

# THE POSTGRADUATE TIMES

May 2014



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THE TIMES  
THE SUNDAY TIMES

University  
of the Year  
2013-14

# THE FIRST WORD



The last few months have again been remarkable for our university. Following the accolade of 'The University of the Year', we have now signed a strategic alliance with the University of Illinois at Urbana-Champaign, our applications position is outstanding, and work has begun on a series of transformational building projects around the campus.

The energy of the University of Birmingham is remarkable. Precisely because so many of us are caught up in the whirl of excitement that currently characterises the University, we sometimes lose sight of just how much we are achieving. Again, over the last couple of months, work has begun on the High Temperature Research Centre at Ansty, the Institute of Translational Medicine jointly with our colleagues at University Hospitals Birmingham, and, now we have full planning permission, on the University Training School. Few universities can rival this range of activity and none, I think, currently surpasses it.

A university's reputation is massively enhanced by the range of additional activities and projects that it can sustain. Universities are, by definition, huge in scale and ambition.

That said, the quality of our core activities is critical to our reputation. For these reasons, the increase in applications to the University of Birmingham for 2014 entry is hugely heartening. We are currently massively outperforming our competitors in applications from home students for undergraduate programmes, and are well ahead of target for postgraduate home and international applications.

There is still more we can do in a number of key areas, notably in international undergraduate recruitment and in recruiting postgraduate research students. Nevertheless, our applications position and popularity should give us confidence in facing an uncertain future.

Following the recent Higher Education Funding Council for England (HEFCE) grant letter and changes in health funding, the future is increasingly challenging. The HEFCE teaching grant was reduced nationally by a shade under six per cent for the coming year and further cuts are on the horizon. Our fees are capped, and research has been funded at 'flat cash' since 2010. As a result, by say 2017 in real terms research funding will have been cut by 25 per cent and teaching funding by about 16 per cent. This is a massively challenging environment in which to be operating. We are doing as well as we are because of the boldness of the decisions we have taken and the clarity of our strategic vision.

For the University to continue to succeed in this environment we will need to sustain our attractiveness to applicants and broaden the base of our recruitment, notably international

undergraduate recruitment. We have managed to stabilise our market share of competitively won research income: now we need to increase it. New capital opportunities will continue to emerge, and we will need to seize these with imagination and enthusiasm.

Few universities are as well-placed to face an uncertain future. So there is much to celebrate, much to achieve, and much to look forward to.

**Vice-Chancellor**  
**Professor David Eastwood**

Originally published in Buzz 149, April 2014

# Transforming our campus

The University has this month taken the first steps to providing Birmingham's first 50m swimming pool as construction work started on the new £55 million sports centre.

The sports centre, which will sit on the corner of Bristol Road and Edgbaston Park Road, will be open to staff, students, and the wider community. In addition to the pool, the Centre will also feature an arena sports hall with seating for up to 900 spectators, six squash courts, six activity rooms for a wide range of sport and fitness classes, a 225-station gym, and various other facilities. The 13,200sqm centre will also boast a purpose-designed Wellbeing and Performance Centre, making it one of the UK's leading indoor sports centres.

'This is a large and complex project, which is the culmination of many years of planning and design' says Zena Wooldridge, Director of Sport. 'We're very excited that construction is now about to start. The new facilities, and opportunities they will house, will be

a game-changer for the University, both in raising its profile as a leading UK sporting university, and in its provision for the local and regional community.'

The construction is being led by international support services and construction group, Interserve. The company have a ten-year relationship with the University and many Civil Engineering graduates are now working for the company.

In addition to donations from alumni and friends of the University, the project is also being supported by Sport England who are contributing £2 million of National Lottery investment into the sports centre through the Olympic legacy fund 'Iconic Facilities'. Sport

England Property Director Charles Johnston said: 'I am delighted that work is beginning at the University of Birmingham, helping it to become a centre of sporting excellence in the West Midlands. Good sports facilities play an important role in local communities; they not only improve people's sporting experience but also help attract new participants. The new facilities at the University will do just this.'

'The facilities are not only designed to provide a high-quality experience for our leading regional and national sportsmen and women, but also to better serve those with disabilities, injuries or health issues, and those who just want to keep fit or play sport socially' adds Zena Wooldridge. 'It has an important role to play in the city's future vision for sport.'

Originally published in Buzz 148, March 2014



The University's Development, Alumni and Business Engagement (DABE) team have been welcoming support for the sports centre development from alumni and friends of the University, with more than £320,000 from 560 people raised so far. Look out across campus for an exciting and interactive DABE campaign that will be launching later this year to provide updates as the build continues and help secure a further £2 million of support towards the building.

*'We are delighted that so many people from our University community and from the city have already committed to supporting this project,'* says Zena Wooldridge. *'This generous philanthropic support makes a real difference to our plans, enabling the University to create a building filled with specialist equipment that genuinely reflects Birmingham's status as one of the top three universities for sport in the UK and creates opportunities for people across our community.'*

To watch live progress, via webcam, as the new sports centre is built visit: [www.birmingham.ac.uk/university/building/sports-centre.aspx](http://www.birmingham.ac.uk/university/building/sports-centre.aspx)

## BIRMINGHAM GLOBAL

# UNIVERSITAS21

Universitas 21 (U21) is the leading global network of research-intensive universities, working together to foster global citizenship, and institutional innovation.

From its origins in 1997, U21 has grown to be a vibrant community of 27 leading universities from across 17 countries, and the University of Birmingham has played a key part in this development. Birmingham was a founding member of U21 and the network continues to provide an ideal platform on which to build strong international relations and enhance education innovation.

*'Birmingham's U21 membership provides terrific opportunities for staff and students to gain an international experience and develop their global networks', says Andréa Edwards, Director of International Development and Mobility. 'We are delighted to have seen engagement in U21 activities across the University increase year on year.'*

U21 opportunities for students are well known, but many are often less aware of staff-specific opportunities which include early-career researcher conferences, staff mobility opportunities, funding to support teaching, and research collaboration including joint PhDs.

Professor Adam Tickell, Universitas 21 lead, says that: *'The University is strongly committed to enhancing engagement within the U21 network to support our strategic global ambitions and enhance the staff and student experience, by encouraging researcher engagement, supporting the development of joint PhDs, and providing opportunities for international collaboration.'*

U21 Staff Fellowships, open to both academic and administrative staff, provide opportunities to spend time at a partner institution in order to share best practice and support professional development. Adriana Flores-Langarica, an Early-Career Researcher from the School of Immunity and Infection, said of her recent Fellowship: *'It allowed me to establish collaboration with colleagues at Lund University to not only promote our research but enhance it. I was able to learn techniques and use resources not available at the University of Birmingham. As a result we are establishing new projects to develop between groups. Personally it was a great opportunity for me to enrich my CV and boost networking.'*

## U21 partner institutions:

### Universities of:

Amsterdam, Auckland, Birmingham, British Columbia, Connecticut, Delhi, Edinburgh, Glasgow, Hong Kong, Johannesburg, Maryland, Melbourne, New South Wales, Nottingham, Queensland, Virginia, and also

Fudan University, Korea University, Lund University, McGill University, National University of Singapore, Ohio State University, Pontificia Universidad Católica de Chile, Shanghai Jiao Tong University, Tecnológico de Monterrey, University College Dublin, Waseda University.

### Learn more

For further details contact Matt Clulee, U21 Project Officer, at [m.clulee@bham.ac.uk](mailto:m.clulee@bham.ac.uk)



The full range of opportunities for staff and students, including details of staff fellowships, funding for teaching and research collaborations, and opportunities to participate in international events, can be found on the intranet at: [intranet.birmingham.ac.uk/external/international/relations/U21/index.aspx](http://intranet.birmingham.ac.uk/external/international/relations/U21/index.aspx)

Originally published in Buzz 148, March 2014

## Birmingham Three Minute Thesis (3MT) Competition

Birmingham 3MT: Three minutes, one great idea...

- Could you effectively communicate the significance of your research in just three minutes?
- Would you like the chance to compete for generous international research bursaries?
- Are you up for the Three Minute Thesis challenge?

The Three Minute Thesis (3MT®) competition gives you just three minutes to deliver an engaging presentation on your thesis topic, its originality, and its significance.

College heats take place on 19 and 20 May, and a University final will be held on Wednesday 11 June. How will you use your three minutes?

For more information please visit:  
<http://intranet.birmingham.ac.uk/3MT>



# Birmingham researcher in Martian adventure

A new type of mission to Mars, called Mars One, was announced in May 2012. Mars One is a not-for-profit organisation that wants to send people to the red planet. The project is using a combination of crowd-sourcing, sponsorship, and TV rights to find the estimated \$6 billion required to make the project a success and land four astronauts on Mars by 2025.

