
The Leverhulme Trust

1 Pemberton Row, London EC4A 3BG

Website: www.leverhulme.ac.uk

Philip Leverhulme Prizes 2004

The Leverhulme Trustees are pleased to announce the results of the 2004 competition for Philip Leverhulme Prizes

The Philip Leverhulme Prizes were established to reward outstanding young scholars of substantial distinction and promise; the Prizes commemorate the late Third Viscount Leverhulme, who died in 2000. The fields of research covered by this year's awards are:

- **Anthropology**
- **Earth, Ocean and Atmospheric Sciences**
- **Economics**
- **Mathematics and Statistics**
- **Medieval, Early Modern and Modern History**

A list of prize winners and brief details of their research interests follow:

➤ **Anthropology**

Dr Catherine Alexander

Department of Anthropology, Goldsmiths College

Concerned as much with the cultures of contract law as with kinship, and with the factory production line as with the village square, Catherine Alexander's work exemplifies the potential of anthropology to confront contemporary change. Combining an anthropologist's eye for the illuminating details of everyday lives with insights accumulated from eight years spent as an IT and management consultant, Dr Alexander first studied the state-controlled Turkish Sugar Corporation just as it was to be privatized. Her book, *Personal States*, revealed the impact on local lives of relations forged at several levels - from state bureaucracy, to the factory and farm.

This interest in the dissolution of centrally planned economies then drew Dr Alexander to the restructuring of Almaty in Kazakhstan during the post-socialist period. However, her concerns have not been confined to foreign parts: she is currently involved in a collaborative project looking into problems of waste management in the urban United Kingdom. In all these settings, Dr Alexander has demonstrated the importance of basing interpretation on first-hand experience and understanding that is the hallmark of excellence in anthropological research.

<http://www.goldsmiths.ac.uk/departments/anthropology/staff/c-alexander.html>

Dr Mark Harris

Department of Social Anthropology, University of St Andrews

Mark Harris's 1996 doctoral dissertation was based on fieldwork among peasants of mixed ancestry (*caboclos*) in the Lower Amazon, Brazil. A British Academy Post-doctoral Fellowship, held at the University of Manchester, enabled Dr Harris to complete a monograph based on his Brazilian research. Entitled *Life on the Amazon*, the book explores the ways in which *caboclo* identity emerges historically from the rhythms of work, seasonality, markets and life cycles experienced by the inhabitants of the Amazonian floodplain. Ranked top in the British Academy's Postdoctoral Fellowships' monograph competition, the book was published in 2000. Since then, Dr Harris has taken his Brazilian research in new directions, focusing on the complex historical trajectories of religious belief, practice and conversion, and on the creation of colonial and imperial society on the Amazon. Following a year of teaching and research in Brazil (2003-04), he is now preparing his next book, provisionally entitled *Perilous Pathways: The making of the Lower Amazon, 1650-1850*.

Dr Marta Lahr

Department of Biological Anthropology, University of Cambridge

Dr Marta Mirazón Lahr is Director of the Duckworth Laboratory at the University of Cambridge. Her early research into the origins and evolution of modern humans was central to the widespread acceptance of the 'multiple dispersals' and 'out of Africa' models for human origins. She has carried out research in many parts of the world, and is currently investigating the 'southern dispersals' of modern humans - the earlier spread of humans around the Indian Ocean Rim. She has been a pioneer in building innovative bridges between the emerging molecular evolutionary genetics and traditional approaches to anthropology. In recent years her work has focused on the evolution of human diversity, bringing together historical and adaptive approaches to the evolution of the human species.

