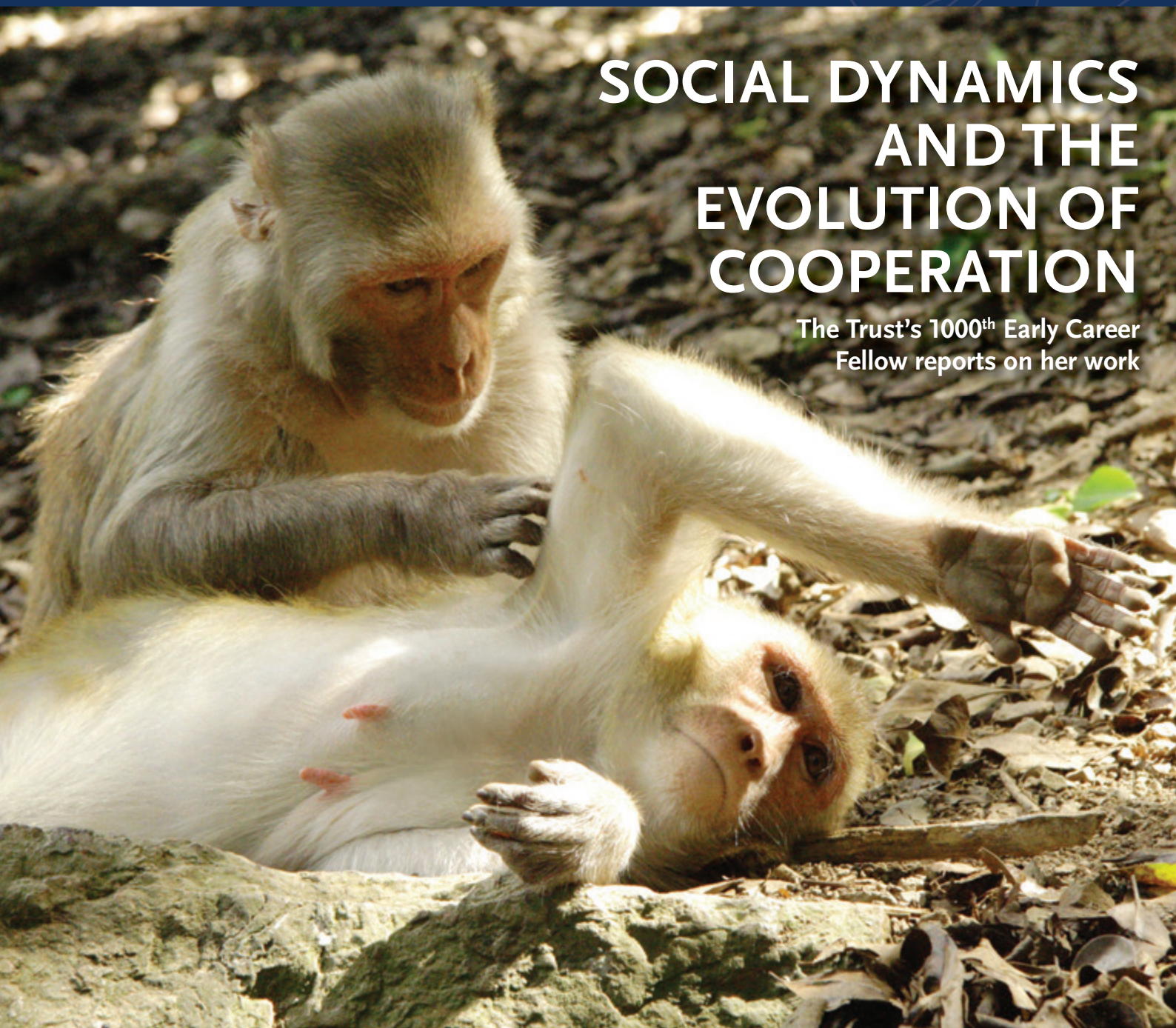


The Leverhulme Trust

NEWSLETTER

SCHOLARSHIPS FOR RESEARCH AND EDUCATION

JANUARY 2016



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NOUGHTY – BUT NICE



The Trust Board announced a wide range of awards at the end of last year – with many schemes distributing nicely rounded (and large) grants.

The first Leverhulme Research Centres, each of which will be funded for up to £10 million over 10 years, will support fundamental research across a range of disciplines.

The Leverhulme Centre for the Future of Intelligence (Professor Huw Price, University of Cambridge) will develop a new interdisciplinary research field on the long-term impacts of artificial intelligence. **The Leverhulme Centre for Forensic Science** (Professor Sue Black, University of Dundee) will disrupt the current inertia within the forensic science ecosystem and create a pathway for innovation, enterprise and enlightened engagement at national, international and global levels. **The Leverhulme Centre for Functional Materials Design** (Professor Andrew Cooper, University of Liverpool) will drive a design revolution for functional materials at the atomic scale by fusing chemical knowledge with state-of-the-art computer science. And **The Leverhulme Centre for Climate Change Mitigation** (Professor David Beerling, University of Sheffield) will address one of the greatest challenges facing humanity in the twenty-first century – global climate change. Each Centre embraces multi-disciplinary and international collaborations designed to bring widespread expertise to bear on an important and exciting area of inquiry. Further details can be found on the Trust website.

The Board also awarded Arts Scholarships worth a total of £10 million to 59 organisations ranging from the Royal

Academy of Music and English National Ballet to the National Film and Television School and the Birmingham Repertory Theatre. These will provide bursaries and innovative teaching to help train and inspire the artists and performers of the future.

Thirty prestigious Philip Leverhulme Prizes – each worth £100,000 – were awarded in Classics, Earth Sciences, Physics, Politics and International Relations, Psychology, and Visual and Performing Arts. These Prizes are increasingly sought-after, so the standard of the entries is extremely high, and those who are successful should rightly feel proud of this achievement.

The Trustees were also particularly pleased in 2015 to award the 1,000th Early Career Fellowship – to Dr Lauren Brent, an evolutionary biologist, at the University of Exeter. Lauren has kindly contributed a piece about her research for this month's Newsletter.

Add in this year's Major Research Fellowships in the Humanities and Social Sciences (an untidy 33 in total), our Artist in Residence Grants, the latest round of Visiting Professorships, and the numerous Research Project Grants, and it transpires that the Board distributed a (neat-and-tidy) £70 million of awards at its final meeting of the year – bringing the annual total to (an only slightly rounded) £110 million.

