating the 'Paradox' of Intelligence and Fertility: the Controversy Over the 'Facts' of IQ Increases in Britain and the United States.*

6<sup>th</sup> December

Rebecca Stott (Anglia Ruskin):

*Transmutation in Transit: The Transmigration of Evolutionary Ideas Across Europe 1750-1850.*

#### Public Seminars Lent Term 2007:

10 January

Michael Poltorak (University of Manchester):

*Sacred Subjects, Spirits and Wayward 'Facts' of Tonga: an 'Immaterial' Story of Empathy and Cosmologies of Relatedness*

24 January

Erna Fiorentini (Max Planck Institute for the History of Science):

*Image and Word: Robert Hooke's Strategy of Knowledge Communication*



7 February

Kelley Wilder (Max Planck Institute for the History of Science):  
*Transmitting Radiation. Henri Becquerel's Radiation Photographs*

14 February

Linsey McGoey (LSE):  
*Strategic Ignorance: The Regulatory Usefulness of Conflicting Facts*

28 February

Aashish Velkar (LSE):  
*Do Nested Facts Travel Well? Decimalization of the Inch and the Emergence of the Standard Wire Gauge*

7 March

Sarah Dry (LSE):  
*Traces. Registering the Weather in mid-Victorian Britain*

Public Seminars Summer Term 2007:

25 April

Steffan Mueller-Willer (Exeter):  
*Leaving Inheritance Behind: Wilhelm Johannsen and the Politics of Mendelism*

9 May

Jill Russell and Emma Byrne (Primary Care PS, UCL):  
*The Use of Evidence in Health Care Policymaking: a Study of Priority Setting in Primary Care*

23 May

Gabriele Gramelsberger (FU Berlin):  
*The Obsolescence of Imprecise Facts*

6 June

Natalie Trussard (Universite' Libre de Bruxelles):  
*Public Controversy around GMOs: a Good Case to Think in Terms of Travelling Facts?*

13 June - Tirthankar Roy (Economic History, LSE):

*Did Useful Knowledge Contribute to Divergence? The South Asian Experience*

20 June - Erika Mattila (LSE):

*The Brokers, the Conformists and the Stubborn: the Travellers Crossing Disciplinary Divides in Modelled Environments*

## Reading group

### *Travelling of rumors (12/10/06)*

Robert H. Knapp (1944) A Psychology of Rumor, *The Public Opinion Quarterly*. Vol. 8, No. 1, pp. 22-37

H. Taylor Buckner (1965) A Theory of Rumor Transmission, *The Public Opinion Quarterly*. Vol. 29, No. 1, pp. 54-70

### *Travelling through objects (26/10/2006)*

Alison Wylie (2002) *Thinking from things*. University of California Press. Preface, Chs. 1 and 14.

### *Travelling through disciplines (9/11/2006)*

Galison, P (1999) Trading Zone: Coordinating Action and Belief. In: Biagioli, M. (ed.) *The Science Studies Reader*. New York and London: Routledge.

### *Travelling through cultures (23/11/2006; 7/12/2006)*

Mauss, M. (1954) *The Gift*. Chapter 1

Marshall Sahlins (1985) *Islands of History*. Chicago and London: University of Chicago Press. Chapter 5.

### *Travelling through places (18/1/2007):*

Christopher R. Henke and Thomas F. Gieryn: 'Sites of Scientific Practice: The Enduring Importance of Place', due to appear in the *New Handbook of Science and Technology Studies*.

### *Travelling through agents (1/02/2007):*

Latour, B. 1986 (1/02/2007): "Visualization and Cognition: Thinking with eyes and hands". *Knowledge and Society* 6: 1-40

### *Travelling through fiction (15/02/2007; 30/02/2007):*

Stanley Fish (1994) There's No Such Thing As Free Speech And it's A Good Thing, Too. New York and Oxford: Oxford University Press, pp.231-242.

'Simulacra and Simulations' from Jean Baudrillard, *Selected Writings*, ed. Mark Poster (Stanford; Stanford University Press, 1988), pp.166-184.

### *Travelling through boundaries (15/03/2007)*

Emanuel Gaziano (1996) Ecological Metaphors as Scientific Boundary Work: Innovation and Authority in Interwar Sociology and Biology, *The American Journal of Sociology*, Vol. 101, No. 4., pp. 874-907

### *Other work on travelling facts (8/05/2007; 15/05/2007; 22/05/2007; 5/06/2007)*

Baillie, Caroline, Dunn, Elizabeth and Yi, Zheng (eds.) 2004. *Travelling Facts. The Social Construction, Distribution, and Accumulation of Knowledge*. Frankfurt/New York: Campus Verlag.

