2015 ANNUAL REVIEW

The Leverhulme Trust

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INTRODUCTION

The Leverhulme Trust was established by the Will of William Hesketh Lever, one of the great entrepreneurs and philanthropists of the Victorian age

Since 1925 we have provided grants and scholarships for research and education; today, we are one of the largest all-subject providers of research funding in the UK, distributing approximately £80 million a year

We award funding across academic disciplines, supporting talented individuals in the arts, humanities, sciences and social sciences to realise their personal vision in research and professional training. As well as substantial grants for research projects, we offer fellowships for researchers throughout their academic career, grants for international collaboration and travel, and support for the fine and performing arts.

Our approach to grant-making is distinctive. Our awards are made in the responsive mode, with the choice of topic and research design left with applicants. We look for work of outstanding merit, which is original, important, and has significance beyond a single field. We particularly value research that crosses disciplinary boundaries or that is willing to take risks in its pursuit of new knowledge or understanding.

CHAIRMAN'S FOREWORD

I am pleased to report that the Leverhulme Trust continues to be in excellent financial health. In 2015 we distributed almost £110 million in grants – a record for the Trust – to support research projects, fellowships, scholarships and international collaborations. As in previous years, these varied considerably in size, from relatively small awards for postgraduates at the start of their careers through to large grants of up to £10 million each.

This year saw an exciting new initiative come to fruition with funding being awarded to four dedicated Leverhulme Research Centres. Applicants to this competition were encouraged to propose a ten-year vision for innovative research which would create a step-change in the chosen field of inquiry and establish internationally-recognised centres of research excellence in the UK. Four such Centres have been commissioned at the Universities of Cambridge, Dundee, Liverpool and Sheffield, to pursue widely interdisciplinary research in the fields of artificial intelligence, forensic science, functional materials, and climate change mitigation. Each has been awarded a grant of £10 million over ten years, the first time that the Trust has offered such large-scale grants, and we look forward eagerly to following the progress of the research teams.

The Trust runs one of three annual £10 million competitions on a rotating basis. In 2015 it was the turn of our Arts Scholarships, which provide bursaries and innovative teaching awards for training in the fine and performing arts. We received a large number of bids from a wide range of institutions throughout the UK, spanning the fields of drama, dance, music and even circus arts, and made awards to 59 different organisations which will help train a range of talented and aspiring young performers.

2015 was also a landmark year for us as we awarded our 1000th Early Career Fellowship – to Dr Lauren Brent at the University of Exeter. The scheme was set up in 1994 to provide a crucial bridge between doctoral studies and a first academic post. This has become a flagship scheme for the Trust, as access to permanent academic posts has become more difficult, and support in making the first steps ever more important. In partnership with host institutions the Early Career Fellowship scheme has leveraged over £100 million and helped the next generation of researchers find their way into established academic careers. We celebrate some of the success stories of these first 1,000 Fellows in the What Happened Next section of the Review.

We anticipate that 2016 will also be exciting, as we run another of our large £10 million competitions – the Research Leadership Awards. The scheme supports researchers with an established university career who wish to build a research team to address a distinct research problem. Up to £1 million over five years is available for each of these awards – so they are much sought-after by the rising research stars of the coming years.

At a personal level, I have thoroughly enjoyed this (my third) year as Chairman of the Board, in no small measure because of the support I have received from my fellow Trustees, the Director and his small but hard-working team, who share my enthusiasm and affection for the Trust – and my admiration for the many talented researchers whose remarkable work it is a privilege to be able to support.

Niall FitzGerald KBE
Chairman of the Leverhulme Trust Board

In partnership with host institutions the Early Career Fellowship scheme has leveraged over £100 million and helped the next generation of researchers find their way into established academic careers

HISTORY OF THE LEVERHULME TRUST

A committed philanthropist throughout his life, on his death in 1925 Lord Leverhulme left a proportion of his holdings in Lever Brothers for certain trades charities and to provide 'scholarships for… research and education'. It was thus that the Leverhulme Trust came into being

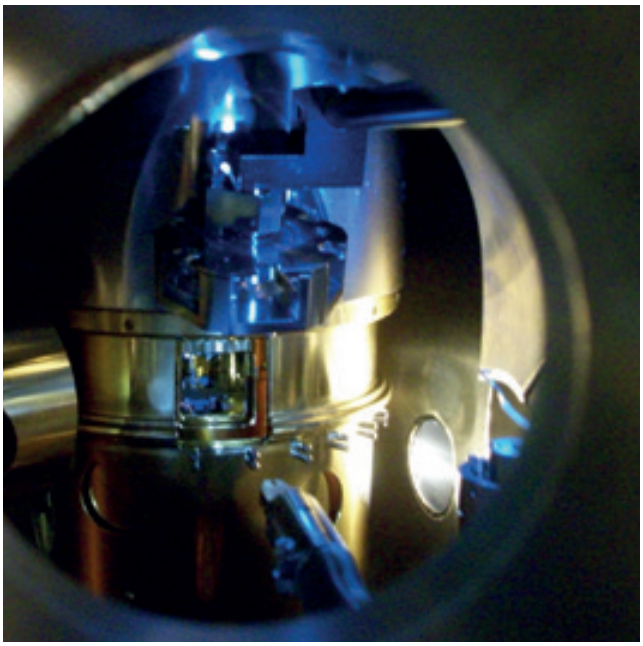
Born in 1851, William Hesketh Lever made his fortune through the manufacture and marketing of soap and cleaning products. In the space of only a few years his company Lever Brothers grew to become a household name, and its products, which included Sunlight Soap and Lux, were sold around the world. The title 'Lord Leverhulme' was conferred upon Lever in 1922. A committed philanthropist from the beginning, when Lord Leverhulme died in 1925 he left a share of his holdings in his company to provide for specific trades charities, and to offer 'scholarships for… research and education'. The Leverhulme Trust was established to carry forward these charitable aims. In 1930, Lever Brothers merged with Margarine Unie to form Unilever – one of the world's major multinational companies – and the shares held by the Leverhulme Trust became shares in Unilever PLC.

The Trust Board

In making decisions about funding, the Trustees seek the advice of a range of peer reviewers and expert panels or committees who offer an assessment of the academic merit and significance of applications.

Trustees

Mr N W A FitzGerald, KBE FRSA (Chairman)
Sir Iain Anderson, CBE FRSE
Mr D Baillie (from 7 October 2015)
Mr A C Butler
Mr P J P Cescau
Dr A S Ganguly CBE (until 7 October 2015)
Mr R Markham
Mr P Polman
Mr C Saul (from 24 June 2015)
Mr S Williams



FUNDING THE TRUST OFFERS

Research projects

Research Project Grants are available for any research topic, with the choice of theme and research approach left entirely to applicants. Up to £500,000 over five years is available for research and salary costs.

Research Leadership Awards support researchers with an established university career who wish to build a research team to address a distinct research problem. Between £800,000 and £1 million over four to five years is available. This scheme normally runs every three years.

Fellowships and Studentships

Early Career Fellowships provide a bridge into an academic career for researchers with a proven research record, but who have not yet held an established academic post. The scheme provides fifty per cent (up to £24,000 a year) of the salary costs of a three-year academic appointment, with the host institution providing the remaining funds.

Research Fellowships of up to £50,000 over a period of three to twenty-four months are awarded to experienced researchers to allow them to undertake a programme of original research.

Major Research Fellowships are for two or three years, and allow well-established academics in the humanities and social sciences to complete a specific piece of significant original research.

Emeritus Fellowships provide up to £22,000 over up to two years for senior researchers who have recently retired from an academic post to complete a research project and prepare the results for publication.

Study Abroad Studentships offer maintenance costs of £18,000, a dependent allowance, and travel costs for recent graduates to spend twelve to twenty-four months on study or research at a centre of learning in any overseas country, with the exception of the USA.

International Academic Fellowships enable established researchers to spend a period of time in overseas research centres, to develop new knowledge, skills and ideas. Up to £40,000 is available for a period of three to twelve months.

Visiting Professorships are awarded to UK institutions that wish to invite an eminent researcher from overseas to enhance the skills of staff and students at the host institution. The scheme covers maintenance, travel expenses and research costs over a period of three to twelve months.

Leverhulme Doctoral Scholarships provide grants of £1 million each to UK universities. Each award funds 15 doctoral students at that institution, with five scholarships to be offered in every year of the three-year grant. The awards are offered in any subject area that applicant universities have identified as a research priority. This scheme normally runs every three years.

Philip Leverhulme Prizes recognise early-career researchers whose work has already had a significant international impact, and whose future research career is exceptionally promising. Nominations are accepted for work across 18 broad disciplines, with prizes in six of these disciplines offered each year. Prize winners receive an award of £100,000 over two or three years.

Arts Funding

Artist in Residence Grants support the residency of an artist in a UK university or museum, for up to a full academic year, in a creative collaboration with staff and/or students in disciplines distinct from the creative practice of the artist.

Arts Scholarships are open to specialist arts training organisations to develop innovative teaching and to provide bursaries for individuals of exceptional talent to develop their skills in the fine and performing arts. This scheme normally runs every three years.

For further information about the funding schemes offered by the Leverhulme Trust, please visit www.leverhulme.ac.uk

DIRECTOR'S REPORT

Another busy and enjoyable year has simply flown by.

Application numbers have continued to rise. We now process well over 4,000 bids for funding each year. To be precise, in 2015 the Trust staff of 14 people dealt efficiently with 4,330 proposals, whilst at the same time stewarding more than 2,500 live grants. Somehow, my colleagues also found time to fulfil a generous programme of visits to universities, arts training and other research organisations, in order to support our award holders and talk to other interested parties about the work of the Trust. Add in the various networking events that provide for regular contact between Trustees and senior figures in the worlds of research and higher education, our annual reception and lecture, oversight of the Trust endowment, liaison with myriad other inhabitants of the research funding eco-system in the UK – and one is led almost to a slip-of-the-tongue reference to the Leverhulme Tardis rather than the Leverhulme Trust. This appears on the outside to be a small organisation – but, on the inside, at times truly it does seem to embrace cavernous activity.

In his Foreword the Chairman refers to our major initiatives and larger awards. These share with the Trust's more modest schemes our enthusiasm for supporting the aspirations of individual researchers to pursue curiosity-driven, higher-risk and often cross-disciplinary work, via the responsive mode of funding.

This approach is exemplified in what many regards as is the 'core business' of the Trust – our Research Project Grants scheme. This provides for awards of up to £500,000 over five years, with the choice of topic and approach left entirely up to the applicant. The great variety of projects that is supported can be seen from the list that appears in the Awards Made section of this Review.

Our Philip Leverhulme Prize competition is also designed to recognise the innovation and excellence of individual researchers pursuing their scholarly passions. These awards are for early-to-mid career scholars who have already made a substantial impact with their research but where we hope that their best work is yet to come. Each prize is now worth £100,000, and since we offer prizes in 18 broad subject areas over a three-year period, researchers in every discipline should be able to apply at some point during the triennial cycle. This year our six expert panels dealt with more than 320 very high-quality applications, making the task of selecting just 30 winners a considerable challenge. Our investment of £3 million will help the prize winners to advance their research in fields as diverse as earth sciences, psychology, and visual and performing arts.

Visiting Professorships, bringing distinguished overseas-based academics to UK universities, remain highly competitive and popular. In 2015 almost £1.3 million was allocated to enable eminent researchers to visit the UK and bring their distinctive expertise to the wider academic community. Visiting Professors are truly international, coming from North and South America, the Middle East and Australia and New Zealand, as well as from Europe – and the focus of their interests ranged from sexual rights to food systems analysis and theoretical physics.

At the other end of the spectrum, we are helping twenty talented Study Abroad Students embark on masters courses, doctoral research and postdoctoral work, as they pursue their postgraduate careers abroad. Their subjects and destinations range from paleobiology in Finland to living with conflict in the Democratic Republic of the Congo and the social construct of childhood disability in Egypt.

Finally, I wish to offer my thanks, as always, to the many panel members, reviewers, assessors and advisors who give so generously of their time and expertise, to support the work of the Trust. I say this every year – but the gratitude on each occasion is no less genuine for that and is expressed on behalf of the Trustees as well as myself and my colleagues. Without such generosity of spirit the Trust would be unable to function.

Professor Gordon Marshall

SUMMARISED FINANCIAL INFORMATION

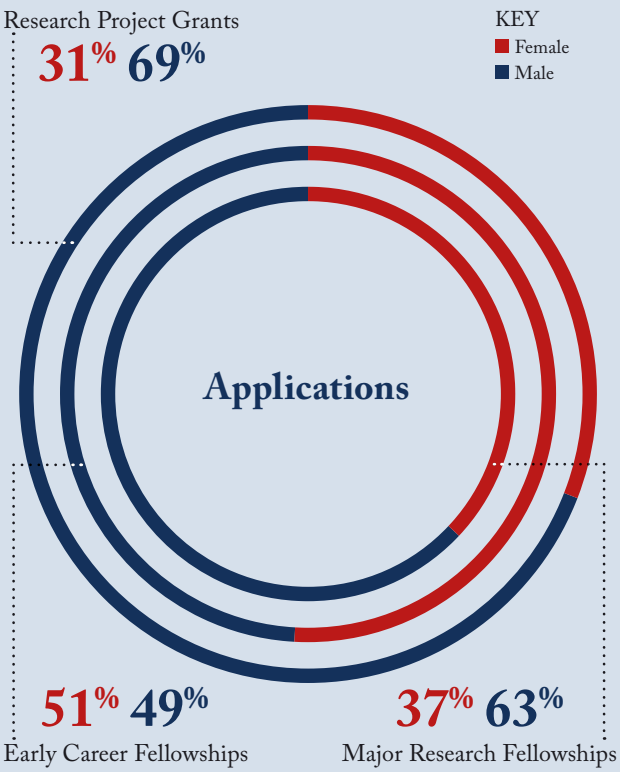
For the year ended 31 December 2015

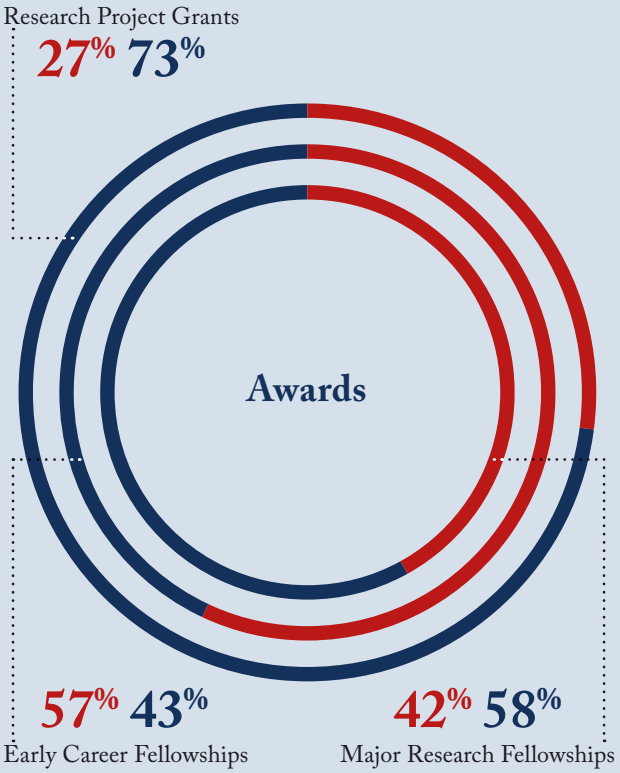
		2015	2014
		£000	£000
Income from:	Investment income	74,131	78,877
Expenditure on:	Investment management costs	1,806	1,683
	Charitable activities	110,838	83,181
Net expenditure before net gains on investments		(36,707)	(6,070)
	Net gains on investments	207,428	122,112
Net income and net movement in funds		170,721	116,042
Statement of funds	Total funds brought forward	2,143,755	2,027,713
	Total funds carried forward	2,314,476	2,143,755

This information is taken from the Leverhulme Trust Annual Report and Financial Statements 2015, which are available to download from the Charity Commission website or on request from the Trust.

2015 IN NUMBERS

Gender split





14
Staff

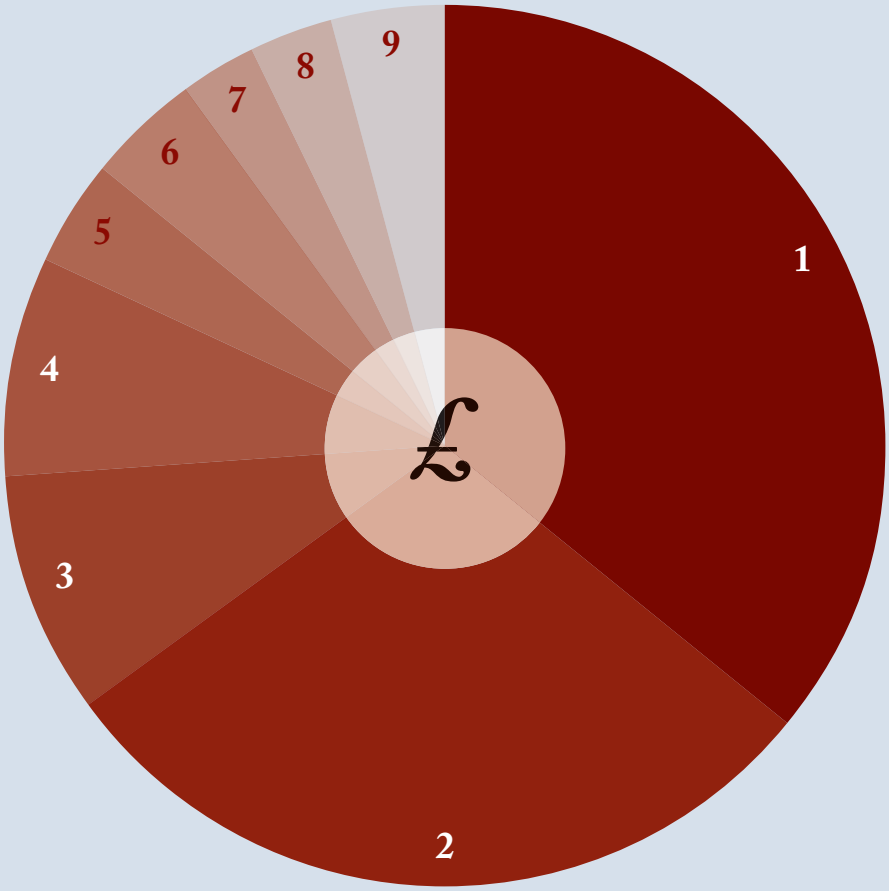
157
Institutions funded

645
Grants awarded

4,330
Applications received

13,514
Peer reviews received

Distribution of funds in 2015



1 Leverhulme Research Centres – £39,903,382 **36%**
2 Research Project Grants – £32,273,240 **29%**
3 Arts Scholarships – £9,843,999 **9%**
4 Early Career Fellowships – £9,270,000 **8%**
5 Major Research Fellowships – £4,252,207 **4%**
6 Research Fellowships – £3,905,247 **4%**
7 International Networks – £3,172,519 **3%**
8 Philip Leverhulme Prizes – £3,000,000 **3%**
9 Other* – £4,269,841 **4%**

* *including Artist in Residence Grants, International Academic Fellowships, Emeritus Fellowships, Study Abroad Studentships, Visiting Professorships*

Application success rates

	Applications received	Success rate %
Research Project Grants & International Networks	1099	19
Early Career Fellowships	737	14
Research Fellowships	664	14
Philip Leverhulme Prizes	328	9
Major Research Fellowships	231	14
Visiting Professorships	135	28
Study Abroad Studentships	132	15
Emeritus Fellowships	70	46
International Academic Fellowships	36	31

AWARDS IN FOCUS

Written by current award holders, and spanning a range of funding schemes and academic disciplines, our awards in focus highlight the breadth and significance of research funded by the Trust in 2015

PHOTOGRAPHING TUTANKHAMUN: THE CAMERA, THE KING, AND EGYPTIAN ARCHAEOLOGY

How did photography inform method and interpretation at every stage of perhaps the most famous archaeological excavation? Christina Riggs proposes to use the Tutankhamun photographic archives to explore the interface between photography and Egyptian archaeology at a pivotal time for both

Dr Christina Riggs
University of East Anglia
Research Fellowship

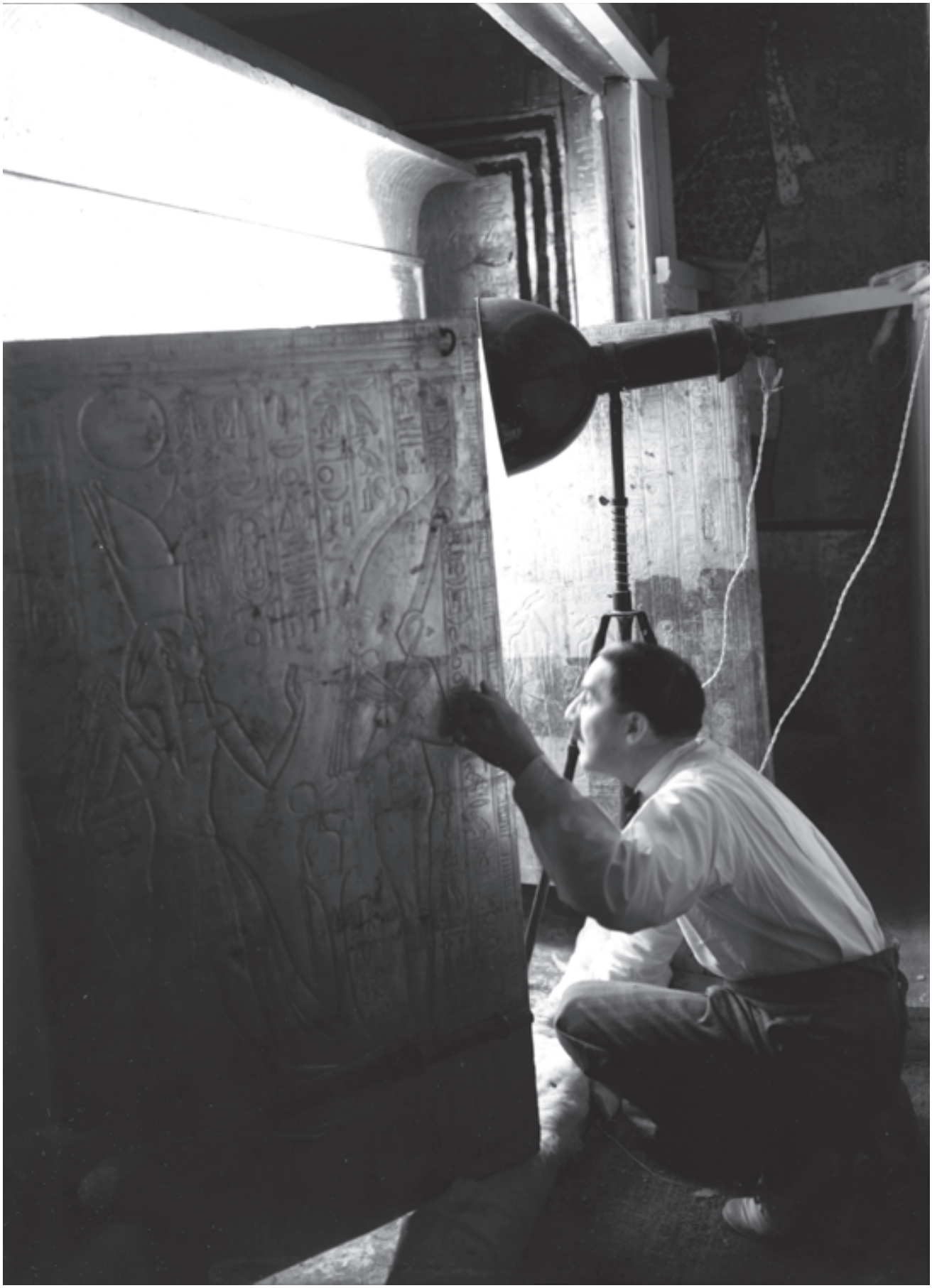
It was the archaeological find of the century, bringing the glint of gold into a world still tarnished by the effects of war: the tomb of a little-known Egyptian king named Tutankhamun. The international press followed every detail of the 1922 discovery – and images taken by the excavation's official photographer, Lincolnshire-born Harry Burton (1879–1940), transported the distant Valley of the Kings into magazines, papers, and newsreels around the globe.

The calibre and quantity of Burton's photographs were remarkable at the time, as was the control that lead excavator Howard Carter (1874–1939) and his team exerted over their reproduction in the press, in particular a controversial arrangement giving priority to the London *Times*. As a result, the black-and-white images of the excavation, capturing the gradual revelation of the boy-king's burial, are among the most visually compelling photographs in the history of archaeology – and were instrumental in mythologising a discovery that retains its power to capture headlines today.

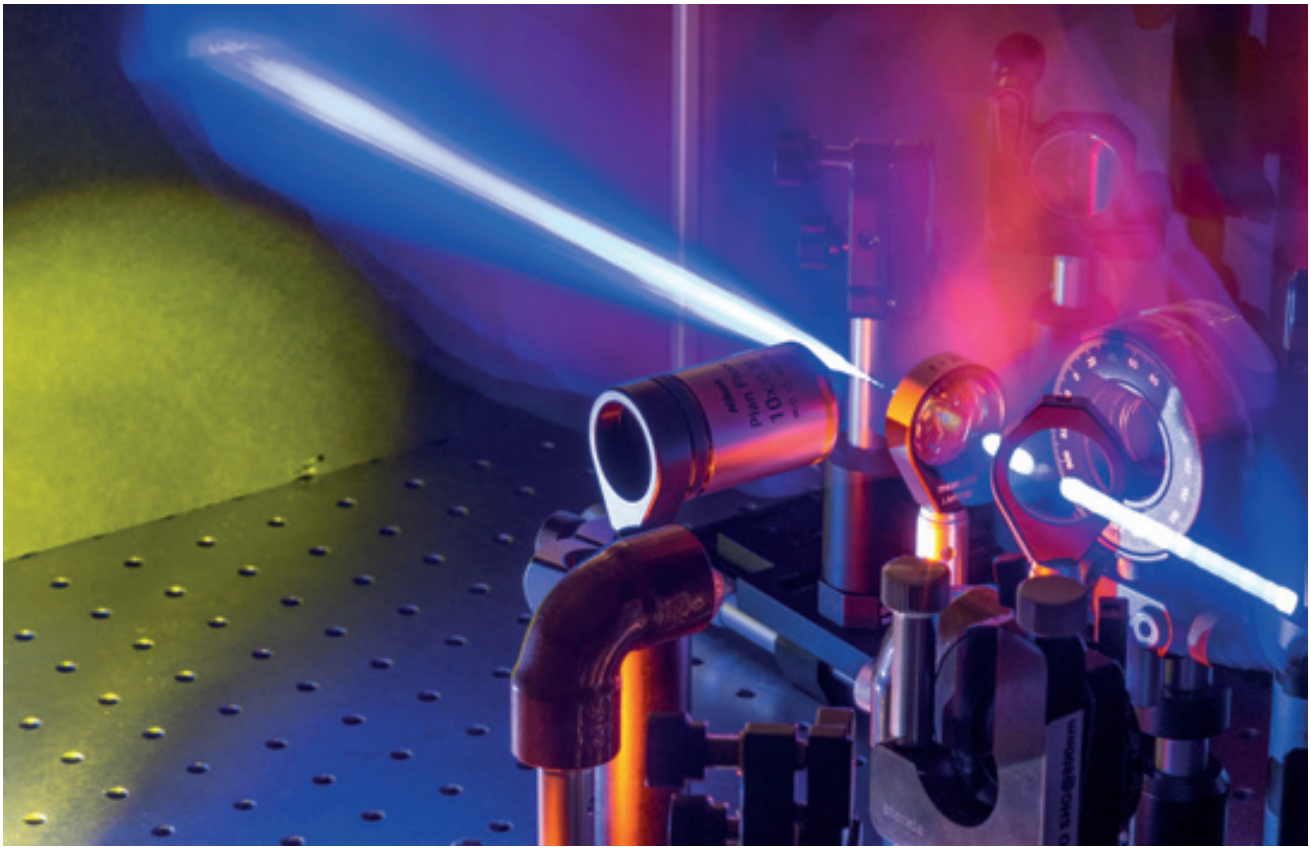
For all that is distinctive about the Tutankhamun find, its photographs, and its fever-pitched media interest, it also raises a number of questions about the use of photography in archaeology. Like many other academic fields, archaeology had been quick to adopt photography in the nineteenth century, when the new technology echoed archaeology's self-conscious concern with salvage, loss and preservation. But images like Burton's reveal recurring tensions between photography as 'objective' record and 'artistic' composition. One staged image showed Carter peering through a doorway in flickering lamplight, as if caught uttering his well-known phrase, 'I see wonderful things'. But behind the door was another sealed door: the camera's lens was trained on posterity as much as the ancient past.