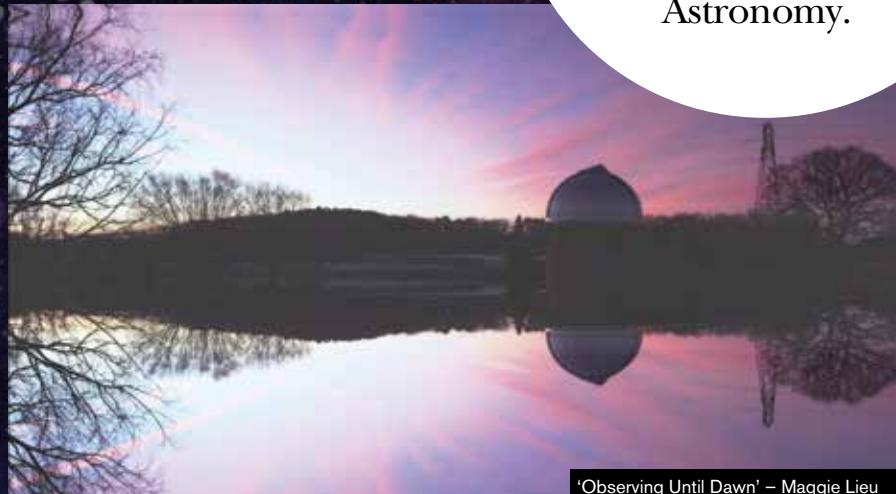
It is not a one-off mission. Further astronauts will be sent every 26 months, building up what is hoped will be a permanent human settlement on Mars. There is, however, no return trip built into the project, so any astronauts that do boldly go may spend the rest of their lives on Mars.

The Astronaut Selection Program was announced in April 2013, a global search 'to find the best candidates for the first human mission to Mars.' Of the more than 200,000 people who applied, University of Birmingham postgraduate researcher Maggie Lieu has made the longlist of 1,058 people, from which the four successful astronauts will be selected.

We spoke to Maggie to find out how she became interested in space, how her research might help her, and why she wants to take a one-way ticket into the unknown.

## *When did you become interested in space?*

I've always been interested in space from a young age. That's why I did a space science degree at the University of Kent, and then a year abroad at the University of California in Los Angeles – just in straight physics. Before I went away I always wanted to work in the space industry. But while I was in LA I realised how hard it was to get into NASA, and the easiest way to get into it is to get a PhD because you'll have a skill. I really liked cosmology so I wanted to come to Birmingham and do something cosmology related. I am now working on gravitational lensing.



'Observing Until Dawn' – Maggie Lieu

## *So does your research have much to do with Mars?*

No, not at all! It's quite different because it's extragalactic scale rather than the local solar system. But I'm quite active in the space community; I used to be the outreach officer for UKSEDS – [UK Students for the Exploration and Development of Space]. They do things like rocket launching, high altitude balloon launching, cube satellite launches, and have a lot of interaction with the UK Space Agency and the European Space Agency. So I'm quite involved in their projects, although not much of that is to do with my PhD.

## *I suppose the obvious question is why did you sign up for the Mars One project?*

Because it's a really good opportunity to do something amazing. Mars is a truly inspirational planet and it is a really good opportunity to inspire children to get involved in STEM subjects (science, technology, engineering, and mathematics). For example, after the moon landings in 1969 all the American astronauts went into schools and all the kids looked up to space subjects. Everyone set Neil Armstrong as a role model.

## *How do you feel about this being a one-way ticket to Mars?*

I'm fine with it because I'm pretty certain that by the time we get up there it won't be long [before] we'll be able to get back. So they say it's one way but I don't think it is. Even if it is, it's just like moving away somewhere like Australia in the olden days before there were planes – people would go on world adventures and they could never come back but they just wanted to explore!

## *Have you let yourself imagine what it would be like if you were selected?*

No, I'm really surprised that I got through! It's just really surreal at the moment!

## *If you did get to Mars what research would you do when you got there?*

I'd like to explore the terrain, obviously, but I don't know if we're allowed out of the pods yet. At the moment they haven't developed the clothing, because you get all the radiation hitting you, so they don't know how safe it is. It wouldn't be safe to just walk out on Mars, but by the time [of the mission] – it is ten or more years away – we will probably have the technology. We send rovers up and there's so much that we can't do because they're limited by the amount of mass that can fit in the rocket. Current Mars rovers can't dig deep underground – what if there's water under there? There's so much to be explored.

An example of Maggie's work entered for the recent Images of Research Competition. Maggie is a PhD student in Physics and Astronomy.

# BIRMINGHAM'S RANKINGS RISE

The University of Birmingham has continued its impressive rise up the rankings in this year's QS World University Rankings by Subject list.

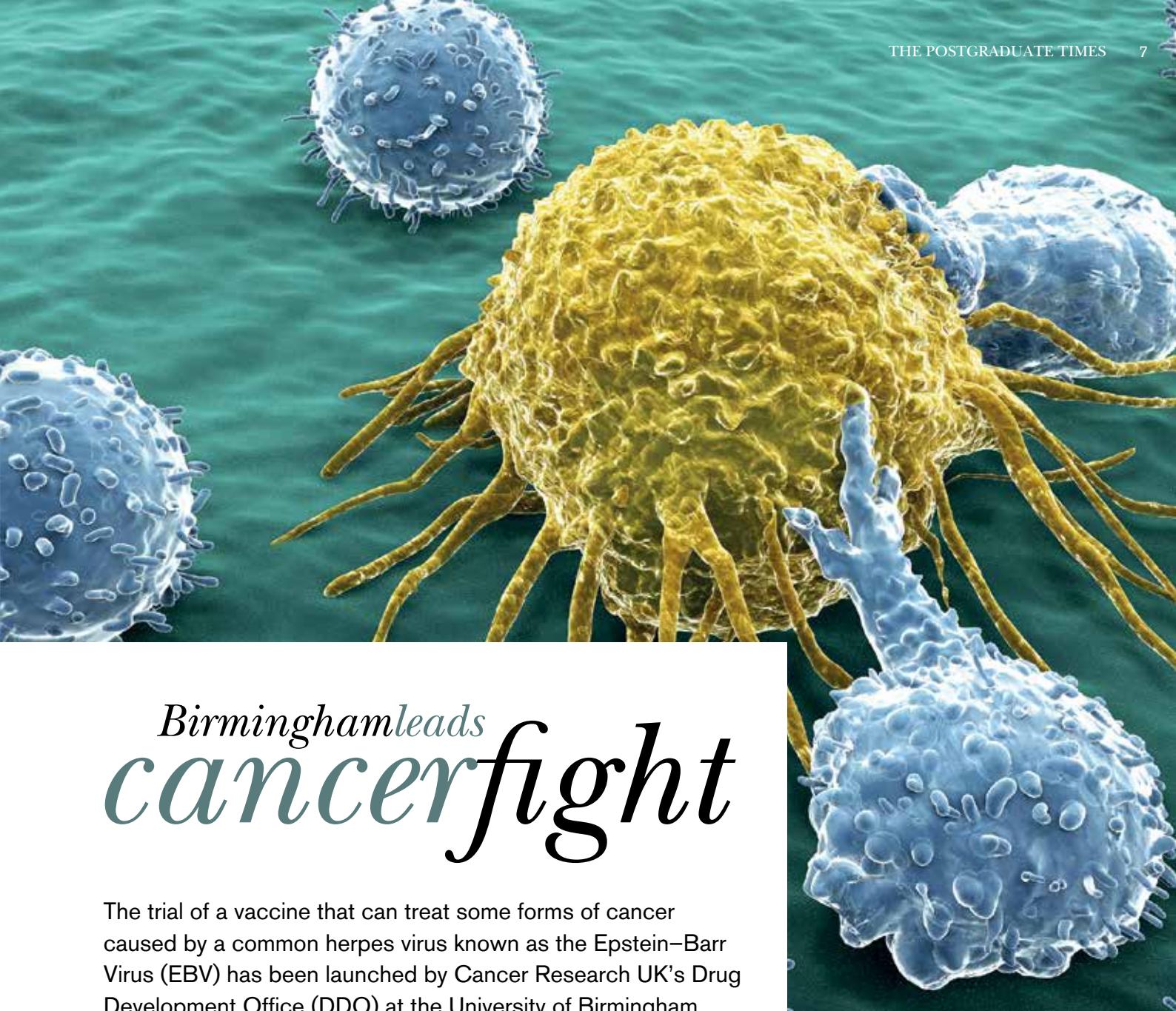
This annual survey, now in its third year, evaluated 3,002 universities and ranked 689 institutions in total. Birmingham ranked in the top 200 of the world's academic elite in 27 of the 30 subjects featured.

The survey aims to stratify reliably by subject discipline. As such, the judged criteria were narrowed to bypass the direct involvement of institutions. Universities were analysed through course data provided by academics and employers and the number of paper affiliations indexed to them over the past year. In total over 130 million citations were looked at and the provision of 10,639 course programmes verified. The full results have now been fully published at [www.topuniversities.com](http://www.topuniversities.com) and in leading international media.

The Linguistics course within the School of English, Drama and American & Canadian Studies was the best performer, being ranked 29th globally, while the English Language and Literature and Pharmacy and Pharmacology programmes also had significantly improved rankings or featured in the list for the first time. Overall, Birmingham had five courses in the top 50, including Geography and Environmental Sciences; 11 ranked in the top 100; and 11 listed between 101–200.