Jeanne Fahnestock (1986) Accommodating Science: The Rhetorical Life of Scientific Facts *Written Communication* 3: 275-296

Ludwig Fleck (1979) *Genesis and Development of a Scientific Fact*. University of Chicago Press. Pp. 1-27.

## **Individual Research Activities Associated with the Project by Faculty, Post-Doc Fellows and PhD Students: Seminars, Conferences and Publications**

### **Dr Jon Adams**

#### Workshop:

April 2007

Designed and Organised two-day workshop for the Project: *The Fact/Fiction Ratio in Science Writing*, LSE.

#### Seminars/Conferences:

September 2006

"Contesting Democracy: Popularisation and Public Choice" at conference: *The Social Sciences and Democracy*, Ghent, Belgium

October 2006

"Some Persuasive Uses of Popular Science" at the "How Well Do 'Facts' Travel?" public seminars series, LSE.

November 2006

"Science Popularization and The Colonization of Folk Belief" at Social Science History Association, Minneapolis MN, USA.

March 2007

"The Man Behind the Rats at NIMH" (with Ed Ramsden), at British Society for Science and Literature, Birmingham, UK

April 2007

"On the Fact/Fiction Ratio" at *Fact/Fiction Ratio in Science Writing*, LSE.

May 2007

"Science, Commonsense, and Syncretism," at *Science and the Public* conference, Imperial College

#### Publications (inc. forthcoming):

March 2007

"Making a Science of Literary Criticism." *Endeavour* 31.1 (2007): 30-33

June 2007

*Interference Patterns* (Lewisburg, PA: Bucknell University Press, 2007)

July 2007

"Contesting Democracy," Working Paper in project series

Forthcoming

"The Sufficiency of Code: Galatea 2.2 and the Necessity of Embodiment" in *Intersections: Essays on Richard Powers*. Ed. Stephen Burn and Peter Dempsey. (Forthcoming, Dalkey Archive Press, 2008)

Other Research Activities:

May 2007

Invited guest (of the BSLs and LSE) at the Royal Society Science Book Prizes

August 2007

Research trip: archival research (Library of Medicine, National Institute of Health, Bethesda MD, USA) in preparation for paper(s) and book on the dissemination of John Calhoun's research on rats (co-authored with Ed Ramsden)

**Dr Peter Howlett**

Seminars/Conferences:

April 2007

"Social Compliance in Wartime Britain and Japan: Rationing, the Black Market and Crime" (with J. Hunter). At conference : *Consumption Constrained: Austerity and Rationing in the 20th Century*. University of Tartu, Estonia.

April 2007

How Well Do 'Facts' Travel workshop on *The fact/fiction ratio in science writing*, London School of Economics: organised and chaired session "Reflections".

April 2007

How Well Do 'Facts' Travel workshop on *Facts at the frontier: crossing boundaries between natural and social, animal and human*, London School of Economics: Organised and chaired brainstorm session on How Well Do 'Facts' Travel.

January 2007

Participant in conference on *Graphic and visual representations of evidence and inference in legal settings* Cordozo School of Law, Yeshiva University, New York, January 28-29. Conference organised by Peter Tillers and Henry Prakken.

Publications (inc. forthcoming):

January 2007

'Trade, convergence and globalisation: the dynamics of change in the international income distribution, 1950-1998', (with P. Epstein and M-S.

Schulze), *Explorations in Economic History*, vol. 44, no. 1 (January 2007), pp.100-13.

## **Dr Sabina Leonelli**

### Seminars/Conferences

September 2006

*'Scientific Understanding: A Matter of Which Expertise?'* in special thematic session 'Scientific Facts: Whose Expertise?' International Conference 'Science and Democracy', Ghent.

November 2006

*'Understanding Facts Across Scientific Communities'* in special thematic session 'Models as Vehicles for Travelling Facts'. 4S Meeting 2006, Vancouver.

November 2006

*'Understanding and Integration in the Arabidopsis Research Community'* Invited Lecture at the Department of Philosophy of the Technical University of Delft.

April 2007

*'The Epistemic Status of Model Organisms: A Raging Debate in the Philosophy of Biology?'* Reply to Rachel Ankeny (Amsterdam).