These beautifully ordered zeros are our vote-of-confidence in the quality of the UK's outstanding researchers – at a time when funding for discovery-led scholarship is under great pressure. Many congratulations to our new grant holders.

Professor Gordon Marshall

SCHEME NEWS

The Leverhulme Trust begins the New Year by re-opening a number of key schemes for early- and mid-career researchers.

In this edition of the Newsletter, we highlight the significant commitment the Trust has made to the support of early-career researchers since the launch of the **Early Career Fellowships** scheme in 1994. The Trust continues this commitment in 2016 by dedicating approximately £10 million to the scheme, which will enable over 100 Fellowships to be awarded. Offering fifty per cent match-funding for the salary costs of a three-year academic research position, plus up to £6,000 per annum in research expenses, the awards enable early-career researchers to undertake a significant piece of publishable work and provide career development opportunities that assist Fellows to secure a permanent academic position.

Philip Leverhulme Prizes recognise the achievement of outstanding early-career researchers whose work has already attracted international recognition and whose future career is exceptionally promising, by awarding up to thirty prizes of £100,000 each year. The prizes can be used for any purpose which advances the prize-holder's research, with the exception of enhancing the prize-holder's salary. In 2016 the Trust is inviting nominations for prizes in Archaeology, Chemistry, Economics, Engineering, Geography, and Languages and Literatures.

Research Leadership Awards support talented researchers who have successfully launched a university career but who need to build a research team to address a distinct research problem. Between £800,000 and £1 million over four to five years for staff salaries and associated research cost is available. Each institution is limited to **one** bid only.

Full details and application guidance for each of these schemes are available on our website.

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For more profiles of current research and full awards listings, please visit the Leverhulme Trust website (www.leverhulme.ac.uk). To order additional copies of this newsletter, please contact Bahia Sheppard at bsheppard@leverhulme.ac.uk.

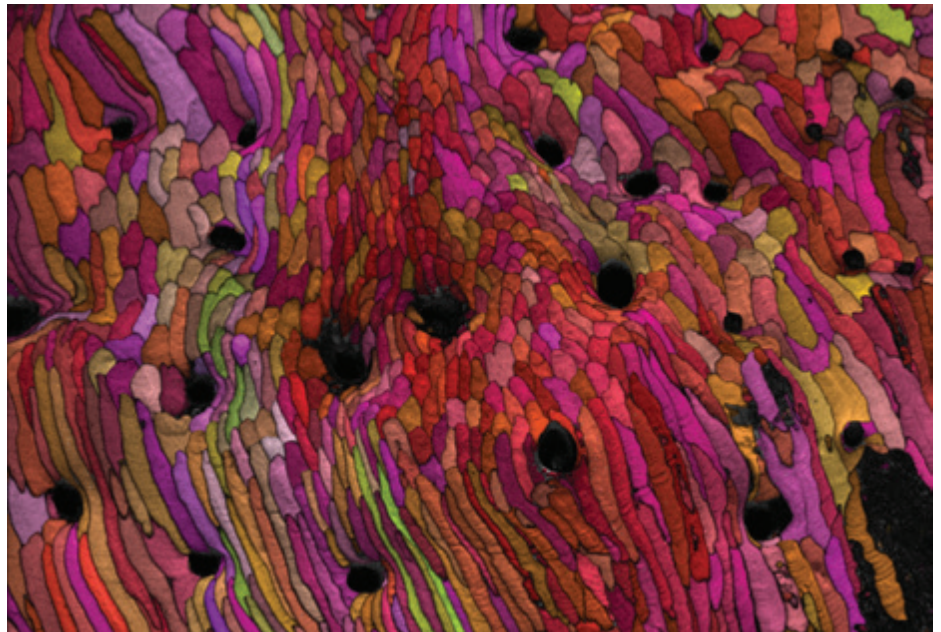
An exquisite sense of dis/order

Visual artist Rachel Duckhouse will work closely with biominerals specialist Professor Maggie Cusack, collaborating on an in-depth study of the underlying patterns and structures of life and the influence of chaos and order upon them

My ongoing research into biominerals and Rachel Duckhouse's research for printmaking and drawing projects are specifically concerned with the underlying patterns and structures of life, and how they fit together. We are also both fascinated by the line that separates chaos and order in our work, and the visual languages used to express findings.

The foundation of the Medical Research Council-funded 'Stem cell...' project is the observation that seashells composed of nacre (mother of pearl) were used by the ancient Mayans as dental implants. Even more fascinating is the fact that nacre induces vertebrate stem cells to produce bone. What feature of nacre is responsible for bone production? Helping to answer this is a multi-disciplinary collaborative team: Dr Enateri Alakpa, Dr Karl Burgess, Professor Matt Dalby and Professor Nikolaj Gadegaard. Do the cells respond to the regular pattern of nanotopography of nacre? Previous work by Professors Dalby and Gadegaard demonstrated that bone production by stem cells can be induced by patterns that are between order and chaos.

Rachel's work is primarily concerned with the unseen structures and patterns underpinning everyday life. Her research methods are context driven and highly responsive to people and place. When developing a drawing,



Duckhouse creates a set of rules to work within. The dynamics of creating, following and breaking rules help her to define patterns and systems when drawing out her research. The balance between chaos and order in these rule-based patterns has always fascinated her, as best described by EH Gombrich in *The Sense of Order*:

'However we analyse the difference between the regular and the irregular, we must ultimately be able to account for the most basic fact of aesthetic experience, the fact that delight lies somewhere between boredom and confusion. If monotony makes it difficult to attend, a surfeit of novelty will overload the system and cause us to give up.'

Duckhouse will work closely with me at the School of Geographical and Earth Sciences of the University of Glasgow and the whole collaborative team working on the *Stem cell...* project. The project is an exceptional opportunity for in-depth exploration of the rich concept of patterns, order and chaos from a scientific and artistic perspective, and for us to come together to communicate a shared understanding.

The exploratory approach will begin with Duckhouse's highly effective method of drawing conversations which may lead to 3D as well as 2D outputs. We are thrilled by the fact that the Hunterian Museum is keen to present a Science Showcase on Biomineralisation in 2017 and to explore a parallel event to present the outcomes of this residency.