Dr Jeannette Littlemore, Head of Department for English Language and Applied Linguistics, enthused of the recent success: 'Birmingham is particularly well known for its world-leading research in Corpus Linguistics. Recent research developments in the Department include a strong focus on creativity, new media, metaphor and cognitive linguistics. These are all reflected in its wide range of MA programmes.'





# Birmingham leads cancer fight

The trial of a vaccine that can treat some forms of cancer caused by a common herpes virus known as the Epstein–Barr Virus (EBV) has been launched by Cancer Research UK's Drug Development Office (DDO) at the University of Birmingham.

Dr Graham Taylor, a Cancer Research UK scientist based at the University of Birmingham, first presented the trial at the EBV 50th Anniversary Conference held in March 2014 at Keble College Oxford, in order to mark 50 years since Cancer Research UK first discovered the link between the EBV virus and cancer.

EBV infects most people in the UK, although it rarely causes medical problems. But it is also found in around 1,200 people a year in the UK who have cancer, including Hodgkin's lymphomas and nasopharyngeal carcinoma – located at the back of the nose.

Inside these cancers, EBV encourages cells to make molecules called EBNA1 and LMP2. The vaccine (scientifically known as the MVA-EBNA/LMP2 vaccine) trains the immune system to recognise these molecules and kill the cancer cells.

The vaccine has been developed by Cancer Research UK with technology developed by the University of Birmingham. The trial, led by the

Queen Elizabeth Hospital Birmingham, will test the effect of the vaccine on the immune system in 18 patients with nasopharyngeal carcinoma, recruited at hospitals across the UK, including a number of experimental cancer medicine centres. Additional patients are also taking part in a related trial in Hong Kong.

Dr Neil Steven, Cancer Research UK's lead clinician in Birmingham, said: 'We're delighted to open this important trial of a new cancer vaccine.'

'The immune system struggles to distinguish between cancer cells and healthy cells. We have good reason to think that this vaccine will train the immune system to recognise that the cancer cells are different and that it can arm immune cells to destroy tumours. If trials are successful, this vaccine could one day provide an effective new way to treat cancer patients and save lives.'

Cancer Research UK funded the research at Birmingham, which had led to the discovery

and development of the vaccine and is managing and funding the clinical trial.

The launch of today's trial builds on the success of initial trials that took place simultaneously in the UK and Hong Kong. Cancer Research UK's DDO owns and is supplying the vaccine for all trials.

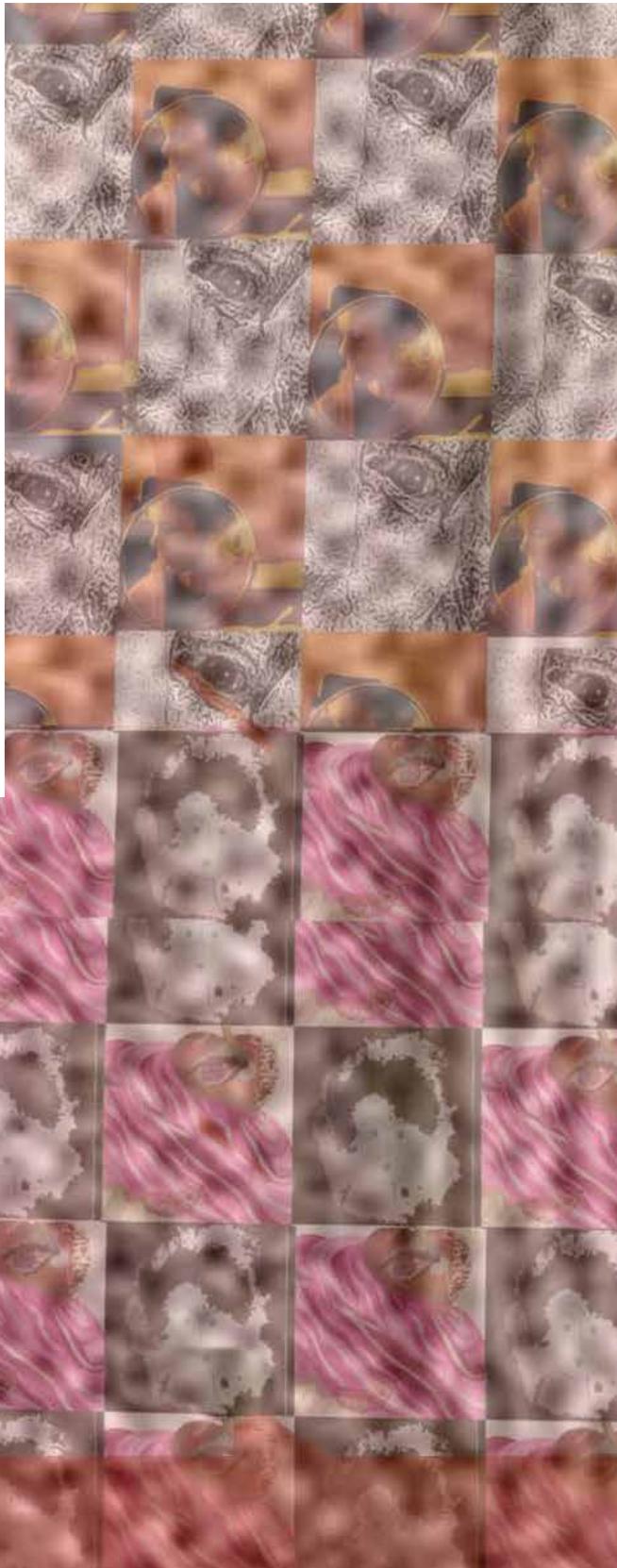
Dr Nigel Blackburn, Director of Drug Development at Cancer Research UK's DDO, said: 'Our scientists played a key role in discovering and developing this promising new cancer vaccine and now we're excited to take this drug into further clinical trials.'

'Our earlier study has already proved that this vaccine is safe to give to patients and this latest trial will tell us more about how the vaccine can fight cancer.'

More information on the trial can be found by visiting the Cancer Research UK website or by contacting Kara Bradley at the University of Birmingham Press Office.

# Images of Research

The Images of Research Exhibition 2014 was the fourth event of its kind, hosted by the University Graduate School. The exhibition asks postgraduates to represent their research in a single image and is a great opportunity for staff, students, and members of the local community to find out more about the wide range of research being undertaken across the University. This year's competition featured entries from all five colleges and was judged by representatives from across the University on aesthetic quality and the link between the image and research. Over the next four pages we bring you some of the best images. This year's competition also featured a People's Choice Award, judged through online voting. In total, 552 votes were cast, favouring a wide spread of the images. And this year's winner with almost 20% of the vote was...



*Portrait of the Female Art Teacher: a Digital Sampler* – by Hannah Hames

## JUDGES' WINNER

### *Portrait of the Female Art Teacher: a Digital Sampler*

by Hannah Hames

This image contains ten self-portraits by female art teachers working across England. The portraits were given to me for manipulation into a digital piece using Photoshop. The piece draws upon the history of female art educators (a profession that dates back to the 19th century) and reminds us that, until relatively recently women instructed each other in decorative arts and embroidery as a pastime, while men made 'real' art.

The appliqued text reads 'artist teacher', a comment on the great number of women who enter the art teaching profession directly from university without first developing an independent creative practice.

The creative industries generate 6% of GDP in the UK and employ 2 million people; art education therefore needs professionals with real world experience to make the subject engaging for pupils and relevant to the economy. We have some way to go; 72% of leaders in the creative and cultural industries are men but 84% of PGCE Art trainees in 2012 were women.

My research data suggests that many young women see art teaching as a female occupation and are particularly inspired by the women who taught them. Disproportionately high numbers of girls currently opt for art subjects at GCSE and A level, suggesting that the gendering of the subject continues. 'A Digital Sampler' asks how far we have come in terms of gender equality in the arts, and why we continue to gender art education and the creative industries 150 years on.



## POPULAR WINNER

### *Landscapes of Death* by Deyala Altarawneh

Taken in Amman, Jordan, this photo demonstrates how unused in-between urban spaces are now no more than places of death; not just for people but for objects as well.

Previously, these were communicative spaces where social interaction took place. These were claimed by children as playgrounds, by lovers to romantically gaze at the stars, and by the elderly to drink their afternoon cup of tea.

My research unfolds the potential of unused in-between spaces as landscapes of production and interaction, instead of dumpsters and eyesores, through the means of temporary use and hacker space to eventually reclaim people's right to the city.



*Landscapes of Death* – by Deyala Altarawneh

# Images of Research



## ***Farmers' Livelihood in Water Scarce Regions***

by Forough Jafary

Farmer communities in many dry regions of the world are among the poorest and most vulnerable groups in society because their livelihood depends on agricultural products. In most arid regions, with a rich cultural and historical background, agriculture is the main source of income for poor local farmers. Water availability for irrigated agricultural practices has become an increasing problem with the impact of climate change: Increased water demand and water quality degradation has resulted in worsening water scarcity. This has affected farmers' lives in many ways and reduced their access to secure water resources for domestic and agricultural activities. Farmers have to use various adaptive strategies and alternative options (e.g. husbandry) to sustain and improve their livelihood under difficult biophysical and socio-economic conditions. In the farmlands of Kashan (central Iran) farmers are faced with arid and hot climatic conditions that have worsened water availability and quality for their agricultural practices. They can now only cultivate a limited variety of crops such as wheat, barley, maize, pistachio, and vegetables. Maize is one of the main summer crops that is harvested by farmers for selling in markets and as fodder for their domestic animals. Motorcycles are the easiest and most affordable vehicle for many farmers for transportation between their farmlands and also to trade their products in the local market. The photo shows a motorcycle loaded with harvested maize that has been transported from the farmer's land to his corral where he keeps his cattle.

