

"...scholarships for research and education..."



Newsletter January 2010

The Leverhulme Trust



The changing shape of the Earth



Males are choosy too!



A Secret History



Engineering bubbles

The 'i' word

Anticipation of financial stringency has coloured much of the debate about the criteria to be used for the assessment of research. If times are hard, then decisions between initiatives judged to be essential and those which are merely interesting become more acceptable. But how is this to be done? It is now apparent that the key to the quandary has been identified in the form of a single virtue, namely, 'impact'.

It is of course laudable that those responsible for the allocation of public resources for the support of research should seek a public benefit from the research undertaken. Much of modern research does after all take the character of seeking solutions to identified problems, be these cures for diseases, remediation of the environment, generation and storage of energy, sustenance of defence capability, or, more generally, the promotion of economic wellbeing. In many such instances, reasoned argument for potential impact, even prior to the research, can be offered. These may turn out to be imprecise since the research journey is one where incident is to be expected; but the case can be made.

Examples abound, however, where research of another kind has proved to be vital. Here, the discovery of initially unidentified opportunities results from the impassioned following of a personal vision by individuals of exceptional capability. No doubt an initial impact statement could be sought here also; any link with the eventual outcome would, however, tend to the fortuitous. The demand that the impact be initially identified is accordingly an urge to fantasise. And that is precisely the undermining of the responsibility to truth which must remain the sign of the genuinely serious researcher.

The Trust has a special position in that it acts in the responsive mode. Here, the applicant must do three things, namely, identify a fascinating research question, design the path to be followed in tackling it, and demonstrate a record of the highest personal competence in the required set of research skills. Given a convincing case on these grounds, then impact is no less to be expected than where a formal 'impact statement' has been sought. Indeed, the prevailing culture of uncontaminated veracity offers the best chance for correct decisions.

So the 'i' word must take its chances. Heavy use of the formal criterion by other agencies will test its validity. As in the use of RAE/REF data, H-factors, Jiao-Tong lists and like credentials, however, the Trust will seek to hold back. May each bid be asked to state its case in terms of its intrinsic interest, its elegant research design, and the compelling authority of its instigator for the theme proposed.

Richard Brook

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A Secret History: the organisation of Bletchley Park

Almost everybody now knows something about the work of Bletchley Park (BP) in breaking codes and ciphers during the Second World War. It has become the stuff of popular legend and has given rise to the film and book, *Enigma* as well as a BBC radio comedy, *Hut 40* and is the subject of frequent news stories. Much of that popular knowledge focuses upon the genius, sometimes eccentric genius, of a small number of individuals, most famously Alan Turing. Academic analyses, by contrast, have been concerned with such issues as the contribution of BP to military and intelligence history or to the development of computing.

What has been less widely appreciated and explored is how such an endeavour could have been organised. For BP, far from simply being home to a handful of eccentric geniuses, became a large and highly complex organisation – growing from some 200 staff in 1939 to around 10,000 in 1944, three-quarters of whom were female – comprising a very wide range of activities. A great deal of the work was of an extremely mundane sort – filing, machine operating and so on – and itself took place within an 'unglamorous' administrative infrastructure requiring the billeting, transport and feeding of this large workforce on a 24 hour basis. Mundane as it may have been, it was crucial to BP because without it the cryptanalytic achievements would have been impossible, and the utilisation of the resulting intelligence severely limited. Moreover, the entire operation took place within the confines of a secrecy so extreme that it lasted for over 30 years. With its declassification, BP offers a near unique possibility for organisational analysis: to examine a secret organisation.



Civilian cipher clerks on a day shift (image credit: Bletchley Park Trust Archive).

It is these organisational issues which will be researched under this Major Research Fellowship. They include the apparently chaotic way in which BP – or more properly the Government Code and Cipher School – was structured, with multiple chains of command that made it a complex network, rather than a unitary organisation. At the same time, the strict secrecy of the operation entailed rigid compartmentalisation with most of the workforce unaware of the full nature of what they were doing. This workforce was quite varied and comprised both civilian and military personnel. Some groups, notably the cryptanalysts, were recruited from very restricted social and personal networks clustered around Oxbridge whilst others, especially some technician groups and listening staff, came from a heavily unionised GPO background. Secrecy and work conditions imposed considerable strains, including the way in which the latter led to many BP staff being regarded as 'dodgers', even by their own families, a charge they were of course unable to refute either then or for many years afterwards.

Professor Christopher Grey
University of Warwick

Engineering bubbles

The presence of bubbles in the blood stream is normally considered to be highly undesirable. Celebrated as the undetectable murder weapon in the plots of 1930s detective novels, they certainly represent an all too real hazard for deep sea divers and astronauts. There is, however, a rapidly growing number of biomedical applications in which bubbles can offer significant benefits.

My research has focused on the use of microbubbles in two major areas: firstly as a means of enhancing the clarity of ultrasound scans and secondly as vehicles for targeted drug delivery. These microbubbles are actually tiny spherical capsules, a few micrometres in diameter (i.e. a few hundredths of a human hair) containing a non-toxic gas and coated with a biodegradable shell into which a drug can be incorporated (Figure 1). They are injected into the blood stream and can be detected using ultrasound because the gas-filled bubbles produce much stronger

echoes than liquid-filled blood cells. By focusing the ultrasound at a target site, e.g. a tumour, and increasing the sound energy, the bubbles can be broken open and the drug released locally, thus reducing the risk of harmful side-effects elsewhere in the body.