'Photographing Tutankhamun' is the first study of the photographic archive associated with this excavation, which ran for ten years and produced some 3000 images, most by Burton but some by Carter and other team members as well. Housed at the University of Oxford and the Metropolitan Museum of Art, the archive comprises original glass plate negatives, copies of negatives and prints, photograph albums, and the lantern slides Carter used to deliver lectures. The project draws on months of archival research to examine the working methods used to photograph and record the tomb, and the ways in which photography contributed to archaeology in a newly independent Egypt. The style of the photographs set up the tomb and its contents as significant works of 'art' and laid claim to them as heritage – but whose heritage remains a question that reverberates today, when more cameras than ever are trained on the boy-king.

Right. Photographed by Harry Burton in late December 1923, Howard Carter crouches before the open doors of the second (of four) gilded wooden shrines surrounding the burial of king Tutankhamun. The portable electric lamp was an important light source for photography in the tomb © Griffith Institute, University of Oxford.



FUNDAMENTALS OF LIGHT: FROM COSMOLOGICAL MODELS TO NOVEL IMAGING TECHNOLOGIES



Light is a key element that underpins a variety of research fields; Daniele Faccio will investigate the fundamental physics of light, carrying forward recent successes in unveiling new and unexpected features, such as superfluidity and the creation of artificial black holes

Left. High-energy laser beams are used to create ultrafast modulations in materials which allow us to study the behaviour of light coupled to matter under extreme conditions, image credit: Daniele Faccio.

Professor Daniele Faccio
Heriot-Watt University
Philip Leverhulme Prize

Light surrounds us, it allows us to see, it provides us with heat and the planet with energy. It is also one of the main investigative tools for a scientist and, arguably, it is light that mainly determines how we perceive and interact with our surroundings. My research builds upon my past experience and work in the field of photonics and aims to investigate both the fundamental nature of light and also novel technologies that are enabled by a deeper understanding of light.

I have recently collaborated with fellow researchers to show that single photons of light do not necessarily propagate at c, the commonly accepted speed for plane waves of light predicted by Maxwell's equations. Although the measured difference may be small, this has implications regarding our understanding of how light and information travels and also relates to the quantum world where single photons are used to probe the very nature of spacetime itself.

I am currently developing new technologies that allow us to measure light at its lowest possible intensity, at the single photon level. These technologies come with a remarkable feature: they allow us to reconstruct the photon arrival time with incredible temporal precision and therefore effectively capture 'light in flight'. This feat of imaging or freezing light in motion as it propagates in free space had never been achieved before, and it is now providing us with a new way of thinking about light and about what we can do with light. One particularly promising proposal in this context is the use of light to see behind walls or around corners where we use the ability to freeze light in motion to capture very faint echoes (of light) reflected by hidden objects. This line of thinking may one day allow us to harness this technology to even use light to image directly inside the human body.

I am also investigating what happens in a completely different scenario where, instead of a single photon, we have a very dense cloud composed of many photons. At sufficiently high photon densities, light behaves like a superfluid with remarkable properties and implications. For example, I have shown that just like a standard superfluid, superfluid-light will flow around obstacles without creating waves or at high flow speeds it will break up into spinning vortices. We can now use these photon superfluids for more esoteric applications. For example, by shaping the flow of the superfluid we can try to mimic the spacetime geometries of gravitational fields, and hopefully in the very near future, make artificial black hole event horizons. These experiments will allow us to probe the nature of the interaction between curved spacetime geometries and the quantum world, thus providing insight into one of the major open questions in modern physics – how does the quantised quantum world merge with the continuous spacetime structure created by gravity?

THE HOUSE OF STORIES: PAULA REGO'S FEMINIST MAKING

Paula Rego is one of our most eminent living artists; Deryn Rees-Jones' new monograph will bring insights from literary studies to address questions about gender and artistic process, the relationship between the visual and literary arts, and the impact of Rego's work on feminist creative practice

Professor Deryn Rees-Jones
University of Liverpool
Major Research Fellowship

I have been an admirer of the work of the Portuguese London-based artist Paula Rego (b. 1935) for more than twenty-five years. Although most of my critical writing to date has focussed on contemporary women's writing, I have always had a strong interest in the visual arts, and been fascinated in turn by poems which draw on, and engage with, paintings. I realised recently that I have turned to Rego's work at some of the most significant and even difficult points in my life. I used *Crivelli's Garden* (which sits wonderfully as a backdrop to the National Gallery restaurant from the time when Rego was their first associate artist) as the cover of my book on twentieth-century women's poetry, *Consorting with Angels*. In my other life as a poet I have also written poems inspired by her pictures, most recently in response to her extraordinary series of *Dog Woman* pastels. Clearly there was something in her work that spoke to me in deep and sustaining ways, but increasingly I began to want to explore the way Rego's practice (which might be seen as the reverse of ekphrastic writing in its engagement with a range of fairy tales and nursery rhymes, novels, poems and plays) had a broader relevance to women artists and writers. I will also examine the history of the sometimes rivalrous conversations between literary and artistic worlds.

At the heart of Rego's work is drawing, which, at a significant point in her work in the 1980s – after the death of her husband, the artist Victor Willing – became entwined with her ongoing dialogue with narrative: notable examples include her lithographs and pastels which respond to Charlotte Brontë's *Jane Eyre*, the Portugese novelist Eça de Quierós' *The Crime of Father Amaro*, and *The Pillowman* by the Irish playwright Martin McDonagh. Rego's process of composition, in which she works closely with her models, many of whom are close family and friends, to create a series of tableaux, is central to her work. This ongoing dialogue with both her models, and with what she has called the 'endless' nature of stories, is again layered by her constant referencing and reinterpretation of the Old Masters (Goya, Hogarth, Degas and Manet to name only a few).

In dealing with difficult subjects Rego's interest in 'power games and hierarchies' has seen her fearless in her exploration of sexuality, pain and the cruelties of everyday life. In our encounter with the many challenges and complexities of her art we are asked to read situations that flaunt their ambiguities, challenging where we, as viewer, locate ourselves within narratives of secrecy, hypocrisy, transgression and desire. The book that will come out of this research will give a detailed overview of Rego's career over sixty years, tracing her development from her early collages, her evolving use of animal imagery, to her more recent method of using a range of grotesque and homemade mannequins alongside her life models. It will ask why we take pleasure in her pictures, and why they might matter to us, asking, too, how her work and methods might impact on the wider ethics of a feminist creative practice.

Below. *Self Portrait with Grandchildren,* 2002 © Paula Rego, Courtesy of Marlborough Fine Art.

USING DNA TO UNDERSTAND BAMBOO AND THE COMPLEXITY OF GIANT PANDA DIET

What do giant panda eat? The answer may seem obvious, but the reality is far from simple. A research project at the Royal Botanic Garden Edinburgh, led by Pete Hollingsworth, will investigate the hidden complexity of panda diet to help inform the conservation of giant panda and their habitat

Professor Pete Hollingsworth
Royal Botanic Garden Edinburgh
Research Project Grant

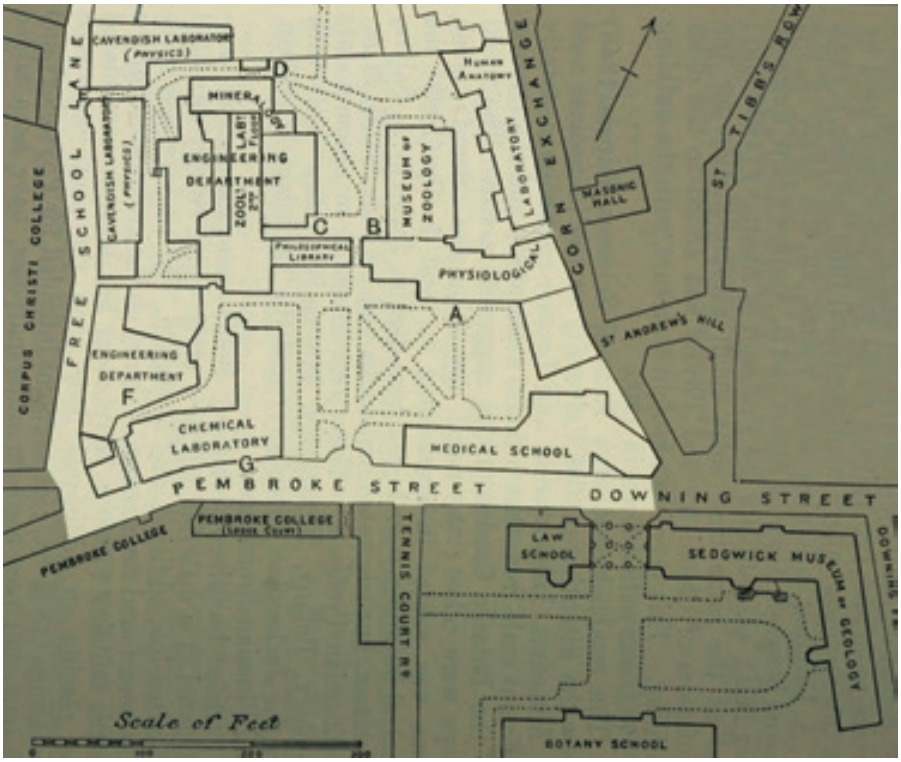
Giant pandas mainly eat bamboo. However, beneath this well-known but simplistic statement lies a complex issue: there are over sixty species of bamboo that may be fed on, and the species consumed vary according to availability, location and season, and even individuals may differ in their preferences. Furthermore, pandas occasionally eat food other than bamboo, including other plant species, fungi and even carrion.

Understanding species requirements is fundamental to their conservation. In a changing environment, the inter-dependencies among species are particularly important, as shifts in the abundance or distribution of any one species may have wider consequences on the system. One particular inter-dependency relates to diet: uncertainty about the precise species in the diet can restrict our ability to effectively conserve, manage or restore suitable habitat for a given species or set of species. This is particularly important for giant panda, as its highly specialised diet makes it susceptible to changes in resource availability due to habitat loss and changing environmental conditions.

The enigmatic nature of giant panda has captivated us for decades, and everything from their ecology and evolution to their genes and even their gut flora have been investigated. Given this interest, why don't we have a more precise understanding of their diet? Giant panda are typically solitary and difficult to observe in the wild, hampering efforts to identify the full range of species consumed. Faecal analysis can be useful for assessing diet in reclusive species, but unfortunately in the case of giant panda there is one more complication – distinguishing bamboo species is problematic, especially when digested. Even 'universal' plant DNA barcodes, which have been effectively employed in diet analysis for many species, struggle to distinguish bamboo species, only providing information on broad groups such as family or genera.

I have worked extensively in developing the science of DNA barcoding, but resolving bamboo identification for DNA-based diet analysis required a novel approach. This project brings together an international and interdisciplinary team with expertise in field botany, plant taxonomy, genetics, zoology and wildlife forensics to tackle this problem. Using genomic techniques we will significantly expand existing bamboo sequence data and identify genetic markers across the genome that can tell bamboo species apart. We will then assess diet using a combination of existing broad-brush DNA-barcodes to establish what is being eaten in addition to bamboo, and a purpose-built bamboo DNA assay to establish which bamboo species are eaten. Furthermore, by establishing a reliable method of bamboo identification, we will be able to gain increased clarification of the distribution of key bamboo species in the wild, ultimately to enhance our knowledge of what constitutes suitable panda habitat and how this may change in the future.

Right. The New Museums Site and surrounding area c.1912. Image from *A Concise Guide to the Town and University of Cambridge in an Introduction and Four Walks* (1912), p. 169.



Below. Photograph of the Perse Hall when it was used as an electrical laboratory for the University. Image © Whipple Museum of the History of Science, University of Cambridge.

THE LOST MUSEUMS OF CAMBRIDGE SCIENCE, 1865–1936

Boris Jardine's project will examine the practices of collecting, display and demonstration in the sciences in the late nineteenth and early twentieth century, contributing to our understanding not only of the history of scientific collections, but also their relationship to experimental, laboratory-based science

Dr Boris Jardine
University of Cambridge
Early Career Fellowship

Where does science happen? The lab, the field, the classroom, even at home. These answers might seem natural now, but in the nineteenth century there was another place that would have topped the list, one perhaps surprising to us as a working scientific institution: the museum. Although today museums are more often places of leisurely perusal, prior to the rise of the laboratory they were *the* scientific institutions, housing vast arrays of teaching models and demonstration apparatus, not to mention the countless specimens of the great natural history collections.

The 'New Museums Site' (NMS), at the heart of the University of Cambridge, provides a striking example of the shifting fortunes of the scientific museum. The site was named for a suite of buildings put up in the 1860s to house a complete syllabus of science. But within decades the new physics and chemistry laboratories were eating up more and more space on an increasingly cramped site. Eventually the labs won out, and now only a single part of the original museums survives.

Yet even that remnant is soon to be knocked down – the laboratory revolution and the rise of modern science in the twentieth century have put paid to the idea of a self-contained scientific site, and so the NMS is changing identity once again. The sciences have moved to greener pastures to the west of the city, and in their place a range of administrative and new institutions are springing up. Through all of these changes the Whipple Museum of the History of Science increasingly holds the key to the memory of what the site has been over the years. Appropriately enough it is the Whipple – and the Department of History and Philosophy of Science which houses it – that will host my Leverhulme-funded project.

Over three years I plan to write the first history of the New Museums Site, bringing together the institutional and architectural histories of the various departments that have been there over the past hundred and fifty or so years. My main focus will be on the original 'New Museums', whose collections have been dispersed and whose buildings are now all but lost. This is, in part, an attempt to recover what it meant to do science with collections in the nineteenth century, and in part, an investigation into the nature of a scientific 'site'. What happened to the museums when it became clear that laboratory science was on the rise? How were the collections amassed, and (just as importantly) how and why were they dispersed? Were there models for the New Museums Site (for instance at Oxford and in London), and did other universities copy what was being done at Cambridge? In answering these and other questions I hope to add to our understanding of this important and changing location, and to shed light on the relationship between objects, scientific work and the architecture that contains and gives meaning to both.

NEGOTIATING 'NORMAL' IN THE MIDST OF CONFLICT

How do people live in areas of chronic conflict, and why is violence so protracted despite the many peace initiatives? Solange Fontana aims to examine the processes and relationships that support the socio-economic strategies to help people manage risk

Left. Market day in Masisi, North Kivu, image credit: Solange Fontana.

Ms Solange Fontana
Study Abroad Studentship

Before returning to university for my doctorate, I spent over ten years as an aid worker, working mostly on livelihoods and peacebuilding in areas of chronic violence. During this time I became increasingly interested in the intersection of people's livelihood strategies, their management and negotiation of physical security (protection), and broader conflict dynamics.

My interest in this area of research stems from these experiences and two questions which have perplexed me throughout my professional life: how do people actually *live* in areas of recurrent violence? And why can violence be so persistent, despite considerable national and international investment in peacekeeping and local-level peacebuilding?

Though seemingly unrelated, I suspect that the two questions are more closely aligned than we often think. I consider violence a regular social process rather than an aberration, or a period of hiatus. As such, I assume that in order to deal with the economic and physical risks inherent in living in such contexts, people develop strategies which interact with and affect the social relations and institutions which give structure to these strategies. Prior fieldwork suggests these diverse interactions produce outcomes that may influence levels, patterns and expressions of violence.

My research focusses on North Kivu, eastern Congo – the epicentre of cycles of violence which have recurred in the region since the 1990s, and arguably since independence. Previous fieldwork suggests that there are three institutions that people regularly depend on in their daily lives – livelihood associations, their church congregations and miri, or lilikilimba (small-credit and savings groups).

The relationships that compose and link these three types of institutions is my main interest – specifically how they have evolved and changed over time and in response to their context: how people's varied affiliations connect the three types of institutions; how, why and who is excluded from them and what, potentially, are the outcomes and implications of this interaction of relationships.

Though this research is based on a single case study, it probes questions of wider resonance – through it I ask about resilience and coping in conflict; I will explore the relationship between displacement, migration and non-movement and delve into processes of social change in times of violence. By doing so, I hope to contribute to learning and policy on resilience and human mobility in conflict, as well as to our understanding of violence and civil war.

INNER LIVES: EMOTIONS, IDENTITY AND THE SUPERNATURAL, 1300–1900

Drawing on a number of disciplines, but primarily on history in different periods, Malcolm Gaskill's project will explore emotional engagement with supernatural worlds over six centuries – from witchcraft and demonism to astrology and magic

Professor Malcolm Gaskill
University of East Anglia
Research Project Grant

Witches, sorcerers, ghosts, magic… just a few of the subjects that have preoccupied me as a historian for over twenty years. They are not a hard sell to students or the general public: there is endless fascination with macabre manifestations of the occult. Yet such things, today safely packaged as horror stories or fairy tales, were once very real in the Western world, and were bound up with anxiety and terror, envy and anger, pain and death. Our ancestors were like us in many ways, but their peculiarities are striking – and studying those peculiarities is the stuff of history. Indeed, it's the main rationale behind my project, which takes a long view from the Middle Ages to the end of the nineteenth century.

If literature makes war on cliché, then history's enemy is anachronism. According to the historian Lucien Febvre, glib assumptions about past psychology are 'the worst sort of anachronism and the most insidious and harmful of all'. Pre-modern people thought differently from us, not because they were ignorant, but because their interests and ambitions, and the frame of their thinking, were different. They also inhabited a strange universe of sentiment, feeling and emotion – human attributes that, as psychologists know, do not stand distinct from, or in opposition to, cognition. Historical inner lives are often obscure, but at least trying to understand them is vital to appreciate what life was like in the past, how it changed, and who people thought they were.

The methodology for this project exploits the idea that engagement with the supernatural is a uniquely revealing source. Here we glimpse subjective understandings of existence in relation to unseen, yet deeply felt, power in the cosmos, and to more intimate contexts of experience, such as communities and households. Emotions formed a reflexive link between the self and the environment, both temporal and celestial. Moreover, casting spells, conjuring demons and calculating horoscopes were occasions when implicit beliefs were made explicit, and so left us written records to study.

These records come in numerous forms and from several centuries. My co-investigators, Dr Sophie Page (University College London) and Professor Owen Davies (University of Hertfordshire), will be examining evidence from the medieval (1300–1500) and modern (1700–1900) periods respectively, while I will be covering the early modern (1500–1700). We will explore not only change in belief and practice, but also continuity, something overlooked in linear narratives of European secularisation and enlightenment.

Sophie will mostly be working on a monograph entitled *Cosmology, Magic and Inner Lives in the Late Middle Ages*; Owen's book will be called *Popular Fears and Domestic Protection in Britain, 1700–2000*. My own contribution will be a case study about witchcraft and heresy in seventeenth-century Massachusetts, a story seething with emotion. Together, we plan to hold an international conference to investigate further the meaning of inner lives, and how they might be reconstructed, and we hope to mount an exhibition of weird and wonderful texts and objects.

www.innerlivesblog.com

Left. This engraving by Albrecht Dürer (1471–1528) is full of clues to the meaning of witchcraft in early modern minds. Here, everything natural and wholesome is inverted or reversed. The witch, old yet full of unnatural passion, flies backwards on a goat, a symbol of lust, into a storm that she herself has caused (Library of Congress, Washington DC).

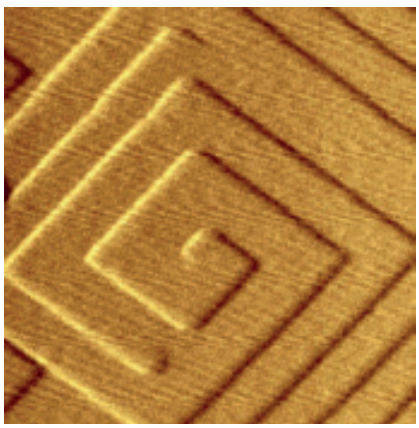
CRYSTALS WITH HOLES FOR A MORE SUSTAINABLE FUTURE

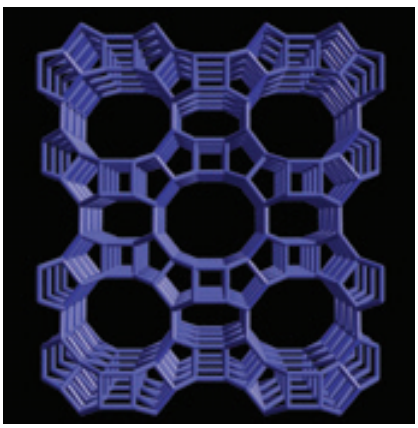
With the development of scanning probe microscopies, it is now possible to observe crystals growing and dissolving in situ; Michael Anderson aims to connect molecular scale experimental observations of the crystal growth of nanoporous materials with a high level fundamental theory in order to control this process

Professor Michael Anderson
University of Manchester
International Academic Fellowship

Everyone is familiar with crystals – diamonds and sapphires but also snowflakes, sugar and salt. Most school-children will have attempted to grow crystals, such as sugar, by dissolving as much sugar as possible into hot water and then allowing the solution to cool slowly. Beautiful, large sugar crystals then grow over the ensuing days. But beyond the obvious crystals we also use crystals in almost every aspect of our daily lives. Our computers are full of silicon chips that are crystals of silicon – the medicines that we take are, more-often-than-not, in the form of crystals – low energy lightbulbs are based on crystalline light emitting diodes (LEDs). Crystals are everywhere, and we make use of their unique properties in a myriad of strange but crucially important ways. But what is a crystal? It is a solid where the atoms or molecules that make up the solid are arranged in a very ordered and repeating arrangement in three-dimensions, just as the pattern on a wallpaper is repeated in two-dimensions. When atoms or molecules are arranged in such a fashion they often have useful properties that the individual atoms or molecules alone would not have. Also, as with everything in life, there are often mistakes in this regular pattern, and the properties at these mistakes, or defects, are usually very different to the rest of the crystal. In fact, often it is the properties of the defects that are most interesting, and this is the case in many of the electrical components in a computer.

Our work deals with one very important and unique class of crystals, known as nanoporous crystals, which have tiny pores rather like a sponge. Small molecules can enter these pores where they can react and change into other, more useful, molecules. For example oil (long-chain hydrocarbons) can be changed into gasoline (short-chain hydrocarbons) for our cars, and this catalytic transformation happens at defects in the crystals. These nanoporous crystals can also be used for gas storage such as hydrogen (important for a greener fuel supply) for the removal of carbon dioxide (important for greenhouse gas reduction) and treatment of contaminated water. This funding will enable us to formulate a partnership between leading academics at the University of Manchester, UK, and Curtin University, Perth, Australia, to develop new methods, both experimental and theoretical, to understand how such crystals grow from water solution (similar to the sugar crystals) and how defects can be controlled in order to tune properties. We will also gather the world's experts in Perth for a discussion/workshop to explore the latest developments in this area. If successful, this work will result in more energy-efficient catalysts, cleaner water supplies (particularly in developing countries), better delivery of medicines to the body, and better materials to reduce carbon dioxide in the atmosphere and alleviate the greenhouse effect.





Right. Image taken with an atomic force microscope of the surface of a growing nanoporous crystal. The spiral terrace is one nanometre high (0.000000001 metres). Such images help us to understand how the crystals are growing at the atomic scale.

Far right. Structure of the nanoporous crystal known as mordenite. The large pores are less than one nanometre across (0.000000001 metres).

LEVERHULME TRAINEE DESIGNERS AT THE ROYAL SHAKESPEARE COMPANY

A Leverhulme Trust-funded training programme offers gifted young theatre designers the opportunity to learn on the job and kick-start successful careers

Stephen Brimson Lewis
Royal Shakespeare Company
Leverhulme Arts Scholarship

The Royal Shakespeare Company (RSC) is the world's most famous theatre company. Last year we gave more than 2,000 performances of nearly 30 productions – from a version of *The Taming of the Shrew* for young people, to our award-winning *Matilda the Musical* in the West End. We are based in Shakespeare's home town of Stratford-upon-Avon, and all of our productions begin life at our Stratford workshops and theatres, created by teams of extraordinary craftspeople. Our work is performed around the world to the widest possible audience through our touring, residencies, live broadcasts and online activity.

We have trained generations of the very best theatre-makers, and we continue to nurture the theatre-makers of the future. The Company is a dynamic learning environment in which talent can thrive. Each year, two of the most gifted young graduate designers join us as Leverhulme Trainee Designers, undertaking a year-long advanced training programme that builds the experience and skills that help them to have successful careers. They work alongside established professional designers with varied aesthetics, and with expert members of staff from many of the Company's departments. Leverhulme Trainee Designers learn 'on the job', participating in all aspects of a production's creation – from assisting with research and model-making to deputising in technical rehearsals and creating their own small-scale productions.

We are proud to work with the Leverhulme Trust to offer these paid positions that ensure that the very best talent can remain in the performing arts sector. Since 2011, eight young people have taken part in the scheme – five of whom have been finalists in the prestigious Linbury Prize for Stage Design. Leverhulme Trainee Designers go on to have successful careers, and in the last few months two former trainees have returned to the RSC to design their own productions.

2016 is the 400th anniversary of Shakespeare's death. We have a busy programme including landmark new productions of *King Lear* and *Hamlet*, a special live broadcast from Stratford-upon-Avon with the BBC, and the opening of a new studio theatre and creative hub dedicated to daring theatrical experimentation. I am delighted to be able to welcome the next cohort of Leverhulme Trainee Designers in such a special year.

GIANT PLUMES OF METHANE IN THE OCEAN

A large number of giant methane plumes have recently been detected in the Arctic Sea, raising concerns about a possible run-away effect of global warming. Silvana Cardoso's research will shed light on the plumes' spreading and mixing behaviour, helping us to understand their impact on the environment

Dr Silvana Cardoso
University of Cambridge
Research Project Grant

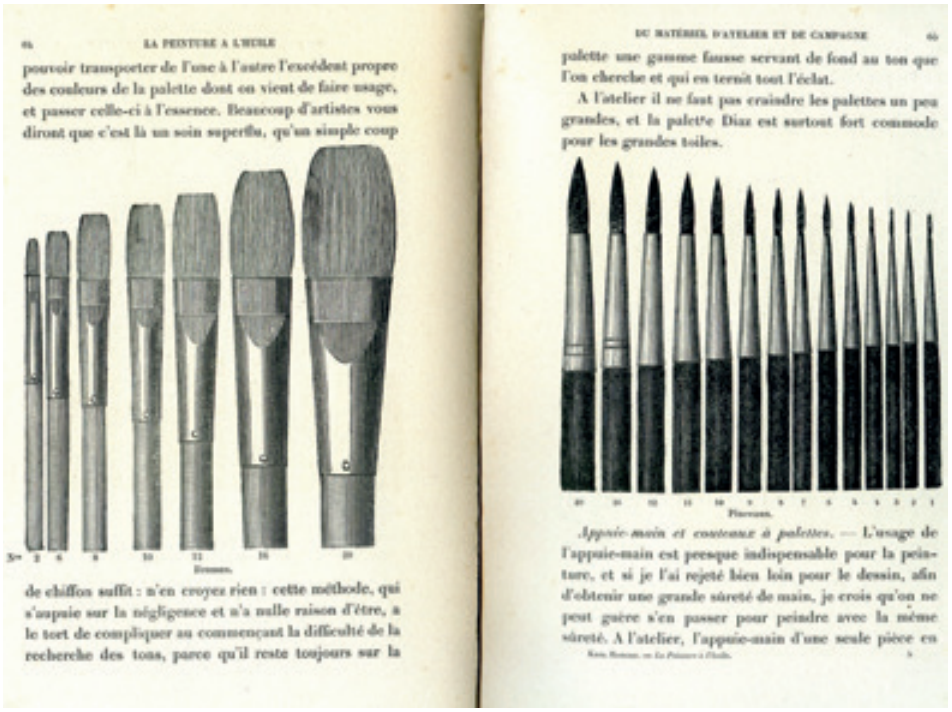
Methane is continuously released from the seabed into the hydrosphere, in cold seeps and mud volcanoes found on continental margins. Both dissolved in seawater and in bubbly form, the methane is transported upward in the ocean in the form of a turbulent plume. Recently, a number of these giant plumes have been detected in the Arctic Sea and elsewhere. Hydrate-formation reactions play an important role in the dynamics of methane plumes released in areas very close to the hydrate stability zone.