## ***Death and Distress***

by Elaine Williams

*Death and Distress* is a section from a First World War memorial window at West Grinstead parish church, West Sussex by Smethwick stained glass artist Florence Camm (1874–1960). It was commissioned by John Peter and Laura Hornung in memory of their son and sons-in-law: Second Lieutenant John Peter Hornung, M.C., Royal Field Artillery, born 18 December 1894: killed in action in France, 20 February 1916. Major and Brevet Lieutenant Colonel Arthur Housemayne Du Boulay, D.S.O. Royal Engineers, born 18 June 1880: died in France 25 October 1918. Captain and Brevet Major Francis Spencer Collin, Royal Engineers, born 5 August 1885: died in Ireland, 17 March 1920.

With a reduced workforce Camm kept the work of the studio going throughout the war. A constant debate between utility and aesthetics surrounded the style of suitable memorials. On the one hand it was considered an opportunity to create 'a world whose environment would be determined by beauty and necessity harmoniously joined,' however, utility did not always fulfil the emotional needs of the grieving. This 'horsemen of the apocalypse' section of the window represents the destruction and unyielding nature of warfare balanced by human need. Other issues my research considers are whether Camm's work reflects the experiences of women, the returning soldier, and the conditions and privations of civilians throughout the war.



## ***More time, more touch***

by Chris Gowing

This image of the thermometer and the aromatherapy bottle represents my research into complementary and alternative medicine (CAM) in British nursing practice, 1948–2000. The study examines the relationship between CAM and biomedicine from the earliest days of the NHS and considers CAM's changing status in healthcare provision.

Many nurses were able to incorporate aromatherapy and other therapies in their nursing work but there were challenges. Some interviews I've conducted with retired nurses reveal that touch and massage of patients were perceived as important elements of care and wellbeing – but that opportunities became scarcer as 'hands off' technical tasks increased on the hospital ward.

'More time, more touch' is what many nurses were seeking for patients.





### ***The Weaving Elders***

by Giovanni Occhiali

The picture is taken in Awra Amba (Ethiopia), a village located 73km from Lake Tana, source of the Blue Nile and site of the biggest power plant in the country. Despite the village's proximity to the power plant, the quality of the transmission line is such that the vast majority of the processes involved in weaving – textiles is the main economic activity in Awra Amba and one of the main industries in Ethiopia – are still performed by hand. Similar situations are widespread in the country which, despite having enjoyed better economic performances than many of its neighbours over the last decade, still has around 83% of the population (a staggering 68.7 million people) without access to electricity. The aim of my research is exploring different scenarios for investments in hydropower generation in Sub-Saharan Africa, which might play a vital role in increasing electricity access, while at the same time developing adaptation strategies to cope with increased drought and flood risk because of climate change. So far, I have analysed thoroughly the industrial costs of poor electricity supply in the continent and I am now starting the second phase of the project, which will focus more heavily on hydropower.

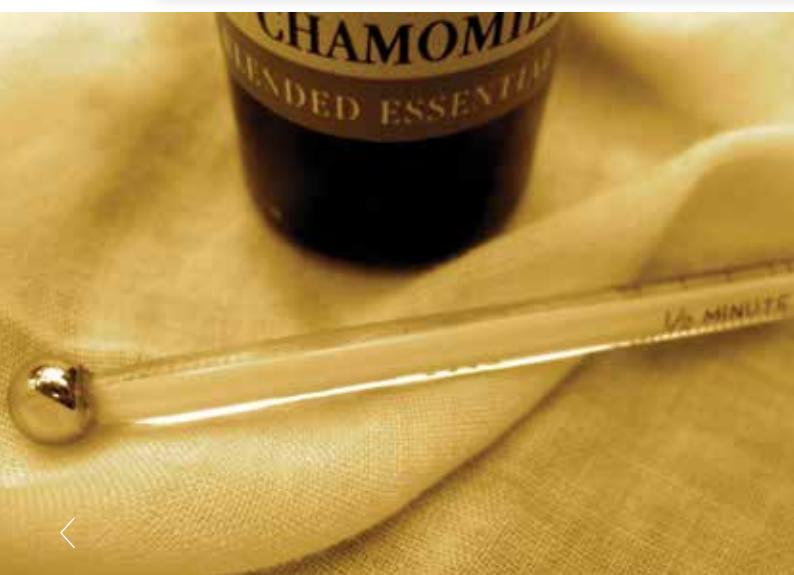


### ***Thinking about food and food choice***

by Panagiota Kaisari

My research focuses on human appetite behavior and my photograph captures one of my main research questions: 'Does holding food-related information in working memory, thinking about a specific food, guide individuals to search for this specific food in the environment and select it among other available food items?'

The prevalence of obesity has increased worldwide to epidemic proportions. Undoubtedly, the changes that occurred in our environment during the past years have contributed significantly to this phenomenon. Food cues are now found all around us: from shop displays and television adverts to pictures of food and eating in magazines. Overweight or obese people, in contrast with healthy-weight individuals, have been found to be extremely responsive to food cues, something that may undermine their efforts to reduce food intake and in turn to lose weight. However, little is known about the mechanisms underlying individual differences in attention paid to food. My research aims to shed light on these mechanisms and I will start my exploratory journey by investigating the role of working memory in food selection and food consumption. More specifically, I will try to give answers to questions like: Do overweight or obese people pay more attention to food cues because they are preoccupied with food thoughts? Is there a link between holding food-related information in working memory and food selection? Providing answers to these questions will not only further our understanding about the aetiopathology of obesity, but also will help us to develop new interventions to promote healthy eating and manage this global epidemic.





## CLIMATE SNACK

The University of Birmingham has recently joined a leading group of international institutions by establishing a new branch of the ClimateSnack research and writing group.

The group, which has branches at seven other universities including University College London, the University of East Anglia, Woods Hole Oceanographic Institute (USA) and the Universities of Bergen and Tromsø in Norway, has been brought together to allow early-career climate researchers to share their work, improve how they communicate with each other, and make their work more accessible to non-scientists.

Derived from the Norwegian 'KlimaSnakk' (literally translated as *ClimateTalk*), each writing branch works together to train and encourage scientific writing for non-specialists. Concerned that important climate information was getting lost under a pile of scientific jargon, the aim is to foster a non-judgmental platform where postgraduates can 'translate'

their research for the general public as part of an outreach or journalism project. Prior to each session, a researcher is asked to draft an article, or 'snack,' on any aspect of climate research that is then circulated to the rest of that branch's members. Feedback is then provided by the group after the piece is read aloud; once revisions are made, the article is sent off for publication on the ClimateSnack website where members from the other universities involved can read and comment on the piece.

Rosalind Davies, who established the group in Birmingham, said: 'This cycle is an excellent way for researchers to develop their writing skills as well as learn a phenomenal amount about what it is like to read work written on a subject different to theirs.'



'ClimateSnack treats writing for a different audience the same as learning a new language and benefits from its interdisciplinary nature because it takes an outsider to the field to spot when you are speaking "chemistry". What's more, the ability to go through the cycle a number of times is an excellent way to track progress, develop your writing skills, boost your confidence, and break down the barriers to publishing your work and putting yourself out there!'

If you are interested in joining ClimateSnack or would like more information please contact Rosalind Davies on [rad197@bham.ac.uk](mailto:rad197@bham.ac.uk).

The ClimateSnack website can be found at: [www.climatesnack.com](http://www.climatesnack.com)

## Seismic scientific celebrations

A celebration of science, engineering, and technology is coming to campus in September after the University was chosen to host the British Science Festival 2014.

The festival encourages researchers to share their work with the public through entertaining and thought-provoking events for everyone, from families to professionals. Running from 6–11 September, this year's programme will also incorporate the University's annual Community Day.

Alice Roberts, Professor of Public Engagement in Science, says: 'There are an incredible

amount of opportunities for the University to engage with the public in 2014 and we're very excited to be hosting the festival.

'This event is Europe's largest public science celebration and will present the very latest in scientific research, explore its impact on our lives, and allow the public to talk directly to researchers.'

In the accompanying schools' programme, students aged 14–19 will be asked where science can take them through a series of interactive activities. Alumni who work in the science or engineering industries have



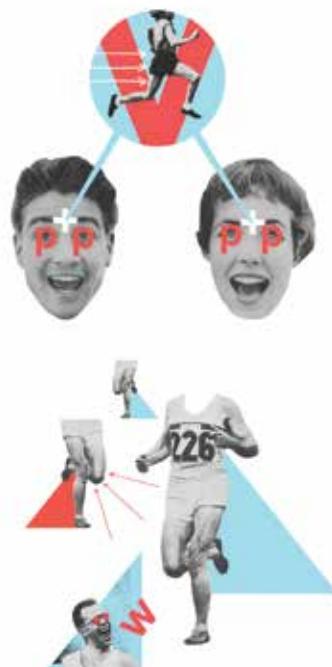
the opportunity to get involved by volunteering to give talks or offering work shadowing, work experience, or business mentoring to young people.