Professor Maggie Cusack and Miss Rachel Duckhouse
School of Geographical and Earth Sciences,
University of Glasgow
Artist in Residence Grant



ABOVE Murals Brachiopod fibres crystallography.

LEFT Gallery Assistant, Rachel Duckhouse. Image credit: Caro Weiss.

COVER THUMBNAIL Conservator, Rachel Duckhouse.

Skating on thin nanofilms: how liquid drops impact solids

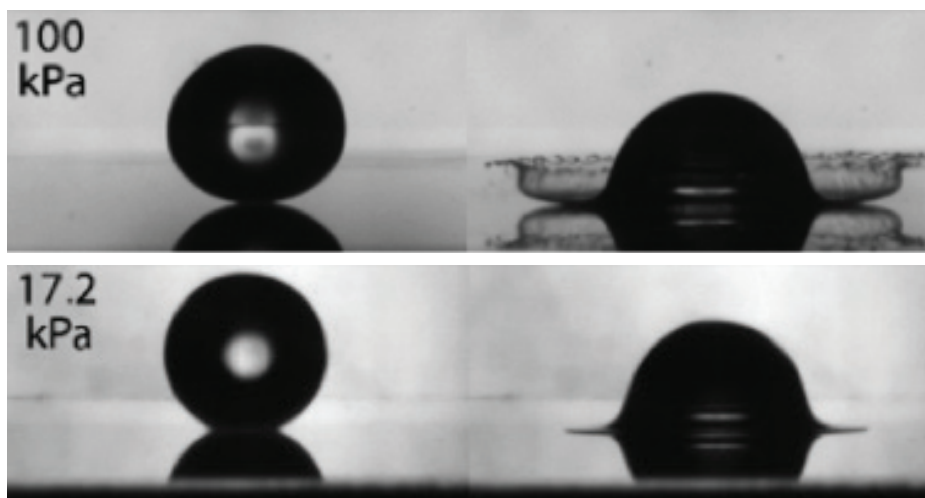
James Sprittles and Duncan Lockerby's research combines techniques and theories from disparate and segregated research areas, to provide deep physical insight into drop dynamics, opening-up a new field of research that will necessitate collaboration across disciplines

The start to a bad day: a tap drips noisily; raindrops pound the windscreen; a coffee drop spills on a crucial document! Is there more to impacting liquid drops than these everyday annoyances?

Actually, much more. Beneath a mundane façade these flows hide a still-not-fully-understood competition of complex and diverse physical mechanisms that determine the drop's dynamics. They are also integral to numerous technological, environmental and biological applications of fluids, e.g. acting as the building blocks of 3D printed objects and as carriers of pesticides in crop spraying or drugs in inhalation therapy.

The apparently innocuous behaviour of drops impacting solids was thought to be well-understood until recent experiments shattered the widely-held belief that the air surrounding the drop is unimportant. In fact, drop splashing can be suppressed by reductions in air pressure: a drop that splashes at the bottom of a mountain may not at its peak (where the air is rarefied).

This observation stimulated an explosion of experimental work using state-of-the-art interferometry and X-ray imaging to probe the critical lubricating cushion of air (an 'air film') trapped



between the impacting liquid drop and the solid. A second remarkable discovery ensued: drops can sometimes skate indefinitely across air films, and rebound off solids without ever contacting them. During such events, the air film's height can shrink to 10nm (i.e. a 'nanofilm'), a size 10,000x smaller than the mm-sized drop. This is equivalent to a 1mm air film suspending a drop the size of London's Millennium Dome!

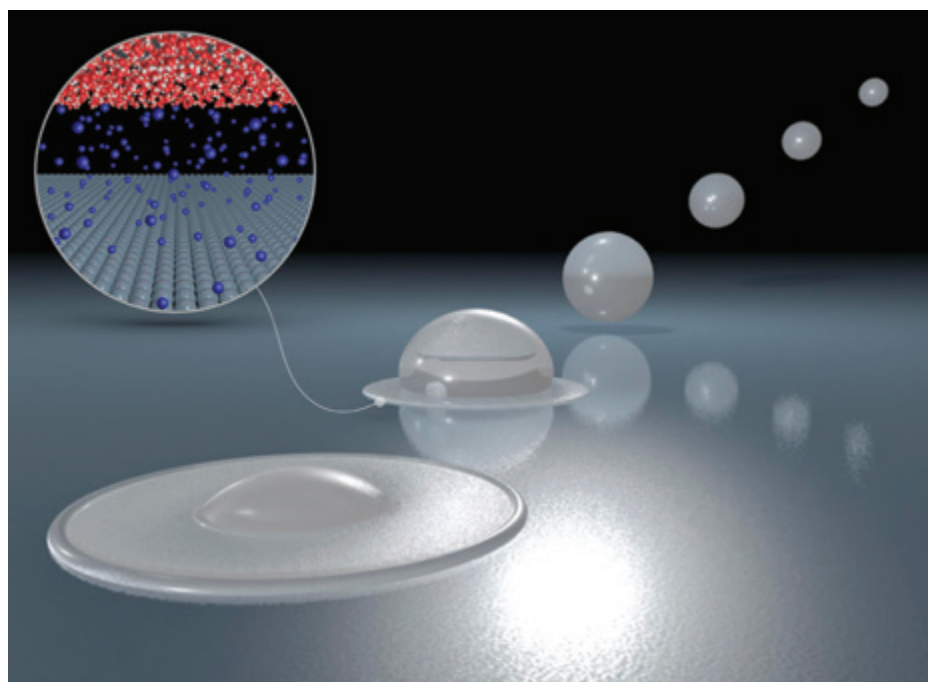
Despite the rapid experimental progress, there is no clear understanding of the dominant physics involved – how air nanofilms influence splashing remains unclear. Conventional theories cannot be used for the air film, as they miss the critical microscopic physics involved when its height is comparable to the distance between air molecules. Therefore, an exciting opportunity has arisen for the development of a new theoretical framework capturing

the interplay of microscopic and macroscopic physics lying at the heart of this open problem.

The air nanofilm's behaviour can only be captured using a theory originally developed for violent aerodynamic air/gas flows (e.g. for re-entry space shuttles), namely the kinetic theory of non-equilibrium gases. Our project will combine this theory with the previously disparate and segregated field of capillary flows (which describes the deformable liquid drop) in an entirely original line of research. Solving the new system of equations computationally will allow us to simulate drops skating over air nanofilms, reveal how splashes are generated and provide experimentally-tailored theoretical predictions for our collaborators to investigate.

