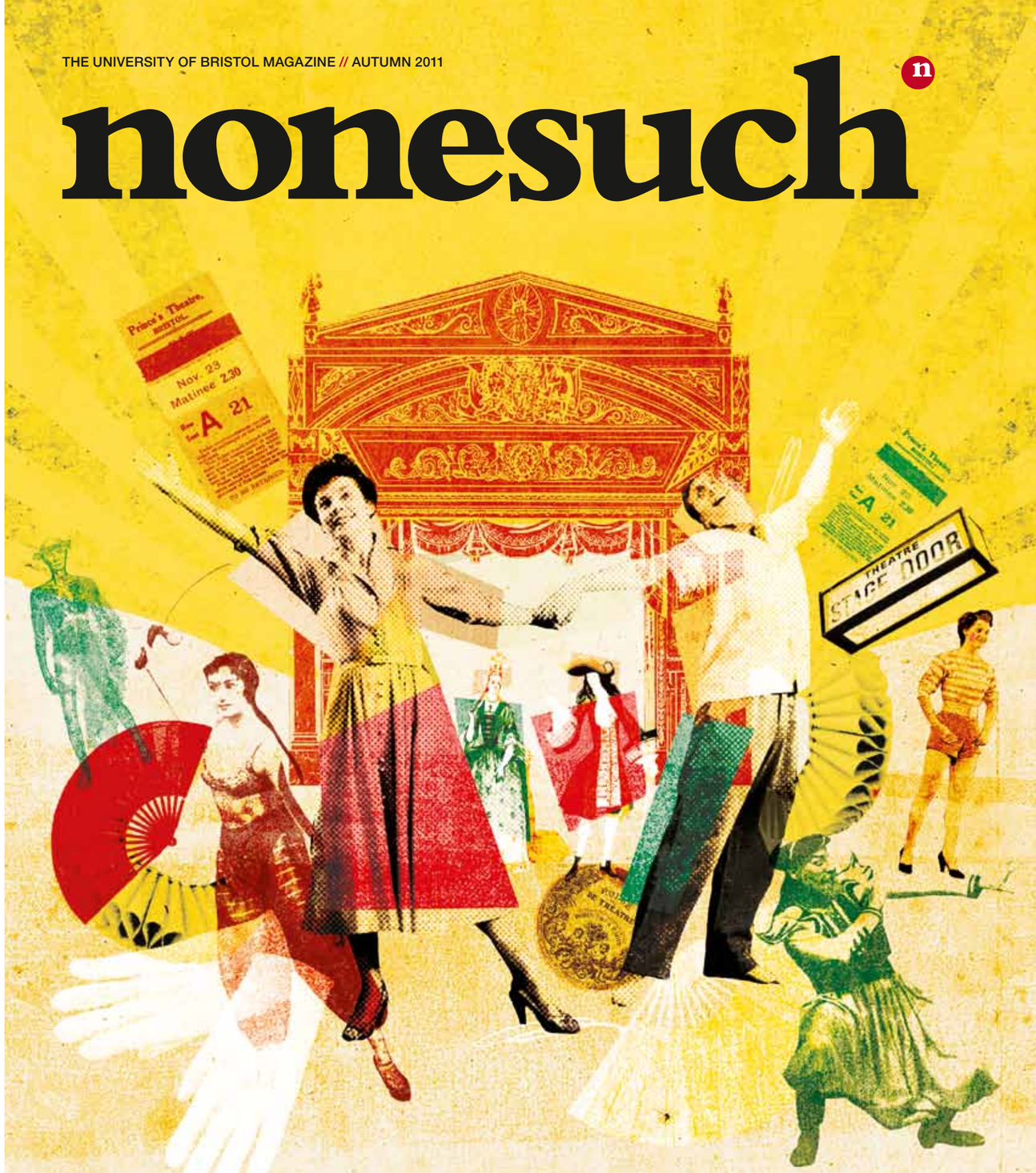
University of BRISTOL

bristol.ac.uk

THE UNIVERSITY OF BRISTOL MAGAZINE // AUTUMN 2011

nonesuch



SHOW AND TELL: INSIDE THE THEATRE COLLECTION

GOOD REPAIR: SELF-HEALING INSPIRED BY NATURE

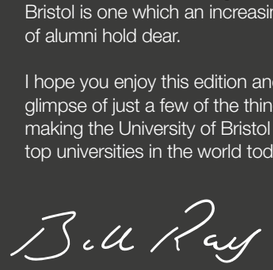
A MEASURED EXISTENCE: STATISTICS SCRUTINISED

Welcome

I was recently energised by a gathering of young Bristol alumni, at a networking event in London. The enthusiasm of these recent graduates reminded me that all our alumni have so much to offer one another. Engagement with the University and with each other was my priority for Bristol alumni two years ago, when I began my term as Chair of the alumni association, and so it remains today.

I think we are making good strides. The number of alumni sharing contacts and advice with each other on LinkedIn (bristol.ac.uk/alumni/linkedin) grows daily – it was nearly 8,000 at last count. In June, we increased participation in Court elections by a factor of nearly twenty, with over 1,100 alumni casting votes. Alumni branches around the world are hosting more events, and more than ever before, alumni are returning to Bristol to serve as advisors to current students and University staff. The idea of a lifelong relationship with Bristol is one which an increasing number of alumni hold dear.

I hope you enjoy this edition and catch a glimpse of just a few of the things that are making the University of Bristol one of the top universities in the world today.



Bill Ray (BSc 1975)
Chairman of Convocation,
Bristol's alumni association

alumni@bristol.ac.uk

As I write, Bristol freshers are arriving with carfuls of books, clothes and bedding, along with high expectations about what their Bristol years will mean to them. There is excitement, anticipation, and already a growing sense of community. They are right to be excited about studying here. A Bristol degree is highly sought after.

It's comforting both to students and to the University that a Bristol degree is what economists call a 'positional good.' As President of Universities UK, I gain valuable insight into the challenges faced by universities, and I am confident that Bristol, with its fantastic reputation and great students, has a real opportunity to consolidate its position as a top-fifty global institution.

But we don't rest on our laurels. We constantly ask what we can do even better. For instance, we've met with a number of alumni in recent months, who have encouraged us to foster improved student and alumni networks, so Bristol University can continue to play a supporting role throughout alumni lives and careers.

So we are supporting Convocation's aim to strengthen our alumni and student networks. I hope you will participate. Perhaps, like our 2011 freshers, you will take a renewed look at your Bristol University relationship this autumn, and see it as one which is still rich with new opportunities.