<http://www.human-evol.cam.ac.uk/>

Dr James Leach

King's College, University of Cambridge

James Leach has been awarded a Prize for an arresting combination of accomplishments. A brilliant contribution to social anthropology's core theoretical concerns sits side by side with pioneering work that takes him well beyond his own discipline. Both phases of his research have been marked by a quality of engagement with people best described as co-creative. Creativity is at the heart of his monograph on Papua New Guinea: *The Creative Land* describes how persons and the land on which they live literally make one another. Challenging many received ideas about kinship and material culture the research is most notable for the way Dr Leach draws the subjects of study into the very workings of the account, through a process of 'co-analysis'. It has been a short step from here to an investigation of cultural property that has informed policy makers in Papua New Guinea, and from here to exploring new forms of creativity. Most recently he has been working with the Arts Council England on projects involving collaboration across disciplines, primarily between artists and technologists/scientists.

➤ **Earth, Ocean and Atmospheric Sciences**

Dr Joanna Bullard

Department of Geography, Loughborough University

Dr Bullard has already made significant advances in three areas of her research on desert and near-desert environments. First she showed that desert sand dunes in Namibia are deceptive. Dunes that appear quite stable and inactive may become revived and active again after only small changes in climate. Next she showed that river valleys can be very important in diverting winds during sandstorms. The presence and shape of valleys control the deposition of sand, and hence living conditions in and around the valleys. Then she looked at the origin of the fine dust of deserts. This has long been a problem, since the wind cannot grind rock into such fine powder. She has been able to demonstrate two new ways of making the dust, and plans to develop this work further. Desert dust plays a crucial role in the global environment, and her work is already an important step towards understanding its origin and significance. Her work has achieved significant recognition around the world, and offers great promise for the future.

Dr David Dobson

Department of Earth Sciences, University College London

David Dobson is recognised internationally as a leading researcher into the behaviour of the Earth's deep interior. His interests range from the nature of convection in the core to the mechanisms of earthquake generation. His approach involves difficult and novel laboratory experiments, which reproduce the behaviour of materials deep within the Earth. A particular success has been the measurements of key physical properties, such as electrical conductivity, viscosity and strain rate at high pressure. New insights have been obtained into the behaviour of the Earth's mantle and core. For example, the study of iron alloys at high pressure has enabled Dr Dobson to estimate the viscosity of the outer liquid core. Viscosity is a key property determining the nature of the convective motions in the core, which generate and sustain the Earth's magnetic field.

Dr Philip Donoghue

Department of Earth Sciences, University of Bristol

One of the most intriguing and important questions in the evolution of animal species is the origin of the vertebrates. Detailed studies by Philip Donoghue have shown that a mysterious group of fossils (the conodonts) that has been known for a very long time but which has been the source of endless controversy represents the jaw mechanisms of animal precursors to the vertebrates.

He is now engaged in the study of the development of a number of vertebrate organs during their evolutionary development. This turns out to have considerable significance for the early stages of organ development in modern animals, e.g. human dentition. The main focus of future work will be the brain and the peripheral nervous system and the comparison of current developmental physiology in the higher vertebrates with the stages observed in the fossil record. This work will continue in collaboration with developmental biologists.

<http://www.gly.bris.ac.uk/www/admin/personnel/PCJD.html>

Dr Caroline Lear

School of Earth, Ocean and Planetary Sciences, Cardiff University

Caroline Lear is an outstanding young palaeoceanographer who has transformed our understanding of the history of climate through the last few tens of millions of years by combining two independent geochemical techniques in a carefully selected suite of samples obtained in the International Ocean Drilling Program. For almost fifty years we have used oxygen isotope analysis of calcite microfossils, while knowing that the method cannot properly distinguish between the effect of temperature, and of global ice volume, on the isotope record. Dr Lear has combined this approach with a second: the amount of magnesium incorporated instead of calcium in the microfossils; this is controlled by temperature but is not affected by the amount of ice on Earth. Thus Dr Lear has been able to obtain both a long temperature record, and the outline of a glacial history for Antarctica. She has worked on improving the accuracy of the temperature estimates for the ancient ocean, and has also explored the influence of the gradual closure of the Panama Atlantic-Pacific gateway on ocean circulation and climate.