Estimates indicate that 6000 Gt of methane exist, accumulated in the sediment of the deep and cold ocean and permafrost regions. An increase in the temperature of these regions may destabilise the hydrates and release methane into the atmosphere, either steadily or suddenly. Methane is twenty times more potent as a greenhouse gas than carbon dioxide on a per mole basis, which can catastrophically cause a run-away effect in global warming. There is a real need to estimate the environmental damages and the costs associated with such releases.

Environmental flows, such as those found in methane plumes, are driven by density contrasts between the plume and the ambient fluids. To predict, control or explore the behaviour of such plumes it is essential to develop fundamental knowledge of their movement and interaction with the environment. The behaviour of plumes is strongly dependent on internal processes such as phase change, chemical reaction or dissolution, which involve release or absorption of heat and formation of new chemical species.

Whilst inert plumes have been studied for over six decades, plumes with internally-produced buoyancy changes have been the focus of few studies. My research group has recently shown that dissolution processes in methane and carbon dioxide bubbly plumes affect their spreading pattern. This new project now proposes novel laboratory experiments, combined with a theoretical development, to investigate the behaviour of complex plumes with internally-produced density changes caused by precipitation reactions.

Right. Frozen methane bubbles in Abraham Lake, Alberta © Chip Phillips.



66 LA PEINTURE A L'HUILE

pouvoir transporter de l'une à l'autre l'excédent propre des couleurs de la palette dont on vient de faire usage, et passer celle-ci à l'essence. Beaucoup d'artistes vous diront que c'est là un soin superflu, qu'un simple coup

Brosses.

de chiffon suffit : n'en croyez rien : cette méthode, qui s'appuie sur la négligence et n'a nulle raison d'être, a le tort de compliquer au commençant la difficulté de la recherche des tons, parce qu'il reste toujours sur la

DU MATÉRIEL D'ATELIER ET DE CAMPAGNE 67

palette une gamme fausse servant de fond au ton que l'on cherche et qui en ternit tout l'éclat.

A l'atelier il ne faut pas craindre les palettes un peu grandes, et la palette Diaz est surtout fort commode pour les grandes toiles.

Pinceaux.

Appuie-main et couteaux à palettes. — L'usage de l'appuie-main est presque indispensable pour la peinture, et si je l'ai rejeté bien loin pour le dessin, afin d'obtenir une grande sûreté de main, je crois qu'on ne peut guère s'en passer pour peindre avec la même sûreté. A l'atelier, l'appuie-main d'une seule pièce en

Left. Karl Robert, *Traité de peinture à l'huile: Paysage* (Paris, 1878; 1891 edition): hog's hair and sable brushes for oil painting. Manuals for artists provide valuable information on historical painting materials and methods.

Below. Paul Cézanne (1839–1906), *Three Pears*, 1878/1879, oil on canvas, collection of Mr and Mrs Paul Mellon, Washington, National Gallery of Art. Small oil studies and unfinished paintings are particularly useful for close study, because they reveal more readily a painter's techniques than do highly finished canvases.

THE TECHNIQUES OF IMPRESSIONISM, ITS PRECURSORS AND FOLLOWERS

Anthea Callen's research for her new book will combine the scientific, technical, art historical and aesthetic in a close analysis of Impressionist materials and techniques, re-evaluating the technical processes and originality of this group of painters

Professor Anthea Callen
University of Nottingham
Emeritus Fellowship

Since 2000, when I published my major book, *The Art of Impressionism: Painting Technique and the Making of Modernity* (Yale University Press), research on oil paintings has been revolutionised by new scientific and technical discoveries. These innovatory technologies have enabled conservation scientists to provide a wealth of new knowledge that transforms art historians' understanding of French painting in the nineteenth century, when 'modern' mass-produced artists' colours and materials first emerged. We now benefit, for example, from new non-invasive techniques for identifying the pigments used by painters, and often the binders and mixtures in which these were employed. This new evidence helps pinpoint the early appearance of modern pigments on paintings of the period, making it possible to date with greater accuracy painters' take-up of the newest materials; such knowledge can also help identify or authenticate paintings. My work entails cross-referencing modern scientific data with historical documentary evidence – in commercial directories, artists' manuals, trade catalogues, and encyclopedias such as those of Pernety (1757), Diderot and d'Alembert (1751–1777), and Paillot de Montabert (1829) – to trace with greater accuracy those changes in painting materials or techniques commonly identified as emerging only with the French Impressionists in the 1870s.

In the last 15 years art history has been transformed by a new interest in 'materiality'. Recognition of the significance of technical art history and of material questions makes my research particularly timely, because I bring together the scientific, technical, historical, theoretical and aesthetic in a close analysis of French nineteenth-century painting. I shall be examining the influence of all these factors on emergent twentieth-century modernism while also re-evaluating the limits of avant-garde technical originality: how genuinely audacious were the painting methods of Corot, Courbet, Manet, the Impressionists, of Cézanne and the post-Impressionists? How exactly did they work, which oil colours, brushes and supports did they prefer, and what was the significance of their choices? What are the actual differences in method and materials, say, between Corot and Cézanne? In writing this new volume I shall review my own earlier theories on the relationship between tradition and innovation as a key to understanding nineteenth-century avant-garde painting practice, in the light of the new cross-disciplinary research in the field and developments in painting science.

Recent developments in technical art history include burgeoning specialist collections of early technical publications (like colour merchants' trade catalogues or sample books) and systematic scientific research into particular artists, like that at the Rijksmuseum. There are now extensive collections of historical and technical data to be examined, notably in Washington, Chicago, Amsterdam, Munich, Cologne, Paris and the UK. These form one of my key research foci, as does renewed discussion with scientists and conservators in major museums in Europe and North America – and of course further close visual examination of the artworks themselves, which has always been central to my work.

ANALYTICAL MEDIA HISTORY

Tim Barker blends archive research with philosophical inquiry in order to explore the way experiences of time have been engineered throughout media history; he investigates the way engineers and inventors have grappled with questions of temporality, transmission and fragmentation in order to determine the conditions for history and memory in digital culture

Dr Tim Barker
University of Glasgow
Research Fellowship

Recent research into the cultural role of digital media has stressed the new types of temporalities and rhythms that computational techniques impose on daily life. The term 'digital temporality' has been used to describe the new types of time experienced in wide-ranging contexts such as television viewing, gaming, social media, financial markets, archive management and memory studies. This includes the new, discrete nature of the temporalities documented on social media, the speed and recursion with which major world events, reported by citizens, are uploaded and looped online, and the economic markets now based on the time-scale of computers, which produce global fluctuations and structure rhythms on the trading floor. The questions of time and temporality, it would seem, that are now at the centre of digital media studies, are very different from the questions of time that have previously been grappled with in film theory, television studies and cultural theory. These questions of time are no longer based on the way events are synthesised into a flow, but based on the way computers fragment the world into very fast discrete processes. Not only does this have importance on a technical level, but it also impacts on the way histories are written by technical media, and the way memories are archived online. Technical media no longer represent events in a linear history, as the written word once did. Events are now mediated and organised based on mathematical structures and rules.

The questions that I'll ask in this Fellowship relate to the historical and technical pre-conditions for this experience of digital temporality. I am interested in examining the way time has been divided into segments by media hardware and exploring how this technical process can be seen to have wider philosophical effects. The fellowship looks into the history of what I call 'analytical media'. As opposed to 'synthetic media', which draws a viewer's attention to the flow of time, 'analytical media', by foregrounding its segmentation of time, draws the viewer's or user's attention to the present moment, disassociated from a larger history of events. An example of this is the scientific chronophotography developed toward the end of the nineteenth century, which takes a series of photographs in quick succession in order to study isolated frames of movement. Another example is the use of pixels as a representational device and the transmission of information over computer networks. In all these examples, where signals are broken up into manageable parts, questions of temporality and transmission were grappled with by engineers and inventors. Not only do these solutions to time-based problems matter to engineers, they also provide the foundation from which we might start to develop a media philosophy of time and contemporaneity, which would speak to the way new types of histories and digital memories are written and archived.

Below. Albert Londe's chronophotographic image titled *cheval tombé à l'eau*, 1883.

REPAIRING FORENSIC SCIENCE

Nobody would choose to be the accused in a criminal court of law, but if we were to be in such an unfortunate position, we would expect the experts who give evidence to base their findings on sound science that is verifiable, reliable and communicated effectively; unfortunately, the reality is somewhat different, as Professor Sue Black explains

Professor Sue Black and Professor Niamh NicDaeid
University of Dundee
Leverhulme Research Centre for Forensic Science

There is growing concern that much of the forensic science evidence admitted to the courtroom is simply not fit for purpose, and this was highlighted publically in 2009 by the US National Academy of Science. Since then, little has been done to restore confidence and address these deficiencies, and disquiet has continued to escalate around scientific evidence types previously accepted in our court rooms. In his 2014 Kalisher Lecture, the Lord Chief Justice of England and Wales discussed the apparent lack of scientific rigour for much forensic evidence that is admitted into the courts, and his unease is mirrored internationally.

Legal and law enforcement colleagues all recognise the value of quality science in the courtroom and the rich benefits it brings to the criminal (and civil) justice process, but the risks are high if deficiencies remain unaddressed. There have been no critical step changes in forensic science innovation since Sir Alec Jeffries published his work on DNA in the 1980s. Unfortunately, almost all investment flowed into this area alone, whilst the other evidence types have barely advanced and have often been reduced to 'riding passenger' on the coat-tails of developments in other areas, such as analytical chemistry or imaging. As a result, the precarious scientific foundations of many areas of forensic practice can be fatally exposed with a few well-placed simple questions from an enlightened QC.

The Leverhulme Research Centre for Forensic Science will disrupt the current stalemate in the forensic science ecosystem by generating unprecedented wide-reaching, cross-disciplinary cooperation. We will address the scientific deficiencies in many currently used evidence types and raise the underlying basic scientific precepts to legal admissibility, thereby restoring judicial and public confidence in the science. In partnership with judicial, legal, scientific, law enforcement and industrial colleagues, we have identified a suite of evidence types that require immediate attention, and we will approach these in a systematic but ground-breaking manner that we believe will also unlock hidden development potential. Ironically, disruption of the system will generate stronger working relationships between science and the law and will reveal latent opportunities for industrial development and innovation that will secure long-term economic advances. Our research centre will be highly collaborative, parachuting innovative and diverse researchers from across the world into the UK to work with the permanent home team to inspire solutions, release potential and drive enterprise internationally.

Whilst the manner in which a country provides its forensic assistance may vary widely, the underpinning research is international in its application. In collaboration with leading forensic science partners across the world, we aim to repair, replace and renew the cornerstones of forensic science expert evidence, thereby increasing the confidence that the court and its jury can place on the testimony of its expert witnesses.

LACEMAKERS: POVERTY, RELIGION AND GENDER IN A TRANSNATIONAL WORK CULTURE

David Hopkin's research will provide the first full-length study of the shared work culture of lacemakers across nineteenth-century Europe; a history of women's experience of poverty constructed from folk songs and stories

Dr David Hopkin
University of Oxford
Research Fellowship

Before the First World War hundreds of thousands of women across Europe were employed in the homemade lace industry in France, Belgium and Italy. Lace production was difficult to mechanise, but lacemakers were also protected by aristocrats, monarchs and the Catholic Church. Lace is the most ideological of textiles, associated with purity, femininity, domesticity and piety (hence its use at baptisms, first communion and weddings). Yet, despite being patronised by the super-rich, and despite the skills required to make quality lace, lacemakers themselves were usually impoverished. This combination of social problems and 'traditional' values brought the lacemaker to public attention in the nineteenth century: her image was celebrated in tourist posters, her equipment was collected for museums. These sources provide a rare opportunity to study women's domestic work culture.

Although domestic manufacture was a substantial employer before the twentieth century, women workers are usually assumed to be 'without a voice'. They wrote no memoirs, they left no archives, no guild or union spoke for them. In fact it is often said they had no identity as workers because they were under the authority of husbands and fathers. However, hundreds of lacemakers have left some testimony to their lives, in personalised work tools but even more directly in their songs. Lacemakers were amongst the most prominent informants of folksong collectors in all three countries: we have thousands of texts and hundreds of audio recordings in which lacemakers expressed their views on marriage, poverty, the Church, sexuality, exploitation and faith.

The rhythm of song was sometimes used to regulate the pace of work, but more often songs just accompanied the work process. Lacemaking encouraged singing partly because lacemakers worked collectively (as you can see on the video 'Les dentellières de Montusclat' on the Institut national de l'audiovisuel http://www.ina.fr/video/LXC01008465), so they could share repertoires. It was also a feature of their apprenticeship. Lacemakers often learnt their trade in schools run by nuns or pious laywomen, and a repertoire of religious songs and stories was part and parcel of their education.

One of the striking features of these songs is that lacemakers' repertoires of both religious and secular songs were very similar across different regions and different languages and dialects. This is not just true at the level of themes, such as female martyred saints and sexual murder, but specific texts and melodies reoccur across Catholic Europe. Although this can partly be explained by the role of counter-Reformation institutions in the spread of lace skills, the messages contained in these songs was not altogether orthodox. We are dealing here with a transnational, but specifically feminine work culture, in which issues of hunger, misery, oppression and violence compete with visionary piety. That is what this research seeks to document.

For comparative material from the English lacemaking regions see our website (a work in progress): http://laceincontext.area.ox.ac.uk

3D LEARNING IN A RICH, COOPERATIVE HAPTIC ENVIRONMENT

William Harwin's project will provide the opportunity for a new learning environment to enable secondary school students to explore and experiment with concepts in a tactile, 3D world

Left. King's College London dental student using the hapTEL™ haptic training environment to learn how to prepare a tooth cavity.

Professor William Harwin
University of Reading
Research Project Grant

In life, we move, touch and manipulate things in complex ways using (mostly) our hands. When we interact with computers we lose this natural ability and have to resort to mouse clicks and keyboards. However, by adapting robot technology and our knowledge of how human perception works, we can give virtual things solid attributes such as texture, shape, weight and sponginess. We can move things aside, look underneath, cut and drill. We use modified robots, sometimes called a haptic interface, along with high-quality computer graphics to create a tight coupling between what is seen on the screen and what is felt by the fingers to create a convincing illusion of substance.

Haptic technology was central to our hapTEL™ project, work that is still used by King's College London dental students to learn how to prepare a tooth cavity. In this case not only was it important to get the visual and tactile illusion of the tooth right, but it was also necessary to match the sounds of the burr removing tooth enamel. Haptic interfaces have become important in learning the skills associated with surgical, dental and veterinary applications where the focus is on learning specific skills. It has yet to be explored as a more general tool for education; an oversight we propose to rectify.

Our research will focus on hands-on science education in which individuals or small groups of students manipulate the objects or materials they are studying. Because we can control the virtual world we can control the scale, which in science can range from the components of atoms to the dynamics of galaxies. Allowing students to explore these worlds in a variety of ways is hypothesised to motivate students and to develop their understanding. The benefits of practical work in science education include enhancing the learning of scientific knowledge, challenging students' misconceptions of scientific ideas and processes, teaching laboratory skills, enabling insight into and expertise in scientific method, and stimulating students' interest and increasing motivation to study science beyond school.

Collaborative learning is known to have a positive impact on students' learning, but productive interactions between students are not easily achieved, and appropriate learning situations are challenging to implement. Therefore, another key element of our proposal is to examine ways in which haptic devices can be configured to encourage students to interact and collaborate while examining and manipulating things in a 3-dimensional (3D) simulated world. This project has now begun with a decision from our two collaborating schools, The Abbey School, Reading, and Abingdon School, Oxfordshire, to focus on teaching cell biology. This decision was based on earlier work at Abbey School where it was found that students found difficulty in relating the schematic diagrams in books to the workings of a cell and its organelles in nature. We hope to explore both the technical feasibility of 3D learning and the learning gains that might be afforded by improving tools for educational visualisation.

CORAL REEF CARBONATE PRODUCTION AND REEF ISLAND VULNERABILITY

Chris Perry will develop the innovative methods necessary for measuring carbonate production on central Indian Ocean reefs, thus generating a unique dataset on contemporary carbonate production rates, and helping to bridge a significant knowledge gap

Professor Chris Perry
University of Exeter
Research Fellowship

Coral reef islands are iconic and beautiful landforms that form atop reef platforms and around coral atoll margins. Rarely exceeding a height of 3–4 m above mean sea level, and being constructed entirely from sands and coral rubble fragments that are derived from the coral reefs that surround them, reef islands have exceptionally high socio-economic value. This is because they provide the only habitable land in atoll nations such as the Maldives, Tuvalu, Kiribati and the Marshall Islands. However, reef islands are considered highly vulnerable to climate change, and most especially to future sea-level rise. This has generated an urgent need for better data on the controls on reef island formation, and on the wave and current regimes that control island change. In this context, recent studies have made some significant advances; documenting clear differences in the timing of reef island development between sites in the Pacific and Indian Oceans caused by past differences in sea level; advancing understanding of how island shorelines change both seasonally and over decadal timescales; and how the time at which islands start to develop and grow is tightly linked to the age of the reef surfaces on which they form. However, whilst these represent important research advances, critical research gaps remain that are equally important for predicting the future vulnerability of reef islands. These relate, especially, to the need to better understand the productivity and growth potential of the coral reefs that surround reef islands, because this will influence the capacity of reefs to track rising sea levels and will influence how much sediment the surrounding coral reefs can produce.

Using this Research Fellowship I aim to tackle the research gap in the context of the reef islands of the Maldives. The Maldives comprise some 1200 individual reef islands that have formed in a range of atoll margin and interior settings – including the iconic ring-shaped faro reefs. My focus will be on the development of appropriate quantitative methodologies that can be used to support assessments of the rates at which Maldivian coral reefs are producing new calcium carbonate – this material forming not only the building blocks of the reefs themselves, but also acting as a direct source of new carbonate sand that can contribute to island maintenance. To do this will require the collection of new datasets on the rates at which different coral, and other calcifying reef species such as calcareous algae and foraminifera, produce carbonate. Obtaining this data through various experimental approaches will be a key focus of the first year of the Fellowship. This will be followed by a field campaign to collect data from a wide spectrum of atoll margin and interior settings. The overall aim is to provide not only a new quantitative survey tool for use by other reef scientists, but also to generate an unprecedented dataset on contemporary carbonate production rates on the reefs that surround Maldivian reef islands.

Left. Low lying islands such as these in the Maldives are considered highly vulnerable to future sea-level rise. The reefs that surround reef islands are critical to controlling wave energy levels reaching the islands, but also act as major sources of carbonate sand.

WILLIAM WORDSWORTH AND SIR GEORGE BEAUMONT: AN ARTISTIC EXCHANGE

Jessica Fay will use new manuscript evidence to produce the first complete biographical and critical study of the friendship between William Wordsworth and his patron, the amateur artist Sir George Beaumont

Dr Jessica Fay
University of Bristol
Early Career Fellowship

William Wordsworth is a major poet of the British Romantic movement, and his ground-breaking collaboration with Samuel Taylor Coleridge, *Lyrical Ballads* (1798), is considered a central text of the period. But the friendship between these two men became strained relatively soon; as early as 1802, Coleridge detected that there were deep discrepancies between their respective theories of poetry. As Coleridge's domestic discontent and addiction-induced health problems put strain on the friendship, Wordsworth moved ever closer to his patron and confidant, Sir George Beaumont. Beaumont was an amateur artist and supporter of poets such as Coleridge, Southey and Scott, and artists including Reynolds, Wilkie, Dance and Price. He was also co-founder, in 1824, of the National Gallery. Beaumont is known primarily for his picture of *Peele Castle in a Storm*, which inspired Wordsworth's *Elegiac Stanzas* (1805), yet his presence in Wordsworth's publications and his influence throughout the poet's life go far beyond this. My project will establish new ground on which to proceed with the re-evaluation of Wordsworth's career as it moved beyond the influence of Coleridge by assessing comprehensively the relationship between Wordsworth and Beaumont, whose friendship Wordsworth publically acknowledged as 'one of the blessings of [his] life'.

In 1806–7 the Wordsworth family resided for eight months at the Beaumonts' Coleorton Estate in Leicestershire. Wordsworth then began to compose sonnets and inscriptions for the Beaumonts, and Sir George produced images to accompany Wordsworth's verse. Between 1815 and 1820 Beaumont's pictures appeared as frontispieces to Wordsworth's publications; thus, Wordsworth's first readers typically experienced his verse alongside Beaumont's artwork. Yet this conjunction of text and image was largely forgotten as subsequent editions of Wordsworth's poetry were printed without illustration. These images and texts exist in symbiosis: they are not always directly descriptive of one another but demonstrate, instead, a particular combination of ekphrasis (writing for art) and illustration.

Throughout my Fellowship I will work closely with the Wordsworth Trust (who are always keen to support new research based upon their vast archives of Romantic-period writing and art) to explore the manuscript letters sent by Sir George and Lady Beaumont to Wordsworth and his sister Dorothy between 1803 and 1827. Whilst the letters from the Wordsworths have long been in print, the Beaumonts' replies have never before been fully transcribed. This correspondence is very different from the business-like interaction Wordsworth had with his other patrons: Wordsworth and Beaumont shared thoughts about poetry, theatre, art and gardening. When considered alongside the relevant verse and illustrations, these letters convey a rich narrative of influence and allusion, suggesting that Wordsworth considered Beaumont not just as a patron, but as a collaborator.

By asking new questions about the interaction between poetry and art, I will seek to offer an original perspective from which scholars might think about the relationship between patronage and collaboration.

Left. Sir George Howland Beaumont, Bt (1753–1827). *Peele Castle in a storm,* 1805. Oil on panel. Reproduced by permission of the Wordsworth Trust.

PERSONS AND PORTRAITS IN PAPUA NEW GUINEA

Dame Marilyn Strathern explores the role of the researcher in capturing images pertinent to cultural memory and asks how such photographs themselves, and the subjects of these, are perceived by a Papua New Guinea community today

Professor Dame Marilyn Strathern
University of Cambridge
Emeritus Fellowship

The first stage of the research funded by an Emeritus Fellowship allowed me to return to Mount Hagen, Papua New Guinea. People I have known for a long time include Ru Kundil, here photographed with his youngest child, in my eyes a rather affecting portrait. Yet the extent to which a photo captures a likeness through a particular composition or records what people were wearing or doing in a fitting manner – whether it is a good 'portrait' or not – would be unlikely to elicit comment. What is important is that such images bring memories to mind so that one 'thinks-on' the person depicted; in the case of an unknown audience images spread fame as a kind of analogue of memory, like names. Thinking-on acquaintances carries moral-ethical consequences, as pictures I brought from earlier visits sharply remind me. My visit in 2015 was to 'repatriate' ethnographic photographs made over the years since 1964. The focus of attention was all on how I gave them to people. Bringing memories of our previous interactions to mind compelled an activation of relationships, and relationships require substantiation, which had in turn to be expressed with items of substance. I was politely told that an envelope containing only a photograph would puzzle people because it was, in effect, empty.

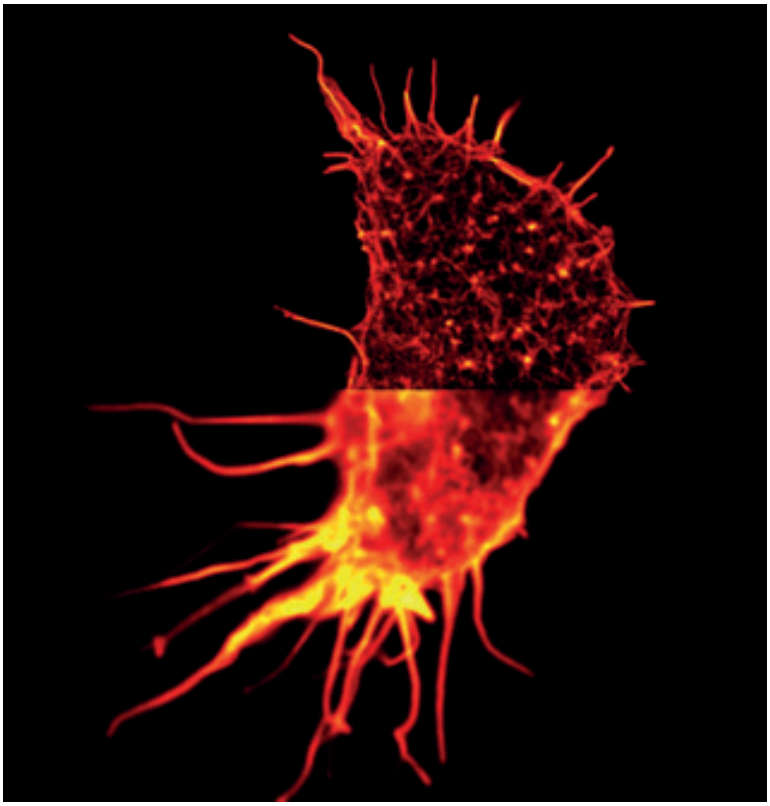
That did not prevent more or less everyone being pleased with the images, and agreeable to my suggestion of conveying rights in the images to the Cambridge Museum of Archaeology and Anthropology, alongside the National Museum and Art Gallery in Port Moresby. Many were positively taken with the fact that they would become widely known, carried thereby over space and over time to subsequent generations: "So our children can see how we were." It is here that what people were wearing or doing would reinforce the 'memory'. Future generations would see the marks that distinguished this or that person, as someone from the past might be identified by the shorts they had on or by their marsupial fur decoration, personal characteristics like voice or posture. Here too the idea of a portrait begins to creep back in. Indeed, there were once specific situations where men and women presented themselves for public display in an idealised or transformed state. In this publication a casual picture, as in the case of Ru with his child, would in a sense be as out of place as a seaside snap among corporate portraits. So, for perpetuity, I will juxtapose the first image with a second, where Ru is decorated for display, albeit 'informally' in his eyes. I am pleased it should be reproduced here, since a framed enlargement once hung in my departmental office, until that is Ru visited England in 1999 and took it off with him to hang in his own house.

Left. Mr Ru Kundil with his youngest child, 2015.

Right. Mr Ru Kundil in informal decoration, 1967.

Above. *Icosahedron on Eaval*, Hannah Imlach, Digital Still, 2012. The *Icosahedron Kite* is an exploratory tool, which was used to navigate and re-imagine the unique waterlogged landscape of Eaval on North Uist. Its reflective surface chameleon-like, encompassed the landscape over which it was flown.

Right. Super-resolution image that allows researchers to see inside cells with greater detail than ever before, the resolution in the top half is around 5 times higher than was achievable in the previous 300 years of microscopy. The red stain is the skeleton of the cell – the so-called cytoskeleton. Image credit: Alison Dun, Edinburgh super-resolution imaging consortium.



FROM THE DARK OCEAN COMES LIGHT

Through this residency and an ongoing dialogue with scientists, visual artist Hannah Imlach will gain invaluable insights into current environmental research; travelling on research vessels and studying microscopy technologies will open up the microscopic aesthetic world of colour, pattern, form and movement and so inform her own artistic practice

Professor Rory Duncan and Ms Hannah Imlach
Institute of Biological Chemistry, Biophysics and Bioengineering, Heriot-Watt University
Artist in Residence Grant

In research there is something I call the 'charmed period' where the investigator discovers something that, until they share their new knowledge, remains a secret that only the observer knows amongst all who have gone before. This is a great driver for scientists and a facet of the role that few in other positions can ever experience. Imagine for a moment how, for example, Hooke or van Leeuwenhoek, the 'inventors' of the microscope, felt when they stumbled into a world that had previously gone unnoticed – the small world that our bodies are not equipped to see without the help of their microscopes.