Professor Eric Thomas (Hon LLD 2004)
Vice-Chancellor

bristol.ac.uk/alumni

Greencoat 80 Silk is carbon balanced – where the carbon intensity has been measured through the production process and an equivalent carbon credit (offset) has been purchased.

Carbon balancing by the World Land Trust tackles climate change through projects that both offset carbon dioxide (CO_2) emissions and conserve biodiversity.

Nonesuch magazine // Autumn 2011
Carbon saved 9487.4 kg
Land preserved 1869.0 m²

recycle
When you have finished with this document please recycle it.

80% recycled
This document is printed on 80% recycled paper

CARBON BALANCED PAPER
WORLD LAND TRUST™
www.carbonbalancedpaper.com
CBP0050818841541 8

Contents

Features

Bristol PLuS by way of Bolivia

Creature features

A cast of thousands

Regulars

In pictures

Listings

nonesuch
Autumn 2011

Editors
Hilary Brown
Nick Riddle

Contact
alumni@bristol.ac.uk

Contributing Editor
Freya Sterling

Advisory Group
David Alder // Director of Communications and Marketing
Jill Cartwright // Head of Public Relations Office
Dr Lorna Colquhoun // Head of Research Development
Hannah Johnson // Press Officer
Dr Maggie Leggett // Head of the Centre for Public Engagement
Dr John McWilliams // Publicity and Recruitment Officer
Dick Penny // Managing Director, Watershed
Tania Jane Rawlinson // Director of Campaigns and Alumni Relations
Professor Judith Squires // Dean of Social Sciences and Law

Design
pelotondesign.co.uk

Produced by
Public Relations Office
Senate House
Tyndall Avenue
Bristol BS8 1TH
T: +44 (0)117 928 8895

Cover illustration
Lee Woodgate

Printed by
Belmont Press

Regulars

In the city

The University in Bristol

The Community Sport Volunteering Programme, led by Sport, Exercise and Health, gives students and staff the chance to gain nationally recognised sports leadership qualifications and get involved in school and community sports events.

Last year, 140 participants gained qualifications in 17 different sports as coaches, leaders or officials, all volunteering for at least 10 hours in school sports days, after-school activities and community sports clubs. Students may use their experience to apply for a Bristol Sporting PLuS Award (see p11).

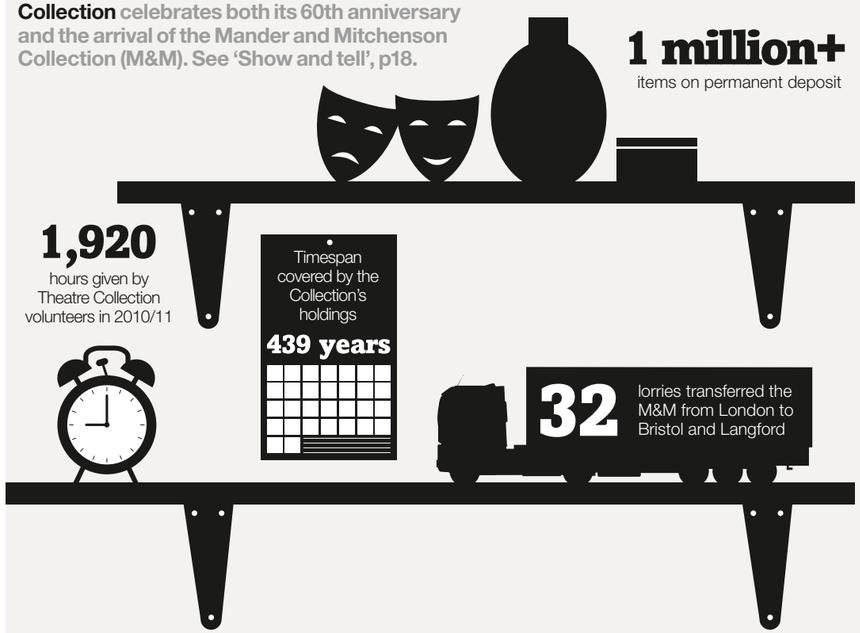
Sport Development Manager Matt Edwards says: 'The programme benefits everyone: our leaders develop new skills and experience, while encouraging young people from disadvantaged areas of the city to enjoy sport and physical activity.'

The programme is supported by the Alumni Foundation, the Foundation for Leadership through Sport, and the John Rutley Sport Fund, with participants making a small contribution towards training costs.

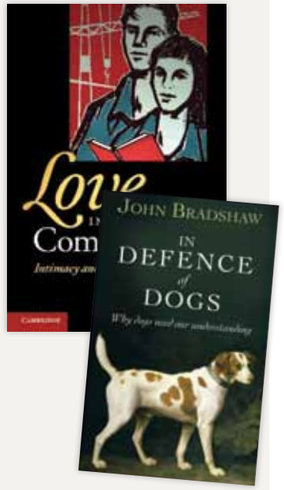
bristol.ac.uk/sport/development/ccv/volunteering

Numbers
The Theatre Collection

This year the University of Bristol Theatre Collection celebrates both its 60th anniversary and the arrival of the Mander and Mitchenson Collection (M&M). See 'Show and tell', p18.



The plug
New books



In Defence of Dogs by John Bradshaw (Allen Lane)

Until just over 100 years ago, most dogs worked for their living, yet today our canine friends are in crisis in the western world. In this unique scientific exploration of dog training and breeding, Dr John Bradshaw, a biologist in the School of Veterinary Science, examines what makes dogs tick and what they would ask us, if only they knew how.