The festival is open to everyone. Visit [www.britishscienceassociation.org/british-science-festival](http://www.britishscienceassociation.org/british-science-festival) for further details of events.

Originally published in Old Joe, Spring 2014

To watch the  
festival video  
scan here





# Psyched for Sport

Nathan Smith and Laura Healy, two doctoral researchers in the School of Sport, Exercise and Rehabilitation Sciences, have recently launched a magazine that takes their research interests down a more creative path.

Born from a frustration with the rigid channels of communication in academia, *Psyched for Sport* is an innovative, illustrative, and creative take on sports psychology that is successfully reaching a broader audience and encouraging a wide range of voices to engage with the subject.

*Psyched for Sport* places the emphasis on illustrations, graphic art, and design in order to present their messages, convey the characteristics of elite athletes, and show just how easily these skills can be transferred into many different contexts, disciplines, and domains. As Nathan and Laura explained, the illustrative element of their publication has exploited the rising popularity of art outside of academia and fills a void that education, up until now, seems to dismiss. Indeed design is largely missing as an academic discourse while photography is generally limited and often quite clichéd. And, by introducing illustration and design, something has been produced that is 'interesting, engaging and looks good.'

Although each *Psyched for Sport* volume is something tactile and worth keeping for aesthetic merit alone and without the sports psychology angle, the articles presented in the publication are also progressive and impactful in their own right. While the quite abstract nature of the art facilitates easier engagement and allows the audience to decipher a variety

of different but related meanings, the stress is on encouraging stories that relate to experience – not just theoretical science. Nathan and Laura hope that such an approach will help develop a feedback loop where no longer is the science used to influence performance but, by studying past experiences, lessons can be learned that change and inform the science. *Psyched for Sport* shows just how real and useful sports psychology is.

The first volume includes content from leading researchers and world famous sports professionals including nine-time golf major champion Gary Player, Paralympic medalists, and world squash champions, while finding an international audience. Copies are stocked in exclusive bookshops in Birmingham and London as well as being ordered online from as far afield as New Zealand. Over 350 copies have been distributed so far.

Yet Nathan and Laura have no plans to stop there. The magazine is just one strand of a project that has also seen them develop and run workshops in local schools and businesses that encourage a creative response to psychology in all its forms, not just sport. Meanwhile, they have recently embarked on a collaboration with a leading menswear retailer in which *Psyched for Sport* provides a psychological case study on a series



Exclusive images from the most recent editions of *Psyched for Sport*

of sporting legends, chosen by the retailer, to create promotional baseball cards.

*Psyched for Sport* shows that PhD study is not limiting but involves broad interests and, by exploiting the encouragement offered by supervisors and members of the University of Birmingham's Entrepreneurship and Innovation team, can give the expertise, discipline, confidence, and credibility to change the nature of your field. Laura perhaps summed it up most succinctly: 'The project is difficult but easier than you think... just BE CREATIVE!'

For more details on *Psyched for Sport*, or to view the latest issues, you can visit: [www.psyched4sport.com](http://www.psyched4sport.com)

# Robot reaches out to children with autism



Nao the humanoid robot has become even better at helping children with autism, thanks to a collaborative student project funded by alumni.

University researchers had been taking Nao into Topcliffe Primary School in Castle Vale, Birmingham with positive results but, while Nao was able to show actions for the children to imitate, it was harder for the robot to recognise what the children were doing.

Using alumni funding, students from the Schools of Education and Computer Science developed a game that used artificial intelligence to help Nao recognise emotions.

'Understanding communication as a two-way process is a key area for children with autism, so for Nao to be able to respond like this is important,' says Dr Karen Guldberg, Director

of the Autism Centre for Education and Research (ACER). 'The tasks within the game were designed to help children recognise emotions by focusing on body language.'

As well as enhancing the robot's capabilities, the project also benefited the students. 'It was incredible seeing the children trying to comfort the robot when it cried, or talking into its ears,' says Tristan Bell (second year, BSc Computer Science). 'The project showed the value of an interdisciplinary team and made clear how different children with autism can be when working with robots. It was a fantastic experience.'

So how might the project change how Nao works in the future? Dr Nick Hawes, Lecturer in Intelligent Robotics, explains: 'In writing the software, the students focused on trying to enrich interactions but the project showed that actually the interaction needs to be simpler. For example, we thought the robot's responses were slow, whereas we know now this is perfectly suited to children with autism who need a lot of processing time.'

Dr Guldberg adds: 'Nao is making a real difference to the lives of these children. The transformation in them when they see Nao is incredible; they absolutely adore it. I would like to thank everyone whose gifts made this happen, because the project would not have been possible without their support.'

## Learn more

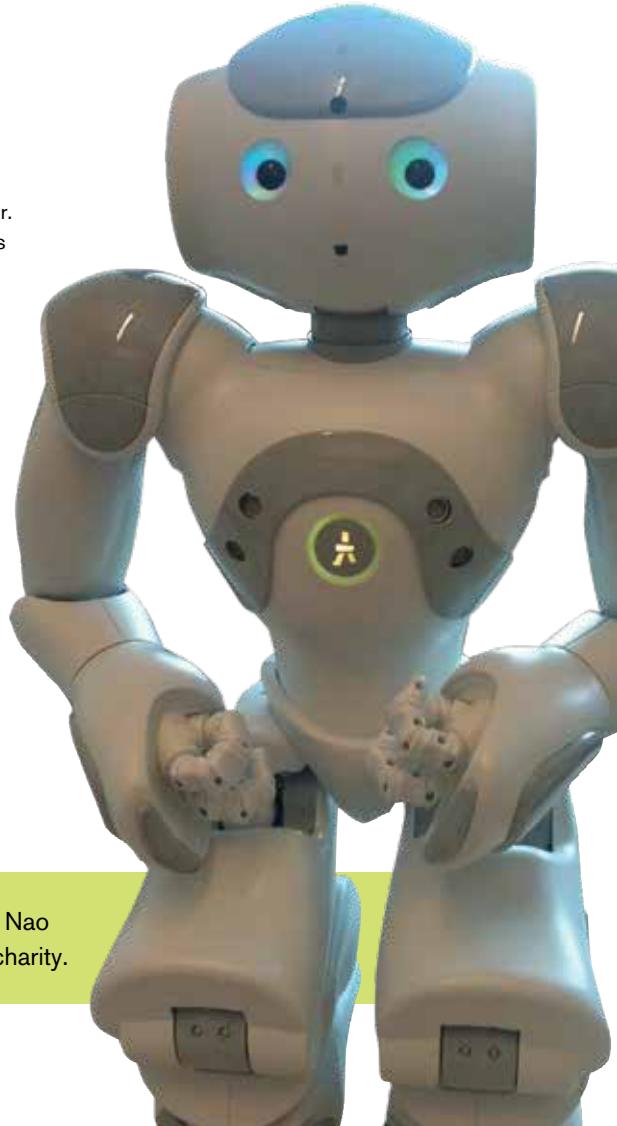
<http://youtu.be/MqtkKAUWy3Y>  
or support children with autism  
[www.birmingham.ac.uk/alumni/giving/Autism.aspx](http://www.birmingham.ac.uk/alumni/giving/Autism.aspx)

## DID YOU KNOW?

A 58cm tall humanoid robot made by French company Aldebaran Robotics; Nao can dance, drive a (small) car, and has even circumnavigated the globe for charity.



● Images: (left) Researchers using Nao at Topcliffe Primary School and (above) Computer Science student Tristan Bell



# think advanced manufacturing

## NEW RAILWAY RESEARCH INSTITUTE IN CHINA

The Anhui-Birmingham International Research Institute in Rail Transportation (ABIRIRT) was unveiled in Hefei recently by Professor Richard Williams, Pro-Vice-Chancellor and Head of the College of Engineering and Physical Sciences at the University of Birmingham and Mr Zhang Tianpei, Deputy Director-General of Anhui Development and Reform Commission.

The new Institute provides a substantial physical base, located in Hefei, positioned alongside one of the China High Speed Train Authorities and further strengthens the esteemed portfolio of the Birmingham Centre for Railway Research and Education (BCRRE), the largest academic railway group in Europe. Two initial research projects will focus on Hefei Metro Line 1, which is currently under construction.