Our new framework will also give fresh insight and impetus to the study of related flow configurations where air nanofilms have been experimentally observed. These include nanobubbles attached to solid surfaces, projectiles impacting surfaces (e.g. a stone thrown into a pond), and drop collisions (key for cloud formation).

Dr James Sprittles (Mathematics Institute) and Professor Duncan Lockerby (School of Engineering) University of Warwick Research Project Grant



ABOVE Coffee stain, Adobe Stock.

ABOVE Experiments show air pressure reductions suppress the splash of a liquid drop (courtesy of Professor Lei Xu).

LEFT Microscopic effects govern the dynamics of the air nanofilm under an impacting liquid drop.

Transforming our understanding of Raphael with eloquence as a research theme



Through a focus on the expressive and enchanting powers of Raphael's drawings, Catherine Whistler's project aims for a new understanding of his art, arguing that eloquence is located in the materiality of drawing and in the viewer's creative responses

This project sets out to transcend disciplinary boundaries so as to have a transformative effect on academic and public perceptions of Raphael. Unique in his impact on Western art theory, education and production for over three centuries, Raphael lost this canonical status with the advent of modernism. His art is widely viewed today as remote, bland or irrelevant. Current scholarship presents Raphael as an accomplished interpreter and courtier who managed an efficient workshop, with drawing as a pragmatic stepping-stone towards the final, polished work of art. By exploring the experimental character of drawing and its rhetorical possibilities, I want to 'make strange' an over-familiar artist and to stimulate new thinking about drawing in and beyond art history.

Often associated with traditional teaching or technical clarity, drawing has been marginalised in contemporary education. Yet the intimacy and immediacy of drawing is compelling: as the critic Adrian Searle commented, "It is often almost impossible to tell what was made 500 years or five minutes ago". As

a university museum curator, I have seen how a direct engagement with drawing can have radical effects on academic thinking and teaching. My curiosity is sparked by objects, and by cross-disciplinary connections. Discussing Raphael drawings with practitioners in fine art, music, poetry and anthropology has led me away from established approaches of viewing these drawings in terms of authorship, dating and function. For instance, a sheet normally categorised as a preparatory study for Raphael's *Disputa* fresco in the Vatican had a key role in the design process (above, right). Yet many elements seem in creative tension with a conceptual, project-oriented goal. On the reverse, drafts of a poem overlap with a related sketch of a gesturing male figure (above, left). There, Raphael worked in pen and ink, composing, vigorously deleting parts, and testing the rhyming structure. In a virtuoso flourish, he placed a female nude figure nearby, setting up challenging relationships of medium, mode and representation with the oratorical male figure. The juxtapositions of elements on this sheet open up fascinating questions on inventiveness, wit, desire and pleasure in drawing.

I invited Dr Ben Thomas to collaborate with me, because his expertise in Renaissance art theory is interwoven with an engagement with contemporary graphic art. We are taking eloquence as

a guiding concept and an interpretative tool in order to unlock a new understanding of Raphael. Beginning with the close scrutiny of Raphael drawings, we will analyse the graphic language that he developed as a means of persuasive visual communication, and we will examine how the drawings reveal processes of thinking and improvisation. Using multi-disciplinary pathways, we will explore the conceptual and manual aspects of drawing together with its relationship with literary rhetoric and with the embodied knowledge of the artist's 'making'.

Dr Catherine Whistler
Ashmolean Museum, University of Oxford
Research Project Grant

LEFT Raphael, Various studies, pen and ink, black chalk, 38 x 23 cm, WA1846.186 (verso), © Ashmolean Museum, University of Oxford.

CENTRE Raphael, Studies of the heads and hands of two Apostles, black chalk touched with white, with traces of pouncing, 49.9 x 36.4 cm, WA1846.209, © Ashmolean Museum, University of Oxford.

RIGHT Raphael, Study for the drapery of a figure in the 'Disputa', black and white chalks, 38 x 23 cm, WA1846.186 (recto), © Ashmolean Museum, University of Oxford.

Nothing really matters



Are there negative properties, negative truths, perceptions of absence, omissions, non-existent particulars? Stephen Mumford approaches this problem from a new angle, aiming for a systematic and definitive resolution of the debate without treating nothing as if it were something

Twenty-five years ago I started worrying about the reality of absences, voids, lacks, limits and nothingnesses in general. You might say it's a waste of time to think about nothing. But I soon saw there was a host of interconnected problems that wouldn't easily go away. In all of them, it looked like we had to invoke the reality of an absence. But an absence is nothing at all so how could it be part of reality?

Examples will help. You would soon die from lack of oxygen. An absence of air kills you. But how does it do so unless it is something real? How can a nothing – a non-entity – be nevertheless causally powerful and make things happen? This is what philosophers call causation by absence, and it is a mystery. Here's another one. When it's true that there's a

table in the room, there's a real object – a table – in virtue of which the truth is true. But what, then, of so-called negative truths, such as that there's not a crocodile in the room? What, in the world, makes that true? This is the problem of truthmakers for negative truths, and it may be a surprise to hear that no one really knows the solution.

I didn't get a chance to work on these issues systematically due to other commitments but I started to see the same sorts of problem arising time and again. Do things have 'negative' properties? If a man is six feet tall, does he also have the 'negative property' of being not-five feet 10 inches tall? If you have nothing in your pocket, do you at least have something in it; namely nothing? How could a universe have been created from nothing? Is an omission – a failure to act – just as significant as an action? Why do I worry about non-existence after my death but never worry about my non-existence before my birth? How is it possible to see that someone is not there? An absent Jane doesn't look like anything, so how do I see that Jane is absent?

In all these areas, sensible and rational people have thought the only way to answer was to reify nothingness: to treat nothing as if it's something. I don't want to do that. Nothing really is nothing at all. However, it is extremely difficult to explain all the truths about what is *not* solely in terms of what *is*. Nevertheless, that is my task. It's arguably the most difficult one in the whole of philosophy for it concerns the fundamental division between existence and non-existence: to be or not to be.

Predecessors have wrestled with these questions for thousands of years. I feel extremely grateful that this fellowship will allow me make my own contribution, which will culminate in a book, *Nothing Really Matters*. Nothing really does matter, but it is not clear that we've ever understood how.