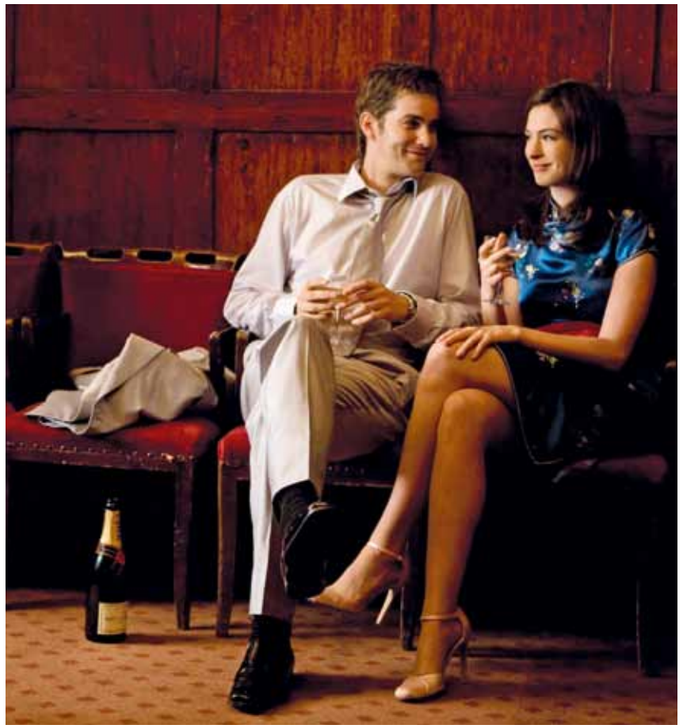
Love in the Time of Communism: Intimacy and Sexuality in the German Democratic Republic by Josie McLellan (CUP)

Under communism, divorce rates soared, abortion became commonplace and the rate of births outside marriage was among the highest in Europe. In this fascinating history of the GDR's forgotten sexual revolution and its limits, Dr Josie McLellan, Senior Lecturer in Modern European History, questions some of our basic assumptions about the relationship between sexuality, politics and society.

Regulars

One Day heads to Hollywood

David Nicholls' (BA 1988) bestselling novel *One Day* has been adapted from the author's own screenplay into a feature-length film starring Anne Hathaway and Jim Sturgess.



The hugely successful love story, described as the 'biggest word-of-mouth sensation' of the year by *The Express*, has been translated into 37 languages since its publication in 2009 and has sold over a million copies in the UK alone. It begins with an encounter between two students on the day after their graduation and follows them every year on the same day, whether they're together or apart, over two decades.

In an interview with *The Express*, Nicholls said of the adaptation: 'The book is about bedsit London, grimier London, an awkward relationship. I think that's all in there. The stuff I've seen looks beautiful but it hasn't had the edges knocked off.'

Nicholls also wrote the screenplay for his first novel, *Starter for Ten*, which chronicles the adventures of a student in his first year at Bristol University.

News illustration © Alberto Antoniazzi // Lawrence Clarke portrait © Will King

Going for gold
Sport

Athlete Lawrence Clarke (BA 2011) is tipped for a place at the 2012 London Olympics.

Following a successful year competing around the world in sprint hurdle races, Clarke is hopeful of securing a place on Team GB for London 2012. Last year he won a bronze medal at the Commonwealth Games in New Delhi, India, and in 2009 he broke Colin Jackson's long-standing junior British record for the event.

Clarke told Jack FM: 'Although I've already run the qualifying time, the final squad isn't being chosen until 1 July next year and only the top two are guaranteed a place, so I have to really keep pushing.'

As a University of Bristol Lloyd Robinson Scholar, Lawrence has received external funding and support to help him pursue his athletics career. He is one of a handful of elite athletes supported by the University who are aiming to compete in London 2012.

Public and private
Accolades

- **Julia Donaldson** (BA 1970, Hon D Litt 2011) was appointed as the new Children's Laureate (2011-13). She is the author of over 150 children's books, including the best-selling story, *The Gruffalo*. In an interview with the *Telegraph*, she said: 'I want to explore the ways performance can help children enjoy reading and grow in confidence.'

- **Michelle McDowell** (BSc 1984) has been named Veuve Clicquot Businesswoman of 2011. The award celebrates entrepreneurial, successful, dynamic women in business who provide great leadership. McDowell is an engineer from the design firm BDP and was interviewed in the *Belfast Telegraph*: 'It's a huge personal honour and I hope it will raise the profile of women in engineering.'

Regulars

The Inbetweeners becomes a box-office hit

Film

***The Inbetweeners Movie*, co-written by Iain Morris (BA 1994), soared to the top of the UK box office in August.**

After three successful TV series, the E4 sitcom has transferred to the big screen. The feature-length British comedy revolves around four suburban teenage boys who go on holiday to Crete. *The Telegraph* reported that the film took an astonishing £2,584,106 from 409 sites on its first day of previews, taking the number-one slot at the UK box office.

In an interview with *The Guardian*, Morris said: 'Part of the charm of the show is the awfulness of the things they say and the justification that they don't know any better. If they were adults and they talked like that, you'd just say: "Grow up!".'

At the British Academy Television Awards the series was nominated for Best Situation Comedy two years running, and won the Audience Award in 2010. In 2011 it won Best Sitcom at the British Comedy Awards.

In brief

- **Dr Steve Allpress** (BEng 1990, PhD 1994) is the Vice President of Icera, which develops soft modem chipsets for the mobile device market. This year, Nvidia Corporation will be acquiring Icera for $367 million.

- The *Bristol Evening Post* reported that **Joe Rawnsley** (BSc 2011) of the band Goldtrip won the Battle of the Bands competition that saw him support Bon Jovi at Ashton Gate this summer. Judge Simon Jones, a talent scout and promoter from AEG Live, is quoted as saying: 'Goldtrip has the foundations of a great band and they also had a lot of confidence.'

- **Juley Howard** (BA 1990, MA 1995) was interviewed by the *Berkshire News* about how her past as an activist has affected her in the job market. She is now director of the North Somerset Against Domestic Abuse charity, which helps female victims of domestic abuse.

- **James Burstall** (BA 1987) (right), CEO of Leopard Films, has announced that the company is joining forces with Remedy Productions to create a new 'super-indie' conglomerate called Argonon.

Greenland's glaciers

Research

Professor Elizabeth Morris OBE (BSc 1968, PhD 1972) was interviewed in *Canadian Business* magazine about her research trip to Greenland.

As a Senior Associate at the Scott Polar Research Institute, University of Cambridge, Morris is trying to assess how rapidly Greenland's melt may raise sea levels as the world warms. She says: 'We could always tell you the day before the ice sheet disappears, what we're trying to do is get ahead of the game.'

The magazine reported on her challenges in Greenland, which included a demanding, month-long excursion on the icecaps with just one assistant.

Double success for new graduate's gaming business

Business

Since graduating in July, **Chris Strand** (MEng 2011) has won two top competitions for Nimble Servers, an on-demand game-server provider that enables customers to rent game servers on a pay-per-hour basis.

The 22-year-old computer science graduate won the Deloitte company's Top Technology Talent competition for business ideas with innovative uses of technology, as well as Mint Digital's Don't Be a Banker scholarship, created to steer recent graduates away from a career in the banking sector and help them launch a business.

In the future, with business partner Zac Moody, Strand hopes to launch a beta version of Nimble Servers.