Hannah's work is inspired by the same things that drive us; her sculptures are conceived as exploratory 'tools' investigating how we relate to our immediate environment and the threats caused by changing climate. Working in sculpture and photography, Hannah's research-led practice seeks to draw connections between the ecology of different habitats, sensory experience and scenarios of future sustainability.

Her residency at Heriot-Watt will provide Hannah with direct insight into climate research with a focus on the organisms living in the deep waters off Scotland's coast. Hannah will explore this ecosystem through dialogue with scientists, travel on research ships and through imaging technologies in the Heriot-Watt labs; recent invention in microscopy makes it possible to see objects inside living cells that are as small to the viewer as Jupiter is large.

Remarkably, these approaches depend on marine organisms, like corals or jellyfish, which evolved to emit light. The light they emit is also secret to humans – to see the colours they emit, the viewer needs a special torch and glasses. These animals have long-puzzled mankind, and a Nobel Prize in Medicine was awarded for working out that DNA from these sea beasts could be transferred to human cells, thus making them emit coloured light and so become visible under microscopes.

Now a palette of blues to reds, through the various hues of greens, yellows and oranges, allows biologists to almost literally paint with proteins inside cells. The revolution in biophysics that came from distant marine animals via genetic engineering has truly accelerated biomedical discovery – many of the new drugs or treatments that we will soon take for granted could not have been developed without these humble sea creatures. The opportunity now to tell the world about the combination of marine biology with biomedicine, and the untold but essential roles corals play in all our present and future, is compelling.

Hannah will create her work directly from her experiences as our Artist in Residence, embedded with current researchers. The 'Scottish-ness' element in our project is deliberate: not only are the reefs and organisms found in Scottish waters important and of interest internationally, but Scotland has some of the most recognised expertise in these new microscopes, and Hannah's interests in locality and sustainability also feed from strong cultural drivers. We are not inward-looking, however, (indeed, many of us involved are not Scots); our aim, delivered through our partner institutions, the Royal Zoological Society of Scotland and Dynamic Earth, is to reach as wide an international audience as we can. We are delighted to be able to share our charmed period with Hannah thanks to the Leverhulme Trust.

A LIFE MORE PHOTOGRAPHIC: ON PHOTOGRAPHY'S POSSIBLE FUTURES

The transformation of photography in the last decade means that we now live a life more photographic; Christopher Wright's new study will focus on what this means for contemporary lives, social cohesion and our relationship to memory

Dr Christopher Wright
Goldsmiths, University of London
Major Research Fellowship

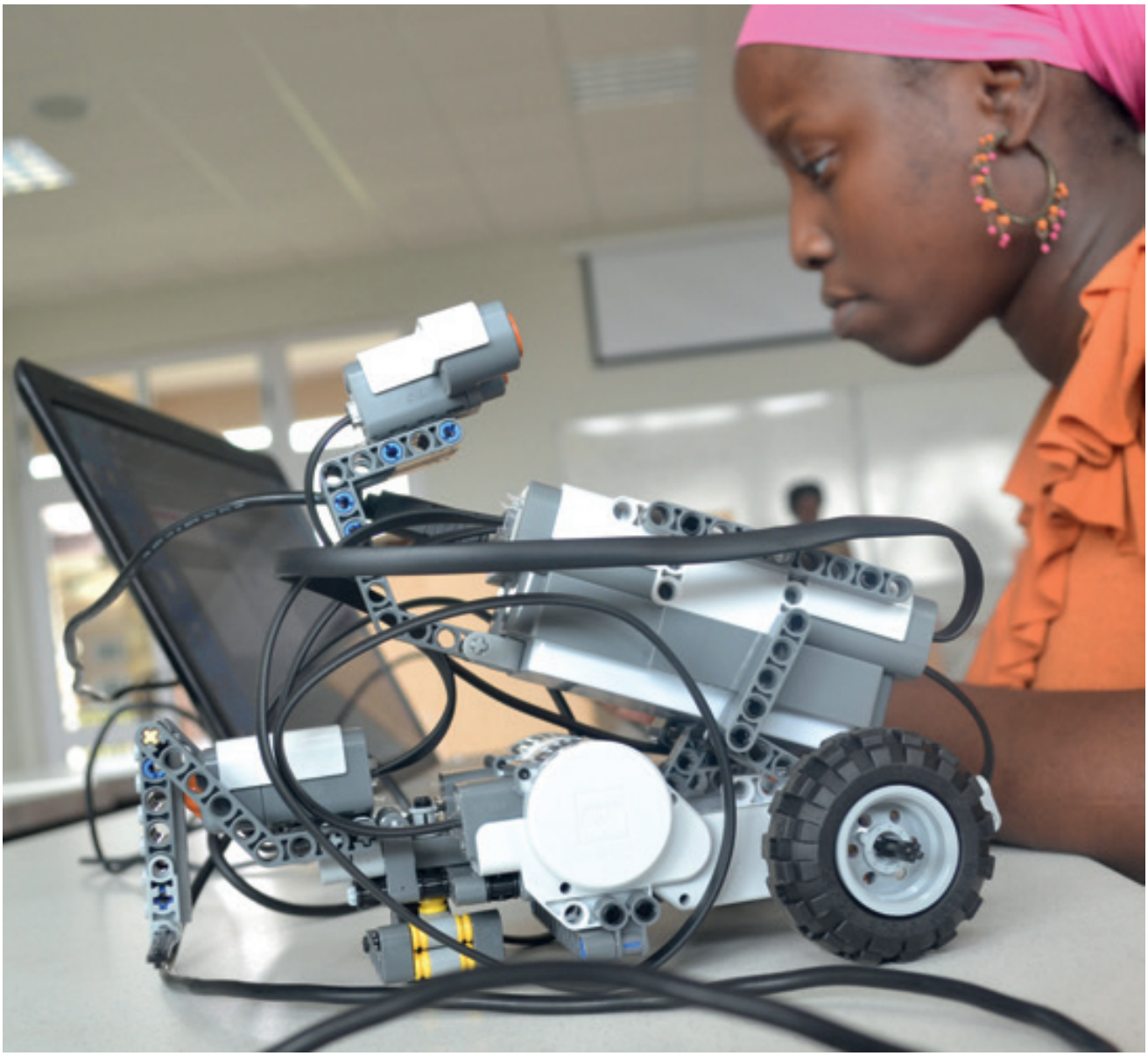
Photography has undergone enormous transformations in the last decade, shifting from analogue to digital, becoming part of mobile phone technology, and increasing massively in both global reach and sheer volume – as Erik Kessels' installation *24 Hours in Photos* so vividly demonstrates. Photographs take new forms and circulate in new ways, from selfies and photoblogging, to instant image sharing through Snapchat and Instagram. There are many accompanying claims – both negative and positive – for the massive impact this new photography is having on our lives, how it is changing forms of sociality and connectedness, affecting social cohesion and altering our relationship to memory.

But there is something distracting about the kinds of numbers that are often quoted in relation to this new photography – in 2014 there were five million photographs uploaded to Flickr every day, 2.5 billion photographs uploaded to Facebook each month. The focus on technological developments and usage statistics fails to engage with actual photographic practices within the context of people's everyday lives. While the numbers do tell us how widespread some new photographic practices are, they do not demonstrate the relationship between those practices and the supposed impact they are having on other areas of our lives. The ways in which we use new photography to engage with each other, and with the world, needs to be understood through detailed ethnographic research, not presumed from numbers alone. We need a new way of understanding photography as the value of individual photographs decreases, while the general significance of visual communication increases.

My project involves an intensive and long-term study of everyday practices of this new photography in the UK – with smaller scale research in two other contexts: First Nation communities in British Columbia, Canada, and Ladakh, northern India. Looking at other contexts is important for understanding how new photography is refracted through different cultural idioms and expectations, and the differences and similarities that emerge will be vital for seeing UK developments as not the only possible outcome of new technologies. The three-year timescale will allow me to build up a really comprehensive picture of how the claims for new photography's impact are actually materialised, or not. I will follow digital images through their production, circulation and consumption, tracing networks on and offline – while observing how these practices impact on a range of attitudes and other behaviours. When do people look at photographs? When do they take them and send them? What kinds of relationships do they initiate? What kinds of events prompt the taking of photographs? Who are they shared with? Who are they not shared with? Are photographs deleted regularly, or kept?

Given the scale of the claims made for new photography's impact on our lives, an understanding of these changes is one of the key issues of our times. My research will result in a book, a website and a series of audiovisual works that explore our lives more photographic, and consider photography's possible futures.

DESIGN FUTURES IN SUB-SAHARAN AFRICA



Cher Potter will head this Network which analyses two major forces shaping the twenty-first century – innovations in digital technology and the 'rise of Africa' – through the lens of material culture and its interpretation

Ms Cher Potter
University of the Arts London / Victoria and Albert Museum
International Network

We tend to think about our world's future as being discovered in the high-tech laboratories of American scientific research institutes, or *debated* in élite business and political forums held in the Alps – but less often in the West, do we think about our future as being *designed* by local tech communities in Sub-Saharan Africa.

If design is understood as an agent of cultural production and change in contemporary society, then the pervasive Western perception of the African continent as predominantly a producer of immutable craft reveals a misunderstanding of transformations occurring in African megacities. A digital revolution across many parts of Africa is facilitating a conversion from pre-industrial craft production to post-industrial design involving computer coding and digital fabrication. Alongside vast craft communities, the continent now hosts one of the fastest growing tech hubs in the world (the East African 'Silicon Savannah'), a Pan-African robotics network (AFRON), burgeoning space programmes and a proliferation of digital innovation hubs.

The British economist Dr Charles Robertson, in his book *The Fastest Billion: The Story Behind Africa's Economic Revolution* (2012), makes the contentious point that if African growth spurred on in part by these technology developments, continues as it has over the last two decades, the African economy will be bigger than that of Europe and America together by 2050. As a design researcher and curator, I am deeply interested in how this much-debated era of Afro-optimism can be understood not simply in economic or political terms, but as heralding the onset of new cultural alignments, and local modification of design models, tools and visual strategies. How does a digital revolution combined with unprecedented city and population growth on the African continent result in new typologies of design? How do these new design categories inform the way African cultural production is communicated and displayed in Europe and Sub-Saharan Africa?

In order to address these important themes, the network brings together design theorists, technological innovators and museum professionals from six different cities – Dakar, Accra, Nairobi, Cape Town, London and Oxford. This group of pioneering scholars is engaged in advancing and theorising post-industrial design: digital imaging, computer gaming, robotics and wearable technology. Through a series of forums and exhibitions in Ghana, Kenya, South Africa and the UK, we will work collaboratively to interpret emerging design trends in African urban contexts. Developed through a core partnership between the London College of Fashion and the Victoria and Albert Museum, this project marks a starting point for UK-based cultural institutions to engage with emerging economies as a vital source of knowledge, design production and future imaginings!

WHAT HAPPENED NEXT

In 2015 the Trust awarded its 1000th Early Career Fellowship (originally called Special Research Fellowships); in this series of interviews we look back at over 20 years of the scheme and find out 'what happened next', the role that Leverhulme Trust funding played in the progress of the research and careers of these ten Fellows

PROFESSOR FAREDA BANDA

"The greatest thing the Leverhulme gave me was psychological confidence"

Fareda Banda's fellowship gave her the opportunity not only to relaunch her academic career, but also to cement her reputation as an expert to the United Nations on women's rights

Dr Fareda Banda couldn't believe her 'good fortune': "I was the first black person from Zimbabwe to obtain a doctorate in law at Oxford University; and I don't know whether it was gender, or being from some place else, but I somehow felt fraudulent. I spent the whole three years worrying that I didn't deserve to be there: that there was some Mr Band who should have been given this fantastic opportunity," she says. Where Fareda doubted her abilities, her DPhil supervisor, Mavis Maclean, did not. And it was Mavis who convinced her to apply for a 1994 Leverhulme Fellowship and return to the Oxford Centre for Socio-Legal Studies.

Getting the award boosted Fareda's self-belief; she left the NGO where she had been working since completing her doctorate, and returned to academia. "It was wonderful to go back to Oxford and learn from Mavis and from John Eekelaar – basically the country's premier researchers looking at socio-legal policy," she says "but the greatest thing the Leverhulme gave me was psychological confidence." As part of her fellowship, Fareda worked with John on a comparative study exploring how divorce solicitors working in Oxford would advise their clients in different scenarios. "That was absolutely fascinating," she says. "It was there I learnt about something called English customary law." Her previous fieldwork, for her doctorate on access to justice for women, was carried out in Zimbabwe: a country with a plural legal system in which national legislation exists alongside customary laws. But in England, she thought, surely the law was just the law? Instead, she found regional differences here too. For instance, when measuring whether women who stayed home during their marriage should have to return to work, solicitors would take into account where the women lived, saying things like: "well, up north, they definitely don't like women going back to work."

In 1996, Fareda was appointed as a lecturer at SOAS, University of London, where she is now Professor of Law, teaching on law and society in Africa, human rights of women, and family law. She writes on women's rights, family law and more recently religion; and, in 2008, wrote a particularly influential report for the United Nations (UN) on laws that discriminate against women. Her study – which found that women were discriminated against by law in almost every country – received worldwide coverage, news even reaching her grandmother's mud hut village in Zimbabwe; and her recommendations resulted in the establishment of a working group, now in its second term, which promises to bring equal rights for women closer to a global reality. Fareda's Leverhulme research gave her the methodologies and the confidence to widen the focus of the UN report from laws to practice. "I think that's something else that the Leverhulme fellowship taught me – and also part of being African, I think – to remember what the grounded realities look like," she says. Even in this country, law and practice can be poles apart; equal pay is an obvious example: enshrined in law in the UK since 1970, yet the pay gap is still substantial.

Fareda has recently co-edited a book on gender and religion with Lisa Fishbayn Joffe at Brandeis and is currently writing another report for the UN, this time with John Eekelaar on family and human rights.


EQUAL PAY
WITHOUT
DELAY

PROFESSOR TIM BLACKBURN

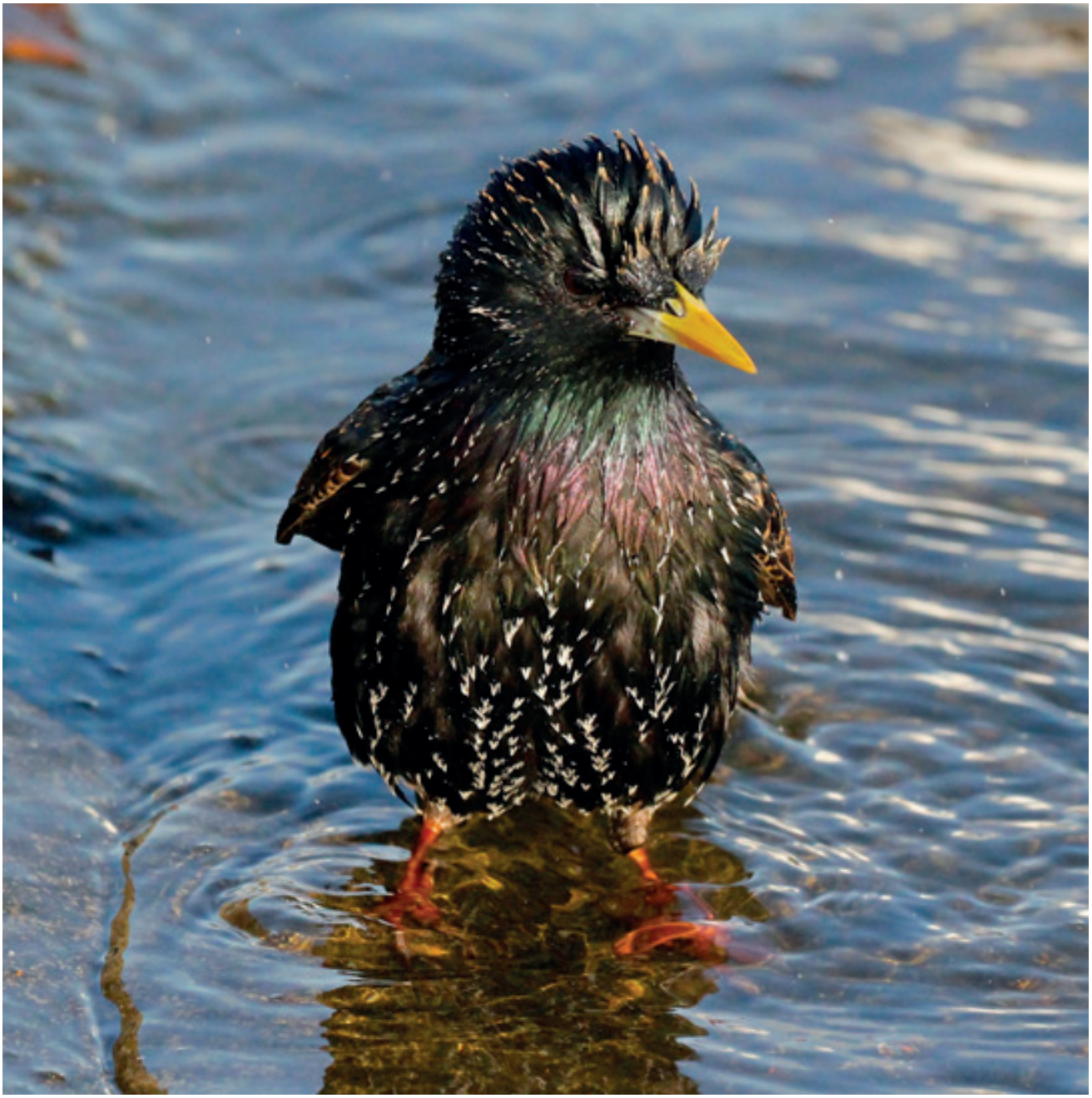
"We've been able to make significant progress because the Leverhulme takes a more liberal view"

A Leverhulme Fellowship gave Tim Blackburn the freedom to carry out independent research and conduct a major review of ecological research processes, helping establish macroecology as a major influence in the field

"One's ideas must be as broad as Nature if they are to interpret Nature." Tim Blackburn and Kevin Gaston used the logic of Sherlock Holmes to introduce their pioneering book on ecological methods, perfectly encapsulating their central premise. At the time, the science of ecology focussed almost exclusively on understanding interactions amongst plants and animals at a local level, such as in a small field plot or pond. But there was a growing realisation that those interactions were affected by processes occurring over a much larger scale – and that the complex natural world could not be understood by just adding together lots of small-scale studies.

The volume of large-scale ecological research had increased dramatically since 1991, when Tim had joined the NERC Centre for Population Biology as a postdoctoral researcher. In fact, Tim and Kevin had themselves contributed to over seventy such studies by the late 90s. Still, the approach had failed to gain traction, and traditional funding bodies were yet to be convinced of its scientific merit. Tim's 1998 Leverhulme Special Research Fellowship was a chance to take stock through a major review of the field. Published in 2000 as a co-authored monograph – *Pattern and Process in Macroecology* – this synthesis helped to establish the large-scale ecological approach and continues to be a major influence in the field. The Fellowship – particularly the freedom to carry out independent research – also provided the push Tim needed "to finally move on from the carefree life as a postdoc," he says. He secured a lectureship at the University of Birmingham in 2000, where he stayed for seven years – the last two as Professor of Macroecology. In 2007, he was appointed Director of the Institute of Zoology, stepping down in 2014 to take up his current position as Professor of Invasion Biology at University College London.

Since his Fellowship, Tim's research has largely focussed on understanding the processes driving human-mediated biological invasions: now recognised as one of the greatest threats to global biodiversity. The 90s had seen a growing concern about the ecological impact of non-native species and, while immersed in his review of macroecology, Tim realised this was an area where a broader perspective could make important contributions. Rather than focussing on why ring-necked parakeets have thrived in South East England, for example, or why European starlings are now the most common bird in North America, you can step back and look at the bigger picture. He explains: "More than 400 species of birds have established alien populations somewhere in the world, so that represents a lot of natural experiments to compare, to understand common factors in the invasion process." To enable this type of comparative research, Tim has developed a global atlas of alien bird species, mapping their ranges over time; a resource he is currently using to investigate how human actions and evolutionary processes interact to facilitate invasions. By identifying high-risk scenarios, this work could help prevent future damaging invasions. The Leverhulme Trust continues to play an important role in Tim's research, he notes, not least because the interdisciplinary nature of invasion research means research councils are less likely to offer support: "It's an unusual area of biology because there is a strong social history aspect… we've been able to make significant progress because the Leverhulme takes a more liberal view."



PROFESSOR CAROLINE HUGHES

"It gave me the opportunity to get more publications, which is so vital to get a faculty job in a British university"

Continued support from the Leverhulme Trust provided Caroline Hughes with the time to develop an impressive publications track record, helping her secure her first permanent lectureship

When the post-Cold War euphoria died down, it was clear the results were not what the West had hoped. The UN peace process, instigated in Cambodia in the early 90s, had promised to bring this broken communist country into the democratic fold; but as the years passed, the authoritarian state not only prevailed, it thrived. Had the UN underestimated the power still held by a stubborn élite? Or was Cambodian culture just communist to its core? With the insight gained from two years' fieldwork during Cambodia's transition, Caroline Hughes argued that the UN plan failed, not because the Cambodians actively or passively resisted it, but because it was the wrong plan.

Caroline's first year in Cambodia was particularly daunting. The country had been completely closed off to the outside world for decades, and with no sources on its internal politics, it was hard to know where to start. After collating her material into a 'baggy monster of a PhD', she returned to Cambodia the following year, supported by a Leverhulme Study Abroad Studentship. It was 1998 – an election year – and Caroline travelled around the country with different political parties, attending rallies and gathering more focussed material. She then applied to the Leverhulme Trust for a 1999 Special Research Fellowship based at Nottingham University, giving her the time to write her now widely-cited monograph, *The Political Economy of Cambodia's Transition 1991–2001*. Published in 2003, it explains how the UN peace process, while achieving its mission to introduce some democratic processes, also effectively established the Cambodian authoritarian élite as gatekeepers of the foreign aid flowing into the country. "That was a significant source of power and the government soon learnt how to use it to rebuild itself and maintain its monopoly," Caroline explains. "When people are desperate and at the brink of their coping strategies, the control of water, medicines and food can not only be a source of revenue, it can essentially be a tool of violence. We're very aware of that now, but it was hardly even considered in the 90s."

In 2001, Caroline was appointed to a lectureship at Nottingham University. She moved to the University of Birmingham in 2006 and then to Murdoch University in Western Australia in 2008, where she was appointed Director of the Asia Research Centre in 2010. "The fellowship opened a lot of doors for me," Caroline says. "It gave me the opportunity to get more publications, which is so vital to get a faculty job in a British university. And the Trust was fantastic. Such a gentle introduction to academia… there was always someone ready to help the whole way through." Caroline returned to the UK in 2013 as Professor of Conflict Resolution and Peace at the University of Bradford, where her research interests focus on peacebuilding, the politics of aid and development, and Southeast Asia. She returns regularly to Cambodia and says there are now encouraging signs of a reverse in its drift towards authoritarianism – albeit more to do with demographics than international policies. The children of the post-war population boom have reached voting age; less easily intimidated than those who suffered the privations of the 80s, it is their engagement with the democratic process that is finally pushing Cambodia towards the multi-party system the UN sought to create over two decades ago.

PROFESSOR FINN FORDHAM

"I didn't feel any pressure from the Leverhulme to prove or produce a specific thing, and that was extraordinarily liberating intellectually"

A Leverhulme Fellowship was a turning point for Finn Fordham's career, enabling him to secure his first book contract, and establish his reputation as a leading authority on James Joyce and genetic criticism

"Once upon a time and a very good time it was…"; Finn Fordham fell under the spell of James Joyce's prose. From its first evocative and memorable sentence, *A Portrait of an Artist as a Young Man* was unlike any other novel the sixteen year-old Finn had read. The spell was to transform his life, leading to a career specialising in Joyce… and to the clash with the Joyce Estate that nearly sabotaged that career.

In 1997, Finn completed his PhD at Birkbeck: a biographical study of Joyce, exploring the intense bond he shared with his daughter Lucia. Troubled by mental illness while her father was working on his last masterpiece, *Finnegans Wake*, the 'mad daughter' was only a marginal figure in previous Joyce biographies. Finn's thesis told a different, more intriguing, story. A publisher was interested but, unfortunately, also gave Joyce's grandson, Stephen, the power to block the book's publication: Intractable, particularly in matters concerning his aunt and the study of his grandfather's manuscripts – block it, he did.

In the 'publish or perish' world of academia, Finn's career foundered. After a number of temporary teaching jobs, he secured a two-year junior fellowship at Northampton University, where he tried to generate funding for research. Those two years were nearly up when Finn received the letter, offering a 2001 Special Research Fellowship: "I still remember jumping for joy; it just meant so much."

With Leverhulme support, Finn was able to stay on at Northampton to tackle an ambitious new project, drawing on the rich archive of drafts left by Modernist writers as their masterpieces evolved. Using techniques developed by an approach known as genetic criticism, he meticulously analysed passages that had been written and rewritten, finding stories woven into the many twists and turns the authors made. While his initial idea – a comparative analysis of Joyce, Hopkins, Yeats, Conrad, Forster and Woolf – gathered momentum, he returned to a subject he knew well: the turbulent seventeen-year genesis of *Finnegans Wake*. "That was the amazing thing about the fellowship," Finn says "I didn't feel any pressure from the Leverhulme to prove or produce a specific thing, and that was extraordinarily liberating intellectually." It proved a successful detour; within 18 months Finn had secured a contract for one book and laid the groundwork for another.

Finn's first book *Lots of Fun at 'Finnegans Wake'*, published in 2007 to rave reviews, provides a 'mind-widening and fun' introduction to Joyce's most dense and complex novel. His second, *I do I undo I redo: The Textual Genesis of Modernist Selves*, published in 2010, takes genetic approaches as a window into the minds of the great modernists at work. In it, Finn argues that the author's sense of self and its vicissitudes can be seen in the many revisions they make to their text: "The process of writing can be difficult sometimes and I think that's partly because your own identity is caught up in that process. Our ideas about selfhood are partly modelled on our relations to how we produce texts," he explains.

With a book contract on his CV, job applications finally led to interviews and within weeks Finn had secured a lectureship at Nottingham University. In 2008, he moved to Royal Holloway, University of London, where he is now Professor of English and a leading authority on James Joyce, archival modernism, and genetic approaches to Modernist texts.

DR HUGH TUFFEN

"I applied to the Leverhulme Trust because it seemed to encourage you to do something different, to take risks"

Leverhulme funding enabled Hugh Tuffen to carry out ground-breaking research and challenge long-established views about volcanic deposits at Krafla volcano in Iceland, and helped to launch a successful research career

More than 500 million people live in regions directly threatened by volcanoes that could erupt violently and with little warning. Records of seismic activity show that volcanic eruptions are often preceded by a swarm of tiny shallow earthquakes, but even this has limited use as a predictive tool. With major gaps in our understanding about the processes triggering such earthquakes, it's difficult to differentiate them from other background rumblings until after the event. One challenge for volcanologists studying these processes is that – unlike the tectonic earthquakes generated as rocks fault and slide – no signs of volcanic earthquakes are found in the geological record. Or at least no signs had been identified until Hugh Tuffen and his PhD supervisor, Harry Pinkerton, made an intriguing discovery. During a field trip in Iceland, they noticed a ten-metre-high volcanic rock with all the hallmarks of tectonic faults except on a miniature scale and – even more surprising – it seemed the faults had healed back together. "It looked like the type of faults we know make earthquakes had happened in hot magma as it was rising," Hugh says, "but the idea that earthquakes could happen inside something that flows seems pretty counterintuitive."