April 2007

*Weed for Thought. Using Arabidopsis thaliana to Understand Plant Biology* Public Defence of the PhD Dissertation (Amsterdam).

May 2007

*'Can We Have Integration Without Theoretical Unification?'* Keynote Address at Biannual Congress of the Dutch Society for the Philosophy of Science [Nederlandse Vereniging Wetenschapsfilosofie]: Leusden, The Netherlands.

June 2007

*'The Commodification of Knowledge Exchange'* Invited lecture at Expert Workshop 'The Commodification of Academic Research': Amsterdam.

July 2007

Biannual Meeting of the International Society for the History, Philosophy and Social Studies of Biology: *'Bio-Ontologies: A New Means of Travel for Biological Facts'* in special thematic session 'Bio-Ontologies: A New Type of Theory in Biology?' Exeter, UK'

August 2007

*'Evidence, Facts and the Database Revolution in Biology'* in special thematic session 'How Do Practices Move Knowledge Around?' International Conference of the Society for the Philosophy of Science in Practice. University of Twente, The Netherlands.

Conference organisation:

September 2006

Expert Workshop 'Science and Social Movements' with Pieter Dehon and Jeroen van Bouwel. VU Brussels.

September 2006

Programme committee for International Conference 'Science and Democracy' Ghent, Belgium.

September 2006

'Scientific Facts: Whose Expertise?' Special thematic session at the International Conference 'Science and Democracy' Ghent

July 2007

'Bio-ontologies: A New Type of Theory in Biology?'. Special Thematic Session Biannual Meeting of the International Society for the History, Philosophy and Social Studies of Biology [ISHPSSB] Exeter, UK.

August 2007

'How Do Practices Move Knowledge Around? Insights from 'Facts' Travelling across Disciplinary Domains' Symposium with Erika Mattila and Ed Ramsden Twente, The Netherlands.

Conference attendance:

November 2006

Invited Participation to the Expert Workshop 'Perspective on Scientific Practices from Science and Science Studies' at Leiden University, The Netherlands.

July 2007

Conference 'Kant in the Philosophy of Science'. British Academy Conference, University College London, UK.

Publications:

March 2007

Arabidopsis, the Botanical Drosophila: From Mouse-Cress to Model Organism. Review Article. *Endeavour* 31, 1: 34-38.

April 2007

*Weed for Thought*. PhD Dissertation. Vrije Universiteit Amsterdam.

July 2007

Naar een Open Dialoog Tussen de Wetenschap en de Wetenschapsstudies. Congresbespreking. *Algemeen Nederland Tijdschrift Wijsbegeerte* 99, 3: 237-240.

August 2007

Performing Abstraction. Two Ways of Modelling *Arabidopsis thaliana*. *Biology and Philosophy*. *Online First*.

September 2007

What is in a Model? Using Theoretical and Material Models to Develop Intelligible Theories. In Laubichler, M. and Muller, G. B. (eds.) *Modeling Biology. Structures, Behaviour, Evolution*. Vienna Series: MIT Press.

September 2007

'Cultivando Hierba, Produciendo conocimiento. Una historia epistemologica de *Arabidopsis thaliana*'. In Suarez, E. [ed.] *Variedad Sin Limites. Las Representaciones en la Ciencia*. Universidad Autonoma de Mexico y Editor Limusa. (To be re-published in English as 'Growing Weed, Producing Knowledge. A Epistemological History of *Arabidopsis thaliana*').

Forthcoming

The Impure Nature of Biological Knowledge. In: de Regt, H., Leonelli, S. and Eigner, K. (eds.) *Scientific Understanding: A Philosophical Perspective*. Pittsburgh University Press.

Forthcoming

The Commodification of Knowledge Exchange: Governing the Circulation of Biological Data. In: Radder, H (ed.) *The Commodification of Academic Research*.

## **Dr Erika Mattila**

### Seminars/Conferences:

May 2006

Speaker at "From Science to Product?" a round-table seminar organised by Helsinki Institute for Science and Technology Studies, University of Helsinki.

August 2006

"Constructing Credibility in Simulation Models". Paper presented in EASST (European Association for Social Studies of Science and Technology) Conference, Lausanne, Switzerland.

November 2006

"A Life of a Traveller: 'Facts' in Infectious Disease Models". Paper presented in the joint 4S/PSA/HSS 2006 conference in Vancouver, Canada.