Clownfish © Matthew Wittenrich // Historic China © Peter Hibbard // Changing Perspectives © Dave Pratt // Brunel Byland Abbey © ss Great Britain Trust // Aeolus © David Drury

In pictures

Snapshots
Life and work at Bristol

Clockwise from top left.

HISTORIC CHINA // Man on a motorbike, c.1950, from Visualising China archive. **bristol.ac.uk/news/2011/7752.html**

CLOWNFISH // Orange clownfish, deaf to predators. **bristol.ac.uk/news/2011/7656.html**

BRUNEL ARCHIVE // Drawing of Byland Abbey by Isambard Kingdom Brunel, 1830. **bristol.ac.uk/news/2011/7863.html**

WIND POWER // Bristol's entry in Racing AEOLUS. **bristol.ac.uk/news/2011/7862.html**

SCIENCE-INSPIRED CIRCUS // Aerial performance at the Changing Perspectives Festival. **bristol.ac.uk/news/2011/7533.html**

Feature

Sometimes you can find solutions to major engineering problems by looking out of the window. When Professor Ian Bond and Dr Richard Trask began tackling the issue of damage to materials used in the aerospace industry, they turned to nature for inspiration – and found plenty.

good repair

Feature

By **Nick Riddle**

Trees, bones, skin... nature has an astonishing array of materials with remarkable properties, not least an ability to heal. Materials scientists, such as those in Bristol's Advanced Composites Centre for Innovation and Science (ACCIS), are beginning to explore some of nature's blueprints in search of ideas for more efficient man-made structures.

'Every living thing can heal itself to some degree,' says Ian Bond, Professor of Aerospace Materials in ACCIS. 'Our ideas are biologically inspired, but greatly simplified. Nature uses some wonderful engineering strategies, and to take advantage of them we have to step back and reconsider how we do things.'

Spacecraft, heal thyself

The quest for self-healing materials at Bristol began when the European Space Agency (ESA) approached Bond in 2004 expressing an interest in developing a material that could repair minor damage to itself in space. Dr Richard Trask arrived at Bristol to take up an ESA-funded postdoctoral research post, and the two got to work. What they came up with was a self-healing 'skin' containing hollow glass veins filled with liquid resin.

THE RANGE OF APPLICATIONS IS POTENTIALLY VAST

The environment of space hardly lends itself to straightforward repair solutions, but the work provided an ideal basis for contexts closer to home.

'Our work generated a lot of interest from the scientific community and commercial industries,' says Trask. 'The range of applications for this idea is potentially vast.'

Bleeding aircraft

The aerospace industry spends a huge amount of effort and money on addressing the issue of minor damage in its fleets. Inspections are unending, and aircraft are designed to tolerate a significant amount of 'wear and tear'. This, of course, is a good thing – but all that extra engineering makes them heavier than they need to be.

'An Airbus A380 weighs around 450 tonnes, and it needs a hell of a lot of thrust to get into the sky,' says Bond. 'Airlines spend billions every year on fuel. If you can shave kilograms off the weight of an aircraft, you could save huge amounts of money over its lifetime of operation.'

Bond and Trask began to refine their self-healing concept. Rather than simply embedding hollow tubes that release healing resin when they fracture, the researchers took the human body analogy further and experimented with integrated vascular networks, with a pump capable of delivering the healing resin from refillable 'reservoirs'.

But how do you know where damage will occur? 'Engineers know how the energy from an impact is absorbed by a structure,' says Trask. 'If you can control where this energy goes, you can create a "preferential failure path" – so the energy causes damage close to where the healing resin can be delivered.'

There's a large element of compromise in this approach, as Trask explains: 'It's a kind of retro-fit solution. Ideally, we want to make a self-healing structure from scratch, using ideas based on the way nature integrates its vascular networks within its structural materials. But we have to be practical and work with materials that industry is interested in.'

'And work within existing air worthiness requirements, which quite rightly are very rigid,' adds Bond. 'Just persuading the certification bodies to consider self-healing as a *principle* is enough of a challenge at the moment.'

Consider the tree

So what of that 'ideal', a self-healing structure designed from scratch: what would it look like? Ask Bond and Trask if there's one natural material that particularly impresses them, and they have the same answer.

'Wood is an amazing material,' says Bond. 'A living tree can survive enormous amounts of damage, because it has massive redundancy in its vascular structure – in other words, multiple sets of segregated pipes compared to, say, the single branched circulatory system that we humans have. But they're static structures: they don't have to move around, so they can afford to be over-engineered and bulky. Animals, on the other hand, are mobile and need highly efficient structures.'

But wood also has remarkable properties that don't depend on weight. Trask admires how the fibrous material of wood is blended to achieve strength.

'Typically in engineering, when you join two elements together, the joint itself is always the bit that you worry about,' he says. 'I used to have an office with a beautiful oak tree outside, and I'd often wonder how the load path changed from the branch to the trunk. When a branch breaks off a tree, it isn't usually the joint that fails, because the internal fibrous structure is so well blended and optimised. We've learnt a lot from that in composites – you need to take care to join parts so that load is transferred in a benign way.'

'That's very hard to do in practice,' adds Bond. 'As with a lot of this work, we know exactly what we'd like to do. We just haven't figured out how to do it yet.'

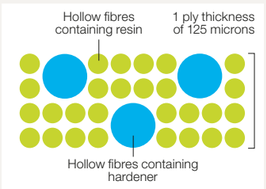
Fresh blood

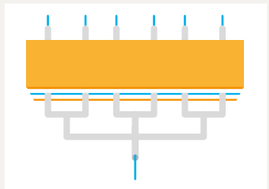
The same is true of the 'healing resin' that pumps through those artificial arteries. What Bond and Trask are after is a form of 'synthetic blood' that hardens on contact with the 'wound'. But the trick is finding the right chemistry.

'You need the fluid to be released into the right areas at the right time and then to harden,' says Bond. 'And you don't want it to track back so that the whole system solidifies, like a deep vein thrombosis.'

'We're talking to colleagues in the School of Chemistry about what we have in mind,' says Trask. 'This healing agent has to be available at a moment's notice but survive in readiness for 20 years, it has to solidify in the right way and at the right time, and there has to be lots of it.'

How it works





First generation: the one-shot system

This material contains hollow fibres, like tiny tubes, which run throughout the structure. A damage event breaks them open, and whatever is inside bleeds out and infuses the damaged area.

Second generation: the vascular network

A refinement of the first idea connects these fibres into a vascular network of pipes, attached to a pump, with healing resin running through them that can be easily replenished.