With the support of a 2004 Leverhulme Trust Early Career Fellowship, Hugh set out to test the hypothesis that faulting of hot-rising magma could lead to volcanic earthquakes. Based at Lancaster University, Hugh's research combined the first detailed study of volcanic deposits at Krafla volcano in Iceland, with magma cracking experiments conducted with the rock physicist Peter Sammonds, in his lab at University College London. The project was both controversial and novel: not only challenging the long-established view that earthquakes happen only in cold brittle rocks, but also using a combination of old-school geology and experimentation that was new to volcano studies. "I applied to the Leverhulme Trust because it seemed to encourage you to do something different, to take risks… and I rather liked that," Hugh says.

Working with Peter and his team, Hugh subjected pieces of obsidian (volcanic glass) collected from Krafla, to temperatures and pressures simulating volcanic conditions; at the same time monitoring them for seismic activity on a micro-scale. His findings, published in *Nature* in 2008, showed that, even at temperatures as high as 900 degrees celsius when magma can flow, it would nevertheless crack when deformed rapidly; and this cracking created measurable earthquakes. The work Hugh did during his fellowship led to a £500,000 project, funded by the Natural Environment Research Council, which provided further evidence of the link between volcanic earthquakes and the fracturing behaviour of magma. It also facilitated his successful application for a Royal Society University Research Fellowship in 2010, and his recent promotion to Reader in Volcanology at Lancaster University. Alongside the opportunities to build his own research career, Hugh says, spin-offs from the Leverhulme project also allowed him to assist others in the volcano research community, through various PhD and postdoctoral positions.

One particularly fortuitous opportunity followed an incident at Krafla in 2009, when a geothermal energy company accidently drilled into magma, briefly creating the world's most powerful geothermal borehole. Hugh's unique expertise on this volcano led to his inclusion in current international research efforts at Krafla, aiming to improve the detection of stored magma and assess the risks involved in tapping this unprecedented source of geothermal energy.

PROFESSOR EMILY BOYD

"Having funding from the Leverhulme gave me the space to conceptualise and try out new ideas"

Since holding an Early Career Fellowship Emily Boyd's pioneering work on improving the well-being of people worldwide has helped empower communities to tackle the impacts of climate change by working with government institutions and businesses

Emily Boyd is the world's first Professor of Resilience Geography. Appointed by the University of Reading in 2013, just four years after completing her 2007 Leverhulme Fellowship – and this despite a one-year maternity break – her impressive career momentum reflects an ambitious purpose: her conviction that as a social scientist, she can, and must, improve the wellbeing of people worldwide, as they face challenges wrought by environmental change. "It sounds cheesy, but that's the core of what I want to do. Where climate change is concerned, the natural sciences have led the way; but for problems such as water scarcity, food shortages and flooding – issues increasingly facing communities across the planet – lots of the questions are social, economic and political. Social scientists have got to step up and take leadership to make sure that those issues are at the forefront."

Through her Leverhulme fellowship, held at Oxford University's Environmental Change Institute, Emily explored ways of bringing social science theories, methods and practices into the domain of climate change and environmental thinking: "It was blue-skies, curiosity-driven social science and having funding from the Leverhulme gave me the space to conceptualise and try out new ideas." During the fellowship, she visited communities involved in the reforestation of the wind-blown and degraded croplands of Haryana State in India. This was one of a number of development projects worldwide, designed to alleviate poverty while facilitating environmental rehabilitation; but most were falling well short of their good intentions. "We often find a mismatch between the vision at the global policy level – or even at the national level – and what these policies actually mean on the ground; it's not easy to reach and involve the poorest communities." The Haryana project was an exception: here communities had engaged in the design process from the start and it was improving the lives of those most in need. "Seeing how communities can actually work together was a real highlight of my Leverhulme fellowship," Emily says.

Haryana was a lesson in the importance of bottom-up collaborative decision-making; and methods to enable that participatory process were at the heart of Emily's recent project in the crowded and often flooded informal settlements of Maputo in Mozambique. This collaborative experiment, involving colleagues from University College London and the University of York, identified community priorities for climate-related action by integrating local knowledge and experience with a detailed scientific assessment of climate change impacts. "We found that by helping people relate the problems they were facing to a changing climate and showing them that they have an important part to play, they were motivated to take practical action to change their communities for the better," Emily says. Empowering communities to present a collective vision for the future of their neighbourhood helped to compel cooperative action from government institutions and businesses – provocative evidence that reversing the traditional top-down approach may be both a more ethical and a more efficient route to climate-compatible development. The project won a United Nations 2013 Lighthouse Activities award, recognising it as an inspiring example of people taking action to address climate change worldwide; and – according to UN spokesperson Christina Figueres – a beacon of hope, demonstrating what can happen when innovation and passion come together to address the biggest challenge of our time.

Emily is currently working on her fifth book, which examines how resilience ideas have helped to reshape development thinking, and is about to undertake a new and exciting role as the Director of Lund University Centre for Sustainability (LUCSUS).

Below. Putting community-led adaptation activities into action; getting citizens involved in decisions that increase their resilience to climate change and the future sustainability of their neighbourhoods. Maputo, Mozambique.

PROFESSOR JO LONGHURST

"I felt very much supported by the Leverhulme, and encouraged to develop my work through my practice"

The Leverhulme Trust's support for practice-led research helped Jo Longhurst build her career as a prize-winning international photographer, focussing on social projects and cultural notions, alongside her academic pursuits

When artist, Jo Longhurst, applied for her 2008 Early Career Fellowship, her work was already attracting international attention. She had recently completed her practice-led PhD at the Royal College of Art, exploring the world of British whippet breeders and their obsessive quest for the perfect dog. The compelling photographic installations in her doctoral exhibition, *The Refusal*, question ideas of conformity and difference, breeding and eugenics, and invite us to consider how society is shaped and controlled by cultural notions of perfection. But she was determined not to be typecast as a 'dog photographer'.

Jo's fellowship – held part-time at the European Centre for Photographic Research, University of Wales, Newport – allowed her to develop a parallel case study, *Perfect*, exploring the competitive world of élite gymnastics in a way that is rarely made visible: "For me, the research wasn't concerned with creating perfect photographs or perfect performances; but rather about exploring the human experience of striving for perfection, and how this shapes personal and national identities, as well as social and political systems" Jo explains. The work she created has since won her wide acclaim – including one of the most prestigious international contemporary photography awards, the Art Gallery of Ontario's Grange Prize 2012 – although, as Jo remembers, some of the gymnasts she worked with were not that impressed at the time: "For them a photographer was a sports photographer who took certain types of images; they were constantly disappointed by the artistic experimentation that was going on," she laughs.

The project proved challenging from the start: difficulties gaining access to the gymnasts; difficult working conditions in the gym; and difficulties finding suitable exhibition venues were compounded by a constant struggle to meet the expenses of creating this type of work. So much so that until her exhibition, *Other Spaces*, was safely installed in its first venue at Mostyn, Llandudno, Jo was never really certain that she would pull it off. She was also genuinely surprised when she won the Grange Prize: "That was really quite something," she explains, "because although the shortlist was selected by international curators and critics, the final winner was chosen by public vote; it was particularly touching to have both professional and public recognition."

Gaining academic recognition is more of a work in progress, however. Still in its infancy, particularly at postdoctoral level, practice-led research tends to be undervalued within academia, Jo says: "Research through art practice is just as demanding – maybe even more so – than research which is purely text-based, but it is often seen as less valid. My Early Career Fellowship was particularly special because I felt very much supported by the Leverhulme, and encouraged to develop my work through my practice, as well as the usual academic outputs." On completion of her Fellowship Jo travelled to Canada to undertake a residency at the Art Gallery of Ontario, and on her return, after giving a keynote on *Other Spaces* at the 'On the Verge of Photography' Conference at Birmingham School of Art, she was offered a research fellowship there. Now Senior Research Fellow and part-time Professor of Photography and Fine Art Practice, Jo continues to pioneer practice-led research, and is currently working on new artworks with gymnasts from a social project in a Rio favela, which further develops her interest in cultural notions of perfection.

DR ELEANOR ROSAMUND BARRACLOUGH

"It was absolutely the best thing to happen to me in my professional career"

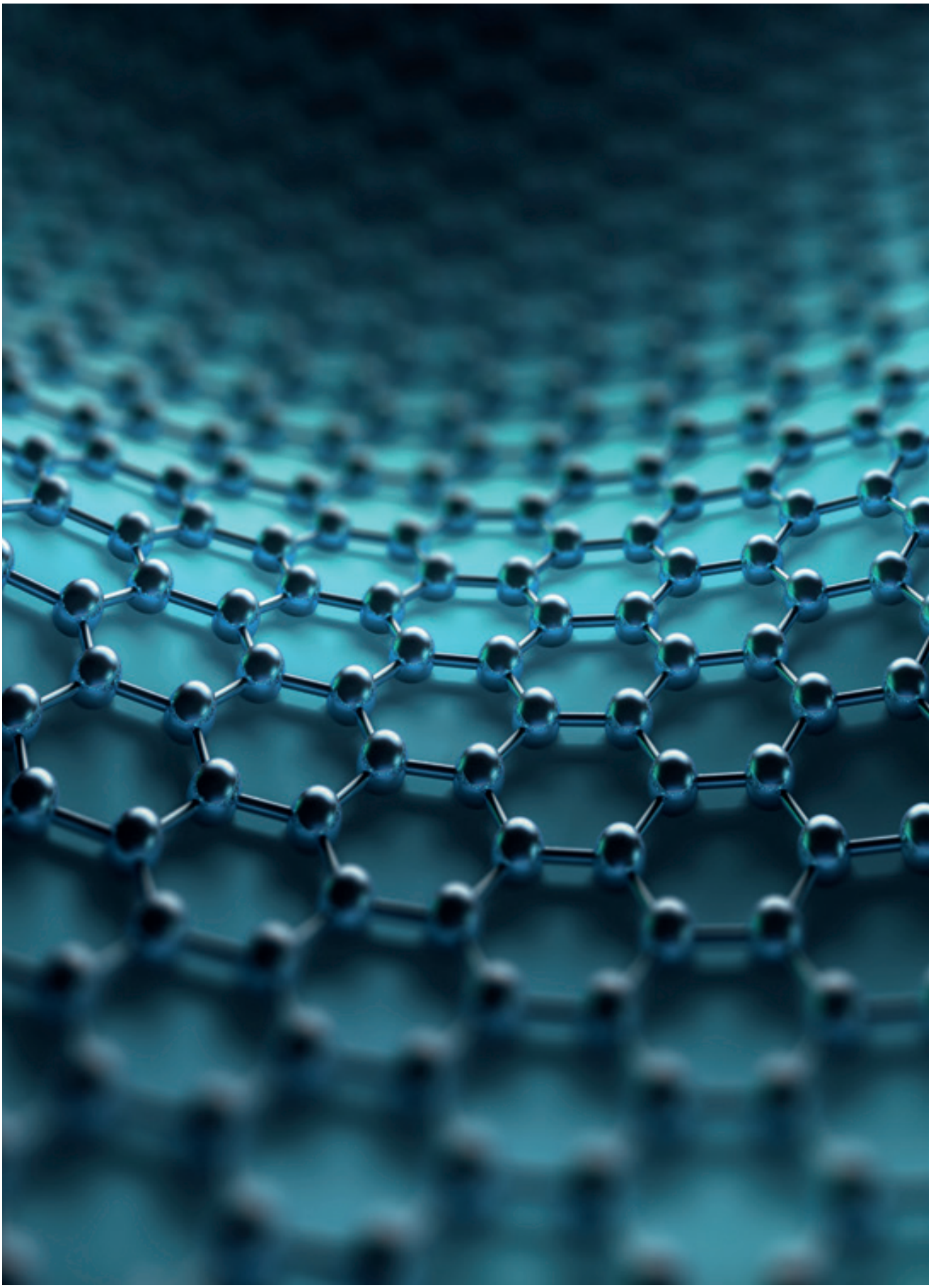
Eleanor Rosamund Barraclough's fellowship took her from a prospective career in advertising to an academic discovery of the world of the Vikings depicted in the literature of their sagas, and a permanent lectureship

Eleanor Rosamund Barraclough was leaving the academic world for good. After seven years in the Department of Anglo-Saxon, Norse and Celtic at the University of Cambridge, she had an honours degree, an MPhil, a PhD… and an overwhelming desire never to set foot in another library. Instead, she took an internship at a London advertising agency, soon making herself an indispensable member of the team. But the day they offered her a permanent contract was the same day she received the offer of a 2011 Early Career Fellowship at Oxford University: "There was a horrible moment of indecision when I could see these two paths ahead of me," Eleanor says. But the generosity of the Leverhulme fellowship tempted her back to academia, to write a book on the Viking world depicted in the Norse sagas. Although a project based on literary analysis of medieval texts, Eleanor's plans for the £6,000 annual research budget were anything but bookish.

The Vikings of the sagas were not only fearsome warriors but pioneering settlers, farmers, traders; and above all explorers. From Iceland they travelled north to Arctic Norway, south to the Holy Land, east to the Russian kingdoms, and west to Greenland and the fringes of North America. For her Leverhulme project, Eleanor travelled to each point of the Viking compass, following the trails of some of these medieval adventurers and working with local experts, from a range of disciplines, to discover what could be found of the world remembered and re-imagined in the saga literature.

The fellowship funded "two glorious summers" in Greenland, exploring the Viking settlements founded in the tenth century by Eric the Red. Vast, icy and almost deserted, the Greenland of today, like the Greenland of the pioneering Norsemen, is notoriously difficult to get around and Eleanor's first fieldtrip was conducted almost entirely on horseback; the second was in a boat navigated by its owner, a local caribou hunter. Eleanor also travelled south to Rome, following in the footsteps of Norse pilgrims; then east to Istanbul, the site of the former Byzantine capital, Constantinople, where Vikings had worked as traders, mercenaries, and even as the emperor's personal bodyguards. Finally, she headed to Arctic Norway, following the trail taken by the ninth-century Norse explorer and trader, Ohthere, from Tromsø to Europe's northernmost point. Travelling along the craggy landscapes of that wild northern coastline route, it was easy to imagine the trolls and giants and other-wordly creatures that lurk in the mythological sagas of the far North.

In 2013, Eleanor was selected as one of the BBC/AHRC New Generation Thinkers, and commissioned to make a radio documentary on her search for the *Supernatural North*. Aired on Radio 3, her programme also featured on Radio 4's *Pick of the Week*, giving the BBC the irresistible opportunity to rebroadcast Eleanor asking: "What are you going to do to me with that walrus penis bone?" as she was knighted into the Royal and Ancient Polar Bear Society with an object resembling a baseball bat. Now a lecturer in Medieval English at Durham University, she has no regrets about her career U-turn, saying: "It was absolutely the best thing to happen to me in my professional career." Eleanor's book: *Beyond the Northlands: Viking Voyages and the Old Norse Sagas* will be published by Oxford University Press.



DR RAHUL RAVEENDRAN NAIR

"I had the freedom I needed to prove myself as an independent researcher"

An Early Career Fellowship not only enabled Rahul Nair to carry out ground-breaking research on the properties of graphene oxide membranes, but also acted as a springboard to establishing his own research group and an independent research career

In 2012, graphene was back in the news. Its growing list of 'miracle' properties with potentially world-changing applications have proved a rich source of headlines since 2004, when Manchester University's Andre Geim and Konstantin Novosolev first reported its discovery. Although probably most famous for its remarkable ability to conduct electrons, this one-atom thick lattice of carbon atoms has many other unique and often surprising features: the world's thinnest material it is nevertheless the strongest ever measured; it is transparent yet so dense that even the smallest of gases, helium, cannot pass through it.

Rahul Nair, a PhD student in Andre's group, was studying the permeability of a derivative of graphene, when he uncovered a particularly intriguing new property. He found that sealing a metal container with a graphene oxide membrane made it vacuum tight, preventing even helium leaking through; but to his surprise, water vapour could escape as though the membrane wasn't even there. To demonstrate just how unexpected this behaviour was, Rahul and Andre sealed a container of vodka with a graphene oxide membrane and left it for a few days. The water evaporated but the more volatile alcohol molecules were trapped: the vodka got stronger and stronger. The *Science* article reporting their findings sparked global interest from academics and industry alike, while the demonstration of graphene's latest 'miracle' property created something of a media storm.

Soon after, Rahul took up his 2012 Early Career Fellowship for a project to study the superconductivity of graphene and other two-dimensional materials. He says he applied for the award because he knew that one of his senior colleagues had held an Early Career Fellowship, "and I could see from his CV that this had definitely helped him with establishing his independent career." This turns out to be one of Rahul's characteristic understatements. His role model was Konstantin – now Professor Sir Konstantin – whose 2004 Early Career Fellowship had supported some of the research recognised with the 2010 Nobel Prize that he shares with Andre Geim.

Although work on graphene oxide membranes was not in his original fellowship proposal, Rahul soon shifted his focus to stay ahead of the competition in this emerging area. Within two years, he had secured more than £2 million in industry support, established his own research group and published more ground-breaking research on the properties of graphene oxide membranes. In 2014, Rahul resigned from his Leverhulme award to take up a prestigious five-year Royal Society Research Fellowship: "This wouldn't have been possible without the Leverhulme Fellowship, particularly the opportunity it gave me to become principal or co-investigator of many research grants. I had the freedom I needed to prove myself as an independent researcher."

Recently promoted to Reader, Rahul continues to explore the properties of graphene oxide-based membranes and their potential applications. His research team is making promising progress towards membranes to separate water from mixtures of gases; and as coatings to protect against corrosion. "More interesting but also more challenging, we are trying to develop a graphene oxide-based water filter [such filters may offer the solution to one of the greatest challenges facing society today by providing a potentially cheap and efficient way of producing freshwater from our Earth's oceans] so, there we have more competition," he says "but if we are successful, it will also be very good."

DR RICHARD MORTON

"Leverhulme funding has helped me continue building my career as a scientist"

Why is the atmosphere of a cool star a million degrees hotter than its surface? With his current Early Career Fellowship Richard Morton's research aims to advance our understanding of this mystery by exploiting ultra-modern telescopes to investigate solar waves

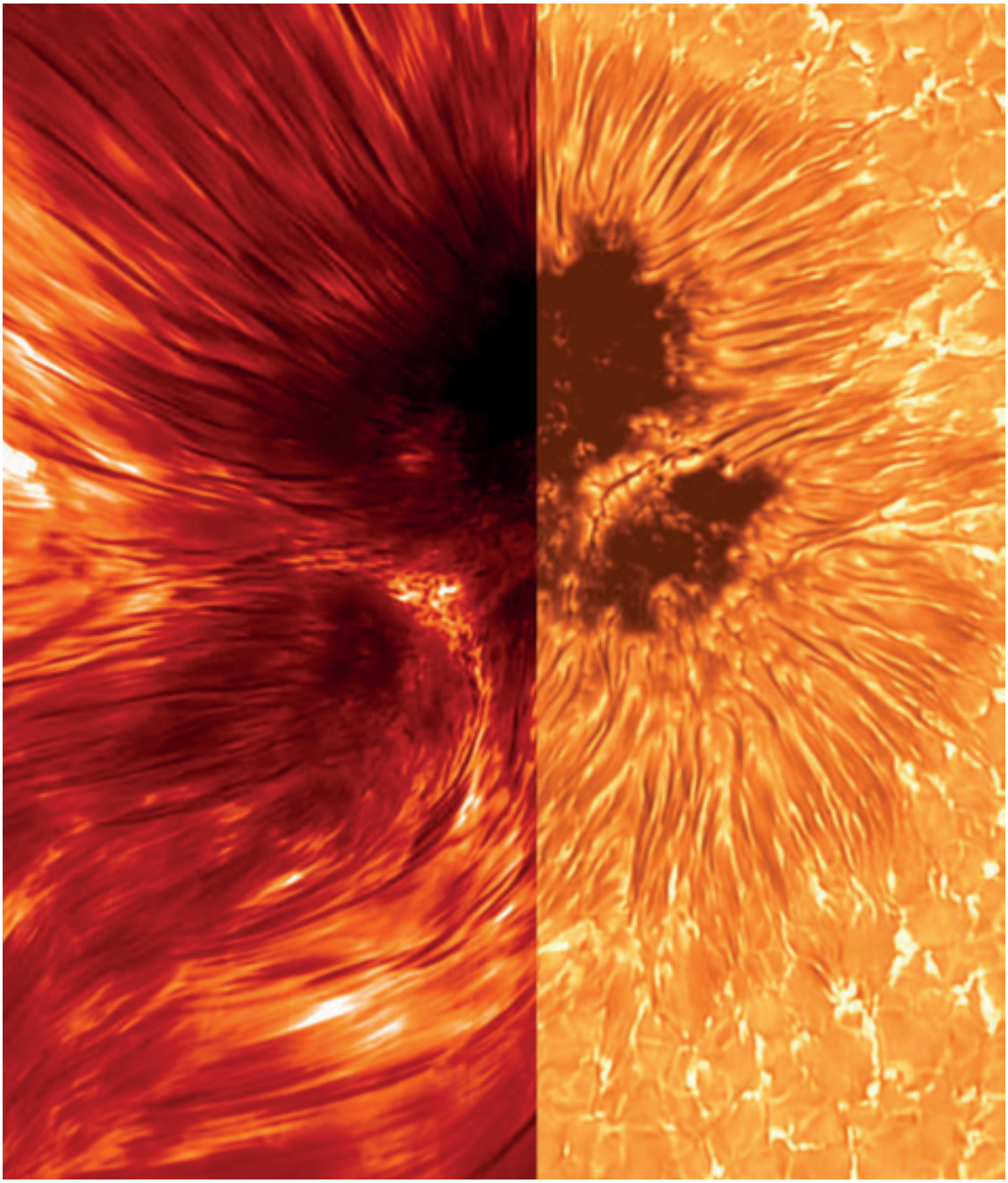
In 2011, the UK Government added a new threat to the National Risk Register: severe space weather. So reliant have we become on our high-tech infrastructure, that such an event could cause worldwide devastation, disrupting communications, satellite navigation systems, and the power grid network. In response, the Met Office now provides daily updates of the outlook from space and is working with US experts to develop an effective forecasting service; but our understanding of the fundamental physical processes that drive space storms still lags far behind that of the more Earthly variety.

Space weather results from solar activity, including a ferocious wind that streams off the Sun at speeds ranging from 500,000 to 2,000,000 miles an hour. What drives this wind – and specifically what role powerful solar magnetic waves, known as Alfven waves, play in its acceleration – is the focus of a project led by current Early Career Fellow, Dr Richard Morton at Northumbria University. Richard's research combines analytical modelling with observations obtained by state-of-the-art telescopes; and the significant contributions he has made to magnetic wave theory and magnetoseismology of the Sun were recently recognised with the 2015 Royal Astronomical Society Winton Capital Award in geophysics.

Richard moved to Northumbria in 2012 to join the newly established Solar Research Group on a three-year university research fellowship but resigned that position to take up a Leverhulme Early Career Fellowship in 2014. In the first year of his Leverhulme fellowship, Richard spent time at the US National Centre for Atmospheric Research in Colorado, working with other solar researchers including Dr Steven Tomczyk. Steven is one of the designers of the Hawaii-based Coronal Multichannel Polarimeter (CoMP) telescope, an instrument particularly useful for observing Alfven waves on the outermost layer of the Sun's atmosphere. Analysing data from CoMP and NASA's solar satellite, Richard and his colleagues made the discovery that the magnetic waves they were studying travel in both directions along the Sun's magnetic field. Published in *Nature Communications*, 2015, this finding is particularly exciting because the collision of these oppositely-directed tsunamic waves could release the energy to feed the solar wind. Future studies should reveal how much energy the waves supply and may help to forecast solar wind speeds.

Another highlight from Richard's first year of Leverhulme support was leading Northumbria's successful bid to join a consortium of international institutions contributing to the Daniel K Inouye Solar telescope (DKIST). Currently in construction on Haleakala Mountain on the island of Maui, Hawaii, this will be the world's biggest solar telescope and will pick up unprecedented detail on the Sun's surface. Without distractions, such as the potentially heavy teaching burden associated with his university fellowship, Richard has been able to focus on Northumbria's contribution to DKIST, which aims to develop the software needed for the automated tracking detection of solar waves. "Leverhulme funding has helped me continue building my career as a scientist," he says. "Without it I wouldn't have had as much time to write the DKIST bid or to be as involved with it as I am now." Much of Richard's remaining fellowship will be devoted to developing wave tracking techniques; success will secure a position of leadership for the Solar Research Group to exploit the data from this revolutionary telescope, but there's a lot of work to be done before first light in 2019.

Below. The Sun's lower atmosphere. Light from calcium atoms can be used to probe the fine-scale magnetic structures of the Sun. The picture shows the chromosphere (left) and photosphere (right) above a sunspot, as seen in calcium. Data is from the Swedish Solar Telescope, observed by V. Henriques. Image designed by R. Morton.



AWARDS MADE

Find listings for all awards made by the Trust in 2015. Details are given for each of the funding schemes across the Sciences, Humanities and Social Sciences

AWARDS MADE IN 2015

Leverhulme Research Centres

Institutions receive up to £10,000,000 over ten years.