*Professor Stephen Mumford
University of Nottingham
Major Research Fellowship*

ABOVE Image reproduced courtesy of Nick Ares under CC BY-SA 2.0.

Derek Walcott's painters

Despite being well known for his poetry and plays, the influence of visual arts on Derek Walcott's work has been little researched. Maria Fumagalli will provide the first interdisciplinary monograph exploring the ways in which his politics and poetics have been influenced by painters and informed his own paintings

In *Another Life*, his 1973 autobiography in verse, the Nobel Laureate Derek Walcott describes his apprenticeship as a painter with his friend Dunstan St. Omer in the workshop of the St. Lucian artist Harold Simmons. Unlike St. Omer, who became a distinguished painter and muralist, Walcott decided to become a poet. Yet Walcott never stopped painting and being interested in the visual arts: for example, the jacket covers of his poetry collections are his own paintings, he has worked as arts critic for the *Trinidad Guardian* for many years, has collaborated with the painter and collagist Romare Bearden (*The Caribbean Poetry of Derek Walcott and The Art of Romare Bearden*, 1983) and, since the late 1980s, he has had numerous solo exhibitions of his works. The long poem *Tiepolo's Hound* (2001) featuring Walcott's fictionalisation of the life of the Impressionist Camille Pissarro, is interspersed with references to artists like Gianbattista Tiepolo, Paolo Veronese, Paul Cézanne, Paul Gauguin, J.M.W. Turner and many more, and the hardbound copy includes twenty-six of Walcott's own paintings. Painters and paintings have also played important roles in his plays: in *The Last Carnival* (1983), for instance, Jean-Antoine Watteau's *Embarkation for Cythera* (1717) is given centre stage, and Paul Gauguin's visit to Vincent van Gogh in Arles in 1888 is dramatized in Walcott's latest play, *O Starry Starry Night* (2013).

Despite this ongoing engagement, the cross-pollination between poetry and painting that has characterised Walcott's work has never been studied in detail. My new monograph, *Derek Walcott's Painters*, supported by a Leverhulme Major Research Fellowship, will explore the ways in which Walcott's politics and poetics are underpinned and shaped by the aesthetic and political strategies of the painters he creatively engages with, and how these engagements inform both his writing and his own canvases.

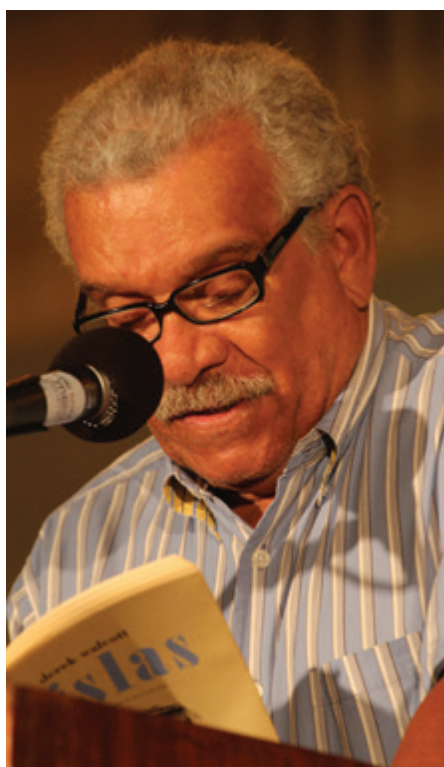
My study will begin with Walcott's formative years in St. Lucia and his exposure to local artists in order to



investigate the influence of his immediate cultural milieu on the very foundations of his poetics. I will then analyse both Walcott's complex relationship with great European masters – or what he refers to, with deliberate ambiguity, as the 'empire' of art – and Walcott's articulation of an inclusive, non-US-

centric 'American Vision' which derives from the dialogue he establishes with North American, African-American, Latin American and Caribbean artists. *Derek Walcott's Painters* will conclude with an investigation of Walcott's artwork which reveals his sensitivity towards the environment and counters the idealisation, exoticism or insulting condescension which have often characterised representations of the region. Walcott's paintings will be examined alongside his poems, plays, essays and interviews, and in the context of his own study and reconfiguration of Caribbean environmental art.

Professor Maria Fumagalli
University of Essex
Major Research Fellowship



ABOVE Derek Walcott at Work, Acrylic on Canvas, 20×24 inch, © Peter Walcott.

LEFT AND COVER THUMBNAIL
Images reproduced courtesy of Jorge Mejía Peralta under CC BY 2.0.

Decorated diamonds: new luminescent hybrid materials

Simon Pope's research will investigate the luminescent properties of nanodiamonds, aiming to generate a new class of hybrid material with wide potential benefits to applications across the engineering and biomedical fields

Nanodiamonds are described as diamonds with a size below 1 micrometer (10^{-6} m). First discovered in the 1960s, nanodiamonds can be produced by impact events such as explosions and detonations. Imperfections in the nanodiamond structure can lead to fascinating physical properties. Of course such imperfections are highly undesirable in diamond jewellery! However, nanodiamond is fluorescent (the emission of light from a substance) because of nitrogen impurities (i.e. nitrogen is a dopant in the nanodiamond structure) and defects in the nanodiamond structure.

Nanodiamond is now emerging as a material of high functionality and

significant application. The ability to tune the physical properties of nanodiamond is key to its breadth of application, potentially including quantum engineering, functional coatings, fluorescent materials and biomarkers for use in medicine. Some of the most exciting applications of nanodiamond seek to exploit the optical properties (light absorption and emission known as fluorescence) of such species. A key aspect of these applications is the capability to tune the energies (wavelengths) of the fluorescent light. For example, colour tuning is essential in functional coatings in lighting displays, and the design of fluorescent bioimaging probes.

We will explore chemical methods for tuning this fluorescence wavelength of the nanodiamond that should therefore expand the scope of application of these materials. We will explore two approaches: firstly, altering the nature of the dopant in the nanodiamond

structure and secondly, investigating the functionalisation of the nanodiamond surface using novel methods (i.e. we will decorate the nanodiamond surface). The dopant research relies upon the expertise of co-investigator Professor Oliver Williams (School of Physics and Astronomy) and therefore the funding from the Leverhulme Trust has facilitated a new collaboration bridging chemistry and physics disciplines. The decoration of nanodiamond with fluorescent molecules will allow exquisite control over the optical properties of the new materials. We're hopeful that the resultant nanodiamond will therefore represent a new class of hybrid material that will have significant and exciting potential for future applications.