December 2006

Public Defence of PhD Thesis: *Questions to Artificial Nature: A Philosophical Study of Interdisciplinary Models and their Functions in Scientific Practice*. University of Helsinki, Finland.

June 2007

"The Brokers, the Conformists and the Stubborn: the Travellers Crossing Disciplinary Divides in Modelled Environments". Presentation at the 'Facts' Project public seminar series, LSE.

August 2007

"The Brokers, the Conformists and the Stubborn: the Travellers Crossing Disciplinary Divides in Modelled Environments" at conference: Society for Philosophy of Science in Practice, University of Twente, The Netherlands.

Organised sessions:

November 2006

*Models and simulations: vehicles for 'travelling facts'* Society for Social Study of Science (4S), Vancouver, Canada  
Presentations by Dr Leonelli and Dr Knuuttila (University of Helsinki)

August 2007

*How Do Practices Move Knowledge Around? Insights from 'Facts' Travelling across Disciplinary Domains*  
Society for Philosophy of Science in Practice, University of Twente  
Jointly organised with and presentations by Dr Leonelli and Dr Ramsden

Conferences attended:

September 2006

Participant at the Challenges of Interdisciplinarity – Tools for Studying the Life Sciences. Organised by BIOS, LSE.

January 2007

Participant at a Lauch Symposium for the Centre for Health Care Associated Infections, University of Nottingham.

March 2007

Participant at Concepts of Infection, an interdisciplinary conference on history and literature of infectious diseases at the University of Bristol.

March 2007

Participant at Making Medicine Count? Evidence-based medicine in practice. Workshop organised by Centre for Research in Arts, Social Sciences and Humanities, University of Cambridge.

Other Research Activities:

April-October 2007

Archive work and interviews with infectious disease modellers and epidemiologists at Health Protection Agency, Colindale, London.



June 2007

Participation in : Introduction to Infectious Disease Modelling, a course organised by the London School for Hygiene and Tropical Medicine and Health Protection Agency.

### Publications:

2006

*Questions to Artificial Nature: a Philosophical Study of Interdisciplinary Models and their Functions in Scientific Practice*. Philosophical Studies from the University of Helsinki, no 14. Dark oy: Helsinki. (Thesis publication)

2006

Interdisciplinarity 'In the Making': Modelling Infectious Diseases *Perspectives on Science: Historical, Philosophical, Sociological* 13:4. Pp. 531-553. MIT Press.

2007

Struggle between specificity and generality: How do infectious disease models become a simulation platform? In Küppers, Günther, Lenhard, Johannes and Shinn, Terry: *Simulation: Pragmatic Constructions of Reality*. Sociology of the Sciences Yearbook vol 25 pp. 125-138. Springer.

## **Professor Mary S Morgan**

### Seminars/Conferences

September 2006

"Facts of Expertise and Facts of Experience" Conference: *The Social Sciences and Democracy: A Philosophy of Science Perspective* Gent University.

September 2006

Chair, *Science and Social Movements*, Workshop, Free University, Brussels

November 2006

"When 'Facts' Travel Free?", Society for the Social Studies of Science, Annual Conference, Vancouver.

November 2006

Session Discussant: "Cells, Ants, Apes and Angels in Natural and Human Economies", History of Science Society Annual Conference, Vancouver.

February 2007

"Imagination and Image Making in Models", University of Pittsburgh.

March 2007

"The Observations of Experience: Medical and Social Science" and "Experiments vs Models: New Phenomena, Inference and Surprise" Keynote

speaker at Conference: *Observation and Experiment in Science: New Methodological Perspectives*, University Da Coruña.

April 2007

"When Epistemic Genres Clash - What Happens to 'Facts'?" CRASSH Conference: *Cases in Science, Medicine and the Law*, Cambridge

June 2007

"From the Observations of Experience: Newlyn and the Newlyn-Phillips Machine". Also, Chair and Session Discussant on "Models and Empirics"; Both at Annual History of Economics Society Meeting, George Mason University, USA.

July 2007

Commentator, Workshop: *History of Scientific Observation*, Max Plank Institute for History of Science, Berlin.

### Publications

"The curious case of the Prisoner's Dilemma: Model Situation? Exemplary Narrative?" in *Science Without Laws: Models systems, cases, exemplary narratives* Eds: A.N.H.Creagerm E. Lunbeck and M.N.Wise (Duke University Press), 2007, pp 157-185.

"An analytical history of measuring practices: The case of velocities of money" in *Measurement in Economics: A Handbook*, ed M. Boumans (Elsevier), 2007, pp 105-132.