*'The formation of the new ABIRIRT will offer us the opportunity to support and influence the development of railways in a country where there are now 10,000km of high-speed line. As the Institute grows we aim to develop significant research capability in Anhui, so that it acts as a base for our railway research not only in China but throughout Southeast Asia.'*

**Professor Clive Roberts, Director of ABIRIRT, and Director (Research) of BCRRE at the University of Birmingham**



ABIRIRT/Birmingham Centre for Railway Research and Education

**Learn more**

[www.birmingham.ac.uk/research/activity/railway](http://www.birmingham.ac.uk/research/activity/railway)  
contact: [b.liu.2@bham.ac.uk](mailto:b.liu.2@bham.ac.uk)

*'In Anhui Province alone there are 16 cities actively planning or building high-speed rail systems, the formation of ABIRIRT is perfectly timed to make key contributions to this development. We will provide our total support for the success and growth of ABIRIRT. I hope it will become a good example of the UK-China collaborations.'*

**Deputy Director-General of Anhui Development and Reform Commission  
Mr Zhang Tianpei**

Originally published in *think*, Issue 8

## Battening down the *hatches*!

Truflo is a specialist designer, manufacturer, and supplier of high-integrity valves, actuators, and pressure-reducing stations for critical seawater, nuclear, naval marine applications. For several decades they have been at the forefront of the naval marine industry and there are currently 120,000 Truflo valves in service in 21 navies worldwide.

The latest challenge for the company is to produce a 'zero leakage' through seat and to atmosphere ball valve for safety critical applications and arduous environments. Nil leakage is essential to minimise environmental impact both in terms of reducing energy consumption and reducing harmful emissions. Current sealing technology is best suited for linear motion and equipment is relatively slow to operate, fragile, and subject to failure when used in rotary applications.

With support from the University of Birmingham's Innovation Voucher scheme the company are working with Dr Karl Dearn from the University's School of Mechanical Engineering, to produce a feasibility study on possible design options that will look in particular at solutions around linear or rotary motion. And future work through a Knowledge Transfer Partnership will involve research of latest materials and technologies, design, FEA analysis, prototype manufacture, extensive testing, and product performance evaluation.

Truflo have also provided opportunities for University of Birmingham students to go on gap year and summer projects that have looked to advance product development while at the same time enhancing the students' knowledge, practical experience, and future employability.

*'The expertise of the researchers at the University of Birmingham has been invaluable and is key to us remaining at the forefront of delivering high integrity flow control solutions to our customers. We believe that this strong, long-term, mutual relationship is essential to ensure best practice and that the latest technologies are transferred into our business.'*

**Clayton Manley, Managing Director, Truflo Marine**

**University of Birmingham Innovation Vouchers/KTP/Student placements**

**Learn more**

[www.birmingham.ac.uk/partners](http://www.birmingham.ac.uk/partners)  
contact: [businessteam@bham.ac.uk](mailto:businessteam@bham.ac.uk)

Originally published in *think*, Issue 8

# Postgraduate Information Day

## Wednesday 11 June

- Would you like the opportunity to visit the University before you begin your postgraduate studies?
- Do you want to meet and talk to academic staff and current postgraduate students in your subject area?
- Would you like a taster of the Birmingham postgraduate experience?

On Wednesday 11 June 2014, departments from across the University of Birmingham will be holding an information day for prospective postgraduates and postgraduate offer holders.

The programme outline for the day will include:

- Welcome from academic staff
- Buffet lunch with the opportunity to meet current postgraduate students in your subject area
- A chance to speak directly to programme leads, research supervisors, and experience taster sessions
- Campus tours
- Drinks reception, followed by the University of Birmingham Three Minute Thesis Final – come along to see which of our finalists can most impress the judges with a three minute talk on their research and win a £1,000 research travel bursary

For further information on venues and activities, or to register to attend the Postgraduate Information Day, please visit: [www.birmingham.ac.uk/postgraduate/visit/events/index.aspx](http://www.birmingham.ac.uk/postgraduate/visit/events/index.aspx)

We hope you can make it.



UNIVERSITY OF  
BIRMINGHAM  
**SPORT**

## From UBSport

A new film showcasing sport at Birmingham is aiming to encourage all students to make sport a part of their time at the University. Featuring sports as diverse as football, basketball, cheerleading, lacrosse, rugby, and more, the film is set to the theme tune of *You Are My Birmingham* sung by student Katie Lavine (BMus Music).

Watch the video: [youtube.com/watch?v=1Ur\\_Eufl93A](http://youtube.com/watch?v=1Ur_Eufl93A)



# LGBT History Month

## at the University of Birmingham

Lesbian Gay Bisexual Trans (LGBT) History Month takes place every year in February, celebrating the lives and achievements of the LGBT community.

The University of Birmingham observed LGBT History Month with its biggest programme to date including a range of performances, film nights, talks, and events taking place across our Edgbaston campus. This year's packed schedule was curated by the staff LGBT Rainbow Network, the student LGBT Association, the Barber Institute of Fine Arts, and the Cadbury Research Library: Special Collections. All events were open to students, staff, alumni, and visitors.

The month officially kicked off at Birmingham with the LGBT History Month Launch Extravaganza in the Bramall Music Building on Friday 7 February – supporting the month's music theme for 2014. Compèred by renowned performer Rose Collis, the audience were treated to a cavalcade of entertainment that included the fabulous Isis String Quartet, performing disco hits in a classical style! There were also songs, sketches, and excerpts from other events taking place at the University during

LGBT History Month, with performances from *Baron Sternlock's Big Naughty Gay Improvised Musical*, *The Vagina Monologues*, and *Le Cabaret Du Chat Électrique II* whetting the appetite for what was to come. The evening built to a grand finale where ViX, lead singer-songwriter from 80's rock group Fuzzbox, performed the LGBT History Month anthem, *Sing It Loud*, backed by all those involved in the show. *Sing It Loud* is still available to download from iTunes and all proceeds go to LGBT History Month's teacher training programme – Educate and Celebrate.

Away from the celebrations, an interdisciplinary blog was set up for LGBT History Month, featuring contributions from academic staff across the University. The blog showcases the breadth of LGBT research and interests among our academics, with thought-provoking topics ranging from sexual orientation in law professions to feminist queer ideologies: [www.uob-lgbtscholarship.tumblr.com](http://www.uob-lgbtscholarship.tumblr.com)



Performers at the LGBT History Month Launch Extravaganza join together to perform *Sing It Loud*

Another highlight was the packed lecture at the Barber Institute given by Professor Richard Parkinson from the University of Oxford on Monday 24 February. Previously a curator at the British Museum, Richard discussed his groundbreaking LGBT history project, *A Little Gay History*. Richard's project started life as a pamphlet tour for visitors and, now in book form, aims to cover the shared history of LGBT people throughout history using objects from the British Museum's vast collections. Drawing on objects ranging from ancient Egyptian papyri to images by modern artists such as David Hockney and Bhupen Khakhar, Richard's humorous, yet poignant talk showcased how and why museums should represent same-sex experiences as integral parts of world culture.

For a full list of events that formed the University of Birmingham's LGBT History Month celebrations, please visit: [www.birmingham.ac.uk/lgbt2014](http://www.birmingham.ac.uk/lgbt2014)

## International Development celebrates golden anniversary

**IDD** International Development Department  
50<sup>th</sup> Anniversary 1964–2014

It's 50 years since the International Development Department (IDD) opened its doors and, to mark the occasion, the Department is celebrating with a series of events and seminars.

### DID YOU KNOW?

IDD runs a joint postgraduate programme with the Department of African Studies and Anthropology (DASA), including an MA in Africa and Development and PhDs. Search for DASA at [www.birmingham.ac.uk](http://www.birmingham.ac.uk) to learn more.

The anniversary activities started with IDD hosting the Development Studies Association Conference, which attracted a large number of global delegates. A special anniversary report will also be available online from Easter.

The Department focuses on issues such as poverty reduction, climate change, effective governance, democratisation, political reform, and conflict in developing and transitional countries.

Professor Paul Jackson, outgoing Head of IDD, says: 'We've changed a lot over 50 years, becoming far more international in our outlook.

'We've also moved from being a very policy-driven department, to an academic one that understands the importance of policy. What definitely hasn't changed is that we – staff, students – all still want to change the world!'

### Learn more

[www.birmingham.ac.uk/schools/government-society/departments/international-development/index.aspx](http://www.birmingham.ac.uk/schools/government-society/departments/international-development/index.aspx)

Originally published in Old Joe, Spring 2014

# BETTER POLICING COLLABORATION TO LINK ACADEMICS WITH PRACTITIONERS

Crime and policing has always been at the forefront of public debate. Yet academic researchers and practitioners have not collaborated as fruitfully as they might have to understand 'what works' by way of interventions and the costs and benefits of alternate interventions.

There is, however, reason to hope that there will be a push towards more evidence-based policing. First, the tight budgetary environment has led to tremendous pressure on the police to generate efficiency savings. Hence, there is an incentive to try and learn from academic research on cost-effective interventions that can reduce crime even when there is less money to spend. Second, there has been a landscape change in the governance of policing with directly elected Police and Crime Commissioners (PCCs) replacing the unelected Police and Crime Authorities. The need to be accountable to voters may give some impetus to the PCCs to try to tap academic expertise on what sort of interventions would lead to a safer community.

The recent collaboration between the universities of Birmingham, Nottingham, Aston, Warwick, and Liverpool with five police forces and Skills for Justice, seeks to identify priorities for innovation in policing that would lead to lower crime and a safer community. The collaboration has received funding from the College of Policing to develop a framework to identify priority areas for academics to work with practitioners to come up with innovation in policing.