*Dr Simon Pope
Cardiff University
Research Project Grant*

Network for the study of the dispersed Qumran caves artefacts and archival sources

Much about the Qumran caves artefacts has never been fully studied, yet questions of the dating and nature of the Dead Sea Scrolls deposits remain critical. Joan Taylor will be leading an original network investigating and analysing these objects

The Qumran caves, located on the north-western side of the Dead Sea, are famous as being where the Dead Sea Scrolls were found (1947–56). The scrolls, one of the greatest archaeological discoveries of the twentieth century, have sparked a

breakthrough in understanding Judaism at the time of Christ, yet many mysteries remain about who placed them in the caves, when and for what reason. There has been little systematic analysis of the artefact assemblages of the caves – most importantly the many unusual cylindrical jars – and yet these provide vital clues that would enable scholars to address the mysteries and offer solutions.

The purpose of this international network is to seek out dispersed materials from the caves, so as to contribute to providing a comprehensive description of

the cave artefacts, in order to ensure that scholarly progress is no longer hampered by lack of information regarding the material profile of each cave's contents. It will focus on material that has found its way to various collections worldwide, and contribute to a broader project, which aims to publish or republish all the material from the Qumran caves, both from official excavations and from the clandestine excavations done by local Bedouin.

This will require careful collaborative and investigative work to study objects in private collections as well as artefacts in public institutions, engaging in scientific analysis where relevant. There will be regular meetings of the network partners (Dr Dennis Mizzi, University of Malta and Professor Marcello Fidanio, Faculty of Theology in Lugano) to bring things together in a holistic way. In addition, the network will study archival documentation and photographs, searching for all relevant data.

*Professor Joan Taylor
King's College London
International Network*



LEFT Image reproduced courtesy of Lux Moundi under CC BY 2.0.

Making lists: inventories and objects at the courts of France

Susie Nash explores the inventories of the 'joyaux', focussing on how, when and why these precious objects were documented and what this tells us about ownership and the history of the period

My project is a study of the history and visual culture of the courts of France from 1360–1422, seen primarily through the lens of the extraordinarily extensive inventories of their material goods. During this period the Valois king, Charles V, his son Charles VI and the Princes of the Blood, amassed vast collections of thousands of precious objects, most of which have since been lost. This movable treasure, termed collectively 'joyaux', encompassed metalwork, jewels, chapel goods and textiles, robes, hats, tapestries and paintings, manuscripts, relics, dog collars, astrolabes, cameos, and a host of other 'choses estranges' like giants' teeth and ostrich eggs. I want to ask how, when and why these princes took stock of these most precious, inanimate worldly goods, and how these goods were categorised, ordered, stored and valued, as recorded in the inventories that were often made *ad vivam* and sometimes even dictated by the prince himself. The documents are extensive and heterogeneous: around 30 inventories of the collections of these princes and their wives survive; most are bound codices, but some are rolls; some are on paper, some on parchment; many teem with marginal notes recording absence and presence, damage and repair; others have clear, wide margins, with not a trace of later annotations.

With this fellowship, I aim to analyse their contents, form, language and organisation to investigate attitudes towards materials, skill, authorship, memory and value. This will be pursued in part through a broad, comparative view of the entirety of their contents, but also through a focussed, in-depth analysis of their rhetorical structures, their language and its rhythms, and, importantly, of them as objects in their own right: their scale, weight, script, ink, support, condition, dirt, damage, additions, lacunae, marks of ownership and provenance will all be drawn on to assess their purpose, status and history.

What I will be undertaking is partly a study of ownership: the inventories can help tease out a sense of the owner's relationship to their objects, but I am



as interested in the historical timing of their production as in the objects they catalogue. Do the moments at which these lists were made intersect with political, economic or personal agendas? While some were certainly working documents, designed with a practical purpose, I suspect that others had an overt ideological function, created as embodiments of wealth, power and status, that suppressed or magnified the actuality of the collections they documented: they were, or they became, far more than a pragmatic accounting procedure. This is shown by their afterlife: some were reproduced as illuminated luxury books in the later fifteenth century, reformulated as alphabetised lists in the sixteenth century, and transcribed as part of royalist campaigns in the seventeenth century. Examining the making and remaking of these records will enable me to approach them not simply as stores of information,

but as responses to and products of historical change and crisis, a means of preserving cultural memory and royal authority, and of forging dynastic identity.

Professor Susie Nash
Courtauld Institute of Art, University of London
Major Research Fellowship

ABOVE De Limbourg brothers, January from the *Très Riches Heures de Jean de Berry*, c. 1414–16. This very famous unfinished manuscript was described in the post-mortem inventory of Jean de Berry in 1416; the miniature depicts many of the other types of objects inventoried alongside it – tapestries, metalwork, jewellery, brocade and embroidered fabrics, firescreens and jeweled dog collars.

OUR 1000TH EARLY CAREER FELLOW, DR LAUREN BRENT, REPORTS ON HER CURRENT RESEARCH

Social dynamics and the evolution of cooperation



Since 1994 the Trust has invested more than £65 million in the Early Career Fellowships scheme, with matched funding from host institutions, furthering the careers of over 1000 Early Career Fellows. Lauren Brent's research focuses on the evolution of sociality and asks why social relationships are formed and how they are maintained. Her current project examines the evolutionary puzzle posed by cooperation between unrelated individuals in a free-living population of rhesus macaques

Life is full of cooperation. Wolves hunt in packs, flycatchers mob hungry owls, guppies use the buddy-system to inspect predators, and meerkats stand guard over their foraging groupmates. In human societies, cooperation seems especially important; only through working together have people developed the economies, institutions, and nations on which the modern world is based.

Since we might not be here without it, it is remarkable that much about the evolution and maintenance of cooperation in animal societies remains a mystery. Helping others comes at a cost and so we should expect natural selection to weed out cooperators. Although inclusive fitness benefits can explain why animals help their kin, the many individuals who cooperate with non-relatives require a system that guarantees

their investments are returned. But just what is this system?

One prominent idea is that individuals help non-relatives from whom they have previously received help. This 'I'll scratch your back if you scratch mine' system has been found to exist in animals such as vampire bats who share blood with bats from whom they have previously received blood. But the direct reciprocation of favours requires individuals to keep track of their

relationships with each group member throughout their lifetime. Even for short-lived species that live in groups of moderate size, this might be impractical, and thus simpler mechanisms for the maintenance of cooperation have been theorised.