My work began initially with the mathematics of the problem. I developed theoretical descriptions of how microbubbles respond to ultrasound in a biological environment, so that I could better understand and predict their behaviour. I then designed experiments to validate the theory, and finally used the results from these studies to define the ideal characteristics for bubbles to be used for particular applications. For example, I have designed and produced bubbles to produce echoes which are more detectable during ultrasound imaging by incorporating solid particles in the bubble coating. The particles alter the way in which the bubbles respond to ultrasound and hence the echoes they generate. I have also produced bubbles containing magnetic

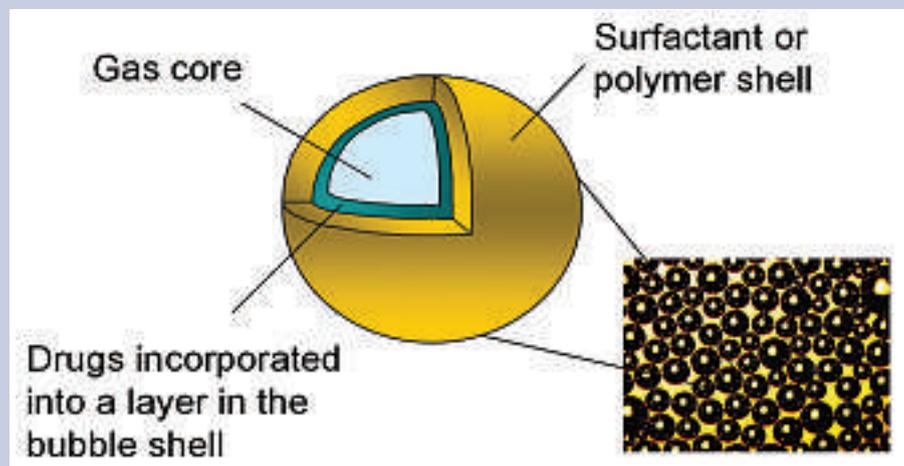


Figure 1: schematic of a drug delivery microbubble.

How do people rapidly understand *if...then...* statements?

Much advice that we are given in everyday life is conditional. For example, you might read that *if you save a little extra money each month, you will be better able to cope with a recession*, or be told that *if you exercise regularly, you will stay healthy*. Both of these statements invite us to engage in behaviour of a particular type. In the first case, it is saving extra money, while in the second, it is exercising. The extent to which we are likely to engage in such behaviour is influenced by the extent to which we might believe these conditional statements. Such belief is related to our subjective probability of the consequent

event (e.g., being in a better position to cope with a recession) occurring as a function of the antecedent event (e.g., saving extra money).

It seems intuitive that judgements that are based on such probabilities occur on a regular basis in our everyday lives. We are likely to engage in behaviour that increases the probability of some desirable state of affairs coming about. However, the fast-acting mental processes associated with how such judgements might be made are largely unknown. The bulk of the literature on conditional decision making has tended to focus on the final mental representations that follow from thinking in conditional terms.

In contrast, the focus of the research that I will be conducting through the support

nanoparticles whose position in the body can be controlled from outside using a magnet (Figure 2) and hence more efficient drug delivery can be achieved.

This Philip Leverhulme Prize will enable me to advance my work on microbubbles to explore a number of new areas. Specifically: to investigate the use of targeted microbubbles for ultrasonically assessing the early onset of atherosclerosis; to develop a dual probe for localising and imaging magnetic microbubbles; to develop a new device for characterising individual microbubbles and their interactions with cells, in order to better understand the process of drug delivery and hence how it may be optimised; to look at broadening the applications of the microbubble preparation methods to food engineering and environmental (climate) engineering.

Dr Eleanor Stride
University College London

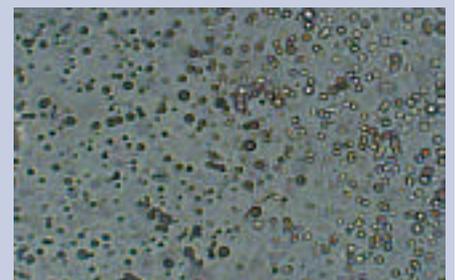
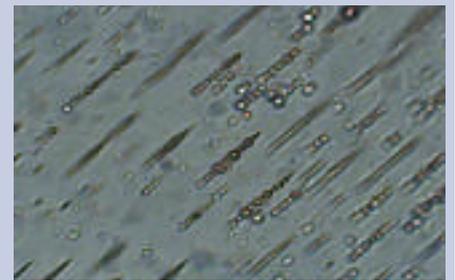


Figure 2: magnetic microbubbles before (top) and after (bottom) application of a magnetic field.



of The Leverhulme Trust will be on the incremental mental processes that are engaged as conditionals are understood in real time. An approach of this type will give us an understanding of the moment-by-moment processing that occurs as conditionals are read. This has clear real-world implications in that it will give us an insight into the limits of the speed with which people are able to understand conditional information, and make judgements based on the likelihood of particular consequences following particular behaviours. In a world in which conditional advice is available on a plethora of topics, knowing the limits of how people process, understand (and thus are likely to act on) such conditional information is key.

Dr Andrew J. Stewart
University of Manchester

GPS: from SatNav to sea level change



Global Positioning System measuring glacial isostatic adjustment in West Antarctica.

The Global Positioning System (GPS) is well known through its role in positioning millions of people daily via mobile phones and vehicle-based SatNav. Less well known is the role GPS has played in the science of geodesy, measuring the change in shape of the solid Earth. Earth's shape changes for a multitude of reasons and over a huge range of temporal and spatial scales. For example, tectonics changes the shape of the Earth and GPS has been used to measure this and in doing so our understanding of how the various plates move, before, during and after an Earthquake has been revolutionized. But in contrast to SatNav, where the focus is often on how *fast* one is travelling and is measured in speeds of miles per hour, in geodesy we're interested in the bottom end of the scale – measuring very *slow* changes in Earth's shape and measured in tenths of a millimetre per year.

Measuring sea levels is one area where very small motions matter. Over the past few centuries, tide gauges have recorded the change in sea levels relative to the land the gauges are attached to, with the global average value

being about 1.8 mm/yr. However, if the land is moving up then the tide gauge would measure a sea level change that is too low, and vice versa. This vertical land movement must be corrected before final global or regional sea level rise numbers may be settled on.

The dominant process in vertical land movement is glacial isostatic adjustment (GIA), the response of the solid Earth to melting of ice since the Last Glacial Maximum approximately 25000 years ago when the ice sheets covered much more of Earth's surface than they do today. Very good mathematical predictions of GIA exist, but these are not perfectly accurate, nor are they the only process at work. For instance, the pier the tide gauge is attached to may also be slowly subsiding. By placing GPS on or near to the tide gauges, and measuring over many years, we measure the actual vertical motion

with an accuracy that potentially far exceeds that of any other approach. But because sea level is changing by only a few millimetres per year, then the GPS measurement must be accurate to better than 1 millimetre per year.

Where GIA is the dominant process, these measurements of Earth's deformation also tell us important things about the configuration of the past ice sheets, the timing of their melting, as well as the structure of the Earth's crust and mantle. Like the sea level problem, such measurements of GIA are needed with sub-millimetre accuracy, and that is a major challenge in geodesy today.