Professor David Beerling
University of Sheffield
The Leverhulme Centre for Climate Change Mitigation

Professor Sue Black
University of Dundee
The Leverhulme Centre for Forensic Science

Professor Andrew Cooper
University of Liverpool
The Leverhulme Centre for Functional Materials Design

Professor Huw Price
University of Cambridge
The Leverhulme Centre for the Future of Intelligence

Research Project Grants

Sciences

Dr Nicola Allison
University of St Andrews
The control of coral biomineralisation
£169,406

Dr Simon Ameer-Beg
King's College London
Super-resolved functional mapping of protein–protein interactions
£390,143

Dr Edward Anderson
University of Oxford
Sequence-based stereochemical prediction: a new tool for polyketide structure elucidation
£161,082

Professor Peter Andras
University of Keele
Designing and validating novel voltage-sensitive dyes for neuroscience research
£178,374

Dr Steve Atkinson
University of Nottingham
Human body lice – a missing link in plague outbreaks?
£151,469

Dr Wael Bahsoun
Loughborough University
Statistical properties of dynamical systems: an interplay between randomness and determinism
£126,818

Dr Michail Barkoulas
Imperial College London
Quantitative evolution of nematode gene regulatory networks
£173,412

Professor Paul Barlow
University of Edinburgh
Probing regulation of the complement system by factor H on biomimetic surfaces
£218,671

Professor Martin Barstow
University of Leicester
Fundamental physics from observations of white dwarf stars
£349,540

Dr Ulrike Bechtold
University of Essex
Sugar signalling during drought stress; do plants suffer diabetes when stressed?
£229,949

Professor Simon Belt
University of Plymouth
A novel proxy for reconstructing polar ocean temperatures
£164,557

Professor Michael Benton
University of Bristol
The exceptional early Jurassic fossils of Strawberry Bank, Somerset
£240,754

Professor Timothy Birkhead
University of Sheffield
Evolution of avian egg design
£261,958

Professor Tim Blackburn
University College London
The phylogenetics of invasions: untangling evolutionary and human historical contexts in the introduction and spread of alien bird species
£100,211

Dr Andrew Brennan
University of Dundee
Influence of plant roots on soil resistance to earthquake-induced liquefaction
£168,111

Dr Marc Buehner
Cardiff University
Time and causality in cognitive development
£228,829

Dr Silvana Cardoso
University of Cambridge
Precipitation reactions in environmental plumes: implication for oceanic methane releases
£204,433

Professor Tracey Chapman
University of East Anglia
Evolutionary genomics of the enigmatic male sex peptide: a 'master regulator' of female reproduction
£55,399

Professor Brian Charlesworth
University of Edinburgh
Analysing genomewide patterns of DNA sequence variation and evolution in *Drosophila*
£164,333

Professor Daniel Charman
University of Exeter
Holocene evolution of the Southern Annular Mode using novel peat isotope proxies
£245,011

Dr Dylan Childs
University of Sheffield
Individual energy budgets, life histories and population dynamics in the field
£159,336

Dr Barbara Ciani
University of Sheffield
Designing recyclable self-assembled fibrous biomaterials
£163,670

Professor Jonathan Clayden
University of Bristol
Dynamic communication through reorganisable hydrogen bond networks
£195,989

Dr Claudia Clopath
Imperial College London
Receptive field development through synaptic plasticity
£98,351

Dr Ben Collen
University College London
Predicting the dynamics of African ecosystems under multiple pressures
£293,535

Dr Serena Corr
University of Glasgow
Multifunctional magnetic nanocomposites for artefact conservation
£263,345

Dr Claire Cousins
University of St Andrews
Looking for life in the UV: fluorescence as a tool for planetary exploration
£159,971

Professor Ian Crawford
Birkbeck, University of London
Assessing the potential of lunar geology as a window into galactic history
£174,468

Dr Mark Crimmin
Imperial College London
Sigma-Bond activation with weakly-coordinated sigma-complexes of copper(I)
£116,532

Professor Darren Croft
University of Exeter
The evolution of eye salience as a signal for communication
£186,907

Dr Angel Cuesta
University of Aberdeen
Electroreduction of carbon dioxide in room temperature ionic liquids
£138,278

Dr Clare Cunningham
Abertay University
Effects of social and practical experience on tool manipulation skills in small apes
£121,780

Professor Nicholas Dale
University of Warwick
Structural basis of the CO_2 sensitivity of Cx26 and role in human physiology
£172,834

Dr Silvia Dalla
University of Central Lancashire
Predicting solar energetic particle radiation at Earth and Mars
£159,542

Professor Peter Davidson
University of Cambridge
Are planetary magnetic fields generated and maintained by inertial waves?
£246,028

Dr Charlotte Dean
Imperial College London
Real-time imaging of murine alveolarisation
£112,933

Dr Alfonso De Simone
Imperial College London
Biomolecular mechanisms in heterogeneous systems: the interfacial activation of lipases
£189,084

Dr Bruno Dhuime
University of Bristol
Silicate mineral inclusions and the composition of new continental crust
£184,313

Professor Simone Di Giovanni
Imperial College London
The novel role of reactive oxygen species in axonal growth and regeneration
£280,030

Dr Simon Doherty
Newcastle University
Engineering high performance alkaline anion membranes for electrochemical applications
£106,871

Professor Andrew Dove
University of Warwick
Alkene-containing polymers: novel synthetic elastomers inspired by nature
£184,714

Professor Judith Driscoll
University of Cambridge
Next generation electronic devices using a new thin film
£241,069

Dr Christopher Duffy
Queen Mary, University of London
Carotenoids in light harvesting: a general molecular theory
£149,718

Dr Bertram Düring
University of Sussex
Novel discretisations of higher-order nonlinear PDE
£257,236

Dr Gregory Edgecombe
Natural History Museum
Anomalocaridids and the origin of arthropods: the view from Chengjiang
£144,321

Professor Martin Eimer
Birkbeck, University of London
Neural and cognitive mechanisms of multimodal working memory
£185,528

Dr Roberto Filippi
Anglia Ruskin University
An investigation of the effects of multi-language acquisition across the lifespan
£279,774

Dr Sergi Garcia-Manyes
King's College London
LINC-ing nanomechanics to gene expression: a single molecule approach
£199,066

Dr Emmanuil Georgoulis
University of Leicester
Reduced complexity finite element methods
£199,662

Professor Andrew Goodwin
University of Oxford
Ice-like structural disorder in transition-metal cyanides
£223,543

Professor Malcolm Halcrow
University of Leeds
Exploiting a spin-crossover module in materials chemistry and nanoscience
£177,228

Professor Karl Hale
Queen's University Belfast
Towards a new total synthesis of (+)-acutiphycin via O-directed hydrostannation
£245,468

Dr Karen Halliday
University of Edinburgh
cpRNA proteins: novel candidates for environmental control of photosynthesis
£122,897

Professor William Harwin
University of Reading
3D learning in a rich cooperative haptic environment
£253,141

Dr Ross Hatton
University of Warwick
Engineering hybrid interface materials for thin film photovoltaics
£166,140

Professor Daniel Haydon
University of Glasgow
From observation to intervention: overcoming weak data with new approaches to complex biological problems
£181,909

Professor Douglas Heggie
University of Edinburgh
New science from the phase space of dense stellar systems
£177,131

Professor Alistair Hetherington
University of Bristol
UVA signalling in plants
£63,676

Professor Peter Hollingsworth
Royal Botanic Garden Edinburgh
Using DNA to understand bamboo and the complexity of giant panda diet
£253,608

Professor Christopher Howe
University of Cambridge
Biological photovoltaic cells in ultra-small volumes
£171,844

Professor Herbert Huppert
University of Cambridge
Carbon dioxide sequestration: theory, experimental and field verifications
£159,625

Dr Simon Jones
University of Sheffield
Multifunctional catalysts for selective phosphoryl transfer
£50,556

Dr Antonios Kanaras
University of Southampton
Nanoparticles with synergistic roles: sensing and drug delivery
£191,412

Dr Euan Kay
University of St Andrews
Switching on colloidal catalysts with rotaxane nanoparticle monolayers
£252,602

Dr Kayla King
University of Oxford
Transitions to defensive mutualism: an experimental coevolution approach
£226,955

Professor Ludmila Kuncheva
Bangor University
Prototype selection from streaming, drifting and partly-labelled data using classifier ensembles
£226,625

Professor Tom Little
University of Edinburgh
Cross-generational epigenetic effects of age and diet restriction
£202,932

Dr Karen Lander
University of Manchester
Investigating the role of movement in the recognition of identity from facial composites
£92,703

Dr Jonathan Lee
University of Birmingham
Stimulating the destabilisation of fear and traumatic memories
£180,843

Dr Bruno Linclau
University of Southampton
19F NMR exchange spectroscopy of polyfluorosugar transport across cell membranes
£102,266

Dr Paul Lusby
University of Edinburgh
Autonomous, photochemically-fuelled molecular machines
£248,081

Dr Dermot Lynott
University of Lancaster
If it looks like a duck: emergent categorical structure in the human conceptual system
£132,423

Professor Phil Luthert
University College London
Nature-inspired engineering solutions for the optimisation of heat and mass transfer systems
£111,809

Professor Andrei Malkov
Loughborough University
A novel approach to asymmetric synthesis of homoallylic amines
£162,456

Dr Eros Mariani
University of Exeter
Quantum drum
£258,209

Professor Frank Marken
University of Bath
New materials for ionic diodes and ionic photodiodes
£204,712

Dr Nathan Mayne
University of Exeter
Examining cloud-induced variability in brown dwarfs
£235,677

Dr Sylvia McLain
University of Oxford
Atomic scale insights into the role of water and urea in the protein-folding process
£249,313

Dr James McLaughlin
Northumbria University
Revealing the fundamental nature of time-dependent, wave-generating reconnection
£199,773

Professor Simon McQueen-Mason
University of York
Mannitol metabolism in marine microalgae: physiology and applications
£249,173

Dr Reinhold Medina
Queen's University Belfast
Exploring a novel role for interferon signalling in cellular senescence
£260,505

Professor Joanna Morgan
Imperial College London
Santorini: high-resolution imaging of an active volcano with 3D full-waveform inversion
£228,055

Dr Louis Morrill
Cardiff University
The productive merger of organocatalysis and frustrated Lewis pairs
£175,992

Dr Julie Morrissey
University of Leicester
Air pollution is changing the behaviour of bacteria
£196,713

Professor Klaus Muller-Dethlefs
University of Manchester
Non-covalent interactions: an experimental and theoretical pathway towards exact binding energies
£153,531

Dr John Mulley
Bangor University
Mapping the gerbil genome
£182,005

Dr Maria Paz Munoz-Herranz
University of East Anglia
New transition-metal catalysed cascade cyclisations of tris(allenes)
£161,730

Dr Naomi Nakayama
University of Edinburgh
The form and function of the dandelion fruit
£340,626

Professor Kate Nation
University of Oxford
The Oxford children's corpus: lessons for learning to read
£182,196

Dr Emily Nurse
University College London
A novel technique to search for dark matter at the Large Hadron Collider
£288,386

Dr Gabriela Ochoa
University of Stirling
The cartography of computational search spaces
£99,147

Dr Gareth Owen
University of South Wales
Hydrogen atom storage catalysts: new reaction pathways and novel synthetic transformations
£190,842

Dr Susan Perkin
University of Oxford
Electric and magnetic field effects on confined liquids
£241,665

Professor Lazaros Papageorgiou
University College London
A unified framework for formulating and solving optimisation problems of multiple classes
£240,311

Dr Kevin Paterson
University of Leicester
Revealing effects of ageing on parafoveal processing during reading
£150,302

Professor Martin Paterson
Heriot-Watt University
The density matrix renormalisation group for inorganic photochemistry
£142,397

Dr Richard Payne
University of York
Quantifying carbon accumulation and loss in afforested peatlands
£107,831

Dr Deborah Pearce
Oxford Brookes University
pMMO in plants for methane detoxification and as a carbon negative biofuel
£113,868

Dr Annette Plaut
University of Exeter
Controlled stress – thermally inducing strain in graphene
£133,013

Dr Simon Pope
Cardiff University
Decorated diamonds: new luminescent hybrid materials
£168,148

Dr Nikola Popovic
University of Edinburgh
The nature of gene expression: model selection and parameter inference
£130,477

Professor Alexander Ruban
Queen Mary, University of London
Inside the photosynthetic membrane of diatoms
£181,352

Dr Shuzo Sakata
University of Strathclyde
The function of sub-second brain waves in REM sleep
£232,495

Professor Manuel Salmeron-Sanchez
University of Glasgow
Living interfaces based on non-pathogenic bacteria to control stem cell differentiation
£182,536

Professor Tatjana Sauka-Spengler
University of Oxford
Deciphering neural crest gene regulatory circuitry in the lamprey
£278,139

Dr Carola-Bibiane Schönlieb
University of Cambridge
Breaking through the non-convexity barrier – optimisation of imaging problems
£232,604

Professor Dmitry Shalashilin
University of Leeds
Understanding the mechanisms of photostability of biochemical building blocks from quantum simulation and imaging experiments
£298,670

Professor Zheng-Ming Sheng
University of Strathclyde
Attosecond light pulses at unprecedented peak power
£151,577

Dr Hannah Siddle
University of Southampton
Identifying peptide candidates for a vaccine against the contagious cancer, Devil Facial Tumour Disease
£183,759

Dr Joy Singarayer
University of Reading
Testing the influence of lake/wetland-climate feedbacks on African hydroclimate
£144,570

Professor Dmitry Skryabin
University of Bath
Solitons and frequency combs in micro-ring resonators
£138,083

Dr Victoria Southgate
Birkbeck, University of London
A longitudinal investigation of the development of mimicry in infancy
£254,146

Dr Imogen Sparkes
University of Exeter
Biophysical and molecular characterisation of ER-organelle interactions in plants
£258,716

Professor Stephen Sparks
University of Bristol
Global explosive volcanism, their hazards and influence on climate
£257,688

Dr Karen Spencer
University of St Andrews
Social networking: understanding the neuroendocrine basis of gregarious behaviour
£107,920

Dr James Sprittles
University of Warwick
Skating on thin nanofilms: how liquid drops impact solids
£145,619

Dr David Summers
University of Cambridge
Indole signalling and the electrical properties of the bacterial cell membrane
£162,118

Dr Paul Taylor
Natural History Museum
Origin of high tropical diversity: a test using bryozoans
£129,039

Professor Adrian Thomas
University of Oxford
Adaptations for low drag, downforce and eddy use in hill stream loaches
£221,958

Professor Geoffrey Vallis
University of Exeter
The atmosphere, ocean and climate of Earth and other planets
£246,785

Dr Baojun Wang
University of Edinburgh
Programmable single-cell biocomputers with scalable signal processing capacity
£160,211

Dr Nicholas Waterfield
University of Warwick
Understanding and exploiting natural molecular syringes
£285,282

Dr Allan Watson
University of Strathclyde
Can amine catalysis generate synthetically useful carbenes?
£101,689

Professor Andrew Weller
University of Oxford
The coordination chemistry of light alkanes with metal centres: a homologous series of sigma–alkane complexes, C–H activation and catalysis
£95,136

Professor Mark Weller
University of Bath
Rare earth element free, sustainable yellow orange phosphors
£150,693

Dr Raymond Wightman
University of Cambridge
How cell wall components contribute to the function of the shoot apical meristem in plants
£156,708

Professor Gregory Wildgoose
University of East Anglia
Developing metal-free electrocatalysts for renewable hydrogen production
£84,157

Dr Joseph Wright
University of East Anglia
Hydrogen bonding relays for CO_2 activation: taking a lead from biology
£162,655

Professor Keke Zhang
University of Exeter
The non-spherical geodynamo driven by both convection and precession
£203,163

Humanities

Professor Paul Allain
University of Kent
Physical actor training – an online A–Z and ebook
£76,908

Dr Jackson Armstrong
University of Aberdeen
Law in the Aberdeen council registers 1398–1511: concepts, practices, geographies
£310,455

Professor Terry Brown
University of Manchester
The identity of the mysterious 'new glume wheat' of early European agriculture
£146,043

Dr Fiona Edmonds
University of Cambridge
Brittany and the Atlantic archipelago: contact, myth and history, 450–1200
£139,309

Professor Mark Edmonds
University of York
Sound tracks: acoustic landscapes in the past and present
£88,682

Dr Joanna Evans
University College London
Luis Buñuel: a life in letters
£252,238

Professor Malcolm Gaskill
University of East Anglia
Inner lives: emotions, identity and the supernatural, 1300–1900
£249,524

Professor Ian Gregory
University of Lancaster
Geospatial innovation in the digital humanities: a deep map of the Lake District
£230,954

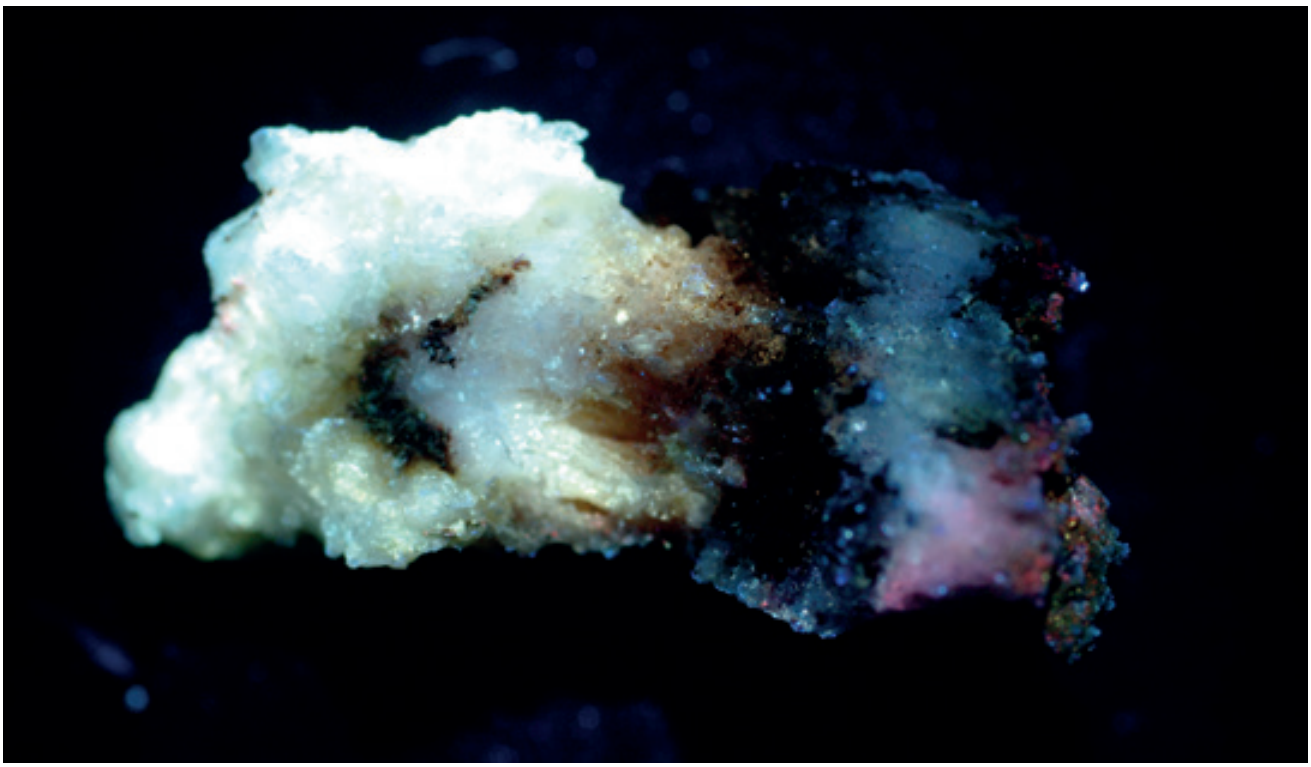
Dr Peter Gurney
University of Essex
National Service life stories: masculinity, class and the memory of conscription in Britain
£222,779

Professor Carole Hough
University of Glasgow
Recovering the earliest English language in Scotland: evidence from place-names
£274,523

Dr Siobhan Lambert-Hurley
Loughborough University
Veiled voyagers: Muslim women travellers from Asia and the Middle East
£91,977

Professor Adam Ledgeway
University of Cambridge
Fading voices in Southern Italy: investigating language contact in *Magna Graecia*
£253,863

Ms Frances Lennard
University of Glasgow
From the golden age to the digital age: modelling and monitoring historic tapestries
£204,283



Dr Francesca Leoni
University of Oxford
Divination and art in the medieval and early modern Islamic world, 1200–1800
£107,547

Professor Alan Lester
University of Sussex
Snapshots of empire: managing a diverse empire all at once
£134,935

Dr Lisa Lewis
University of South Wales
Welsh and Khasi cultural dialogues: an interdisciplinary arts and performance project
£286,349

Professor Donald MacRaild
University of Ulster
The Irish and British famine, 1845–1850: comparing lives lost and lives saved
£235,454

Dr Albert Remijsen
University of Edinburgh
A descriptive analysis of the Shilluk language
£216,564

Professor David Reynolds
University of Cambridge
Stalin's correspondence with Churchill and Roosevelt in World War Two
£138,996

Professor Neil Roberts
University of Plymouth
Changing the face of the Mediterranean: land cover and population since the advent of farming
£298,065

Dr Sarah Semple
Durham University
People and place: the making of the Kingdom of Northumbria, 300–800 CE
£275,742

Professor Richard Sharpe
University of Oxford
The medieval books of Canterbury Cathedral
£117,425

Professor Stephen Shennan
University College London
Supply and demand in prehistory? Economics of Neolithic mining in NW Europe
£370,464

Dr Andrew Malcolm Taylor
University of Edinburgh
The Cantos Project
£307,852

Professor Gregory Toner
Queen's University Belfast
Dating of medieval texts through regressive analysis of the lexicon
£229,345

Dr Catherine Whistler
University of Oxford
Transforming our understanding of Raphael with eloquence in drawing as a research theme
£135,265

Social Sciences

Professor Miriam Bernard
University of Keele
The ageing of British gerontology: learning from the past to inform the future
£140,606

Dr Mitchell Callan
University of Essex
Rejecting innocent victims: the roles of relative judgments and emotional impact
£103,128

Professor Richard Disney
Institute for Fiscal Studies
Modelling heterogeneity in microeconomic investment hazards
£124,167

Dr Jonathan Dean
University of Leeds
Exploring left-wing populism in an age of anti-politics
£141,454

Professor Igor Goncharov
University of Lancaster
Accounting-based value: when is accounting useful in determining firm value?
£79,678

Professor Geoffrey Haddock
Cardiff University
The impact of mindfulness on values and attitudes
£153,878

Professor Adam Hardy
Cardiff University
The Nagara tradition of temple architecture: continuity, transformation, renewal
£270,284

Dr Stephen Jivraj
University College London
A life-course approach to neighbourhood effects
£141,323

Dr Christopher Lloyd
University of Liverpool
Mapping lineages: quantifying the evolution of maps of the British Isles
£186,832

Dr Alberto Montagnoli
University of Sheffield
The impact of austerity policies on the wellbeing of individuals in Europe
£109,726

Professor Ben Rampton
King's College London
Adult language socialisation in the Sri Lankan Tamil diaspora in London
£227,532

Dr Olmo Silva
London School of Economics and Political Science
A randomised control trial to identify the causal effect of accelerator programmes
£234,029

Professor David Thomas
University of Oxford
Landscape archaeology of the Kalahari: how did major hydrological shifts affect Stone Age mobility and landscape use in the late Quaternary?
£234,895

Dr Jenny Thomson
University of Sheffield
Evaluating the effect of exposure to digital text on early literacy development
£189,038

Dr Mirco Tonin
University of Southampton
The long-term effects of property rights and institutional ownership on regional development
£119,820

Dr Kate Weiner
University of Sheffield
Knowledge, care and the practices of self-monitoring
£217,770

International Networks

Sciences

Professor Feodor Borodich
Cardiff University
Nano-phenomena and functionality of modern carbon-based tribo-coatings
£124,988

Dr Chiara Ciccarelli
University of Cambridge
Interplay between spin-currents and magnetisation dynamics in anti-ferromagnets
£40,500

Professor Ivan Konoplev
University of Oxford
Advanced research on generation of THz and X-ray radiation
£115,589

Humanities

Dr Marianne Ailes
University of Bristol
Charlemagne: a European icon. Charlemagne in different European cultures
£110,839

Professor Anthony Bale
Birkbeck, University of London
Pilgrim libraries: books and reading on the medieval routes to Jerusalem and Rome
£112,131

Dr Jenny Benham
Cardiff University
Voices of law: language, text and practice
£79,464

Dr Maud Bracke
University of Glasgow
Translating feminism: transfer, transgression, transformation, c.1960–1990
£108,509

Professor Douglas Cairns
University of Edinburgh
Emotions through time: from antiquity to Byzantium
£99,257

Professor Robert Gildea
University of Oxford
A transnational approach to resistance in Europe, 1936–1948
£90,886

Professor Dirk Göttsche
University of Nottingham
Landscapes of realism: rethinking literary realism(s) in global comparative perspective
£124,942

Professor Axel Körner
University College London
Re-imagining italianità: opera and musical culture in transnational perspective
£124,789

Dr Toby Meadows
University of Aberdeen
Set theoretic pluralism: indeterminacy and foundations
£105,728

Professor Peter Mitchell
University of Oxford
Spanning the Atlantic: human palaeodemography in southern hemisphere drylands
£119,932

Professor Gary D Morgan
City University London
Trans-national perspectives on sign language learning
£119,371

Dr Cormac Newark
Guildhall School of Music and Drama
Screen adaptations of *Le Fantôme de l'Opéra*: routes of cultural transfer
£109,200

Dr Simon Potter
University of Bristol
Connecting the wireless world: writing global radio history
£100,592

Professor Dee Reynolds
University of Manchester
Evaluating methods of aesthetic enquiry across disciplines
£122,941

Dr Alexandra Shepard
University of Glasgow
Producing change: gender and work in early modern Europe
£106,012

Dr Natalia Sobrevilla Perea
University of Kent
War and nation: identity and the process of state-building in South America, 1800–1840
£121,313

Professor Hew Strachan
University of Oxford
Hunger draws the map: blockade and food shortages in Europe, 1914–1922
£92,625

Professor Joan Taylor
King's College London
Network for the study of dispersed Qumran caves artefacts and archival sources
£119,252

Professor Martin Thomas
University of Exeter
Understanding insurgencies – resonances from the colonial past
£116,833

Professor James Thompson
University of Manchester
In place of war: international network of cultural spaces
£117,497

Social Sciences

Dr Xuebing Cao
University of Keele
Collective pay determination and changing labour relations in globalised China
£105,873

Professor Martha Mundy
London School of Economics and Political Science
Agricultural transformation and agrarian questions in the Arab world
£123,780

Dr Patricia Noxolo
University of Birmingham
Caribbean in/securities: creativity and negotiation in the Caribbean
£118,908

Ms Cher Potter
University of the Arts London
Design futures in sub-Saharan Africa
£85,057

Professor David Stark
University of Warwick
Performances of value: competition and competitions inside and outside markets
£66,676

Professor Philip Steinberg
Durham University
Project on indeterminate and changing environments: law, the Anthropocene and the world
£124,925

Dr Charles Walton
University of Warwick
Rights, duties and the politics of obligation: socio-economic rights in history
£69,910

Major Research Fellowships

Professor Richard Aldrich
University of Warwick
The end of secrecy? Whistle-blowers, electronic data and the transparent state
£161,871

Professor Louise Amoore
Durham University
Ethics of algorithm
£88,270

Professor Rupert Brown
University of Sussex
Henri Tajfel: his life, his work and his legacy
£151,683

Professor Tony Brown
University of Southampton
Jomon wetland archaeology: a new palaeo-nutritional approach
£88,440

Professor Brian Cheffins
University of Cambridge
Transformation of the public company
£116,193

Professor Emma Dillon
King's College London
The romance of song: the early trouvères and their reception, 1150–1350
£153,888

Professor William Fitzgerald
King's College London
The aesthetics of neoclassicism: a study in white
£92,138

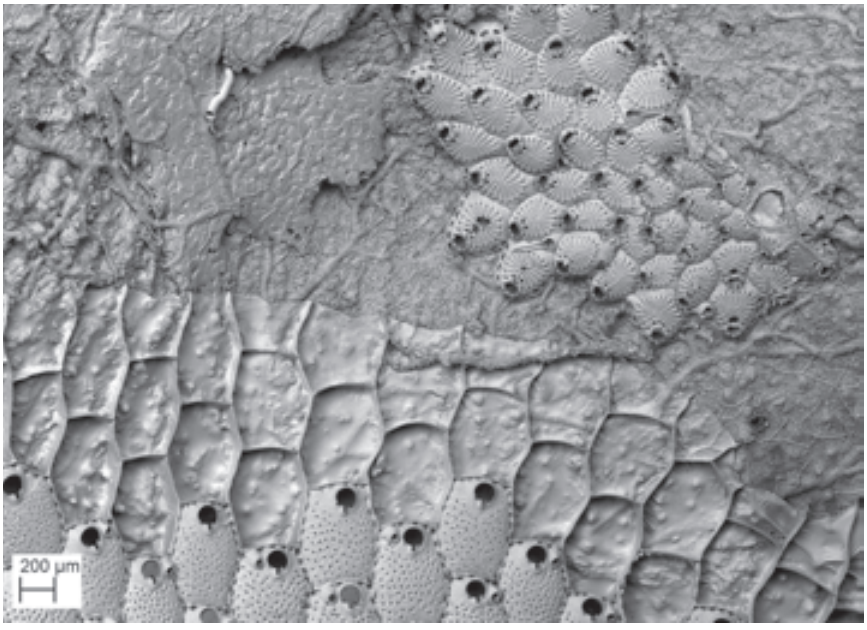
Professor Robert Frost
University of Aberdeen
The Polish-Lithuanian commonwealth, 1569–1815
£165,014

Professor Maria Fumagalli
University of Essex
Derek Walcott's painters
£165,297

Professor Julian Hoppit
University College London
Public finances and the union, 1707–1978
£152,389

Professor Clare Lees
King's College London
The contemporary arts and early medieval culture in Britain and Ireland
£100,436

Professor Patricia Lundy
University of Ulster
An analysis of the historical institutional abuse inquiry: survivor perspectives
£93,528



Professor Ian McBride
King's College London
The penal times: religion and society in Ireland, 1685–1800
£96,812

Professor Lydia Morris
University of Essex
The moral economy of welfare and migration: reconfiguring rights in Britain
£177,610

Professor Stephen Mumford
University of Nottingham
Absences, nothings, lacks and limits
£158,534

Professor Susie Nash
Courtauld Institute of Art, University of London
Making lists: inventories and objects at the courts of France
£92,520

Professor Niamh Nic Shuibhne
University of Edinburgh
(Con)founding the union: equal treatment in an unequal Europe
£160,284

Professor Thomas Osborne
University of Bristol
Political ethics and the liberalism of fear
£93,110

Professor Daniel Power
Swansea University
The separation of England and France, 1204–1259
£94,817

Professor Anita Prazmowska
London School of Economics and Political Science
The cold war jigsaw. Poland's role in the Angolan civil war, 1976–1986
£140,226

Professor Richard Rawlings
University College London
Devolution: a constitutional journey in Wales
£151,441

Professor Deryn Rees-Jones
University of Liverpool
The house of stories: Paula Rego's feminist making
£84,446

Dr Susan Rutherford
University of Manchester
A history of voices: singing in Britain, 1690 to the present
£150,601

Professor Michael Saward
University of Warwick
Democratic design: modelling political futures
£153,661

Professor Wendy Scase
University of Birmingham
Crafting English letters: a theory of medieval scribal practice
£123,585

Professor Jan Stenger
University of Glasgow
The age of the pedagogue: late antiquity and the metamorphosis of education
£140,439

Professor Dan Stone
Royal Holloway, University of London
Tracing the Holocaust: the international tracing service and European history
£171,110

Dr Rebecca Sweetman
University of St Andrews
The Roman and late antique Cyclades: networks, economy and religion
£109,282

Professor Carol Vincent
University College London
Cohering the community? School policy and practices around community cohesion
£109,487

Professor Greg Walker
University of Edinburgh
Creativity, identity and survival in Tudor England: the life of John Heywood
£95,590

Professor Alan Williams
University of Manchester
The realisation of Rumi's *Masnavi*
£145,841

Professor Philip Williamson
Durham University
Royalty and religion in the British Isles since 1689
£127,569

Dr Christopher Wright
Goldsmiths, University of London
A life more photographic: mediated presence and photography's possible futures
£146,095

Philip Leverhulme Prizes

Prize winners receive £100,000, to be used for any purpose that would advance their research.