One such alternative is called generalised reciprocity. Generalised reciprocity occurs when individuals cooperate with others if they have previously received cooperative





interactions from anyone. In this scenario, animal 'A' receives help from animal 'B', followed by animal A helping either animal B or someone else. This 'pay-it-forward' system is assumed to be a powerful mechanism underpinning the maintenance of cooperation but has yet to be examined in animals living in a natural setting.

The aim of my research is to compare direct and generalised reciprocity in a population of free-living

monkeys. Rhesus macaques (pictured) are keen cooperators. Just like humans, rhesus macaque society is a dangerous place fraught with competition. Deft navigation of the social world can mean the difference between life and death for these monkeys and their offspring. To cope with the challenges of group-living, rhesus macaques must get their group mates to groom them, tolerate them at prized food sources and support them during aggressive encounters.

I will begin by using thousands of hours of carefully collected observations on the social interactions of hundreds of individuals to determine how current cooperative events are shaped by past interactions. Following that, I will use behavioural experiments designed to induce cooperative interactions to test whom monkeys choose to cooperate with and why.

The outcomes of my research will fill fundamental gaps between decades of theoretical work and real-world empirical evidence. Although my starting point is in monkeys, this work will hopefully stimulate studies in other taxa, allowing cooperation to be examined in a broad evolutionary context with profound implications for understanding how cooperation is maintained in animal societies.

*Dr Lauren Brent
University of Exeter
Early Career Fellowship*

LEFT Lauren Brent collecting data, image credit: Amanda Accamando.

TOP Lauren Brent collecting data in the field, image credit: Joel Glick.

COVER AND IMAGES LEFT Rhesus macaques engaged in grooming, image credits: Lauren Brent.



Investigating presence and absence in Kindertransport family archives



Drawing upon her artistic practice, which creates visual representations of archived material, Sara Davidmann seeks to contribute to the understanding of the lives and experiences of children evacuated via the Kindertransport

This Prize will be used to further my research into family histories, interpersonal relationships and archives. My new project will explore the ways in which processes of identification with personal narratives can be facilitated by artworks and examine the ways in which ordinary lives coincide with, and are shaped by, major social and historical moments.

This research will focus on mother/son relationships affected by the Kindertransport. The project will juxtapose the personal, intimate and private with global upheaval. Between 9,000 and 10,000 children were evacuated from Nazi-occupied countries to the UK from 1938 to 1939 via the Kindertransport system. These children were frequently the only survivors in their families of the Holocaust, in which approximately six million Jews were killed. There are many collections of Kindertransport oral histories and

memoirs. Yet there are also many spaces that exist in the documentation of Jewish lives and many voids left by the Holocaust. My research will take a new approach to this difficult subject by working with unexplored private family archives, including the Halberstam family archive and my own family archive, and through visits to seminal public Kindertransport and Holocaust collections worldwide.

I will develop new methodological approaches for working creatively with archive material. My aim is to develop a methodology that consents to the marks, damage and absences in archives, and emphasises their disorganising presence while communicating evocative stories about this difficult, complex subject matter. Experimental work will be carried out both in and outside the photography darkroom. Early photographic processes including photogravure, wet plate collodion, albumen/silver gelatin prints, and photograms will be combined with contemporary digital photography processes.

This new research builds on two previous projects exploring my family archive. The first of these, *My Mother's Notebooks*, is a photographic work

recounting the impact of my father's childhood in pre-war Nazi Berlin on my parents' marriage. The second project entitled *Ken. To be destroyed* is based on the family secret that my uncle Ken was transgender. *Ken. To be destroyed* brings to life how little was known about transgender people in the 1950s, the difficulties Ken faced trying to reconcile being transgender with marriage and society, and the difficulties my own family faced coming to terms with Ken's identity.

*Dr Sara Davidmann
University of the Arts London
Philip Leverhulme Prize*

LEFT *Ken. To be destroyed. Sara Davidmann. Chemigram, 2015.*

RIGHT *Ken. To be destroyed. Sara Davidmann. Vintage photograph 1960. Re-photographed. Digital print with burns, 2015.*

Verse reaction

Patrick Unwin and Mary Courtney will work together to reveal the aesthetics of chemistry during this Leverhulme Artist in Residence Grant; combining poetic reactions with a wealth of digital images and also using new media, the residency will show what happens when art collides with chemistry

Art and chemistry have been connected for centuries, with drawing proving important as a means of representing experimental apparatus and procedures. In recent years, the visual representation of chemistry has taken a new turn, as scientists and journal editors seek to

capture the essence of a piece of work through striking 'front covers' and 'graphical abstracts'. Increasingly, these scientific representations are created by an artist, commissioned by the scientist, and are artistically framed by the science.