This Philip Leverhulme Prize will contribute to breaking the "millimetre-per-year" barrier and provide new constraints on past and present sea level change and ice sheet contributions to those changes. My team is working on improvements to GPS accuracy and precision and together we are applying the results to tide gauge records to obtain more accurate measurements of global and regional sea level change. We will also apply these refined techniques to newly deployed GPS sites in Antarctica where we are measuring the GIA and hence indirectly sensing past changes in the configuration of the ice sheets.

Dr Matt King
Newcastle University

Cover image: Changes in the present and past ice sheets contribute to present global sea level changes.

The evolution of bourgeois and non-bourgeois German prose fiction after 1850

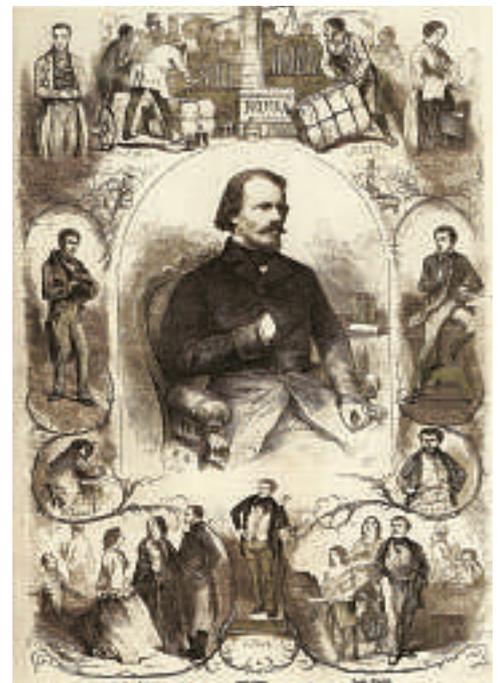
One would think that everything has been said about German Realist prose fiction. A closer look, however, reveals that so far research has been limited in several ways. The period after 1850 saw Germany developing from a feudal, agriculturally-based society to a bourgeois, industrialised and increasingly pluralistic one. This enormous social development was accompanied by debates in the cultural fields, especially in prose writing, which appealed to the increasing number of literate people. Debates in the cultural sphere became particularly important because, after the failed revolution of 1848/49, public debate had no political arena.

There is a lack of systematic research which discusses narrative prose in its function of actively shaping constructive concepts while Germany was undergoing the enormous cultural and political changes in the second half of the nineteenth century. We will address this by focusing on a larger corpus of texts from different authors in different social spheres (bourgeois, working-class, white-collar workers, female) and in different literary movements (realism, naturalism, early modernism). Actively distinguishing between different modes of bourgeois realism and following up their distinctive

evolutions will help to challenge and revise the still dominant concept of realism as a highly uniform literary movement in German prose fiction. There is no major study combining realist and naturalist prose writing under the aspect of how they respond to the new sciences and new social sciences. Similarly under-researched is the link between pre- and post-1848 rural tales ('Dorfgeschichten'). The origins of working-class fiction in the nineteenth century have never been researched intensively. And despite early and influential sociological research in the field of the emerging white-collar workers, this has not been discussed in its literary implications.

The project has the visionary aim to refocus narratological research for the second half of the nineteenth century, and, in part, for the first three decades of the twentieth, by giving it a much more diversified historical foundation. We will analyse mainstream bourgeois realist prose between 1850 and 1910, comparing the evolution in this field with newly emerging working-class writing and writing by white-collar workers.

Professor Gert Vonhoff
University of Exeter



Illustrations to one of the most popular novels of the later 19th century, Gustav Freytag's Soll und Haben. Leipziger Illustrirte Zeitung, 19 April 1856, S. 273.

Too many bodies? The politics and ethics of the world population question

During the 1960s, world population reached 3 billion and there was considerable anxiety about a population explosion. In developing countries, where most population growth now occurs, the issue of population stabilisation remains salient yet it has become profoundly controversial for the international agencies that help fund it. In developed countries, meanwhile, the population question has fallen into abeyance despite a projected world total of more than 9 billion by the middle of this century. This is now changing as concerns about climate change and the environment; anxieties about food, energy and water security; worries about demographic changes from immigration to ageing, again place population on the political agenda. But what sort of discourse is appropriate for tackling this question, given the political challenges and ethical dilemmas that surround it? Should governments in developed countries have a population policy and if so, can it be efficacious and democratic? Indeed, what direction should such a policy take, when environmental problems suggest the desirability of fewer people, especially those with larger ecological footprints, yet the European Commission, among others, advocates effective pronatalism to address the challenges of population ageing?

In this study I take a multi-disciplinary approach to such questions to look at the deeper philosophical, ethical, political and practical issues they raise. As a political and social theorist, my main focus is a critical investigation of the kinds of argument and the changing discourses that have circulated since Malthus wrote his infamous *An Essay on the Principle of Population* in 1798. I am especially interested in the way contemporary global debates and policy documents have framed, displaced or even silenced discussion and in the forms this is currently taking in the public and political imagination. Is this, for example, primarily a global and environmental issue that poses classic collective action problems? Or is it mainly an issue of individual rights, private decisions or religious belief, in which governments have no legitimate role? If interventions are necessary, as some advocacy groups maintain, what sort of policies and mechanisms are feasible? Or is the implication of demographic

projections, which suggest a levelling off of world population in the latter half of this century, that population concerns are now redundant, while new technologies and free markets will anyway allow a much larger global population to flourish? But what would this imply for the quality of life?

In exploring such questions I analyse a range of academic texts, policy documents, media reports and demographic statistics. I'm also focusing on some indicative case studies. India is especially interesting as its population policies have covered the gamut of approaches, from coercive sterilisations

to more recent emphasis on women's rights and economic incentives. Australia exemplifies the way population ageing vies with environmental fragility to frame arguments for and against immigration, while the United States shows the way competing religious and economic discourses shape policy. In the UK, finally, there is mounting evidence that the population question is again moving up the political agenda, but the debate remains mired in controversy.

Professor Diana Coole
Birkbeck, University of London

A focus on women's reproductive health has helped India to lower its fertility rate.



India will soon overtake China as the world's most populous country.

Archive of Angels

Carolyn Allen, of the Trust, reports

Over the last two decades, historians researching the impact of Christianity upon the indigenous peoples of Spanish America have found that the concept of religious conversion that depicts Christianity and indigenous religions as mutually exclusive is flawed because there was actually a high degree of interaction between the two.