Classics

Dr Mirko Canevaro
University of Edinburgh
Institutional, social and economic history of ancient Athens and of the Greek poleis

Dr Esther Eidinow
University of Nottingham
Ancient Greek religion and magic

Dr Renaud Gagné
University of Cambridge
Ancient Greek literature and religion

Dr Naoise Mac Sweeney
University of Leicester
Cultural identity and interaction in Asia Minor

Dr Laura Swift
Open University
Greek literature

Earth Sciences

Dr John Rudge
University of Cambridge
Theoretical geophysics and geochemistry

Dr James Screen
University of Exeter
Climate variability and change in the polar regions and their global impacts

Dr Karin Sigloch
University of Oxford
Seismological imaging and the structure, dynamics and evolution of Earth's interior

Dr Dominick Spracklen
University of Leeds
Interactions between the biosphere, the atmosphere and climate

Dr Nicholas Tosca
University of Oxford
Early co-evolution of Earth and life

Physics

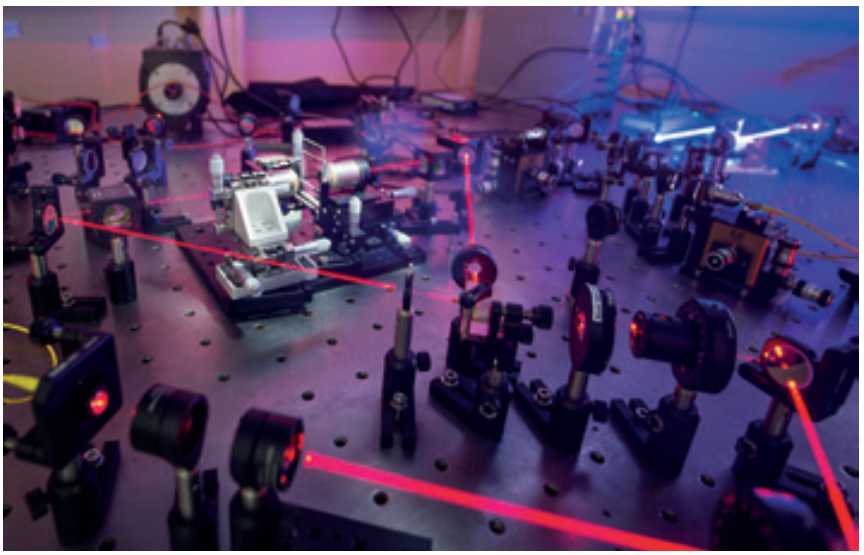
Dr Jacopo Bertolotti
University of Exeter
Light multiple scattering and imaging in turbid media

Professor Jo Dunkley
University of Oxford
Cosmology

Professor Daniele Faccio
Heriot-Watt University
Science of light, from fundamental studies to novel imaging technologies

Dr Philip King
University of St Andrews
Electronic structure and emergent properties of quantum materials

Dr Suchitra Sebastian
University of Cambridge
Quantum condensed matter physics



Politics and International Relations

Dr John Bew
King's College London
History, foreign policy and statecraft

Dr Elena Fiddian-Qasmiyeh
University College London
Experiences of, and responses to, forced migration in/from the Middle East

Dr Dominik Hangartner
London School of Economics and Political Science
Political behaviour, political economy and comparative migration studies

Dr Laura Valentini
London School of Economics and Political Science
Political theory, domestic, international and methodological foundations

Professor Nick Vaughan-Williams
University of Warwick
International relations, border security, migration, security and the everyday

Psychology

Dr Caroline Catmur
King's College London
Psychological and neural mechanisms of social interaction

Dr Bhismadev Chakrabarti
University of Reading
Emotion, affective, neuroscience, empathy and autism

Dr Steve Loughnan
University of Edinburgh
Understanding and attributing mind, humanity and morality

Professor Liz Pellicano
University College London
Autism science and developmental cognitive science

Professor Jonathan Roiser
University College London
Psychological and brain processes underlying mental health problems

Visual and Performing Arts

Dr Sara Davidmann
University of the Arts London
Photography and visual arts with a focus on identity, family history and archives

Dr Mattias Frey
University of Kent
Film criticism, media historiography, institutional analysis, and German, Austrian and European cinema

Ms Hannah Rickards
University of the Arts London
Moving image, sound, installation, use of language in visual art, and musical composition

Dr Martin Suckling
University of York
Music composition and performance

Ms Corin Sworn
University of Oxford
Installation work that utilises photography, film with both sculpture and found objects

Early Career Fellowships

In 2015 Early Career Fellowships provided fifty percent of the salary costs of a three-year research position, up to £24,000 a year, with the host university providing the balance. Research expenses of £6,000 a year were also available.

Sciences

Dr Fiona Achcar
University of Glasgow
Metabolic subversion in the interaction between *leishmania* and the macrophage

Dr Golnaz Badkobeh
University of Warwick
Scalable indexing and compression: algorithms and combinatorics

Dr Lauren Brent
University of Exeter
Social dynamics and the evolution of cooperation

Dr Alison Cook
Durham University
Glacier response to atmospheric and oceanic warming in the Canadian Arctic

Dr Julie Daujat
University of Nottingham
Fallow deer in Western Eurasia: bio-cultural history and conservation policy

Dr Lorenzo Di Michele
University of Cambridge
Fundamental studies and applications of stimuli-responsive DNA-lipid mesophaes

Dr Alexander Dunhill
University of Leeds
Geographic and environmental determinants of extinction in the Triassic–Jurassic

Dr Susanna Ebmeier
University of Leeds
From neural to volcanic connectivity: volcano interactions from satellite data

Dr Nayeli Gonzalez-Gomez
Oxford Brookes University
Early language development under difficult circumstances: exploring maturational and environmental factors

Dr Toni Gossmann
University of Sheffield
Evolutionary and molecular mechanisms of fine scale recombination rate variation

Dr Dermot Green
Queen's University Belfast
Many-body theory of positron interactions with atoms and molecules

Dr Ufuk Günesdogan
University of Cambridge
How cells become different: control of gene activity during development

Dr Susan Haines
University of Cambridge
Search for new sources of matter –antimatter asymmetries at the Large Hadron Collider

Dr Brianna Heazlewood
University of Oxford
Cold ion-molecule reactions in Coulomb crystals

Dr Nicholas Horrocks
University of Cambridge
Phenotypic plasticity in reproductive investment in a rapidly changing world

Dr Samuel Jarvis
University of Nottingham
Probing the mechanical properties of metal-coordinated molecules

Dr Bram Kuijper
University of Exeter
Experimental evolution of nongenetic effects in *C. elegans*

Dr Farzana Meru
University of Cambridge
Giant planet formation and evolution: a multi-angled approach

Dr Samantha Oates
University of Warwick
Gamma-ray bursts as powerful astronomical tools

Dr Michael O'Toole
University of Manchester
Non-invasive neurological monitoring using wideband electromagnetic spectroscopy

Dr Maris Ozols
University of Cambridge
Quantum information: non-locality, privacy and transmission

Dr Simon Pearce
University of Manchester
A mathematical model of neuronal axon loss in ageing and neurodegeneration

Dr Emma Pomeroy
University of Cambridge
Archaeological insight into contemporary chronic disease risk among South Asians

Dr Laura Richards
University of Manchester
Tackling arsenic pollution in South/Southeast Asia: a multipronged approach

Dr Christopher Russo
MRC Laboratory of Molecular Biology
Sub-nanometre resolution imaging of individual biological molecules in their native state

Dr Rosa Maria Sanchez Panchuelo
University of Nottingham
Using ultra-high field MRI to study sub-cortical and cortical sensory processing

Dr Richard Staff
University of Oxford
A synthesis of the radiocarbon and Greenland ice-core timescales

Dr William Unsworth
University of York
Dial-a-macrocycle: designer macrocycles via successive ring expansion

Dr Paul Wilson
University of Warwick
Synthesis, evaluation and application of arsenical-linked polymer bioconjugates

Humanities

Dr Temilola Alanamu
University of Kent
Memories of gender among the postcolonial youth of Lagos, Nigeria

Dr Thomas Brigden
Newcastle University
Value in the view: constructing heritage values in urban views

Dr Iris Julia Buehrle
University of Oxford
Dancing Shakespeare

Dr Jesus Francisco Chairez Garza
University of Leeds
Into the melting pot: global pragmatism and nation-building in India and Mexico

Dr Joanne Cormac
University of Nottingham
Multimedia composer biography

Dr Hannah Cornwell
School of Advanced Study, University of London
Spaces for diplomacy in the Roman world

Dr Arthur Dudney
University of Cambridge
Making Persianate people: histories of Persian literary education beyond Iran

Dr Katherine East
Newcastle University
Debating the probable: Ciceronian scepticism in enlightenment England, 1645–1779

Dr Chi-Hé Elder
University of East Anglia
Pragmatics in interaction: an exploration of miscommunication

Dr Jessica Fay
University of Bristol
William Wordsworth and Sir George Beaumont: an artistic exchange, 1806–1827

Dr Annika Forkert
University of Bristol
Modernism's missing link: the musical work of Elisabeth Lutyens and Edward Clark

Dr Huw Grange
University of Oxford
Developing dialogue: the old French *'dialogue d'un père et d'un fils'*

Dr Daisy Hildyard
Northumbria University
Life stories: animals in fiction and in fact

Dr Sarah Howe
University College London
Reading illustrated books in early modern England

Dr Louise Iles
University of Sheffield
The spread of iron metallurgy through the Old World: a new approach

Dr Holly James-Maddocks
University of Birmingham
The illuminators of the middle English poetic tradition

Dr Boris Jardine
University of Cambridge
The lost museums of Cambridge science, 1865–1936

Dr Anneli Jefferson
University of Birmingham
Mental disorders, brain disorders and moral responsibility

Dr Cath Keay
University of Edinburgh
Extending the glass chain – 100 years on

Dr Olesya Khromeychuk
University of East Anglia
Female fighters in Russia, Poland and Ukraine during the Second World War

Dr Philippa Lewis
University of Bristol
A cultural and literary history of shyness in nineteenth-century France

Mr Richard McClary
University of Edinburgh
Rediscovering medieval Muslim central Asia: a study of royal Qarakhanid tombs

Dr Jonathan Morton
King's College London
Ingenium: poetry and engineering in Western Europe in the high middle ages

Dr Erik Nystrom
University of Birmingham
Synthesis of spatial texture topology in composition and performance

Dr Malcolm Petrie
University of Edinburgh
Liberalism, unionism and nationalism: Scottish politics, c.1945–1983

Dr Charles Pigott
University of Cambridge
Ecological visions in Mayan and Quechua literature: a comparative study

Dr Zachary Purvis
University of Edinburgh
Reinventing the reformation for the modern world

Dr Edward Roberts
University of Liverpool
Bishops, canon law and the making of the medieval church, 875–1025

Dr Julian Ross
University of Westminster
The image appears: slide projections in international contemporary art, 2004–present day

Dr Maeve Ryan
University of Leicester
The British Empire and the geopolitics of human rights in the nineteenth century

Dr Amanda Sciampacone
University of Warwick
Epidemic atmospheres: disease, climate, and the unstable boundaries of empire

Dr Jean Smith
King's College London
Empire in motion: conflict and cooperation during the Second World War

Dr Henry Stead
Open University
Brave new classics: the British reception of classical literature, 1917–1956

Dr Krisztina Szilagyi
University of Cambridge
Muhammad in the religious imagination of early Muslims, 650–850 CE

Dr John Taylor
University of Cambridge
Powerful qualities and the ontology of conscious experience

Dr Emilia Terracciano
University of Oxford
Murals for the 'people': global dimensions for a public art in India, 1909–1977

Dr Sara Trevisan
University of Warwick
Genesis, genealogy and the myth-making of British absolutism

Dr Lucy Underwood
University of Warwick
Imagining Englands: confessionalisation, Catholicism and national identity after the English Reformation

Dr Maria Antonia Velez Serna
University of Stirling
Ephemeral cinemas in historical perspective: exploring 'pop-up' sociability

Dr Olivia Walsh
University of Nottingham
A history of language purism in France and Quebec, 1865–2000

Dr Joey Whitfield
University of Leeds
Beyond the Narcos: the cultural politics of the war on drugs in Latin America

Dr Hannah Williams
Queen Mary, University of London
Artists and the church: religion, art and parish life in eighteenth-century Paris

Mr Richard Williams
University of Oxford
Beyond the local: vernacular aesthetics in late Mughal north India

Dr Alexander Wragge-Morley
University College London
Embodiment and the medical origins of aesthetics, 1700–1750

Social Sciences

Dr Amy Cutler
Royal Holloway, University of London
Forests, lexicons and literary geography

Ms Miriam Driessen
University of Oxford
Costly brides: housing and the marriage squeeze in China

Dr Katie Ellis
University of Sheffield
Battling the odds and beating the system: building resilience in care

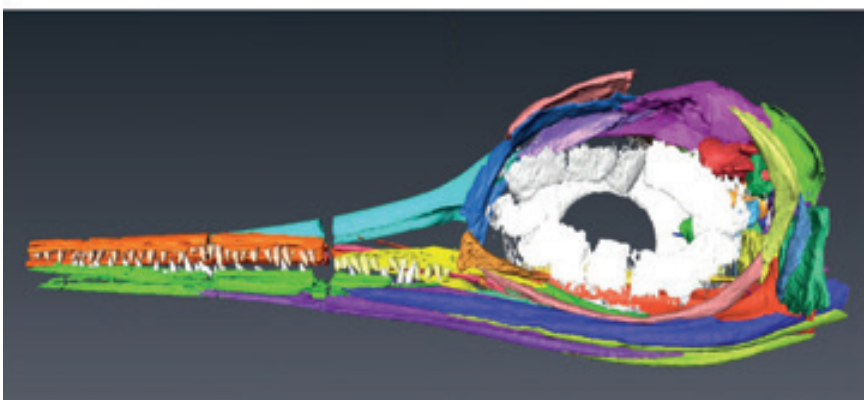
Dr Giuditta Fontana
King's College London
Towards a culture of peace? Cultural policy and power-sharing after civil war

Dr Russell Foster
King's College London
Feeling European: the mediatisation of European identity

Mr Salvatore Garfi
University of Nottingham
Landscapes encountered by the international brigades in the Spanish Civil War

Dr Charlotte Heath-Kelly
University of Warwick
The political life of rubble: bombsite relics and cosmopolitan identity

Dr Georgina Holmes
University of Reading
Agents of change? Rwandan and Ghanaian women's participation in UN peacekeeping



Dr George Karekwaivanane
University of Cambridge
Professing the law: African lawyers, politics and the state in Zimbabwe, 1950–2010

Dr Daniel Knight
University of St Andrews
Renewable energy and extractive economies in the Greek economic crisis

Dr Anna Krzywoszynska
University of Sheffield
A nation that destroys its soils destroys itself: knowledge, care and the crisis of soil

Dr Christy Kulz
University of Cambridge
Governing schools, governing subjects: academies, mobility dreams and inequality

Mr Ashok Kumar
Queen Mary, University of London
End of sweatshops? China's labour scarcity and a rise in monopoly garment firms

Dr Kay Lalor
Manchester Metropolitan University
International relations and LGBTI rights: conditionality, diplomacy and activism

Dr Cetta Mainwaring
University of Glasgow
Controlling mobility remotely: the rise of visa regimes

Dr Diego Maiorano
University of Nottingham
The paradoxes of empowerment – women, Dalits and employment guarantee in India

Dr Samantha May
University of Aberdeen
Zakat in the UK: Islamic giving, citizenship and government policy

Dr Simon McNair
University of Leeds
Developing more effective financial support service provision in the UK

Dr Elizabeth Monier
University of Cambridge
Sectarianism and Arab thought on the nation state

Dr Marcus Morgan
University of Cambridge
The role of ideas in political change: philosophy and the Black Consciousness Movement

Dr Anastasia Piliavsky
University of Cambridge
India's democratic boom and its implications

Dr Annabel Pinker
James Hutton Institute
The material politics of local renewable energy experiments in Scotland

Dr Jonathan Silver
Durham University
Postcolonial urbanisms and a comparative theory of infrastructure

Dr Alice Tilche
London School of Economics and Political Science
Making and unmaking indigeneity: art, religion and inequality in India

Dr Philippa Tomczak
University of Sheffield
Prison suicide: theorising its regulation

Dr Katherine Twamley
University College London
Choice, gender equality and love in early parenthood

Dr Simone Varriale
University of Warwick
Transnationalising class: culture and inequality among Italian expats in the UK

Dr Fiona Vera-Gray
Durham University
Phenomenology, pornography and women's embodiment

Dr Ina Zharkevich
University of Oxford
Where there are no men: migration, kinship, gender and generation in Nepal

Research Fellowships

Sciences

Dr Timothy Baker
University of Leeds
History or ecology? Untangling the drivers of diversification in the tropics
£46,679

Dr Susan Brooks
Birkbeck, University of London
Development and application of a new shoreline response model
£42,914

Professor Terence Burke
University of Sheffield
Genetic basis of adaptation in birds
£49,116

Dr Davide Costanzo
University of Sheffield
Search for experimental evidence of new particles at the Large Hadron Collider
£33,921

Dr Vanessa Diaz
University College London
Exploring the unknowable using simulation: structural uncertainty in multiscale models
£43,323

Professor Andrew Fleming
University of Sheffield
Cell wall mechanics and stomatal function
£38,033

Dr Eleanor Frajka-Williams
University of Southampton
Variability of ocean transports in the Atlantic from space
£14,350

Dr Tamara Grava
University of Bristol
Critical phenomena and universality in Hamiltonian PDEs and random matrices
£50,000

Dr David Greenhalgh
University of Strathclyde
Mathematical modelling of vaccination against dengue
£49,998

Professor Emma Hart
Edinburgh Napier University
Ensemble methods for optimisation
£34,465

Professor David Hosken
University of Exeter
Costs of female preference
£48,883

Dr Igor Krasovsky
Imperial College London
Analytic problems in random matrix theory
£49,757

Professor Xiaoyu Luo
University of Glasgow
The first fully coupled mitral valve–left ventricle computational model
£48,832

Professor Xuerong Mao
University of Strathclyde
Numerical analysis of stochastic differential equations: new challenges
£48,760

Dr Huw Morgan
Aberystwyth University
Automated 3D mapping and forecasting of space weather
£46,805

Professor Chris Perry
University of Exeter
Coral reef carbonate production and reef island vulnerability
£49,571

Dr Hayder Salman
University of East Anglia
Dynamics of electron bubbles on quantised vortices in superfluid helium-4
£48,852

Professor Steven Schwartz
Imperial College London
The microphysics of collisionless shock waves
£49,930

Humanities

Dr Marta Ajmar
Victoria and Albert Museum
Material mimesis: local and global connections in the arts of the Italian renaissance
£49,967

Dr Sean Allan
University of Warwick
Screening art. Modernism and the socialist imaginary in East German cinema
£49,916

Dr Laura Ashe
University of Oxford
England, 1000–1350: cultures of conquest, literatures of transformation
£39,896

Dr Tamara Atkin
Queen Mary, University of London
Play and book: reading, drama and the invention of the literary in Tudor England
£49,471

Dr Stephen Barker
University of Nottingham
Language agency: new foundations for a theory of communication
£40,000

Dr Timothy Barker
University of Glasgow
Analytical media history
£30,607

Dr Bruce Bennett
University of Lancaster
Revolutionary films: the cinematic history of cycling
£42,721

Dr Huw Bennett
Aberystwyth University
An acceptable level of violence? British military strategy in Northern Ireland
£49,578

Professor Kirstie Blair
University of Stirling
Working verse in Victorian Scotland: poetry and community, 1832–1900
£38,716

Dr Ben Bollig
University of Oxford
The lyric and the state: politics and public space in the new Argentine poetry
£44,646

Dr Crispin Branfoot
SOAS, University of London
Pious vandalism: building temples in the Tamil renaissance, 1850–1930
£48,638

Dr Harvey Cohen
King's College London
Follow the circuit: historical significance of African-American gospel music, 1945–1965
£44,315

Dr Ruth Davis
University of Cambridge
Remembering the Jewish past through popular song in contemporary Tunisia
£49,917

Professor Matthew Dimmock
University of Sussex
Reorienting the English renaissance
£46,264

Dr Jessica Dubow
University of Sheffield
'Thinking outside the city walls': geography, philosophy and Judaic thought
£38,197

Professor Robert Eaglestone
Royal Holloway, University of London
The resurgent past: modes of historical representation in contemporary fiction
£39,735

Dr Natasha Eaton
University College London
The conditional image: art and indenture in the Indian Ocean, 1780–2014
£45,044

Professor Catharine Edwards
Birkbeck, University of London
A commentary on selected letters of the Younger Seneca
£47,278

Professor Tim Fulford
De Montfort University
The collected letters of Sir Humphry Davy, 4 vols (OUP, 2018)
£41,268

Professor Jo Gill
University of Exeter
Modern American poetry and the architectural imagination
£41,603

Professor Andrew Hadfield
University of Sussex
Lying in early modern English culture
£47,983

Dr David Haney
University of Kent
'The gardening state': landscape, agriculture and horticulture under National Socialism
£15,828

Dr Alexandra Hoare
University of Bristol
The autonomy of the artist in seventeenth-century Italy
£35,526

Dr David Hopkin
University of Oxford
Lacemakers – poverty, religion and gender in a transnational work culture
£49,104

Dr Sarah Howard
Birkbeck, University of London
The Algerian war in Paris. Violence and terrorism in the French capital, 1954–1962
£47,471

Dr Laura Jansen
University of Bristol
Borges' classics
£30,157

Dr Stephen Kenny
University of Liverpool
Dark medicine: racism, power and the culture of American slavery
£44,913

Professor Peter Kirby
Glasgow Caledonian University
A parish-level study of child labour in north-west cotton textiles, 1851–1911
£12,227

Dr Erik Landis
Oxford Brookes University
Fire and blood: the fight for revolution in Russia
£30,908

Professor Willy Maley
University of Glasgow
John Milton's history of Britain: writing the nation
£28,734

Dr Charlie Miller
University of Manchester
The premodern neo-avant-garde
£44,381

Mrs Elizabeth Miller
Victoria and Albert Museum
Border crossing: reconstructing a volume of sixteenth-century Italian prints
£46,299

Dr Christopher Morton
University of Oxford
A visual economy of nineteenth-century photography from southern Africa
£47,417

Dr Joseph Moshenska
University of Cambridge
The life and letters of Sir Kenelm Digby (1603–1665): piracy, poetry, cookery, philosophy
£48,973

Professor Ralph O'Connor
University of Aberdeen
The emergence of fiction in Icelandic saga-writing, 1150–1900
£40,675

Dr Maike Oergel
University of Nottingham
Zeitgeist around 1800: containing historical complexity and stimulating cultural activity
£42,825

Dr Mohamed-Salah Omri
University of Oxford
Arabic literature and authoritarianism
£42,477

Dr Zoe Opacic
Birkbeck, University of London
Architecture and spectacle in the late medieval city
£40,090

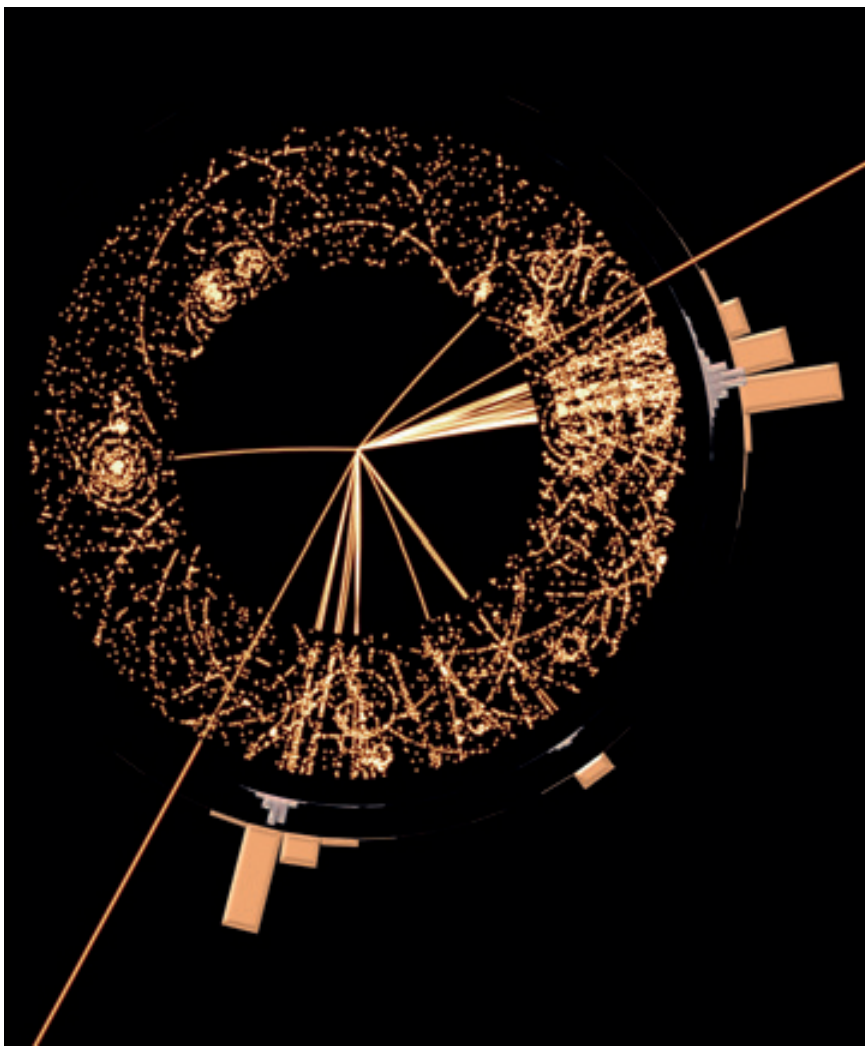
Professor Patricia Phillippy
Kingston University
An amber casket: shaping remembrance from Shakespeare to Milton
£49,923

Professor Rachel Potter
University of East Anglia
Literature, internationalism and free speech, 1921–1948
£42,686

Dr Christina Riggs
University of East Anglia
Photographing Tutankhamun: the camera, the king, and Egyptian archaeology
£28,486

Dr Kathryn Tempest
Roehampton University
The pseudepigrapha of Marcus Iunius Brutus
£23,286

Professor Andrew Thacker
Nottingham Trent University
The modern bookshop: a cultural history
£46,474



Dr Marcus Waithe
University of Cambridge
The work of words: literature and the labour of mind in Britain, 1830–1930
£49,080

Dr Monica White
University of Nottingham
The special relationship: Byzantium and Rus, c.860–1453
£27,919