### **Dr Edmund Ramsden**

#### Workshop:

April 2007

Designed and Organised two-day workshop for the Project: *Facts at the Frontier: Crossing Boundaries Between Natural and Social, Animal and Human*, LSE.

#### Seminars/Conferences:

November 2006

"Negotiating the "paradox" of intelligence and fertility: the controversy over the "facts" of IQ increases in Britain and the United States", Project seminar series, Department of Economic History, London School of Economics.

November 2006

'The controversy over the 'rising curve': educational psychology, sociology and the 1947 Scottish Mental Survey,' Education, Health and Social Welfare, History of Education Society Annual Conference, London.

March 2007

'The Man Behind the Rats of NIMH,' with Jon Adams, British Society for Science and Literature, Birmingham.

April 2007

'From Rodent Utopia to Urban Crisis: Experiments in Crowding Pathology' at *Facts at the Frontier*, LSE.

May 2007

'The Rats (and Mice) of NIMH: Rodent Experimentation and Human Population Problems,' Centre for the History of Science, Technology and Medicine, University of Manchester.

June 2007

'Lionel Penrose and the Population Genetics of Mental Ability, Deficiency and Disease,' International Medical Genetics, 1910-1960, Workshop, *Institut für Geschichte der Medizin*, Universität Gießen.

July 2007

'The science of self-destruction: animal suicide and the human condition,' with Duncan Wilson, British Society for the History of Science, University of Manchester.

'The Rats of NIMH and the Urban Crisis,' International Society for the History, Philosophy and Social Study of Biology, University of Exeter.

August 2007

'Psychologies of crowding: experimental practice and environmental design,' Symposium: How Do Practices Move Knowledge, Society for Philosophy of Scientific Practice, University of Twente.

September 2007

'Resolving the "Darwinian Paradox": Lionel Penrose and the Genetics of Mental Ability, Deficiency and Disease,' Darwinism after Darwin, University of Leeds.

'From the Animal to the Human Zoo: Rodent Ecology and the Urban Crisis,' Design/Body/Sense: *Physical and Psychical Embodiment in Design*, The Design History Society Annual Conference, Kingston University.

'From Utopia to Hell: Rodent Experimentation at the National Institute of Mental Health and the Urban Crisis,' Environment, Health & History, London School of Hygiene and Tropical Medicine. Convenor of Panel.

#### Other Research Activities:

July 2007

Visit to the at the American Philosophical Society for archival research into the history of the genetics and demography of intelligence.

July-August 2007

Archival research into papers of John B. Calhoun at the National Library of Medicine, National Institutes of Health, Bethesda, MD, USE, in July and August 2007. In preparation for papers and book on the subject of crowding research and policy in collaboration with Jon Adams.

Publications (inc. forthcoming):

'A Differential Paradox: The Controversy Surrounding the 1947 Scottish Inquiry into Intelligence and Family Size', *Journal of the History of the Behavioral Sciences*, 43(2007): 109-134.

'Eugenics from the New Deal to the Great Society: genetic demography and relations between social and biological scientists of population', *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, forthcoming.

*The Quest for a Democratic Eugenics: Demography and the Problems of Population Quality and Quantity in the Twentieth Century United States.* Philadelphia: American Philosophical Society, forthcoming.

'Regulating Populations and Disciplining science: Demography and the Problems of Population Quality and Quantity in the Twentieth Century United States', Forthcoming in Harvie Ferguson (ed.) *Festschrift for Gianfranco Poggi* (Bologna: Il Mulino)

**Dr Patrick Wallis**

Seminars/Conferences:

January 2007

'Medicine, Branding and Commercial Innovation in Seventeenth and Eighteenth Century England', University of Oxford.

April 2007

'Commerce and Consumption: England and the International Drug Trade, c1560-1780', The Early Modern Drug Trade in the Atlantic World, Wellcome Trust.

June 2007

'Don't Try This at Home: Medicines in Early Modern England', Public Lecture, U3A, St Albans.

Publications:

Editor. *Guilds and Association: Essays on the History of European Guilds* (London: Centre for Metropolitan History, 2006) (with I. A. Gadd).

'Medicine, Retailing and the Metropolis, 1580-1704', in L. Curth, ed. *From Physick to Pharmacology* (Ashgate, 2006).