Most of this research has focussed on interactions with the 'official' brand of Christianity that emerges from the accounts of chroniclers, missionaries and Spanish officials; but Dr Fernando Cervantes, an historian at the University of Bristol, argues that the Christianity that the indigenous people would have had most contact with in the sixteenth and seventeenth centuries was more malleable and in many ways analogous to native beliefs. In particular, there were striking similarities in the beliefs in supernatural beings, be they angels, demons or local spirits, which were actively interested in human affairs.

Funded by a Leverhulme Trust Research Project Grant, Dr Fernando Cervantes and his colleague, Dr Andrew Redden, have collected and analysed an extensive database of archival material documenting experiences involving angelic or demonic agency throughout the Hispanic world from the sixteenth to the eighteenth centuries to explore how the perception and understanding of angels helped to blur the distinctions between Catholic and native beliefs and cultures in the colonial Hispanic world.

In a Jesuit *Carta Annu* of 1639-40, for example, held in the Archivo Historico Nacional de Chile, Dr Redden uncovered an interesting narrative illustrating how angels were believed to cross and blur the dangerous frontiers between Spanish and indigenous warriors. The narrator describes a disastrous expedition against the Mapuches of Valdivia that was shipwrecked 'in the land of the enemy' with the loss of sixty lives. One injured Spaniard was cast up on the beach where 'he lay for nineteen days more dead than alive'. Suddenly there appeared 'a beautiful boy dressed like a little Indian' who consoled him, told him that although he was in enemy territory the indigenous warriors would not kill him, and named three Spaniards of a squadron that was on its way to rescue him. When the three sailors found him, they were amazed to hear him calling their names even though he clearly could not see them as his face was so swollen due to exposure, 'with which all were persuaded that the [Indian] boy had been an angel sent from heaven to console him'.

This 'angelic message of hope', Cervantes and Redden observe, was not only addressed to the soldier that survived the shipwreck but to 'all those involved in the conflict.



Watercolour sketch of the original fresco by A. Redden.

Hispanic and indigenous cultures were not irreconcilable, therefore; angels did not only appear as Spaniards, and indigenous peoples were not always demonised'. In fact, the sixteenth century cult of angels and saints with their relics and miracles would not have seemed so very different to the local nature spirits, making it relatively easy for indigenous allegiances to be transferred. Just as pre-Hispanic deities had both benevolent and malevolent qualities, so the angels could be seen as both good and evil. The Archangel St Michael, in particular, was believed both to protect but also to deal out harsh punishment, inflicting God's wrath on the sinful Hispanic populations.

As the leader of the Celestial armies, St Michael was central to Spanish perceptions of conquest, and his images set above a prostrate Satan proliferated throughout the Hispanic Americas above entrances to houses and churches and in paintings. Yet, as Cervantes and Redden point out, these images were not intended to associate St Michael and his victory over Satan with violent conquest, but rather to represent divine providence and the eternal struggle against Satan and the enemies of God.

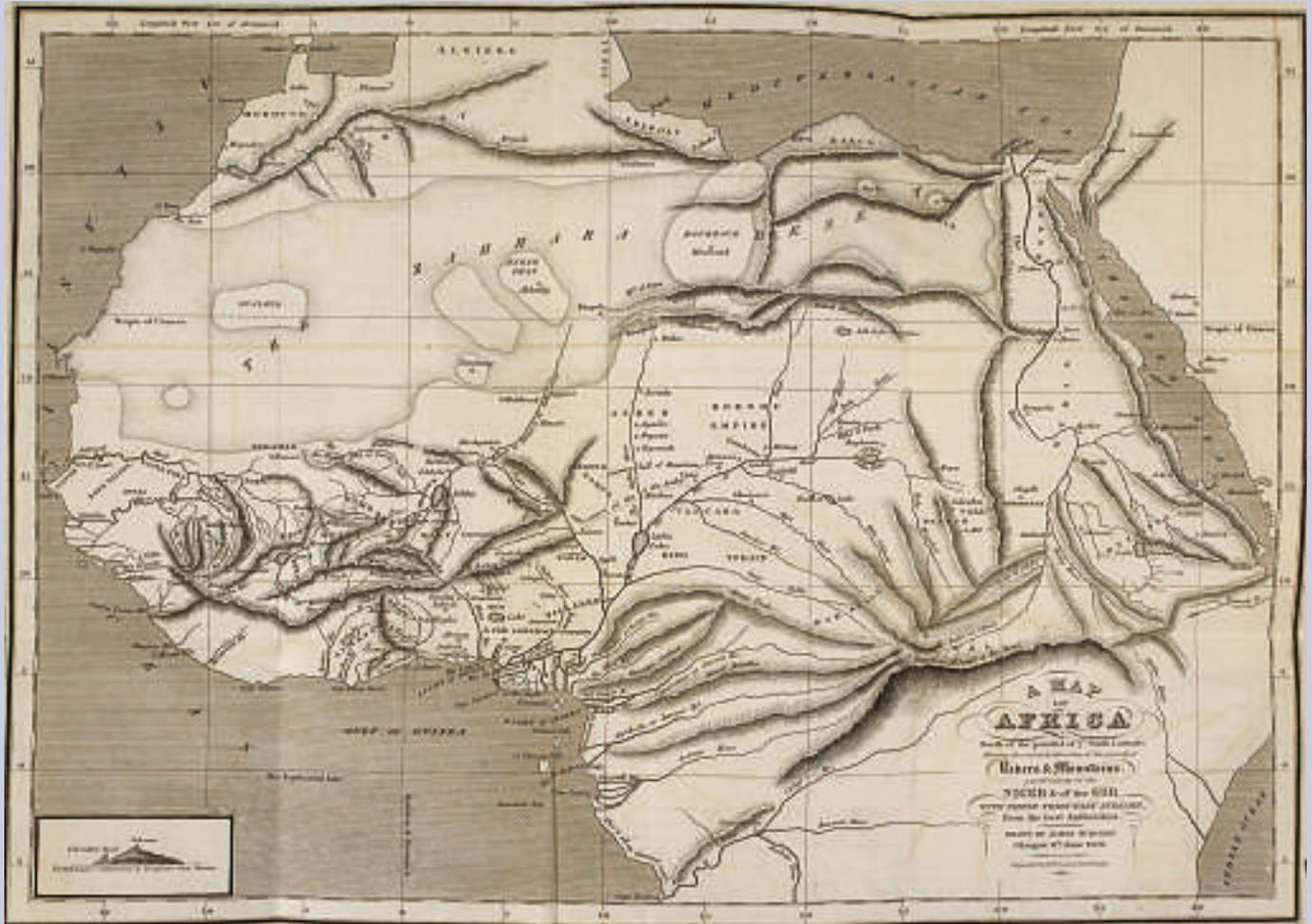
This is exemplified in an eighteenth-century fresco in the crypt of the cathedral of Trujillo, in which St Michael can be seen with a