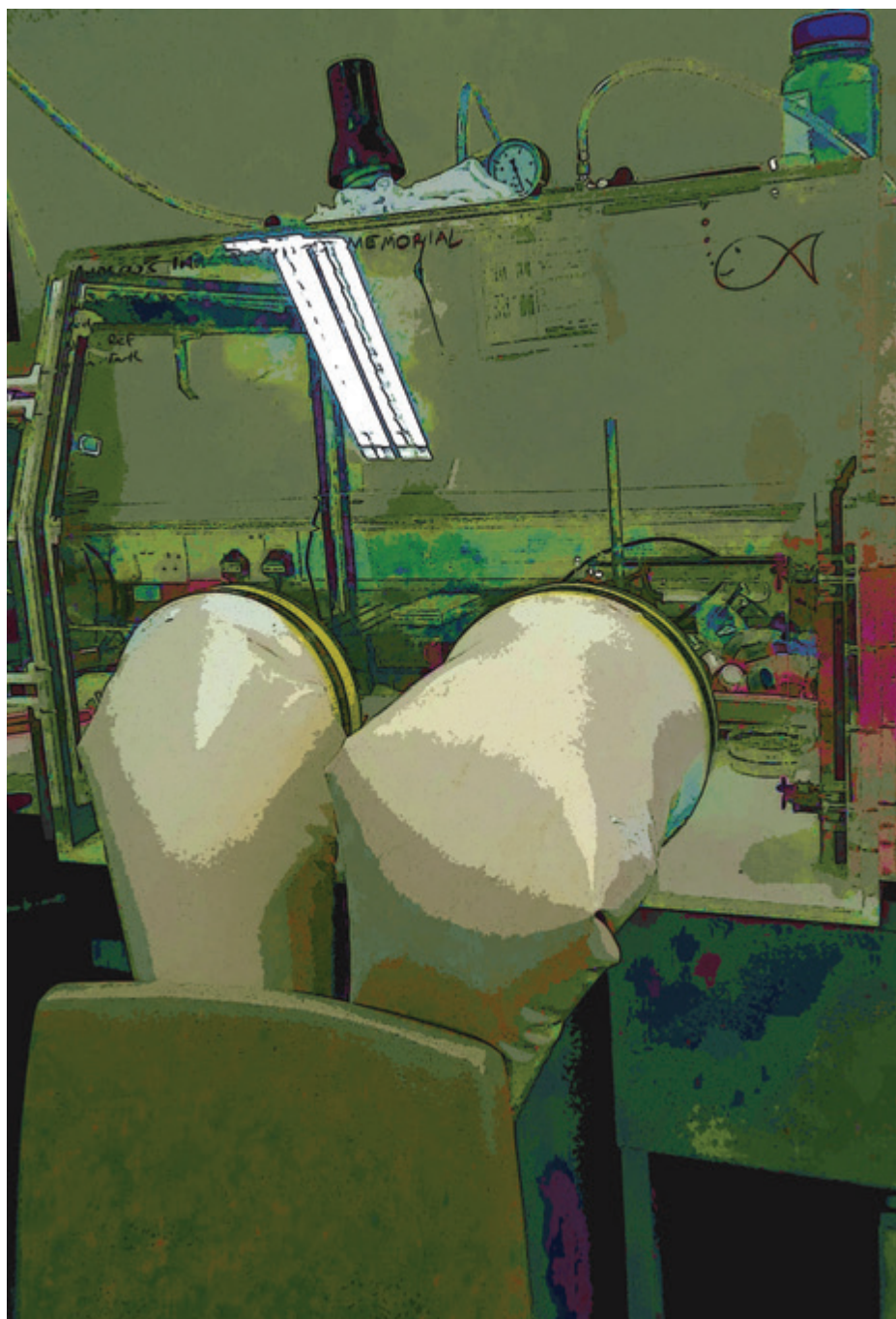
We seek a different – and much less explored – connection between art and chemistry, which is the rich environment of minds, machines, laboratories, imaging and data as artistic inspiration, through which the aesthetics of chemistry can be revealed. We aim to create and curate on the basis of whether images strike us as beguiling or beautiful. The Chemistry Department

at Warwick is an ideal venue for this adventure: there is a vast untapped, unpublished and almost entirely unseen mine of digital images of matter and reactions at the micro- and nano-level. These images, shared by staff and students, will be combined with poetic reactions and chemistry voices and sounds, to form a unique and unusual digital body of work of cohabiting worlds.

Experimenting with drawing, for both the artist and chemists, is a further component of the residency. Mary Courtney will try out different media and methods new to her: the cyanotype technique which uses chemical processes, and – most uniquely – drawing on the nanoscale using high resolution electrochemical probe microscopes, under my direction and the Warwick Electrochemistry and Interfaces Group. This is not an experience ever to be had in an artist's studio! Drawing workshops will be on offer to chemists and analytical scientists, so they too can benefit, by exploring a different side to their creativity.

This residency will be a stimulating collaboration between poet-artist Mary Courtney and staff and students in the Department of Chemistry and the EPSRC Molecular Analytical Science Centre for Doctoral Training at the University of Warwick that will help take the wonder of chemistry to the outside, as well as bringing an alternative perspective of art into Warwick Chemistry. Among a range of anticipated outcomes, the residency will culminate in an audio-visual digital exhibition – "Verse Reaction" – on the large public screen in the Piazza, in the heart of the Warwick campus.

*Professor Patrick Unwin and Ms Mary Courtney
Department of Chemistry, University of Warwick
Artist in Residence Grant*



LEFT Resting legs and the fish bubbles, Mary Courtney.

RECENTLY AWARDED GRANTS

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

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-Qasmieh

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

Institute of Education, University of 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

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)foundings 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

RESEARCH PROJECT GRANTS**Sciences****Dr Nicola Allison***University of St Andrews*

The control of coral biomineralisation

£169,406

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

Professor Simon Belt*University of Plymouth*

A novel proxy for reconstructing polar ocean temperatures

£164,557

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

Professor Tracey Chapman*University of East Anglia*

Evolutionary genomics of the enigmatic male sex peptide: a 'master regulator' of female reproduction

£55,399

Professor Daniel Charman*University of Exeter*

Holocene evolution of the Southern Annular Mode using novel peat isotope proxies

£245,011

Professor Jonathan Clayden*University of Bristol*

Dynamic communication through reorganisable hydrogen bond networks

£195,989

Dr Clare Cunningham*Abertay University*

Effects of social and practical experience on tool manipulation skills in small apes

£121,780

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Humanities

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

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

Professor Donald MacRaild
University of Ulster
The Irish and British famine, 1845–50: comparing lives lost and lives saved
£235,454

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

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

Social Sciences

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

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

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

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

INTERNATIONAL NETWORKS

Humanities

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

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

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

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

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

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

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

Social Sciences

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

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

EARLY CAREER FELLOWSHIPS

In 2015 Early Career Fellows 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 are 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-nanometer 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-macrocyclic: 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 David 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 mediatization 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*

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£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
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Dr Harriet Hawkins

*Department of Geography, Royal Holloway,
University of London*

Artist: Miss Flora Parrott – Visual artist
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Miss Jessica Mahoney

Business Audiences, British Library

Artist: Ms Melissa Addey – Writer
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Ms Anna Minton

*School of Architecture, University of East
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Artist: Mr Alberto Duman – Interdisciplinary
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£12,500

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*Space Science and Technology Department,
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£14,582

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*Department of Geography, Durham
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*Animal and Veterinary Sciences, Scotland's
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Community Participation, Beamish Museum

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£13,630

Professor Patrick Unwin

*Department of Chemistry, University of
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Dr Jo Vergunst

*Department of Anthropology, University of
Aberdeen*

Artist: Mr Alec Finlay – Poet and visual artist
£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
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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
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London*

Artist: Miss Ella McCartney – Visual artist
£14,338

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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