<http://www.earth.cf.ac.uk/people/personal-info-page.asp?id=178>

Dr Timothy Lenton

School of Environmental Sciences, University of East Anglia

Timothy Lenton has been at the forefront of the research that considers the Earth, including its climate and biological life, as a single very strongly coupled system. He has developed the Gaia theory of James Lovelock, often much criticised by evolutionary biologists, and reconciled it with the theory of natural selection. This work has led to a new, systems perspective on the history of our planet. He has developed a range of relatively simple models that capture aspects of the behaviour of the Earth system on various long time-scales. He is currently adapting one of these models to the latest computer grid technology so that it can be used in major new projects on variability and change in the past and in the future.

<http://www.uea.ac.uk/env/faculty/lenton-t.htm>

Dr Alastair Lewis

Department of Chemistry, University of York

Alistair Lewis has used his talent for chemical analysis to open a new area of atmospheric chemistry, devising innovative techniques to measure complex hydrocarbon volatiles both in the unpolluted atmosphere and in urban air. He has shown that these compounds can be transported long distances, (across the Atlantic from America to Europe, for example) and that they are present even in remote locations. They can play an important role in the chemistry of the atmosphere and are involved in the generation of ozone, which is a potential health hazard when it occurs in the lower atmosphere at high concentration. His measurements have helped to show that recent exceptional summer temperatures in the UK have been accompanied by large emissions of carbon volatiles from vegetation, resulting in high ozone levels across the country.

➤ Economics

Professor Steffen Huck

Department of Economics and ELSE, University College London

Over the last ten years Steffen Huck has established an international reputation as a leading researcher in experimental economics, learning behaviour, and evolutionary game theory. His work is part of a new and rapidly growing strand of economic theorising, in which human behaviour is not assumed to be always rational, but is explained in terms of psychological and evolutionary principles, and which uses experimental methods to develop and test hypotheses. His major theoretical and experimental contributions include: the development and testing of new models of non-rational learning, and their application to oligopoly theory; a theoretical demonstration that certain forms of non-selfish behaviour can survive natural selection; and an experimental demonstration that increased enforcement of contracts can 'crowd out' trustworthy behaviour. His astonishingly large output has been published in leading international journals of economics, political science and biology.

<http://www.ucl.ac.uk/~uctpshu/>

➤ Mathematics and Statistics

Dr Stephen Brooks

The Statistical Laboratory, University of Cambridge

Stephen Brooks is an outstanding young statistician who has won the highest international regard for his fundamental contributions to statistics, his expertise in statistical computing and his applied work in population ecology. He is a leading international figure in Bayesian computation and has made seminal contributions in developing methodology and diagnostic techniques for Markov chain Monte Carlo (MCMC) approaches to model fitting, and in stochastic optimisation. His research into reversible jump methods, which provide a fully Bayesian technique for model choice, has been especially important in providing a general framework for the efficient use of these methods. In his applied work, Stephen Brooks has used his specialist knowledge of MCMC methods to develop models for the spread of infectious diseases in agricultural crops and farmed animals. He has also looked at a wide range of other applications including population monitoring of endangered species. The models incorporate environmental and individual variation, thus allowing deep insights into the processes involved and facilitating their management and control.

<http://www.statslab.cam.ac.uk/~steve>

Dr Darren Crowdy

Department of Mathematics, Imperial College London

The work of Darren Crowdy in the application of complex variable theory to problems in fluid dynamics has been judged eminently worthy of a Prize. His achievements include new, exact multi-polar solutions of the Euler equations on the sphere and exact solutions of steady Hele-Shaw problems. In addition his

use of quadrature domains to generate new classes of exact solutions for problems of viscous sintering deserves particular mention.