flaming sword, striking down the devil. 'The fact that the devil is represented as a hairless dog, indigenous to the coast of Peru, rather than the usual human-dog-dragon, speaks volumes. It is perhaps also significant that, unlike the usual images of this kind – where Satan is usually prostrate, helpless and chained – here it seems that the dog is losing but still fighting. It has not yet been chained and is still able to breathe fire at its persecutor. This image, with its feisty indigenous Satan, corresponds with a series of idolatry trials conducted in the archdiocese of Trujillo in the second half on the eighteenth century. As late as this, idolatry was believed still to be "rearing its head"; something quite literally depicted in the fresco', write Cervantes and Redden.

The archival material collected during this project forms the basis of a co-authored monograph (to be submitted for publication in 2010). In addition, the researchers have co-edited a volume of essays resulting from a two day symposium on the subject of Angels and Demons in the Hispanic World. This will be published by Cambridge University Press in 2010.

Dr Cervantes was supported by a 3 year Research Project Grant for £126,855 awarded in 2004.

Slavery, map-making and the British empire in Africa



'A map of Africa north of the parallel of 7° South Latitude' (1820), in James MacQueen, *A geographical and commercial view of Northern Central Africa* (Edinburgh: Printed for W. Blackwood, 1821). (c) The British Library Board, 793.e.2.

In the popular imagination, the history of nineteenth-century British exploration is often thought of in terms of those individuals whose heroic travels helped to fill in the blank spaces on maps. Yet, not all geographical discoveries took place on the ground. While travellers were in the field, others back in Britain were collating and synthesising their accounts to produce maps, even rejecting explorers' discoveries when they did not tally with existing knowledge. Sometimes these individuals were dismissed by field explorers and their sponsors for being overly theoretical and speculative, for being mere 'armchair' geographers whose claims lacked the credibility that came from direct experience.

My recent research has been concerned with one of these armchair explorers, a Scotsman called James MacQueen (1778-1870). In the first half of the nineteenth century, he established a reputation as an expert on the geography of Africa and was elected a Fellow of the Royal Geographical Society in 1845. Yet, he never once set foot on the continent. Instead, by perusing and cross-checking accounts written by on-the-spot explorers, he was able to produce fairly accurate maps of western and central Africa that challenged commonly-held views

of the time. Consider, for example, his map from 1820, which shows, quite correctly, the River Niger flowing into the Atlantic Ocean in the Gulf of Guinea, a fact that was not widely accepted in Europe until proven by on-the-spot explorers a decade later.

Two particular things mark out MacQueen as an important figure and account for my interest in him. First, travellers' accounts were not his only source of information. As a young man, MacQueen had worked on a sugar plantation in the Caribbean island of Grenada, which was then a British colony. There he was employed to help control the enslaved African people forced to produce sugar for British consumers. Among them, he met men, women and children who had been born and had lived in West Africa, before being sold to European slave traders and transported across the Atlantic on slave ships. By interrogating them, MacQueen was able to establish the basis of his knowledge about African geography, including his controversial theory about the River Niger. Second, MacQueen is also significant because of how this knowledge was used. As well as an armchair explorer, he was also a prolific publicist who promoted British territorial expansion in Africa in the 1820s and 1830s – long before

the 'Scramble' of the 1880s – and an opponent of other visions for Britain's role in Africa, such as that associated with Evangelical Christian groups. The River Niger was key to MacQueen's plans because it would provide a means of communication from the coast to the interior of Africa, an area he argued was ripe for commercial exploitation. Therefore, his geographical knowledge, which was derived from enslaved African people, underwrote plans for the colonisation of the continent that were put into effect in the early 1840s.

This Philip Leverhulme Prize will enable me to write a book, to be entitled *The Armchair Explorer*, which uses MacQueen to examine the relationship of African exploration and cartography with colonial slavery in the eighteenth and nineteenth centuries. By bringing together research on the history of science with the history of the Atlantic world, the book aims to re-shape understanding of pre-Victorian geographical thought, the contemporaneous ending of British slavery and the development of European colonialism in Africa.

Dr David Lambert
Royal Holloway, University of London

Sisterhood and After: the women's liberation oral history project

From *Spare Rib* to Greenham, Southall Black Sisters to the Northern Ireland Women's Rights Movement, the generation of women who powered the Women's Liberation Movement are mostly now in their 60s and 70s. For many, memories of a youth in which feminism was part of everyday life are vivid. For others, those memories are difficult, or fading.

But feminists have a sense of the long term, launching small but passionately-run community archives and history workshops as far back as the late 60s, as well as the engaged research that became Women's Studies. Ongoing studies of feminism in Britain include important oral-history based accounts of campaigns for workplace and sexual rights. However, there has been no large-scale, professionally-archived oral history of the movement, through which to explore its legacy. The Leverhulme Trust saw this gap in the historical record in 2007, when it funded the Women's Liberation Movement Network, where facilitator Rachel Cohen brought together surviving 'witnesses', and mapped the state of the feminist archive across Britain. Now the Trust will fund the capture of key activists' stories to ensure their ideas endure. Through in-depth life-history interviewing and interpretation, a team led by Margaretta Jolly at the University of Sussex will create a multi-media intellectual history of the movement.

Their aim will be to explore an extraordinary political imagination in its heyday, and tease out features that distinguished activism beyond the more usually examined English/London based activities.

Oral historical methods will illuminate fresh aspects of life in and after the movement. Posing questions of personal, political and professional development, they will use the intimacy of the interview to explore difficult but important elements of women's entry into the political sphere: tensions between theory and practice, influence within institutions, and how some women's groups negotiated and gained power. Oral history can also open up conventional approaches to intellectual history, tracing the genealogy of ideas that bubbled up in and out of adult education, domestic relationships or alternative communities. At issue will be the commitment that liberation philosophies made towards the principle of experiential knowledge. How can a political dialogue between concept, feeling and memory contribute to today's interest in the history of emotions such as love and shame, as well as to ideas in the abstract?