The University of Birmingham has a wide range of researchers across its colleges whose expertise spans different areas of crime reduction and analysis of criminal behaviour. In addition, we have experts in technological advances which can be used to fight crime. To give a flavour of the wide ranging expertise we offer, we highlight a few key aspects of the research that we hope will aid the consortium's objective to develop innovation in policing.

Siddhartha Bandyopadhyay is an economist whose research has looked at understanding the way policing and socio-economic factors

(wages, unemployment) affect crime rates. He has a number of papers where he performs statistical analysis of what factors affect crime rate. The models can be used to compute the changes in crime rate that occur if any of these factors change. The analysis can be extended to a cost benefit analysis of different policing and socio-economic interventions. He has also modelled the impact of encouraging citizen reporting of criminal behaviour on crime rates and has shown that perverse and unintended effects can arise if such incentives are given without appropriate training to citizens on how to analyse if a behaviour is likely to signal criminal activity. His work has implications for appropriate design of an effective community policing framework. Bandyopadhyay is also working with Professor John Raine to develop a framework for evaluating the functioning of PCCs and their impact on community safety and the criminal justice system.

Jessica Woodhams is a forensic psychologist who initially started her career as a crime analyst within the police. Following this experience, she has spent a considerable amount of her academic career studying the consistency and distinctiveness of criminal behaviour to ensure crime linkage analysis is an evidence-based practice. She recently founded C-LINK (Crime Linkage International Network) following a grant from the Leverhulme Trust, which brings together academics and practitioners from seven countries who research or practise crime linkage. The aims of the network include collaborative research that will inform policing, creating a research agenda for the future, and sharing best practice. Woodhams is based in the Centre for Forensic and Criminological Psychology, which is a hub of expertise in interpersonal crime (eg, sexual offending, intimate partner violence, gang violence, robbery, and child maltreatment).

Beyond these two examples of academic-practitioner collaboration there are many more researchers within the University working alongside the police in their research. This includes colleagues from Psychology, the Business School, Geography, Social Policy, Local Government Studies, Computer Science, Electronic and Computer Engineering, Law, and Medicine. There is a wealth of academic expertise at the University of Birmingham in understanding offending, which includes sexual offending, family violence, extremism and radicalisation, drug use, gang violence, robbery, and serial offending. Further areas of expertise related to policing and crime reduction include the assessment and management of offenders, prison design, public perceptions of policing, policing large events, and general issues of accountability and governance.

The University of Birmingham has recently provided a forum for these colleagues from across the Better Policing Collaboration to interact and network with representatives from local police forces. The inaugural Better Policing Research and Training Fair was held at Birmingham on 4 April and explored current research opportunities in topics including public protection, family violence, extremism, cybercrime, and reoffending. It is hoped that through such activities, the Better Policing Collaboration will bridge the academic-practitioner gap and play a major role in crime prevention and safer communities.

**Dr Siddhartha Bandyopadhyay**

(College of Social Sciences) and

**Dr Jessica Woodhams**

(College of Life and Environmental Sciences)

# Securing the future of world society



● Image: American commissioners negotiating the Treaty of Paris in 1783

Iran blames West for talks failure. EU clinches deal on 2014 budget. PM to lead trade delegation to China. Read the news headlines on any given day and a common thread is clear. Our global community is more interconnected than ever before – a world society without a world government, leading to a raft of positive consequences alongside tension and potentially disastrous conflict.

The need for a greater understanding of what living in this global city means for us all prompted the launch of the University's Institute for Conflict, Cooperation and Security (ICCS) in 2012, with the purpose of developing a multidisciplinary approach to the study of conflict and security in the modern world.

'The imperative for international cooperation has never been greater,' explains Professor of International Relations Nick Wheeler, Director of the ICCS. 'There is a need for political, economic, and social structures to manage global security issues such as nuclear proliferation, climate change, and population growth. Creating a humane global policy without it leading to a situation where the threat or use of violence is an ever-present factor is the challenge that informs the Institute's work.'

Within its four themes – Mediation and Conflict Management; Cooperation and Trust-building; Intervention and State-building; and Science and Global Security – the ICCS draws in research from across the University, including the International Development Department; the School of Geography, Earth and Environmental Sciences; and the Centre for War Studies among others. Professor Wheeler explains: 'The Institute is bringing together existing strengths at Birmingham and this is what makes our work special. This interdisciplinary approach and focus on the challenge of cooperation is unique.'

One project already under way is investigating the implications of using remotely piloted aircraft – better known as drones – in Yemen, Pakistan, and Afghanistan.

## Opportunities at the ICCS include:

- **Postgraduate study:** MSc in Global Cooperation and Security; PhD programme (coming soon), MOOC (Massive Open Online Course) in Cooperation (coming soon)
- **Training:** Five-day intensive programme; bespoke training programme (up to ten weeks) on Diplomacy, Negotiation and Mediation; short-term, voluntary work placements within the ICCS; regular seminar series (also available as podcasts)
- **Sharing:** Alumni can contribute to the regular ICCS Brief or choose to write posts for the blog

The work includes a Birmingham Policy Commission (bringing leading figures from the public, private, and third sectors together with Birmingham academics) chaired by Professor Sir David Omand, the UK's former Security and Intelligence Co-ordinator and Director of Government Communications Headquarters (GCHQ).

'This research, investigating how conflicting perceptions of drone use is shaping the propensities for conflict and cooperation between and within states, shows we are right on the cutting edge of global security issues,' says Professor Wheeler. 'This is very important. We are committed to producing world-leading research, but our work must also speak to practitioners from the Foreign Office and Ministry of Defence to non-governmental organisations (NGOs).'

THE INSTITUTE IS BRINGING TOGETHER EXISTING STRENGTHS AT BIRMINGHAM AND THIS IS WHAT MAKES OUR WORK SPECIAL.

As well as internationally relevant research, the Institute also has an evolving programme of teaching and training. ICCS Manager Catherine Edwards explains: 'The existing toolkit is underdeveloped because it doesn't speak to the challenges at a global level, which is where our training differs. Our programme will help us attract the best and brightest young researchers, as well as doctoral researchers, Birmingham Fellows, and more established scholars who can add experience and depth of intellectual engagement.'

With a remit focused on real impact the Institute has a clear ambition: to put the University on the map for anyone addressing the challenge of international cooperation.

Learn more [www.birmingham.ac.uk/iccs](http://www.birmingham.ac.uk/iccs)

Originally published in Old Joe, Spring 2014

# An Easter surprise: why chocolate really is the secret to happiness

Money may not buy happiness or grow on trees but when it comes to chocolate it seems you can have both. Chocolate really does grow on trees and the chemical feel-good factor comes from the world's most widely consumed psychoactive drug.



Chocolate heaven. Charlie Dave, CC BY

The *Theobroma cacao* is an evergreen that is native to tropical regions of the American continent and its seeds or beans are the source of the 4 million metric tonnes of chocolate produced each year, and much of it from countries like the Ivory Coast and Indonesia.

Chocolate consumption goes back at least 4,000 years, to the peoples of present day Mexico: the Mayans, Aztecs, and their predecessors, the Olmec. Just as today, they roasted the fermented seeds from cocoa pods, grinding the roast to a powder which they used to make a chocolate beverage, a cold, foaming drink that was very different to the substance we consume today. Sometimes they added honey to sweeten it and the Aztecs also added chili-pepper to give the phrase 'hot chocolate' a whole new meaning.

Two thousand years ago the Mayan people, of what is now known as Guatemala, even came up with the original 'chocolate teapot', a ceramic vessel used to pour the foaming drink. And archaeologists have even found evidence that chocolate drinks were served up at the celebrations after the interment of sacrificial victims (though they aren't sure that the condemned would have been made any happier with a bar of chocolate).

## Montezuma's secret

The last Aztec emperor Montezuma II consumed a lot of this drink every day, and it was hinted that this enhanced his virility. No wonder the Spaniards were interested. Of course, it was the Spaniards who brought this wonder drink back to Europe, but adding sugar and spices like cinnamon and vanilla, another import from the Americas, transformed it into the much sweeter drink we have now. Chocolate drinking became the thing to do in fashionable society.

Less than 200 years ago, the invention of the chocolate press by Casparus van Houten Snr

made it possible to separate roasted cocoa beans into cocoa butter and a solid that could be made into cocoa powder. This powder could be recombined with sugar and cocoa butter to produce an eating chocolate, and in 1847 the Bristol Quaker firm of Fry's, closely followed by Cadbury in Birmingham, made the first chocolate bar. The Swiss came up with milk chocolate bars in the 1870s, and to this day Switzerland and Britain are two of the top nations for chocolate consumption. Chocolate Easter Eggs were invented in the 1870s, and we haven't looked back since.

## Chemical sensations

The taste of chocolate comes from a mixture of chemicals, many resulting from the roasting process, in which sugars and amino acids combine, forming members of a family of molecules called pyrazines, which contribute the nutty, roasted, and chocolately sensations.