Below Professor Ian Bond (left) and Dr Richard Trask

Richard Trask and Ian Bond portrait © Nick Smith

Mixing it up

Now that 'interdisciplinary' is such a buzzword in academia, it's easy to forget that the most basic sense of the term simply means talking to people outside your own field. Bond and Trask's discussions with Bristol chemists are proving fruitful for both sides.

'Often a chemist's primary aim is to invent and test a new molecule, publish a paper, then move onto something else,' says Trask. 'But we come along and say "That's brilliant – can you give me a bucket of that, please?" Now they're getting excited as well, because they see how it can lead to something new and exciting with an immediate application.'

This blossoming relationship is being helped along by the recently established Doctoral Training Centre (DTC) based in ACCIS, which is developing the composite technologists of the future. Its strategy is to mix engineers with scientists and equip them with a comprehensive understanding of what the fields of engineering, physics, chemistry and biology can bring to the future evolution of composite materials. 'Currently, the DTC has two joint Engineering/Chemistry PhD students, Tim Coope (MA 2009) and Steven Rae, working on the development of novel healing agents for us,' says Bond.

The involvement of biologists and medical researchers, with their powerful new tools for analysing structures in nature, is crucial to uncovering a whole new world of biologically-inspired possibilities for the next generations of composite materials: structures with the flexibility of the octopus, the shape-shifting abilities of the virus, the geometric resilience of insect bodies...

'Engineers since Brunel have always fought to resist forces,' says Bond. 'They're stiffness-driven – but nature is more compliant. It works with the forces a lot more. That's something we've yet to emulate.'

Re-make/re-model

There's a great deal more to learn about how to make these composite materials. Trask gives the example of bone, which has a system of cells that digest damaged tissue and cells that lay down new tissue. 'It's constantly remodelling itself,' he says. 'Ultimately we want to move towards that, too – not just repairing tiny cracks but filling holes and remodelling to deal with any changes in loading.'

But nature works over much longer time scales than, say, your average aircraft repair job. 'In engineering, you tend to want it fixed *now*,' says Bond. 'That's a challenge in itself, because an instant repair generally isn't that great. But if we can overcome that challenge, then we'll be closer to a bio-inspired system where material in the structure can rearrange itself on demand, to effect a permanent repair.'

'We're a long way from that,' says Trask, 'but that's the Holy Grail, as it were.' ●

bristol.ac.uk/composites

Regulars

From Bristol to London

Freya Sterling interviews **Edward George** (BA 1995, PhD 2001), Commodities Specialist at Ecobank, London

Ecobank is a Pan-African bank with operations in 32 countries across middle Africa. I work in the research department, analysing trade flows of agricultural goods. What I do, in many ways, is academic, but at the same time it takes place in the real world, especially when I'm dealing directly with businesses and governments.

I wanted to go to Bristol because there was real flexibility in what you could study. I chose Hispanic Studies, a combination of Spanish and Portuguese, because of the broad scope of the course, which was evenly split between language, literature and history. The great thing about studying languages is that you don't know where it's going to take you.

As part of my degree, I spent a year in Argentina and Brazil. I honed my language skills and learnt about Hispanic culture in more depth. The defining moment of my degree came in my last year when I chose a course on Lusophone Africa. It was so unusual and I didn't know anything about Portuguese Africa.

I became fascinated with Angola and its civil war and went on to do a PhD on the subject. It was during this period that I really got to know my academic 'godfather', Professor David Brookshaw, who gave me the freedom to pursue my research however I saw fit – even if it meant travelling in Angola's war zone.

My first job was as a Senior Editor in the Africa and Commodities departments of the research organisation, the Economist Intelligence Unit. Five years later, I moved to Ecobank.

Speaking Spanish and Portuguese is a major part of my job. There are many brilliant analysts out there but many of them can't speak a foreign language so they miss out on numerous opportunities.

Knowledge of a foreign language allows you to gain a sophisticated level of understanding that goes beyond the ability to converse. This is why I chose to study for an economics qualification after majoring in a language. The language skills I gained at Bristol gave me an edge in a competitive job market.

At Bristol everyone has the chance to shine and it's up to you to decide how far you want to take it. I made many close friends at the School of Modern Languages and we've all gone on to pursue our particular passions. I get to use my languages and travel to Africa regularly. Even my French has improved to the extent that I soon hope to be able to give presentations to business colleagues abroad.

THE GREAT THING ABOUT STUDYING LANGUAGES IS THAT YOU DON'T KNOW WHERE IT'S GOING TO TAKE YOU

Edward George portrait © Stephen Shepherd

Feature

Way to go

Winner of a 2011 Bristol PLuS Award, **Annie Syrett** is a shining example of a student who has gained confidence, skills and experience through engaging in activities outside their academic remit – in this case, running a charity to support Bolivian street children.

By **Hilary Brown**

There are some chickens named after the 18th Bristol Cub Scouts in a centre for Bolivian street children in Santa Cruz. The Cubs have been keen supporters of the centre ever since Annie Syrett talked to them about her charity Friends of Alalay, and are among a host of people she has inspired to raise funds to support its work.

The 25-year-old Masters student founded Friends of Alalay (Santa Cruz) in 2007 following a six-month spell in Bolivia as part of her undergraduate degree. The charity, which has raised more than £40,000, takes the sustainable approach of helping street children to help themselves, by encouraging them to develop useful skills and become involved in self-funding projects.

So far, Syrett has helped to fund and set up a chicken farm, a pig farm and a vegetable garden, where children help grow their own food; extend an existing bakery, where the children bake their own bread; equip a textile unit for the children to make their own school uniforms; and create a volunteers' cabin and medical centre – named 'Casa de Bristol' – that also serves the local community.

In from the cold

Syrett became involved with street children when her first degree, in Russian, Hispanic Studies and Interpreting, required her to spend six months abroad learning Spanish. She chose to work with a Bolivian voluntary organisation called Alalay – which means 'I am cold' in the local Aymara language – that feeds, clothes and educates street children.

Syrett had been struck by the plight of street kids when she was a child herself. 'I travelled around central and South America a lot with my parents,' she explains. 'Once, in Nicaragua, I saw a young boy sleeping in the street, and went to offer him a goody bag I'd been given at a party. I thought he'd be pleased, but he was terrified. I was shocked by how scared a child could be.'