'Consumption, retailing and medicine in early modern London', *Economic History Review* (2007)

'A dreadful heritage: Interpreting Epidemic Disease at Eyam, 1666-2000', *History Workshop Journal* 61:1 (2006), 31-56.

Plagues, Morality and the Place of Medicine in Early Modern England, *English Historical Review* 121, no. 490 (2006), 24pp.

Editor. *Medicine and the Market in England and its Colonies, 1450-1850* (Palgrave, forthcoming 2007). (with M. S. R. Jenner) Includes 'Introduction' (with M. Jenner)

'Competition and Cooperation in the Early Modern Medical Economy' in Wallis and Jenner ed., *Medicine and the Market in England and its Colonies, 1450-1850* (Palgrave, forthcoming)

'SARS', *Oxford Encyclopaedia of the Modern World* (OUP, forthcoming).

'The Politics of Regulation: from local to national guilds in England, 1500-1700', chapter in *Guilds, Innovation and the Economy in Europe 1500-1800*, ed. S. R. Epstein and M. Prak (Cambridge, forthcoming 2007), (with I. A. Gadd).

## **Dr Simona Valeriani**

### Particular circumstances:

On maternity leave from November 11<sup>th</sup> '06 until May 14<sup>th</sup> '07.

### Seminars/Conferences:

Mar/Apr 2007

"Die Quadratur des Dreieckes. Spätantike und früneuzeitliche Dächer zwischen Ikonographie und Baubefunden". *Ancient Wooden Constructions* conference at Technische Universität München.

### Publications:

*Die Quadratur des Dreieckes. Spätantike und früneuzeitliche Dächer zwischen Ikonographie und Baubefunden*, in: „Materialien aus dem Institut für Baugeschichte, Kunstgeschichte, Restaurierung mit Architekturmuseum“ der Technischen Universität München.

## Other Research Activities:

July 2007

To meet Prof. Mario Piana, who is the major expert of Venetian construction techniques and has a great expertise also in the field of North Italian historic carpentry.

Archive work

RIBA Drawings collection: travel diaries and drawings.

Field work

St Paul's Cathedral: a detailed documentation of the roof constructions had already been started. All the roofs (above the choir, above the nave and the transepts) were mapped in relation to metal and wood joints and carpenters marks. Measurements of significant portions of the roof above the choir were made in order to obtain a detailed and reliable basis for any further analysis and discussion of the structure. A general documentation of the attics was prepared (photos, sketches, catalogue of constructive features and working techniques observed etc.).

## **PhD Students:**

### **Albane Forestier**

## Seminars/Conferences:

May 2007

"A Bristol firm and its correspondents: Managing a trade network in the eighteenth-century sugar trade". Workshop in Economic History, LSE.

June 2007

*"You had better have a snug little business and safe than an extensive one which may produce a contrary effect:"* Managing a trade network in the eighteenth-century West Indian trade" ABH/CHORD conference, University of Wolverhampton

## Conference Participation

June 2007

"Exploring Mercantile Knowledge", Symposium Queen Mary, University of London. Participants: Harold J. Cook (Wellcome Trust/ UCL), Richard Axelby (SOAS), Miles Ogborn (Queen Mary), Philip J. Stern (American University).

## **Julia Mensink**

### Seminars/Conferences:

September 2006- September 2007

Organiser: Economic Sociology Seminar Series, London School of Economics. Seminar series for invited academic speakers and students who present their work.

May 2007

'Poverty measures as boundary objects between science and state: A business approach to users and producers of poverty statistics.' Workshop 'Statistics as a Boundary Object between Science and the State' Part of research program: 'For Whom the Bell Curves,' Norwegian University of Science and Technology (NTNU). Trondheim, Norway.

June 2007

'Users and Producers of Poverty Measures: a Business Approach' 34<sup>th</sup> Annual Meeting of the History of Economics Society. Fairfax, Virginia, USA

### Conference Participation:

September 2006

Workshop on 'Science and Social Movements' , Brussels, Belgium

September 2006

'The Social Sciences and Democracy. A Philosophy of Science Perspective' International Congress, Gent, Belgium

June 2007.

'Measuring and Fostering the Progress of Societies.' Second OECD World Forum on Statistics, Knowledge and Policy. Istanbul, Turkey

## **Ashley Millar**

### Seminars/Conferences:

March 2007

"Popular representations of China's political economy in the eighteenth century Republic of Letters" Workshop in Economic History, LSE.

May 2007

"Encouraging scepticism and enabling consensus: the expansion of information on China in eighteenth century Europe" *Globalisation and Cultural Transmission*, CRASSH Cambridge.