The project is partnered with the British Library, where recordings of interviewees will be archived as part of the National Life Stories Collection. The British Library Learning



Wages for Housework c.1975 (designed by B. Warrior).

Programme will also bring the WLM to life for the public. The project is also partnered with The Women's Library at London Metropolitan University. Always stylish, the Women's Library is a sustainable home for feminist history, and will advise on whom to interview and how to share the results of our work.

This history of women's liberation is as risky as it is timely. Feminism is always deeply personal in nature, and continues to intrigue and excite. Ultimately, however, understanding feminist activism in the 1960s, 70s and 80s will identify ways to spur creative approaches to problems of gender inequity and role today.

Dr Margaretta Jolly
University of Sussex

Males are choosy too: the importance of male mate choice in determining fitness

Sexual selection is the competition between males for matings and the choice for particular females for some males over others. Since the time of Darwin the study of sexual selection has focussed almost exclusively on how females choose between males and competition between males over females. In contrast, the existence and potential importance of male mate choice has been overlooked. This is largely due to a perception that males invest little in each mating and in parental care. Recent research has started to challenge the primacy of this view. It is now apparent that males often make significant investment in mating, and that males benefit by distributing their investment between females effectively. For example, males are frequently found to avoid mating with females that are not sexually mature, have already mated or those who are likely to remate in the near future.

Whilst the prevalence of male mate choice is becoming clearer, experimental evidence demonstrating the mechanisms and outcomes are severely lacking. Furthermore, few studies have compared the outcomes of mate choice in each sex. This lack of knowledge is limiting our ability to

understand how sexual selection influences the world around us. 200 years since the birth of Darwin, it is now time to re-evaluate the importance of male mate choice as a key 'missing' concept in sexual selection.

We will use the fruit fly, *Drosophila melanogaster*, a species that already has an enviable record of contribution to the study of sexual selection. Our research will consider the benefits for males that exercise mate choice, and compare the magnitude of benefits from mate choice in males versus females. A key component of the work will be to compare the strength of male mate choice when presented with females of varying quality. We will determine which



female traits males prefer and which males express the greatest preference. A vital aspect of this comparison will be a determination of the indirect benefits of mate choice – those benefits that are only realised in later generations. Another of the techniques to be used is experimental evolution. Multiple populations will be reared under varying conditions of male or female mate choice over many generations. These populations will then be examined for differences in population fitness whilst being subjected to varying stresses such as a change in temperature or reduced nutrition.

By investigating the relative importance and impact of male mate choice this Research Project Grant seeks to challenge some common preconceptions in the study of sexual selection. The project will develop an original research programme, focusing on novel ideas and developing the experimental support for them to be incorporated into mainstream sexual selection theory. The ultimate aim is to achieve a better understanding for the origin of species around us and how they may evolve into the future.

Dr Tracey Chapman
University of East Anglia

Engineering Spectacle: Inigo Jones' past and present performance at Somerset House

Inigo Jones' legacy in seventeenth century architecture, urban planning and theatre spectacle is unparalleled in its range and combination of engineering and artistic practices. As 'Surveyor to the King's Works' (1625-1642), in a period of intense activity and creativity, Jones forged a genuinely innovative role for theatre and the staging of political spectacle in the west 'end' of London at Denmark (later Somerset) House. While his impact on the building that preceded William Chambers' current structure was restricted formally to the Chapel, River Stairs and designs for a new Strand frontage (with his associate John Webb), his temporary theatre structures, most notably the 'Lardge Theatre', the 'Dancing Barn' and peripatetic venues for the pastoral masque in the Somerset House precinct, present scholars with all that is most challenging about theatre research.

This Major Research Fellowship seeks to explore how Inigo Jones' legacy of past practices combining engineering, architecture, theatricality and 'event choreography' could become resources for research into performance and their relations to practices of politics in the present. Taking Jones' long commitment to the site of Somerset House as a focus (a site that since the early 19th century has included the King's College Strand estates) this project will deliver the research necessary to underpin the development of three new performance venues and a research centre for the practical exploration of the relationship between performance, political process and public understanding.

The three spaces are provisionally titled: the *Anatomy Theatre*, the *Double Cube* and the *Dancing Barn*, each reflecting a common spatial figure in Inigo Jones' incomparable oeuvre: the anatomy of spectacle, the perspective of the stage, the choreography of power. From this site-specific outset the research project will seek to negotiate a set



Anatomy Museum (FW troupe, 1932), King's College London. Liddell Hart Archive. (Research through practice studio for overall project).

of questions regarding how Inigo Jones provided the operating conditions for a formidable collusion between spectacle and politics then (1625-1640) and simultaneously, as a critical second part of the programme of research, put those findings to the test in a series of building projects and practice as research events, now.

Research will focus on three interrelated modes of performance practice which are in turn linked to the rhetorics of public display:

1. The Anatomy of Spectacle (*The Anatomy Theatre*) 2010-2011
2. The Perspective of the Stage (*The Double Cube*) 2011-2012
3. The Choreography of Power (*The Dancing Barn*) 2012-2013

Importantly the purpose of the work will not be one of authenticating or legitimising

a past practice, nor of reconstructing those spaces to mimic what has been lost to history despite the surviving plans and drawings held at Worcester College, RIBA and Chatsworth House. Rather the project will consider how, and to what extent, the key terms of Inigo Jones' practices with regard to depth, perspective and volume are themselves the machinery of 'distributions of the sensible' which shape spectacle, political event and public engagement with those processes in the early 21st century. The research issue here moves from one of historical recovery and verification to testing the very conditions of legitimacy, legibility and iterability of a past set of practices for performance and politics in the present.

Professor Alan Read
King's College London

The Trust Board

At their Strategy Meeting held in October 2009, the Trustees decided that a Leverhulme Trust Board should be established to act in managing the affairs of the Trust. The Board, consisting of up to ten members, has now been formed and its first meeting was held on 25th November 2009. The membership comprises all the current Trustees and Associate Trustees. A current or former close association with Unilever remains, in keeping with the Will of the First Viscount Leverhulme, as a requirement for membership.