But what about the 'feel-good' side of chocolate? For a start, there is the world's most widely consumed psychoactive drug: 1, 3, 7-trimethylxanthine by name. You may have heard of it: we call it caffeine. It works by counteracting the natural neurotransmitter adenosine, resulting in an increase in heart-rate and muscle contraction. There is also a significant presence of theobromine in chocolate, a similar stimulant which also happens to be the molecule that makes chocolate poisonous to dogs. Then there is serotonin, a natural neurotransmitter which controls many functions in the brain, including mood and behaviour. The body makes it from the natural amino acid tryptophan and chocolate contains both serotonin and tryptophan.

Another chocolate molecule believed to be important was discovered less than 20 years ago: anandamide. This binds to receptors in the brain known as cannabinoid receptors. These

receptors were originally found to be sensitive to the most important psychoactive molecule in cannabis,  $\Delta 9$ -THC. Likewise, anandamide and similar molecules found in chocolate are also thought to affect mood.

Phenylethylamine, another family of chemicals, is found in chocolate in very small amounts. It is a naturally occurring substance with a structure that is closely related to synthetic amphetamines, which of course, are also stimulants. It is often said that our brain produces phenylethylamine when we fall in love, and it acts by producing endorphins, the brain's natural 'feel-good' molecules. The bad news, however, is that eating chocolate is probably not the best way of getting our hands on phenylethylamine as enzymes in our liver degrade it before it can reach the brain.

There are yet more other molecules in chocolate – especially in dark chocolate – like flavonoids, which some scientists think may help improve cardiovascular health (but chocolate manufacturers have been known to remove bitter flavanols from dark chocolate).

There is one feel-good factor I've not mentioned, which isn't a molecule – the melt-in-your mouth sensation. The fatty triglycerides in cocoa butter can stack together in six different ways, each resulting in a different melting point. Only one of these forms has the right melting point of about 34 degrees, so that it 'melts in your mouth, not in your hand'. Getting the chocolate to crystallise to give this form is a very skillful process, the product of very careful chocolate engineering.

There is still much yet to know about chocolate and some are now even sequencing the genome of cultivated cacao. But the continuing intricacies in chocolate and cacao that we are discovering through science can only add to the very simple human pleasure of breaking off a piece and popping it in our mouths.



IT WILL BE  
INVALUABLE,  
BOTH AS A DISPLAY  
PIECE AND AN  
EDUCATIONAL  
TOOL.

# Rare bone legs it to Lapworth

A gift from an alumnus has enabled the Lapworth Museum of Geology to buy an exceptionally rare dinosaur leg bone.

The anonymous alumnus funded the purchase of the 1.2m femur bone from a mature *Cetiosauriscus*, a type of large sauropod dinosaur from the middle Jurassic period, 165 million years ago. Sauropods (well-known types of which include *Brachiosaurus* and *Diplodocus*) from England are virtually unknown and this belongs to a species only found in Northern Europe.

Jon Clatworthy, Director of the Lapworth, says: 'The femur is a fantastic addition to the Lapworth Museum's collections and we are grateful to the alumnus for his generous gift which allowed us to acquire the specimen. It fills a gap in the Lapworth's collections, as large sauropod bones of this type are extremely rare in the UK. It will be invaluable, both as a display piece and educational tool, helping to demonstrate the size of these iconic animals.'

Plans will shortly be submitted for a full redevelopment of the Lapworth, following the award of a development grant from the Heritage Lottery Fund in 2013.

**Learn more or find out how  
you could support the Museum**  
[www.lapworth.bham.ac.uk](http://www.lapworth.bham.ac.uk)

## DID YOU KNOW?

Well-known author and broadcaster Alice Roberts is the University's first Professor of Public Engagement in Science. As well as academic duties Professor Roberts works to promote the University's academics and research, and inspire people about science.

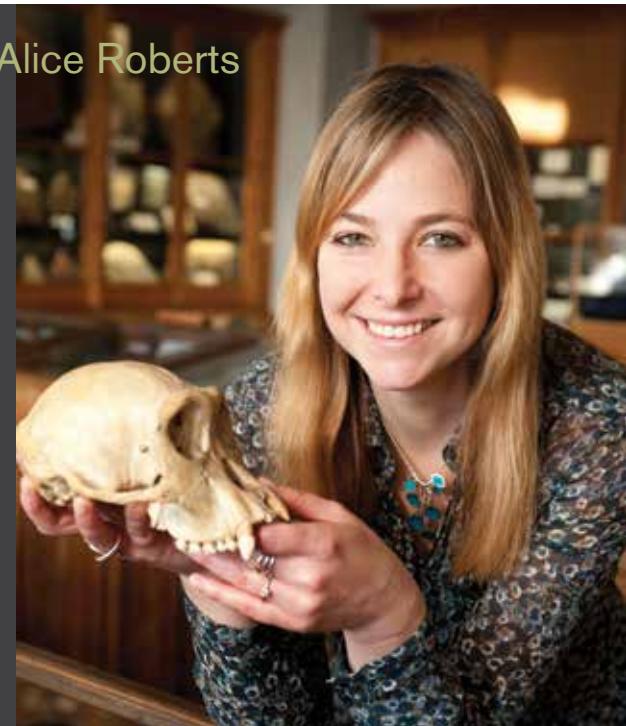
Originally published in Old Joe, Spring 2014



exhibition by Professor Alice Roberts

## Art of Anatomy

Muirhead Atrium, Weekdays  
9.00am–6.00pm until 6 June 2014.



# Stuart Hall: an obituary

Profile

On Monday 10 February, Stuart Hall, one of the University of Birmingham's most distinguished academics, died at the age of 82. Hall was a pioneer in the field of cultural studies, though his political interventions also saw him become one of the chief intellectual critics of 'Thatcherism' – indeed, he coined the phrase even before she became prime minister.

Hall was first appointed to the University in 1964, as a Research Fellow in the English department at Richard Hoggart's new Centre for Contemporary Cultural Studies (CCCS). This pioneering venture, funded in part by Penguin in recognition of Hoggart's star performance in the Lady Chatterley's Lover trial, committed itself to the study of everyday forms of popular culture, using skills drawn from literary scholarship. Hall, with his background in the New Left political debates of the 1950s and as the co-author of *The Popular Arts* (with Paddy Whannel), was ideally placed to assist in the research into youth cultures, the press, film and television.

Hall brought to his work a sophisticated theoretical grounding that marked the Centre as the institutional origin of cultural studies. For Hall, cultural studies was never a discipline in itself, but a field of enquiry, a mechanism to understand the broader structures that shaped our everyday lives. His most famous works while at Birmingham included analyses of how meanings are transmitted and received in the media ('encoding' and 'decoding') as well as how our identities based on age, class, race, and gender intersected with dominant ways of seeing.

But beyond his own insights, Hall's work at Birmingham was distinctive because of the practices of research and collaboration he instigated. Inspired by the political fervour of the rebellions of 1968 and the Italian Marxist Antonio Gramsci, Hall sought out new working practices for teachers and students that broke down conventional hierarchies and resulted in forms of academic collaboration that, on the face of it, looked more like the sciences than the arts. What made Birmingham famous in the 1970s were a series of co-written books, articles, and 'working papers' that explored a variety of topics such as subcultures (*Resistance Through Rituals*), race and the law (*Policing the Crisis*) and the theoretical aspects of cultural inquiry (*Culture, Media, Language*).

Many of Hall's graduate students never got round to submitting their PhD theses, so busy were they in publishing

joint ventures with their peers and teachers. Such was Hall's intellectual generosity that, unlike almost every other leading intellectual working in the arts and humanities, he never published a monograph on his own. His ideas were there to stimulate and provoke; to join a conversation that others would take up. So when the University of Birmingham launched its Blue Plaques in 2011 the work of the Centre was marked by a collective memorial. This underplayed Hall's own key contribution to its work, but it reflected perfectly the spirit of inquiry and debate that Hall injected into his and his colleagues' work.

Hall's troubled relationship with the University ought not to be glossed over. The Centre – and Hall in particular – were key leaders at a student sit-in on campus in 1968. This marked Hall's card for many years and ensured he would never be promoted. It also contributed to the lack of investment in the Centre throughout the 1970s – what is perhaps most incredible is that the tremendous outpouring of empirical research and theoretical reflection in this period was achieved with a permanent staff of just two or three lecturers. Hall got the best out of his colleagues and raised the bar for what could be achieved by graduate students.

Hall left the University in 1979 to take up a post at the Open University where his publicly available lectures on the BBC inspired an even wider group of students. His achievements at Birmingham were finally acknowledged with the award of an honorary doctorate, though relations were soured again in 2002 when the then Department of Cultural Studies and Sociology was closed by the University. In recent years, though, Hall had become an active supporter of the creation of an archive of the work of the CCCS and many of its leading figures. This is currently being created in the University's Cadbury Research Library (fittingly housed in the basement of the Muirhead Tower in which, on the 8th floor, Cultural Studies resided for many years) and will be added to by Hall's own papers. Hall's achievements, influence, and legacy – bound up as they are with the Birmingham Centre for Contemporary Studies for a crucial part of his career – will also be debated at an international conference being hosted by the University, in June of this year, to mark the 50th anniversary of the Centre's foundation.

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