Conference Participation:

May 2007

Participant at "Exploring Cultural History: An International Conference in Honour of Peter Burke", Gonville and Caius College Cambridge.

**Aashish Velkar**

Seminars/Conferences:

January 2007

'Standardizing Quantity: Markets and Metrology in the 19th Century', British Society for the History of Science post-graduate conference, University of Durham, UK

February 2007

'Do Nested 'Facts' Travel Well? Emergence of the Standard Wire Gauge & the Decimalization of the Inch', Public Seminar, The Nature of Evidence: How Well Do 'Facts' Travel?

February 2007

'Competition, Coordination and Standardization: Emergence of the British Standard Wire Gauge in 1883', Centre for Historical Economics and Related Research (CHERRY), University of York, UK

March 2007

'Market Transparency, Uniform Measurements, and Standardized Quantities: A case of Institutional Change in 19th century Britain', Economic History Society Annual Conference.

May 2007

'Measurements, Standards, and Institutions: Case Studies in Standardization from British Trade and Industry', 6th session of the European School for New Institutional Economics, Cargèse, Corsica (*Awarded Best Paper for 2007*)

June 2007

'Scientific Societies, Industry Associations and the emergence of the British Standard Wire Gauge (c1883)', British Society of History of Science, Annual Conference, Manchester

June 2007

'Competition, Coordination and Standardization: Emergence of the British Standard Wire Gauge c1883', Association of Business Historians Annual Conference, Wolverhampton

Publications:

'Accurate Measurements and Design Standards: Consistency of Design and the Travel of 'Facts' Between Heterogeneous Groups', Working Paper No. 18, June 2007, 'The Nature of Evidence: How well do "facts" travel?'



## **Project Visitors' Relevant Activities:**

### **Dr Rachel Ankeny**

#### Seminars/Conferences:

November 2006

"Cases as a Means for Comparing and Transporting Facts Across Domains: Reasoning in Model Organism Research" Society for the Social Studies of Science, Vancouver.

April 2007

"The Future of the Case and Case-Based Reasoning in the EBM Era: Warrant and Practice in Contemporary Medicine". Conference on Cases in Science, Medicine and the Law, University of Cambridge.

July 2007

"What Lies Beyond Babel? Lessons from the Worm Project" International Society for the History, Philosophy and Social Studies of Biology Biennial Meeting, University of Exeter.

#### Selected Grants:

"Understanding Agents of Scientific Change: The Case of Embryo Research," Jane Maienschein and Manfred Laubichler et al. (US NSF grant, international collaborator with core team at Arizona State University, 2007-9)

"Big Picture Bioethics: Policy-Making and Liberal Democracy," Susan M. Dodds, Rachel A. Ankeny et al. (Australian Research Council Discovery Project Grant, 2005-8)

#### Selected Recent Publications:

"Philosophy of Medicine" in Robert Skipper Jr., Colin Allen, Rachel A. Ankeny, Carl F. Craver, Lindley Darden, Greg Mikkelsen, and Robert Richardson, eds., *Philosophy and the Life Sciences: A Reader* (Cambridge: MIT Press, 2007, forthcoming)

"Wormy Logic: Model Organisms as Case-Based Reasoning," in Angela N.H. Creager, Elizabeth Lunbeck, and M. Norton Wise, eds., *Science without Laws: Model Systems, Cases, Exemplary Narratives* (Chapel Hill, NC: Duke University Press, 2007), 46–58

John E.R. Rasko, Gabrielle M. O'Sullivan, and Rachel A. Ankeny, eds., *The Ethics of Inheritable Genetic Modification: A Dividing Line?* (Cambridge: Cambridge University Press, 2006)

## **Dr Marcel Boumans**

### Selected Seminars/Conferences:

September 2006

Battle in the planning office: Biased experts versus normative statisticians. International congress 'The Social Sciences and Democracy: A philosophy of science perspective'. Ghent University, Belgium.

November 2006

Battle in the practice: Biased experts versus normative statisticians. Annual meeting Society for Social Studies of Science. Vancouver, Canada.

December 2006

Modelling a paradox. Workshop 'Experts in observation'. Tinbergen Institute, Amsterdam, Netherlands.

June 2007

The problem of passive observations. Annual conference History of Economics Society. George Mason University, Fairfax, USA.

June 2007

The problem of passive observation. North American Summer Meetings of the Econometric Society, Duke University, Durham, USA.