<http://www.ma.ic.ac.uk/~dgcrowdy/>

Dr Matthew Keeling

Mathematics Institute, University of Warwick

Matthew Keeling has established an outstanding international reputation for his innovative work in mathematical biology, and is widely regarded as one of the foremost researchers of his generation. His research combines mathematical rigour and biological insight, and focuses on the use of mathematical models to gain understanding of epidemiological and ecological processes. In his theoretical work, he has developed spatial-temporal models that have simple structures but are yet able to capture the essential features of the complex dynamics of a wide range of empirical processes. He uses a mixture of analytic, approximation and computer simulation tools to provide insight into the ways in which spatial and random variation interact. Matthew Keeling's applied research addresses the prediction and control of infectious diseases, where he is best known for his work on the UK epidemic of Foot and Mouth disease in 2001, although he has also made seminal contributions to our understanding of the dynamics of a range of other animal and human diseases including measles and bubonic plague.

<http://www.maths.warwick.ac.uk/~keeling/>

Dr Jens Marklof

School of Mathematics, University of Bristol

Jens Marklof's important contribution to the proof of the Berry-Tabor conjecture of quantum chaos has been deservedly recognized by the award of a Prize. The conjecture, made by Sir Michael Berry and Michael Tabor in 1977, has attracted the attention of many leading analysts and probabilists over the years; it asserts that the quantum spectral statistics of classically integrable systems are generically those of uncorrelated random numbers. Marklof has used some novel ideas to prove the conjecture rigorously in a wide class of examples.

<http://www.maths.bris.ac.uk/~majm/>

Dr Vladimir Markovic

Mathematics Institute, University of Warwick

Vladimir Markovic is still only 30, but in the past few years he has galvanised his subject area of Teichmüller theory, an area of mathematics which has wide applications, especially to geometry. He started his studies in his native Belgrade, which is a stronghold of this area. He first made his name with his PhD thesis, in which he completed the answer to a 70-year-old problem. He has solved a number of major conjectures since then, while moving first to Minneapolis and then to Warwick. His interests are expanding all the time and now cover a wide area of geometry. Some of his recent achievements have been in collaboration with people of established seniority, all of whom cite him as a source of inspiration and as a leader.

Dr Richard Thomas

Department of Mathematics, Imperial College

Dr Richard Thomas is a mathematician with an exceptionally clear and deep power of understanding. He has the ability to communicate and understand developments across a wide range of mathematics all the way from theoretical physics to abstract topics such as algebraic geometry and category theory. He has synthesised these developments together in ingenious ways to create a wide range of seminal contributions. Using tools of nonlinear analysis and symplectic geometry he has contributed to our understanding of Calabi Yau manifolds and mirror symmetry, and to stability questions in algebraic geometry. In this way his work is an important contribution to the contemporary interactions between mathematical physics and geometry.

<http://geometry.ma.ic.ac.uk/~rpwt/>

➤ **Medieval, Early Modern and Modern History**

Dr Kathryn Gleadle

Mansfield College Oxford

Kathryn Gleadle's "The Early Feminists, Radical Unitarians and the Emergence of the Women's Rights Movement" (1995 repr. 1998) overturned a long-held view of a British women's' rights movement as having been largely dormant between Wollstonecraft and the Suffragettes. Drawing on quantities of little used manuscript collections she transformed this interpretation with a dynamic picture of differing networks of women from both conservative and radical traditions forming an agenda of rights outside the franchise. She followed this first work with a much used text-book on British nineteenth-century gender history and essays on such topics as linkages between women and emergent nationalist groups in Europe. Her projected work aims to develop the important issue of how individuals and groups of women thought and worked their way towards the acquisition of a political identity.