Dr Claire Whitehead
University of St Andrews
The poetics of early Russian crime fiction, 1860–1917
£40,580

Professor David Wootton
University of York
Power, pleasure and profit, 1513–1832
£46,364

Dr Julian Wright
Durham University
Time present and time future: socialism and modernity in France
£44,954

Professor Patrick Wright
King's College London
Learning from Sheppey: place, culture and identity at England's periphery
£46,094

Social Sciences

Dr Fiona Adamson
SOAS, University of London
Conflicts beyond borders: transnational identities, belonging and security
£48,788

Dr Anne-Marie Fortier
University of Lancaster
Becoming citizen, making citizenship
£36,536

Dr Stephen Gibson
York St John University
Stanley Milgram's experiments in defying authority: a qualitative analysis
£49,660

Dr Enze Han
SOAS, University of London
State and nation making in the multi-ethnic borderlands between China and Southeast Asia
£49,960

Dr Marie-Andre Jacob
University of Keele
Figuring 'bad apples': legal-bureaucratic assemblages of scientific misconduct
£48,047

Professor Paul Johnson
University of York
Going to Strasbourg: an oral history of human rights litigation in the European Court of Human Rights
£48,143

Dr Fiona Jordan
University of Bristol
Explaining cross-cultural diversity in human kinship
£23,929

Dr Denisa Kostovicova
London School of Economics and Political Science
Reconciliation within and across divided societies: evidence from the Balkans
£45,207

Dr Kate Maclean
Birkbeck, University of London
El Alto millionaires: processes of displacement, identity and urban change in the Global South
£47,877

Dr Sumi Madhok
London School of Economics and Political Science
Vernacular rights cultures in southern Asia
£47,796

Professor Jennifer Mason
University of Manchester
Living the weather: a study in the socio-atmospherics of everyday life
£18,604

Dr Emma Mawdsley
University of Cambridge
Private sector-led growth for international development: DFID in a new era
£49,732

Dr Deirdre McCann
Durham University
Creative uncertainty? Labour market regulation in a world of doubt
£34,842

Dr Anna Misiak
Falmouth University
Life under Communism: everyday history in Polish documentary films
£49,969

Professor Maggie O'Neill
Durham University
Methods on the move: experiencing and imagining borders, risk and belonging
£31,076

Dr Martin O'Neill
University of York
Justice, justification and monetary policy: central banks in democratic societies
£48,575

Dr Simon Pemberton
University of Keele
The importance of super-diverse places in shaping residential mobility patterns
£49,884

Dr Rahul Rao
SOAS, University of London
Out of time: temporal anxieties of queer postcoloniality
£49,740

Dr David Redmon
University of Kent
Donkey
£41,436

Dr Simon Reid-Henry
Queen Mary, University of London
A genealogy of global justice
£49,943

Professor Sasha Roseneil
Birkbeck, University of London
Sociability, sexuality, self: a multi-sited, longitudinal psychosocial study
£49,051

Dr Vicki Squire
University of Warwick
Human dignity and biophysical violence: migrant deaths across the Mediterranean Sea
£49,950

Professor Lorraine Talbot
University of York
Making the company fit for social purpose
£49,265

Dr Sandy Tubeuf
University of Leeds
Evaluating neighbourhood based policies using the BHPS grid reference data
£44,341

Professor Julia Twigg
University of Kent
Dress, masculinities and age
£29,096

Emeritus Fellowships

Sciences

Professor John Allen
University College London
The evolutionary origin of oxygenic photosynthesis
£21,870

Sir Michael Berry
University of Bristol
Theoretical physics: mechanics (classical and quantum) and optics (also nature's optics)
£16,000

Professor Raymond Bishop
University of Manchester
Atoms on a lattice: studies in frustration, degeneracy and novel forms of order
£21,980

Professor Brian Brown
Cardiff University
Direct and inverse spectral and scattering problems for canonical systems
£6,700

Professor Anne Cooke
University of Cambridge
Modulation of inflammation by schistosome antigens
£15,982

Professor Edward Forgan
University of Birmingham
International facility research at high magnetic fields and low temperatures
£21,830

Professor Roger Grimshaw
University College London
Internal waves in the coastal ocean
£22,000

Professor Valeri Khoze
Durham University
The theory of exclusive production of heavy states at proton colliders
£21,700

Professor James Rose
Royal Holloway, University of London
Determining the age and damage caused by a mega-tsunami in the Mediterranean
£21,340

Professor Glenn White
Open University
Understanding how stars are formed
£7,400

Professor Alex Wilkie
University of Manchester
Diophantine aspects of o-minimal structures
£19,700

Professor Philip Woodworth
National Oceanography Centre
Determining recent changes in extreme sea levels for the global coastline
£6,140

Humanities

Professor Tom Cain
Newcastle University
An old-spelling edition of John Ford's *The Lovers Melancholy*
£3,815

Professor Anthea Callen
University of Nottingham
The techniques of Impressionism, its precursors and followers
£21,796

Dr Paul Connerton
University of Cambridge
Timescales: the experience of time in the modern world
£10,260

Dr Graham Cummings
University of Huddersfield
Operatic rivalry in London: seasons of conflict and competition, 1733–1737
£6,884

Professor Marianne Elliott
University of Liverpool
Hearthland: mixed religion housing in Northern Ireland, 1945–2014
£13,247

Professor Sir Richard Evans
University of Cambridge
A biography of Eric Hobsbawm (1917–2012)
£14,280

Professor Alan Forrest
University of York
The death of the French Atlantic: revolution, slavery and war, 1790–1830
£9,590

Professor Jane Maxim
University College London
Understanding order and disorder in conversation
£2,974

Dr Stephen Parkinson
University of Oxford
Critical edition of the *Cantigas de Santa Maria*
£21,174

Professor Bill Wells
University of Sheffield
Overlapping talk in conversation: phonetics, phonology and interaction
£20,270

Social Sciences

Dr Terri Apter
University of Cambridge
Praise and blame: judgmental utterances and responses in couples
£10,440

Professor Tim Bayliss-Smith
University of Cambridge
Rise and fall of inland settlement, terracing and exchange in the Solomon Islands
£15,687

Professor Ronald Martin
University of Cambridge
Britain's spatially unbalanced economy: geographies of boom, bust and austerity
£15,075

Professor Alan Middleton
Birmingham City University
Artisans in Ecuador, 1975–2015
£17,610

Professor Jennifer Ozga
University of Oxford
Governing education: knowledge and policy in England and Scotland since 1988
£4,668

Professor John Peysner
University of Lincoln
Is the balance right between alternative dispute resolution and litigation?
£5,292

Professor Bill Rolston
University of Ulster
Picturing peace: murals, conflict and transition in Colombia
£10,469

Professor John Sender
SOAS, University of London
Interpreting new data on female wage labour and poverty in Ethiopia and Uganda
£20,274

Professor Dame Marilyn Strathern
University of Cambridge
Persons and portraits in Melanesia: the comparative scope of 'partibility'
£18,525

Professor Pnina Werbner
University of Keele
The changing Kgotla: the transformation of customary courts in village Botswana
£22,000

International Academic Fellowships

Sciences

Professor Michael Anderson
University of Manchester
Monte Carlo and MD calculations of crystal growth in nanoporous materials
£27,200

Dr Jason Bruce
University of Manchester
The protective effects of insulin during experimental pancreatitis
£26,820

Dr David Coomes
University of Cambridge
A spectranomic approach to anthropogenic change in tropical forests
£14,180

Dr Fabienne Marret
University of Liverpool
Exploiting dinocysts as tracers of oceanic conditions in the SW Pacific
£19,400

Humanities

Dr Stephanie Dennison
University of Leeds
Brazilian film culture in the context of world cinema
£12,380

Mr Geoff Ryman
University of Manchester
Developing Africa's literature of the fantastic
£20,976

Dr Renee Timmers
University of Sheffield
The role of cross-modal information in inter-performer musical communication
£21,703

Social Sciences

Professor Philippe Cullet
SOAS, University of London
Sanitation in India: understanding a complex and controversial human right
£29,518

Professor Maleiha Malik
King's College London
Transnational discrimination law: Vietnam and the ASEAN
£24,050

Dr Simon Raby
University of Kent
Understanding sustainable growth and performance in the context of small to medium-sized enterprises (SMEs): a UK–Canada comparative perspective
£21,492

Dr Fern Terris-Prestholt
London School of Hygiene and Tropical Medicine
Stimulating demand for HIV prevention: consolidating a decade of research
£13,440

Study Abroad Studentships

Sciences

Mr Benjamin Bhawal
Development of catalytic directing groups for remote C-H functionalisation – *Germany*
£42,700

Miss Michelle Buchan
Geology MSc majoring in palaeobiology and palaeoclimatology – *Finland*
£50,440

Mr Shaun Eaves
Determining the cause of past, abrupt climate change in the southern hemisphere – *New Zealand*
£44,020

Miss Franziska Elsner-Gearing
Erasmus Mundus Masters in evolutionary biology – *The Netherlands and Germany*
£43,200

Miss Adele Faulkner
Development of molecular motors as responsive, adaptive, multitasking catalysts – *The Netherlands*
£19,350

Miss Joanna Hutchinson
Universality of critical phenomena – *India*
£47,420

Ms Eleanor Ratcliffe
The role of memories in restorative experiences of favourite places – *Finland*
£35,889

Humanities

Mr Doug Battersby
Postgraduate research focussing on Irish modernist literature – *Republic of Ireland*
£23,305

Mr David Callander
New perspectives on the study of narrative: evidence from early British poetry – *Germany*
£20,380

Mr Cole Collins
Collecting and cutting: representations of women in Kurt Schwitters' collages – *Germany*
£25,373

Mr Edward Love
Old Coptic: the evolution of a writing system and demise of a textual culture – *Germany*
£19,325

Mr Victor Petrov
Welcome to Cyberia! Bulgarian computers, cybernetics and the world – *Bulgaria*
£20,000

Ms Sarah Sharp
In foreign soil: death abroad in Scottish literature and travel writing, 1790–1850 – *New Zealand*
£34,050

Mr Jan Vandeburie
The influence of the Paris masters at the curia, 1198–1227 – *Italy*
£39,017

Social Sciences

Miss Lila Beesley
MA cultural anthropology and development sociology – *The Netherlands*
£31,696

Ms Solange Fontana
Living with conflict: a story of social networks, identity, mobility and violence – *Democratic Republic of the Congo*
£50,582

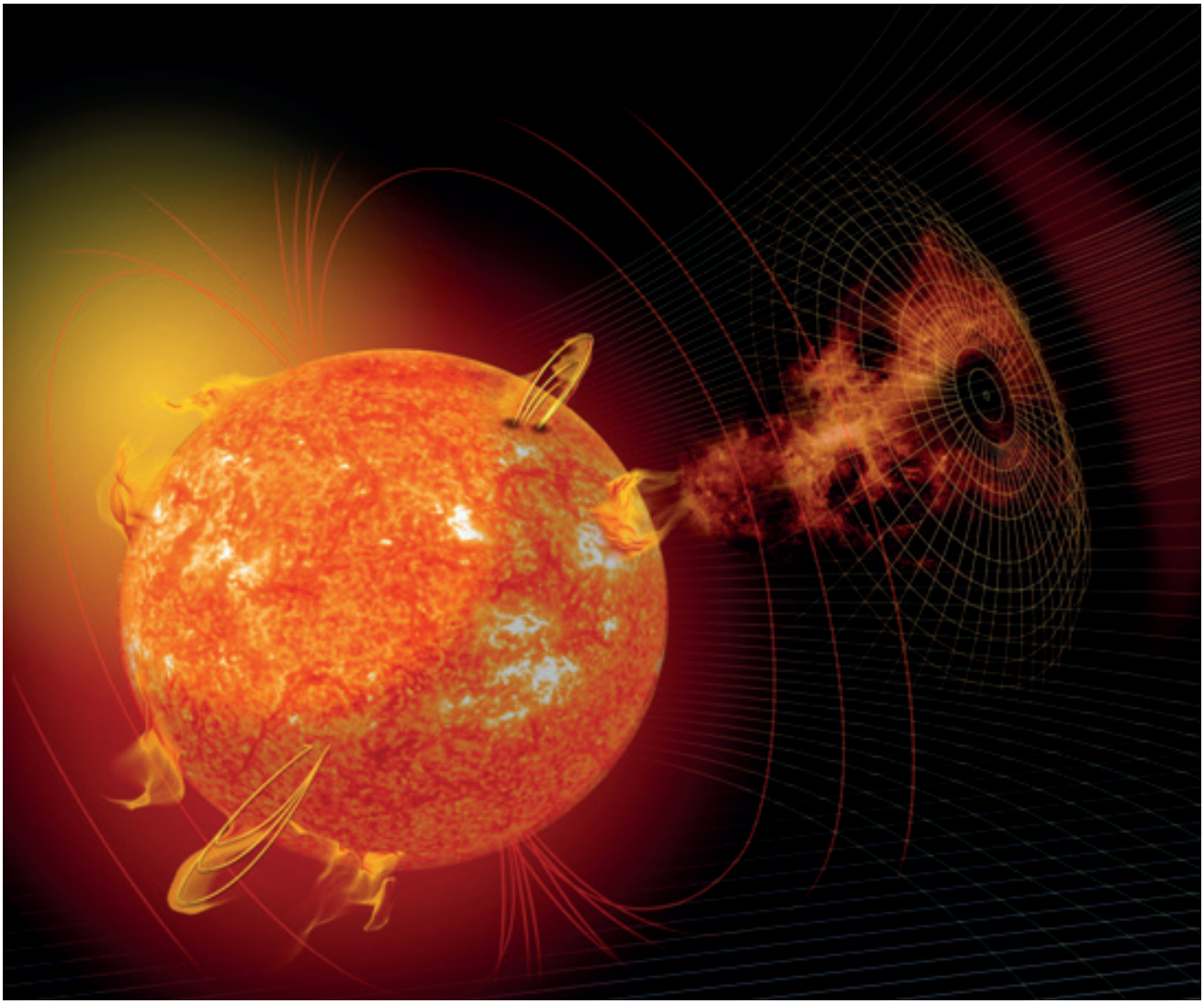
Mr Ryan Hartley
Japan's political economy with the Mekong sub-region: hegemony already made? – *Japan*
£29,950

Ms Mina Lavender-Kehoe
Purikura and the social gaze – *Japan*
£23,144

Mr Steven Marcos
The social construct of childhood disability in an Egyptian context – *Egypt*
£23,799

Mrs Emma Sabzalieva
Influences on the development of higher education in central Asia – *Canada*
£75,360

Mrs Manuela Zechner
From mobility to migration in crisis Europe: young people's networks of transnational organisation and care – *Germany*
£21,379



Visiting Professorships

Sciences

Professor Paul Barlow
University of Edinburgh
Visiting Professor – Professor Lynne Regan
£68,339

Dr Matthew Browning
University of Exeter
Visiting Professor – Professor Richard Townsend
£12,200

Dr Coralia Cartis
University of Oxford
Visiting Professor – Professor Philippe Toint
£7,515

Professor John Cremona
University of Warwick
Visiting Professor – Professor Ariel Martin Pacetti
£80,768

Professor Paul Downing
Bangor University
Visiting Professor – Professor Giuseppe di Pellegrino
£68,188

Professor Annette Ferguson
University of Edinburgh
Visiting Professor – Professor Rosemary Wyse
£64,500

Dr Tamara Grava
University of Bristol
Visiting Professor – Professor Alexander Its
£21,697

Professor Jim Hall
University of Oxford
Visiting Professor – Professor Yakov Ben-Haim
£7,200

Professor Amihay Hanany
Imperial College London
Visiting Professor – Professor Jacob Sonnenschein
£28,900

Professor Hugh Jones
University of Hertfordshire
Visiting Professor – Dr Richard Smart
£52,740

Professor Bill Lee
Imperial College London
Visiting Professor – Professor Michel Barsoum
£15,800

Professor Peter Lindstedt
Imperial College London
Visiting Professor – Professor Phillip Ray Westmoreland
£54,302

Dr Francisco Perez-Reche
University of Aberdeen
Visiting Professor – Professor Peter Grassberger
£18,300

Professor Edik Rafailov
Aston University
Visiting Professor – Professor Kestutis Staliunas
£9,206

Professor Li Ran
University of Warwick
Visiting Professor – Professor George Weiss
£25,400

Professor Stefan Soldner-Rembold
University of Manchester
Visiting Professor – Professor Douglas Cowen
£20,350

Dr Euan Wielewski
University of Glasgow
Visiting Professor – Professor Paul Dawson
£40,324

Dr Djoko Wirosoetisno
Durham University
Visiting Professor – Professor Michael Jolly
£8,500

Dr Igor Yurkevich
Aston University
Visiting Professor – Professor Yuval Gefen
£32,866

Humanities

Dr Mark Devenney
University of Brighton
Visiting Professor – Professor Samuel Chambers
£23,248

Professor Adrian Gregory
University of Oxford
Visiting Professor – Professor John Horne
£24,320

Professor Kimberley Reynolds
Newcastle University
Visiting Professor – Professor Karen Sands O'Connor
£37,399

Dr Tony Street
University of Cambridge
Visiting Professor – Professor Khaled El-Rouayheb
£37,310

Professor Nicholas Thomas
University of Cambridge
Visiting Professor – Professor Matthew Spriggs
£16,664

Dr Mark Thurner
School of Advanced Study, University of London
Visiting Professor – Professor Jorge Canizares-Esguerra
£52,086

Professor Vera Tolz-Zilitinkevic
University of Manchester
Visiting Professor – Professor Peter Rutland
£57,655

Dr Garthine Walker
Cardiff University
Visiting Professor – Professor Tim Stretton
£15,641

Professor Shane Weller
University of Kent
Visiting Professor – Professor Dirk Van Hulle
£17,208

Social Sciences

Professor Sir Richard Blundell
University College London
Visiting Professor – Professor James Ziliak
£13,450

Professor Martin Caraher
City University London
Visiting Professor – Professor Jane Dixon
£47,484

Mr Christopher Hare
University of Oxford
Visiting Professor – Professor Peter Watts
£12,089

Professor Clare Hemmings
London School of Economics and Political Science
Visiting Professor – Ms Sonia Correa
£74,642

Professor Stephane Hess
University of Leeds
Visiting Professor – Dr Cristian Angelo Guevara Cue
£7,900

Professor Jeremy Horder
London School of Economics and Political Science
Visiting Professor – Professor Stuart Green
£53,400

Dr James Laidlaw
University of Cambridge
Visiting Professor – Professor Mark Aldenderfer
£13,250

Professor Fiona Magowan
Queen's University Belfast
Visiting Professor – Dr Olivier Urbain
£5,394

Professor Jan Selby
University of Sussex
Visiting Professor – Professor Yoav Peled
£78,100

Professor Ian Walker
University of Lancaster
Visiting Professor – Professor Ronald M Harstad
£50,042

Artist in Residence Grants

Dr David Bartram
Department of Sociology, University of Leicester
Artist: Ms Kajal Nisha Patel – Photographer, film maker, multidisciplinary artist
£15,000

Professor Alison Blunt
School of Geography, Queen Mary, University of London
Artist: Ms Janetka Platun – Installation artist
£15,000

Dr Timothy Boon
Research and Public History, Science Museum
Artist: Dr Jean-Philippe Calvin – Composer and performance artist
£10,000

Dr Tancredi Caruso
School of Biological Sciences, Queen's University Belfast
Artist: Mr Ed Reynolds – Painter
£15,000

Ms Andrea Chandler
Information Systems, Senate House Library, University of London
Artist: Ms Hannah Thompson – Sound artist
£14,585

Professor Maggie Cusack
School of Geographical and Earth Sciences, University of Glasgow
Artist: Miss Rachel Duckhouse – Visual artist
£14,351

Professor Rory Duncan
Institute of Biological Chemistry, Biophysics and Bioengineering, Heriot-Watt University
Artist: Ms Hannah Imlach – Visual artist
£15,000

Ms Katie Edwards
Learning, Brunel Museum
Artist: Mr Rob Mullender – Sound artist
£13,500

Professor Daniele Faccio
School of Engineering and Physical Sciences, Heriot-Watt University
Artist: Dr Lily Hibberd – Installation and muiltimedia artist
£15,000

Dr Harriet Hawkins
Department of Geography, Royal Holloway, University of London
Artist: Miss Flora Parrott – Visual artist
£14,650

Miss Jessica Mahoney
Business Audiences, British Library
Artist: Ms Melissa Addey – Writer
£15,000

Ms Anna Minton
School of Architecture, University of East London
Artist: Mr Alberto Duman – Interdisciplinary artist
£12,500

Dr Hugh Mortimer
Space Science and Technology Department, Rutherford Appleton Laboratory
Artist: Mr Phil Coy – Multidisciplinary artist
£14,582

Professor Rachel Pain
Department of Geography, Durham University
Artist: Ms Brenda Heslop – Songwriter, writer and musician
£15,000

Dr Kenny Rutherford
Animal and Veterinary Sciences, Scotland's Rural College
Artist: Ms Andrea Roe – Multimedia artist
£15,000

Ms Geraldine Straker
Community Participation, Beamish Museum
Artist: Miss Becci Sharrock – Writer and producer
£13,630

Professor Patrick Unwin
Department of Chemistry, University of Warwick
Artist: Ms Mary Courtney – Poet and visual artist
£15,000

Dr Jo Vergunst
Department of Anthropology, University of Aberdeen
Artist: Mr Alec Finlay – Visual artist and poet
£14,999

Professor Tonia Vincent
Kennedy Institute of Rheumatology, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford
Artist: Miss Francesca Corra – Medical artist
£15,000

Mrs Sarah Wickham
University Archives at Heritage Quay, University of Huddersfield
Artist: Ms Poulomi Desai – Multimedia artist
£14,970

Professor Hua Zhu
Department of Applied Linguistics and Communication, Birkbeck, University of London
Artist: Miss Ella McCartney – Visual artist
£14,338

Arts Scholarships

Academy of Northern Ballet
£31,500

Aldeburgh Music
£335,190

Artsed
£61,208

Birmingham Conservatoire
£248,250

Birmingham Contemporary Music Group
£90,456

Birmingham Repertory Theatre
£122,130

Bournemouth Symphony Orchestra
£54,000

Bristol Old Vic
£100,000

Central School of Ballet
£139,921

Cheltenham Festivals
£77,100

City and Guilds of London Art School
£48,000

Dance Base
£60,195

English National Ballet School
£120,000

Ex Cathedra
£123,683

Gabrieli
£43,000

Guildhall School of Music and Drama
£485,000

JMK Trust
£67,095

London Academy of Music and Dramatic Art
£291,000

London Contemporary Dance School
£423,090

London Film School
£181,173

London Philharmonic Orchestra Limited
£66,691

Mountview Academy of Theatre Arts
£47,156

National Centre for Circus Arts
£129,000

National Children's Orchestras of Great Britain
£150,000

National Film and Television School
£384,000

National Youth Choirs of Great Britain
£104,160

National Youth Orchestra of Great Britain
£300,000

National Youth Orchestras of Scotland
£159,792

National Youth Theatre
£200,025

National Youth Wind Orchestra of Great Britain
£60,000

Northern School of Contemporary Dance
£150,000

Opera North
£228,345

Phoenix Dance Theatre
£34,200

Pro Corda Trust
£262,165

Purcell School
£110,700

Rambert Dance Company
£74,100

Royal Academy of Dramatic Art
£285,000

Royal Academy of Music
£486,536

Royal Ballet School
£252,297

Royal Central School of Speech and Drama
£195,150

Royal College of Art
£107,000

Royal College of Music
£238,620

Royal Conservatoire of Scotland
£150,000

Royal Drawing School
£62,550

Royal National Theatre
£162,000

Royal Northern College of Music
£411,000

Royal Shakespeare Company
£101,911

Royal Welsh College of Music and Drama
£435,000

Scottish Youth Dance
£42,750

Siobhan Davies Dance
£68,854

Sound and Music
£20,000

Southbank Sinfonia
£114,000

The Bush Theatre
£96,000

Theatre Royal Bath
£149,550

Town Hall and Symphony Hall
£133,843

Trinity Laban Conservatoire of Music and Dance
£426,000

Writers' Centre Norwich
£38,889

Yehudi Menuhin School
£200,000

Youth Music Theatre: UK
£104,724

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p6 and 12. Photography by Rosie Hallam.

p10. Scanning tunnelling microscope: investigating the friction of the probe tip, image courtesy of Holly Hedgeland; *Arabidopsis thaliana*, the plant scientist's model organism, image courtesy of K. Franklin, University of Bristol; Electroencephalography (EEG) is the recording of electrical activity along the scalp, image credit JD Howell; Young girl weaving a loin-cloth, watched by a co-resident other-than-human being, image courtesy of Robert Storrie.

p23. Giant panda in their wild habitat in China, image credit: Royal Zoological Society of Scotland.

p30. *Wendy & Peter Pan* directed by Jonathan Munby. The production played in the 1,000-seat Royal Shakespeare Theatre and was designed by former trainee Colin Richmond (photo credit: Manuel Harlan).

p39. *Venetian Lacemakers* by Robert Frederick Blum, Cincinnati Art Museum.

p49. *24 Hours in Photos*, Erik Kessels, 2011. Reproduced courtesy of Erik Kessels.

p50. Photograph of a student at a robotics class at Ashesi University, a member organisation of the African Robotics Network (robotics-africa.org) © Ashesi University.

p55. Sybil Speaking, 13th June 1947: Sybil Morrison, a founder of the PPU (Peace Pledge Union) speaking at a meeting campaigning for equal pay for women. (Photo by George Stroud/Express/Getty Images).

p57. European starling, one of the most successful invasive species. Image credit: Tim Blackburn.

p60. The 2011–2012 eruption at Cordón Caulle, Chile, produced an ash plume that circumnavigated the globe and disrupted local aviation and agriculture for many months. Here it is captured at sunset in January 2012, rising 2 km above the ash-blanketed volcano flanks.

p65. *Suspension (1)*, Jo Longhurst, digital print on vinyl, 366 cm × 222 cm. Installation view, Mostyn, Llandudno, 2012.

p67. Horse, whose Greenlandic name translates as 'he-whose-eyes-pop-out-of-his-head-when-he-sees-a-beautiful-woman-walk-past', looking out over an ice fjord by a ruined farm in the Norse Eastern Settlement in Greenland. Image credit: Eleanor Rosamund Barraclough.

p68. Concept of a carbon structure, Adobe Stock.

p75. Guillemot eggs, image © Tim Birkhead.

p76. Mural on Calle 26 in Bogotá, image credit: Bill Rolston.

p79. *Derek Walcott at Work*, Acrylic on Canvas, 20 × 24 inch © Peter Walcott. Grant holder: Maria Fumagalli.

p80. Looking for the life in UV; sulfate mineral samples ~1 cm in size, as seen under UV illumination (credit Matt Gunn). Grant holder: Claire Cousins.

p83. Scanning electron micrograph showing colonies of two bryozoan species growing on the underside of a modern coral from tropical Puerto Rico. Grant holder: Paul Taylor.

p84. Quantum optics experiment built to study how single photons interact with single-atom layers of material, image credit: Daniele Faccio.

p87. Lauren Brent collecting data, image credit: Amanda Accamando.

p88. The skull of a juvenile ichthyosaur, *Hauffiopteryx typicus* (BRLSI.M1399) from Strawberry Bank, and a model made from data gathered through X-Ray micro CT © Bath Royal Literary and Scientific Institution. Grant holder: Michael Benton.

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p92. Nineteenth-century photographs of southern African peoples in the collection of the Pitt Rivers Museum, University of Oxford. Courtesy Pitt Rivers Museum. Grant holder: Christopher Morton.

p95. Dandelion clock © Nathan Hervieux. Grant holder: Naomi Nakayama.

p96. Artist's impression showing a Coronal Mass Ejection (CME) erupting from the Sun and travelling through space towards Earth (credit: NASA). Grant holder: Silvia Dalla.

p97. New York City from Brooklyn Bridge © Professor Jo Gill, *Modern American poetry and the architectural imagination*.

p99. Mask, designed by Cyrus Kabiru, 2013 © Cyrus Kabiru.

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