Rudy Markham

It is a pleasure to announce that Mr Rudy Markham has now agreed to join the newly established Board. Mr Markham has a record of activity with Unilever covering some 39 years and involving a striking array of geographical (Australia, New Zealand, Japan, China, Hong Kong, Korea and Taiwan) and functional (Strategy and Technology; Board Member; Executive Committee Member; Financial Director) roles. He retired from the Company as Chief Finance Officer in October 2007. In addition to his Board Membership, Mr Markham has agreed to become Chairman of the Investment Committee of the Trust.

Grants awarded by the Board at their November 2009 meeting

The numbers in parentheses are the awards duration in months.

Research Project Grants

Applied sciences (including architecture)

Dr Zhongwei Guan <i>University of Liverpool</i>	Optimise blast resistance of street furniture made with fibre metal laminates	£149,926 (36)
Professor Vincent Fusco <i>Queen's University of Belfast</i>	Phase conjugate assisted wireless communication in cluttered environments	£141,195 (36)
Dr Clive Siviour <i>University of Oxford</i>	Silk in high-rate applications and research into damage tolerance	£239,523 (36)
Dr Mike Tierney <i>University of Bristol</i>	Low cost solar coolers for rural food refrigeration in the developing world	£130,455 (24)
Professor Christopher Ramsey <i>University of Oxford</i>	Origins of nationhood: a new chronology for the formation of the Egyptian state	£170,550 (36)
Dr Michael Carley <i>University of Bath</i>	Hearing damage in motorcyclists – preventative hearing protection	£53,781 (12)
Dr Robert Hewson <i>University of Leeds</i>	Beyond the lubrication approximation: multiscale bearing design	£88,965 (24)
Dr Roy Sanderson <i>Newcastle University</i>	Impact of organic agriculture on viability and behaviour of bumblebees	£90,411 (24)

Basic sciences

Dr Matthew Gaunt <i>University of Cambridge</i>	A 'retrobiosynthesis' blueprint for the complex molecule synthesis	£157,332 (36)
Dr Robin Allaby <i>University of Warwick</i>	Elucidating the genetic expectations of protracted crop domestication	£136,076 (36)
Professor Peter McClintock <i>University of Lancaster</i>	Supersolidity of crystalline helium	£228,367 (36)
Professor Carlo Barenghi <i>Newcastle University</i>	Visualization of quantum turbulence by Andreev reflection	£121,308 (36)
Professor Malcolm Levitt <i>University of Southampton</i>	Singlet nuclear magnetic resonance from theory into practice	£249,958 (36)
Dr Cecile Dreiss <i>King's College London</i>	Enzymatically cross-linked gelatin/chitosan gel scaffolds for tissue repair	£190,037 (36)
Professor Brian Huntley <i>University of Durham</i>	Modelling species' dynamic responses to environmental change	£249,522 (36)
Professor Anthony G M Barrett <i>Imperial College London</i>	4-Directional synthesis and the conversion of simple adamantanes to nanodiamonds	£153,122 (36)
Dr Jennifer Patience <i>University of Exeter</i>	Expanding the frontiers of extrasolar planet research	£177,889 (36)
Professor Martin Buck <i>Imperial College London</i>	Control of a plant pathogen's secretion system by heteromeric regulator	£194,342 (36)
Dr Thomas Neukirch <i>University of St Andrews</i>	Equilibrium and dynamics of collisionless current sheets	£109,109 (36)
Dr Tracey Chapman <i>University of East Anglia</i>	Males are choosy too: the importance of male mate choice in determining fitness	£151,850 (36)
Professor John Allen <i>Queen Mary, University of London</i>	Why do chloroplasts and mitochondria retain their own genetic systems?	£235,998 (36)
Dr Chittur Srinivasan <i>University of Reading</i>	Intellectual property rights and innovation in UK agriculture	£91,183 (24)
Dr Anthony Isles <i>Cardiff University</i>	Genomic imprinting and risk-taking behaviour	£67,059 (36)
Dr Stephen Brown <i>University of Liverpool</i>	Fuzzy representations of risk in alcohol users	£25,344 (12)
Dr Gretchen Benedix <i>Natural History Museum</i>	Using meteorites to study early solar system differentiation processes	£89,518 (24)

Economics, business studies, industrial relations

Dr Klaus Schaeck <i>Bangor University</i>	Bank distress, regulatory intervention, and liquidity creation	£23,902 (9)
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Humanities

Dr Margaretta Jolly <i>University of Sussex</i>	Sisterhood and After: the women's liberation oral history project	£325,526 (36)
Dr Jessica Malay <i>University of Huddersfield</i>	Anne Clifford's Great Books: a transformative narrative of identity and place	£156,274 (36)
Dr Jacqueline Stedall <i>University of Oxford</i>	Topics in the history of the algebraic theory of semigroups	£130,286 (36)
Dr Chris Thornton <i>University of Sussex</i>	Theoretical explanation of the cognitive foundations of creativity	£123,557 (36)
Dr Neal Spencer <i>British Museum</i>	Health and diet in ancient Nubia through political and climate change	£213,233 (36)

Dr Catherine Eagleton <i>British Museum</i>	Money in Africa	£228,671 (36)
Professor Gert Vonhoff <i>University of Exeter</i>	The evolution of bourgeois and non-bourgeois German prose fiction after 1850	£156,672 (36)
Professor Martin Jones <i>University of Cambridge</i>	Pioneers of Pan-Asian contact: early farmers and the trail of broomcorn millet	£140,243 (36)
Dr Abigail Williams <i>University of Oxford</i>	Digital index of eighteenth-century poetic miscellanies	£205,299 (36)
Dr Amira Bennis <i>University of Cambridge</i>	Political legitimacy in the medieval and early modern Islamic west	£80,692 (24)
Dr Andrew Stewart <i>University of Manchester</i>	The representation of conditional information during comprehension	£42,181 (12)
Professor Ann Rosalie David <i>University of Manchester</i>	Social stratification and physical health in an ancient Egyptian population	£57,100 (36)

Law, politics, international relations

Dr Luis Lobo-Guerrero <i>University of Keele</i>	Capitalising security through life insurance in the UK	£71,989 (18)
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Social studies (incl. anthropology, geography, social psychology)