Dr Matthew Innes

School of History, Classics and Archaeology, Birkbeck College

Matthew Innes has made an outstanding contribution to the study of the European early middle ages. The primary focus of his book, *State and Society in the Early Middle Ages: the Middle Rhine Valley, 400-1000*, is the mechanisms by which some members of society exercised power over others. He has explored these social and political dynamics in the context of the Carolingian period in particular and more generally in debates about the structure of agrarian empires and the process of 'state formation'. Matthew Innes documents a complex network of carefully balanced personal and legal relationships within their social and economic framework. He supports his arguments by resort to the legal documents recording local transactions between 700 and 900 from the Frankish heartlands of the Middle Rhine valley. His control of the detail is masterly. So is his engagement with all the major historiographical schools and debates and his ability always to see the wider implications of his particular evidence. He deploys literary, sociological and anthropological theory in highly fruitful ways. He offers an entirely new and wholly convincing interpretation of

the political and social development of early medieval Europe. Matthew Innes has in addition produced a number of very significant articles and chapters in books on history writing, orality, memory and literacy, the politics of humour, Daanelaw identities and the Carolingian court's role in the socialisation of young aristocrats. The intellectual vigour and interdisciplinary range of his work has engaged historians well beyond the conventional periods of medieval history. He is one of the leading medievalists of his generation.

Dr Stephen Lovell

Department of History, King's College London

Stephen Lovell has taken a fresh approach to Russian social and cultural history, writing with flair and imagination about a variety of innovative topics. *The Russian Reading Revolution* (London: Macmillan, 2000) charted the rise and fall of a 'Russian reading myth', showing how the Russians came to think of themselves as the 'best-read people in the world' by the 1970s and 1980s, and why their own carefully projected image of a homogeneous reading public, reinforced by a monopolistic system of book production, was undermined by cultural and economic change in the 1990s. A second book, *Summerfolk* (Ithaca, NY: Cornell University Press, 2003), explored the changing functions of the *dacha* - the Russian summer house - as a place for leisure and relaxation in time of plenty and a source of subsistence in time of hardship. Now Lovell is working on an ambitious history of generations in Russia, another project that covers more than three hundred years. Unusually for such a young scholar, his work is both admired and published in Russia itself, particularly by prestigious literary journals whose editors have recognised the genuinely interdisciplinary nature of his contribution to scholarship.

Dr Rana Mitter

Institute for Chinese Studies, University of Oxford

To acquire the knowledge and linguistic skills required to become a professional historian of China is a formidable task, and Rana Mitter has already demonstrated that he has these credentials. His perception that the interpretation of Chinese history, society and political culture needs to escape from the intellectual incubus of communism is both timely and innovatory. Instead he argues that historians should refer back to China's great traditions and to the nationalism arising from the Japanese invasions of Manchuria and the experience of the Cold War. His first book "The Manchurian Myth: Nationalism, resistance and collaboration in modern China" was a landmark study, and his future writings will continue to restore our knowledge of China's past and identity as a culture and global power.

<http://www.orinst.ox.ac.uk/staff/mitter.shtml>

Dr Alexandra Shepard

Christ's College, University of Cambridge

Alex Shepard is one of the leading historians of Tudor and Stuart England of her generation. She is doing highly original work on the border between social and cultural history (sociologists or anthropologists might describe her as concerned with changes in the cultural construction of social categories). Dr Shepard is particularly interested in the social history of gender (in masculinity as well as femininity). Her PhD thesis, which studied student life at Cambridge, was

concerned with the ways in which the undergraduates expressed their male identities (by drinking, fighting, etc). She combines ambitious questions, about identity, for instance, or about patriarchy, with a close attention to detail in archival research. She has worked in particular on judicial records, analysing the statements made by witnesses in order to tease out the assumptions made about honour, gender or age by ordinary people of the 16th and 17th centuries.

The Leverhulme Trust was established in 1925 under the Will of the first Lord Leverhulme - William Hesketh Lever - the entrepreneur and philanthropist who established Lever Brothers in the late nineteenth century. The Trust provides some £30 million each year to promote research of originality and significance principally in the university sector across a full span of disciplines. For further information about the Trust and this year's Philip Leverhulme Prize winners please see www.leverhulme.ac.uk

Philip Leverhulme Prizes are awarded annually. Nomination materials for the 2005 round will be available from the Trust's web site from 1 January 2005.