During her stint with Alalay, Syrett supervised a group of 13- to 18-year-olds in an aldea, out-of-town accommodation for young people who have attended the charity's city-based welcome centre (where they learn basic life skills) and are ready to start school or vocational training and live in a community setting. She taught English, escorted children to the doctor and dentist, and helped with homework.

Soon she began to accompany the charity's workers on their forays to talk to children in the streets, building up relationships with them

Feature

and encouraging them to visit the welcome centre. 'It was distressing, seeing kids addicted to glue or alcohol, begging or stealing to survive,' Syrett admits. 'But it brought home how important it is to get children off the street before they have kids of their own and the whole cycle repeats itself.'

The extra mile

Syrett quickly realised how much more Alalay could achieve with more funding. After she returned from Bolivia, she registered Friends of Alalay in the UK and has thrown herself into fundraising ever since, returning to Bolivia regularly to implement new projects and co-ordinate other volunteers.

EDUCATION IS VITAL IF THE STREET KIDS ARE TO HELP THEMSELVES

'It's one thing donating money to, say, buy food, but there's never enough food, so that's only ever a short-term fix,' she explains. 'I wanted to set up sustainable projects that would encourage the kids to be proactive. With the farms and vegetable gardens, they produce their own food and sell the surplus, reinvesting the profits to improve facilities and increase production.'

Education is vital if the street kids are to help themselves. Syrett has instigated an English-teaching programme to help with the children's future job prospects, and the charity is currently supporting 14 students through vocational training and higher education. Most recently, she has been focusing her efforts on building maintenance and renovation and on Alalay's 'prevention' programme, targeting families where kids are at risk of being abandoned, and providing life-skills sessions to build their confidence and self-esteem before the family unit breaks down, whether through substance abuse or poverty.

Bright past, brighter future

Syrett has now begun to consider her own future. She is nearing the end of a Masters in International Development in the School of Sociology, Politics and International Studies, a course she chose to complement her practical experience of running a charity. Taking part in the Bristol PLuS Award has helped her focus on what she has gained from that experience and how to use it to her advantage when presenting herself to potential employers. 'Writing a presentation helped me evaluate my work with Alalay – what the challenges were and how I overcame them,' says Syrett. 'And the careers workshops – the CV-writing and interviewing skills – were particularly valuable.'

She is setting her sights on a (paid) job in the international voluntary sector, but is determined to maintain links with Alalay. 'The ethos is to create a sense of community, so even after kids leave the centre they come back to encourage the younger ones,' she explains. 'They're like a second family to me, too; there's nothing more rewarding than seeing them become independent adults.'

This Bristol student may have come a long way, but she's destined to go even further.

alalay.co.uk

Below Street child in Santa Cruz **Top right** Textile workshop
Bottom right Casa de Bristol, volunteers' cabin and medical centre

Bristol PLuS
About the scheme

The Bristol PLuS (Professional and Life Skills) Award scheme, run by the Careers Service, formalises students' voluntary and other external achievements. It aims to boost students in an increasingly competitive jobs market by helping them acquire work and life skills alongside academic qualifications.

Students who sign up for the Award are expected to complete 50 hours' work experience or voluntary work; attend four workshops on employability skills; take part in an intensive skills-related activity; and write a summary of the skills they have gained. Exceptional efforts gain an Outstanding Achievement Award, while the Sporting PLuS Award recognises employability skills developed through sporting activities.

Jeff Goodman, Director of Student Services and Employability, says: 'The standard of applications for the awards is extremely high. Annie has the drive and leadership qualities displayed by so many of our students, and her achievement is no mean feat'.

bristol.ac.uk/careers/plusaward

Feature

Sam Budd, Chief Executive of the Bristol Students' Union, looks back at the presidency of alumnus George Odlum (BA 1959) for inspiration.

grass roots

Feature

By **Freya Sterling**

In 2009, the Bristol Students' Union received independent charitable status and appointed Sam Budd as its first Chief Executive. Budd works with a small permanent team alongside the annually elected Students' Union President and other Sabbatical Officers. Together they are in the process of shaping the Union's future, transforming it from the inside out to provide outstanding support to improve the Bristol student experience.

As part of the process, the team has been looking back at the Union's history. 'We've spent a considerable amount of time asking questions. Who are we? What are we about? What do students and the University want from us? To answer these questions it's important to remember where we've come from and to see what has gone on before us,' says Budd.

Integral to this process was Budd's discovery of a plaque dedicated to alumnus George Odlum, the first black President of the Students' Union, from 1958–59. The plaque, housed in the Odlum Room in the Union building, describes Odlum as 'a man of immense political experience' and 'a catalyst for mobilisation'. 'When I saw it, something chimed for me and I wanted to find out more,' says Budd. Budd delved deeper into Odlum's past. She spoke to alumni and searched through the University and theatre archives for images. She uncovered newspaper articles and went to the far reaches of the British Library to learn more about Odlum's remarkable tale.

The son of a barber, Odlum left the Caribbean island of St Lucia in 1956 to study English and Philosophy at Bristol. He arrived in a country that was still recovering from the Second World War and had not yet reformed its race relations. Significant social and political events were still to come: the Notting Hill riots, Bristol's boycott of the Omnibus Company and the establishment of the Race Relations Act. In spite of all the challenges he would have faced, Odlum maintained a sense of purpose and developed a vision of hope for change. In 1958 he was voted Students' Union President and became the voice for all of Bristol's students.

'It is the historical context that makes George Odlum and his achievements stand out as truly extraordinary,' says Budd. The daughter of a black man from the Caribbean herself, Budd realised as she continued her research that she shared many of Odlum's ideals.

> IT'S IMPORTANT TO REMEMBER WHERE WE'VE COME FROM

In an interview for the University in 1959, Odlum said that 'the constitution of the Union is good as it is; consultative, representative and democratic'. For the past 18 months, Budd and the Sabbaticals have been striving to rejuvenate this spirit of consensus and support through a series of consultation exercises.

Sam Budd in the Students' Union

Factfile
Union statistics

100 years
since the Union began

156
Students' Union presidents

42%
women presidents

170
clubs and societies

3,033
votes cast in 2011 election

Feature

Over a thousand students responded to the recent 'Say it' campaign, which used websites, email and social media to reach as many people as possible to find out exactly what they wanted from the Union. Budd explains: 'Odlum's vision of the Union is still relevant today. We want to be the voice of the students, offering them the stable support they need.'

Other Union ambitions dovetail with Odlum's personal views on education, including the widening of education access and the removal of barriers to increase opportunities for students regardless of their age or background. Budd says: 'We want to be collaborators with students, to be co-producers of their own education – and I think this goal would have resonated with Odlum.'