Professor Harriet Bradley <i>University of Bristol</i>	Paired Peers: the impact of class on student university experience	£250,772 (36)
Dr Alex Mesoudi <i>Queen Mary, University of London</i>	Human cultural transmission: from psychology lab to the artefactual record	£115,964 (36)
Dr Irene Bruna Seu <i>Birkbeck College</i>	Mediated humanitarian knowledge, audiences' responses and moral actions	£232,211 (36)
Dr Magnus Marsden <i>School of Oriental and African Studies</i>	Islam, trade and citizenship on the frontiers of Central and South Asia	£201,719 (36)
Dr Emily Keightley <i>Loughborough University</i>	Media of remembering: photography & phonography in everyday remembering	£106,810 (36)
Dr Simon Szreter <i>University of Cambridge</i>	Housing, mobility and the measurement of child health from the 1911 Irish census	£136,224 (24)
Dr Ulrich Weger <i>University of Kent</i>	Practicing mindfulness as a strategy to prevent premature judgments	£48,475 (12)

International Networks

Applied sciences (including architecture)

Dr J M Gregg <i>Queen's University of Belfast</i>	Network on nanoscale ferroelectrics	£120,694 (36)
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Humanities

Professor Nicholas Boyle <i>University of Cambridge</i>	The impact of Idealism	£111,041 (36)
Professor Jessica Brown <i>University of St Andrews</i>	Philosophical methodology	£58,351 (36)

Law, politics, international relations

Dr Mark Somos <i>University of Sussex</i>	Anti-Machiavellian Machiavellism	£45,933 (22)
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Artists in Residence

Alyson Sarah Hallett <i>Department of Geography, University of Exeter</i>	Poetry	£12,500 (9)
Allan Thomas Sutherland <i>Centre for Citizen Participation, Brunel University</i>	Poetry	£12,495 (9)
Sara Rees <i>Welsh School of Architectural Glass, Swansea Metropolitan University</i>	Mixed media installations	£10,000 (12)
Ronald Athey <i>Department of History, Queen Mary, University of London</i>	Performance/theatre arts	£12,456 (5)
Rachel Oxley <i>Electronic Engineering and Computer Science, Queen Mary, University of London</i>	Performance/installation	£12,397 (12)
Sari Lievonon <i>Department of Theology and Religious Studies, University of Glasgow</i>	Visual arts	£12,500 (10)
Rastko Novakovic <i>School of Slavonic and East European Studies, University College London</i>	Moving image	£12,493 (10)

Mary Kuper <i>Faculty of Arts, University of Winchester</i>	Illustration	£12,400 (12)
Paul Evans <i>School of History and Archaeology, Cardiff University</i>	Painting/drawing	£12,500 (10)
Anne-Mie Melis <i>School of Biosciences, Cardiff University</i>	Visual arts	£12,500 (10)
Ruth Barker <i>School of Historical Studies, Newcastle University</i>	Text and narrative arts	£12,500 (10)

Major Research Fellowships

Law, politics, international relations

Professor Trevor Allan <i>University of Cambridge</i>	The common law constitution of liberty	£95,263 (24)
Professor Diana Coole <i>Birkbeck, University of London</i>	Too many bodies? The politics and ethics of the world population question	£139,653 (36)
Professor Nicola Phillips <i>University of Manchester</i>	Trafficking, forced labour and the contemporary UK economy	£137,617 (36)
Professor Julian Roberts <i>University of Oxford</i>	Structured sentencing in England and Wales	£95,713 (24)
Professor Christopher Wilson Brooks <i>Durham University</i>	Oxford history of the laws of England 1625-1689	£125,941 (36)

Humanities

Professor Madawi Al-Rasheed <i>King's College London</i>	The masculine state: gender, religion and politics in Saudi Arabia	£86,845 (24)
Professor John Barton <i>University of Oxford</i>	Ethics in ancient Israel	£148,794 (36)
Professor Jeremy Black <i>University of Exeter</i>	Information and the making of the modern world 1450-2000	£87,382 (24)
Professor John Blair <i>University of Oxford</i>	People and places in the Anglo-Saxon landscape	£149,720 (36)
Professor Malcolm Heath <i>University of Leeds</i>	Aristotle and the anthropology of poetry	£82,195 (24)
Professor John Hyman <i>University of Oxford</i>	After the Fall	£91,758 (24)
Professor Neil Kenny <i>University of Cambridge</i>	Choosing tenses for the dead: French and Latin resuscitations, 1530-1630	£96,823 (24)
Professor Peter Kitson <i>University of Dundee</i>	Britain, China and the Far East: representation and exchange, 1760-1845	£85,310 (24)
Professor Simon Newman <i>University of Glasgow</i>	Labour and race: working the slave trade in the British Atlantic World	£86,296 (24)
Professor David Rollason <i>Durham University</i>	The power of place in medieval kingship	£129,339 (36)
Professor Sarah Toulalan <i>University of Exeter</i>	Children and sex in early modern England: knowledge, consent, abuse, c.1550-1750	£81,226 (24)
Professor Arne Westad <i>London School of Economics and Political Science</i>	The Cold War: a new international history	£109,235 (24)
Professor Edward Chaney <i>Southampton Solent University</i>	Polytheism and its discontents: cultural memories of Egypt in England.	£86,841 (24)
Professor Clair Wills <i>Queen Mary, University of London</i>	The Irish in Britain: a social and cultural history 1945-1965	£158,480 (36)

Social studies (incl. anthropology, geography, social psychology)

Professor Robin Blackburn <i>University of Essex</i>	Slavery and emancipation in the United States, Cuba and Brazil, 1815-60	£153,888 (36)
Professor Felix Driver <i>Royal Holloway, University of London</i>	The visual culture of exploration	£162,858 (36)
Professor John Gledhill <i>University of Manchester</i>	Security for all in the age of securitization?	£136,995 (36)
Professor Andrew Jordan <i>University of East Anglia</i>	Governance for climate change: the sources of and obstacles to policy innovation	£157,224 (36)

Economics, business studies, industrial relations

Professor Chris Grey <i>University of Warwick</i>	A Secret History: the organisation of Bletchley Park	£106,756 (24)
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Fine and Performing Arts

Professor Alan Read <i>King's College London</i>	Engineering Spectacle: Inigo Jones' past and present performance at Somerset House	£145,067 (36)
Professor Rene Weis <i>University College London</i>	The genesis of 'La traviata'	£151,099 (36)