August 2007

The problem of finding evidence outside the laboratory. First Biennial Conference SPSP 2007. University of Twente, Enschede, Netherlands.

### Organised Sessions/Conferences:

November 2006

Session 'Biased experts versus plain facts', with Mary Morgan for the Annual meeting Society for Social Studies of Science. Vancouver, Canada.

December 2006

Workshop 'Experts in observation', with Harro Maas at the Tinbergen Institute, Amsterdam, Netherlands.

June 2007

Session 'Observation'. Annual conference History of Economics Society. George Mason University, Fairfax, USA.

August 2007

First Biennial Conference SPSP 2007 with Mieke Boon, Rachel Ankeny, Hasok Chang and Henk De Regt at the University of Twente, Enschede, Netherlands.

August 2007

Symposium 'Stabilizing Evidence'. First Biennial Conference SPSP 2007. University of Twente, Enschede, Netherlands.

### Selected Recent Publications:

2006

The difference between answering a 'why'-question and answering a 'how much'-question. In J. Lenhard, G. Küppers, T. Shinn (eds.), *Simulation: Pragmatic Construction of Reality. Sociology of the Sciences Yearbook 25*, 107-124. Springer.

May 2007

*Battle in the Planning Office: Biased Experts versus Normative Statisticians.*  
The Nature of Evidence: How Well Do 'Facts' Travel? No. 16/07, London School of Economics, 2007.

### **Professor Martina Merz**

#### Selected Seminars/Conferences:

November 2006

"Probing a Multi-Case Studies Approach: How to Produce 'Facts' from Comparison in STS". With C. Schumacher: Conference of the Society for the Social Studies of Science (4S), Vancouver, Canada.

April 2007

"Co-Constructing Laboratory and NST". Invited lecture. Workshop *International and Laboratory Dynamics of Nanoscience and Nanotechnology*, Maison des Sciences de l'Homme, Paris, France.

May 2007

"The Making and Unmaking of "Disciplinary Identity" in Nanoscience". Invited lecture. Conference *Deliberating Future Technologies*, University of Basel, Switzerland.

September 2007

"Digital Labscapes: How Simulation Produces Knowledge". Invited opening lecture. Blankensee Colloquium 2007 *The Societal and Cultural Influence of Computer Based Simulation*, Berlin, Germany.

#### Organised Session:

November 2006

*Producing Facts from Cases – Studying Others, Observing Ourselves.*  
Session organized by M. Merz, M.S. Morgan. Conference of the Society for the Social Studies of Science (4S), Vancouver, Canada.

Publications (incl. forthcoming):

2006

Embedding Digital Infrastructure in Epistemic Culture. In: C. Hine (ed.), *New Infrastructures for Knowledge Production: Understanding E-Science* (Hershey: Information Science Publishing), 99-119

Jul 2006

The Topicality of the Difference Thesis. Revisiting Constructivism and the Laboratory. *Science, Technology & Innovation Studies*, Special Issue 1, 11-24.

2006

Différenciation interne des sciences: constructions discursives et pratiques épistémiques autour de la simulation. In: J.-Ph. Leresche et al. (eds.), *La fabrique des sciences. Des institutions aux pratiques* (Lausanne: PPUR), 165-182

2006

Editorial: Computer Models and Simulations in Scientific Practice. *Science Studies: An Interdisciplinary Journal for Science and Technology Studies* with T. Knuuttila and E. Mattila 19 (1), 3-11

2006

*Computer Models and Simulations in Scientific Practice* (Special Issue), *Science Studies: An Interdisciplinary Journal for Science and Technology Studies* with T. Knuuttila and E. Mattila 19 (1)

2007

Simulation, ein Zukunftsgenerator? In: R. Egloff, G. Folkers,

2007

M. Michel (eds.), *Archäologie der Zukunft*, Edition Collegium Helveticum 3 (Zurich: Chronos), 97-105

2007

Locating the Dry Lab on the Lab Map. In: J. Lenhard, G. Küppers, T. Shinn (eds.), *Simulation: Pragmatic Constructions of Reality – Sociology of the Sciences*, vol. 25 (Dordrecht: Springer), 155-172

2008

Understanding by Models: An Objectual Approach with T. Knuuttila In: H. de Regt, S. Leonelli, K. Eigner (eds.), *Scientific Understanding: A Philosophical Perspective* (Pittsburgh: Pittsburgh University Press), forthcoming