Budd is conscious that, as student fees rise, the Union will play an increasingly important role in contributing to the student experience by creating opportunities for enhancing the life of students at Bristol University. Furthermore, Budd wants to raise awareness about the Union's contribution to the wider community through student volunteering, the Varsity series, sports clubs and societies, student media and more. RAG (Raising And Giving) alone has raised over £250,000 in the past 18 months.

When Odlum left Bristol, he went on to change the face of politics in St Lucia and the Caribbean. By enhancing the Union's partnerships with the University and its students, Budd believes she can help to transform the Bristol student experience for the better, encouraging today's students, like Odlum, to be courageous and pioneering.

In addition to reforming the Union staff structure, Budd is overseeing the Students' Union building refurbishment programme,

THE CONSTITUTION OF THE UNION IS GOOD AS IT IS; CONSULTATIVE, REPRESENTATIVE AND DEMOCRATIC

which includes the development of the new International Foundation centre that will support overseas students when they arrive at Bristol. After Budd's own voyage of discovery about George Odlum and his life, the University Corporate Board, responsible for the refurbishment, will be putting the George Odlum Room at the heart of the centre.

Although Odlum died eight years ago, his legacy lives on and will continue to live on within the University itself, inspiring Bristol staff and students for many years to come. ●

ubu.org.uk

Above George Odlum with the Queen

Biography timeline
George Odlum

1930 – 1950

1934 Born 24 June

1945 End of Second World War

1955

1955 Arrived in UK

1957 Appeared in Harold Pinter's debut play, *The Room*

1960

1961 Returned to St Lucia and became Secretary, Ministry of Trade

1963 Bristol Bus Boycott

1964 Returned to the UK

1965 Race Relations Act

1965

1967 Returned to St Lucia

1970

1979-81 Deputy Prime Minister, St Lucia

1980

1990 – 2000

1995-96 UN Ambassador

1997-2001 Foreign Minister

2003 Died 28 September (aged 69)

Sam Budd portrait © Dan Rowley

Regulars

What happened when ...
the Moon appeared in Bristol

Above A visiting American scientist, Dr Paul Abell, peers at the sealed vial of dust before it goes on display.

The queues that snaked down Park Street in 2010 for the Banksy exhibition put a few older people in mind of a similar spectacle in 1969, when part of the Moon – 10 grams of it, to be precise – went on display in the Wills Memorial Building.

The story of how it got there begins in 1968, with the arrival in Bristol's Chemistry Department of Geoffrey Eglinton, an organic geochemist who had links with NASA. 'I was on a list of candidates to receive samples of lunar dust on Apollo 11's return,' he says. 'Bristol was one of a dozen UK institutions to be chosen.'

But Eglinton's team suddenly had to do without him, after NASA asked him to join the Lunar Sample Analysis Planning Team at Houston. Luckily there was a funded postdoctoral position

WE WERE TO LOOK FOR ANY CHEMICAL SIGNS OF LIFE ON THE MOON

for the lunar work, so Colin Pillinger (DSc 1985) (now famous for his work on the Beagle 2 Mars lander project) stepped into the breach, assisted by James Maxwell (DSc 1982).

Each chosen institution received some 100 grams of lunar dust, along with a mission: to look for any chemical signs that there had ever been life on the Moon. 'It was hair-raising,' says Eglinton, 'because there was a chance that another group would find something we'd missed.' No signs of life were found, of course, but the team derived a wealth of information about the carbon chemistry of the lunar material, using new analytical techniques developed at Bristol. Eglinton was later awarded the NASA Gold Medal for Exceptional Scientific Achievement.

Thinking that there might be some public interest, the Bristol chemists arranged for a sample to be displayed in the Wills Memorial Building. And so the queues began to form.

What did these thousands of visitors see? 'The dust is grey with lumps in it, a bit like the emptyings from a vacuum cleaner,' says Eglinton, now Emeritus Professor in the School of Earth Sciences. 'It's mainly iron, mineral fragments and glass. In fact, if you shine a very powerful light on it, it glistens.'

Moon dust © Tony Byers (BSc 1970) // Microscope © Alan Campbell

Rosebud
Everyday objects with a special meaning

Gareth Williams, Professor of Medicine and author of *Angel of Death: The Story of Smallpox* (Palgrave Macmillan)

When I was about 10 years old, my father presented me with an old brass microscope. He'd rescued it from being thrown away by one of the labs at Queen's University in Belfast, where he was Professor of Geology. It was a lovely object in its own right, but it was also a window into a whole new world. I looked down this microscope at drops of pond water and saw amoebae, hydras, water fleas, protozoa – all kinds of fantastic things. Then a family friend gave me some slides of tissue sections, which gave me my first insight into how the human body is put together.

That inspired my curiosity in biology; then various things nudged me towards medicine. One of these was an article in an *Observer* colour supplement, about the Casualty Department of the Birmingham Children's Hospital. It had some very powerful pictures. Two striking shots I remember were of a badly injured child whose life was being saved by a team of surgeons; and of an anaesthetist sitting with her patient before an operation. Those photographs had a great impact on me: they added compassion to my curiosity and led me to focus on medicine as a career.

The stage (so the song goes) is a world... and the British part of it is well chronicled by the University of Bristol Theatre Collection, which celebrates its 60th anniversary this year. It's still growing and developing, and its guardians are finding imaginative new uses for some of the marvels it contains.

show and tell

Cover feature

By **Nick Riddle**

It started modestly enough 60 years ago, as a teaching resource for Bristol's fledgling Drama Department – but the University of Bristol Theatre Collection is now one of the largest British theatrical archives in the world. 'In the past year alone it has almost doubled in size, thanks to the acquisition of the Mander and Mitchenson Collection (M&M),' says its Director, Jo Elsworth.

In the late 1940s, the idea that drama could be studied as an academic subject was a radical one. Glynne Wickham, recently arrived from Oxford, was the driving force behind the foundation of the new department – the first of its kind in the UK – and its birth was not without controversy.

'Glynne described attending a meeting of Senate where the introduction of drama as a discipline was being discussed,' says Professor of Theatre Martin White, a close friend of Wickham's. 'He heard some crusty old professor mutter "I suppose that means we'll start admitting chorus girls...". But Glynne always insisted that the scholarship done in the Department would be absolutely unassailable.'

When Wickham discovered that there were no research materials for this new subject he was adamant, says White, that 'there had to be a research library dedicated to drama'. Accordingly, in 1951 the Theatre Collection – with funding from the Rockefeller Foundation – came into being.

Dramatic growth

For such an ephemeral medium, theatre has generated a massive volume of material during its history. Scripts and musical scores, costumes, set designs, props, memorabilia (from programmes to biscuit tins), letters, photographs, recordings... all are to be found in the holdings of the Theatre Collection, which has grown steadily through donations and acquisitions.

In 2001 the Collection was awarded full Registered Museum status by the Museums and Galleries Commission; and in 2009 it received full Accredited Museum status by the Museums, Libraries and Archives Council. The arrival of the M&M (with new facilities at the University's Langford site to house some of it) puts the Collection firmly in the big league.

'The M&M is an enormous asset,' says Professor Stephen Banfield, a specialist in musical theatre who is also Head of the School of Arts. 'I think you could go into the stacks, pick any box and find the basis of a good PhD lurking in there.'

Sound and vision

Banfield himself uses the Theatre Collection for a number of research projects, including a new study, with Dr Catherine Hindson, Lecturer in Performance Studies, looking at the use of music in British theatre from the late 19th century onwards – a topic dominated by the legendary actor-manager, Sir Herbert Beerbohm Tree, whose archive was acquired by the Collection in 1973.

'Theatre historians have focused overwhelmingly on its visual culture, rather than what it sounded like,' says Hindson; 'Musicologists tend to study music as something that stands apart, but music at the service of theatre is not much looked at by either group.'

Top Keepers Heather Romaine (left), Bex Carrington and Director Jo Elsworth (seated) with volunteer Mervyn Heard, an expert on magic lantern slides
Bottom Dr Catherine Hindson and Professor Stephen Banfield

Previous page A model of an Elizabethan theatre, provenance unknown, from the M&M

THE IDEA THAT DRAMA COULD BE STUDIED WAS A RADICAL ONE

'But even a symphony concert has a theatrical aspect, so the two disciplines aren't as far apart as they like to think,' adds Banfield. 'I think bringing them together helps them understand the nature of their own medium better. The Theatre Collection is a natural place for that to happen.'

Banfield's own investigations into a related strand of theatre and musical history – the vaudeville and music hall traditions – yielded fruit on the day we met, in the form of material belonging to Charles Penrose, a comic best remembered for his infuriating but indelible song, 'The Laughing Policeman'.

'His comedy is all to do with innuendo, sound effects and timing,' says Banfield. 'If Penrose says something funny, the band has to make a musical comment. So he has to come up with all the instrumental parts, the percussion effects and so on, to give to the band. The folder I found this morning included copies of parts that he would have dished out to the players in the pit.'

Banfield's discovery, besides its historical significance, provides a good example of the emotional pull of many objects in the Collection. '"The Laughing Policeman" was always on the radio when I was a little boy,' he says, 'so suddenly to find myself in an archive with the tangible traces of a man whom I first heard when I was about five in my mother's kitchen – it did pull me up short.'

Theatrical threads

This stunning costume was worn by Janet Suzman in the Royal Shakespeare Company's famous 1972 production of *Antony and Cleopatra.*

All photographs © Nick Smith except pistols and costume © Nick Riddle

Props and personalities

'There's something thrilling about theatrical artefacts,' says White. 'Texts are very important, but it's the stuff of performances that theatre historians like me find really exciting.' Besides the immediate appeal of props and costumes – such as the stunning robes worn by Sir Henry Irving when he played Cardinal Wolsey in a 1911 production of Shakespeare's *Henry VIII*, or Noel Coward's dressing gown – there's also the researcher's delight at finding, say, a handwritten piece of paper.

THERE'S SOMETHING THRILLING ABOUT THEATRICAL ARTEFACTS

'One of my favourite pieces in the Collection is the costume plot from Beerbohm Tree's 1901 production of *A Midsummer Night's Dream*,' says White. 'It enables us to figure out how many performers there were and who doubled which roles.'

Beerbohm Tree, Irving and Coward are but three of many feted performers whose traces are preserved in the Theatre Collection. But beneath these headliners is another set of figures: the collectors and enthusiasts whose hoarding instincts were the engines for such activity. There's no better example of this than Raymond Mander and Joe Mitchenson, both jobbing stage actors who happened to amass a breathtaking amount of material on British theatre. 'Their personalities are so embedded in the M&M,' says Hindson. 'They were just lovers of performance, and they collected everything from cheap souvenirs to set models. Understanding more about what drove them might even help us navigate around their collection.'

Counting the house

Not so long ago, many archives were sorely in need of such navigational tools: 'Large portions of major collections were uncatalogued, and you relied on the memory of the keeper to tell you if they had something,' says White. This has been a source of frustration for many a researcher, but it has also turned many archives into treasure troves that are only now being uncovered. When White walked into the former site of the M&M (at Trinity College of Music in Greenwich) one of the first things he caught sight of was a previously unknown model of an Elizabethan theatre. 'There aren't too many of those around,' he says, 'and there it was, staring me in the face.'

Guns at the Lyceum

The 19th-century actor-manager Sir Henry Irving used these duelling pistols onstage at the Lyceum. Each bears the inscription 'Only an actor,' signifying their function as stage props. They form part of the Irving Family archive.

Seeing red

This tin of rouge comes from a theatre make-up box belonging to Eric Jones-Evans, a playwright, actor and collector who donated his extensive archive to the Collection.

The rise of information science and archiving software has given keepers like Jo Elsworth and her team a new set of tools for cataloguing and maintaining their holdings. Just as valuable has been the contribution of volunteers who help with important tasks such as writing catalogue descriptions, co-ordinating the Oral History Project, and wrapping each of the 20,000 plate-glass negatives that constitute the John Vickers Archive.

The plot thickens

The holdings of the Theatre Collection, and the uses to which they are put, are continuing to diversify. Items are deployed for teaching Drama and History of Art, where the postgraduate course includes a module on curation that draws heavily on the Collection.

As well as a steady stream of researchers from all over the world, members of the public come in to research their family history or to hunt down some item or other. Larger projects include an investigation into the history of the Bristol Old Vic (whose archive the Collection holds) – a comprehensive study taking advantage of the opportunities created by its current renovation.

The artefacts are also feeding into new performance: as part of its 60th anniversary, the Collection has appointed its first artist in residence, Clare Thornton, who is drawing on its resources – especially the M&M portion – for an exhibition and a new theatre piece, 'Unfurl', staged for the public at the Red Lodge in Bristol this autumn.

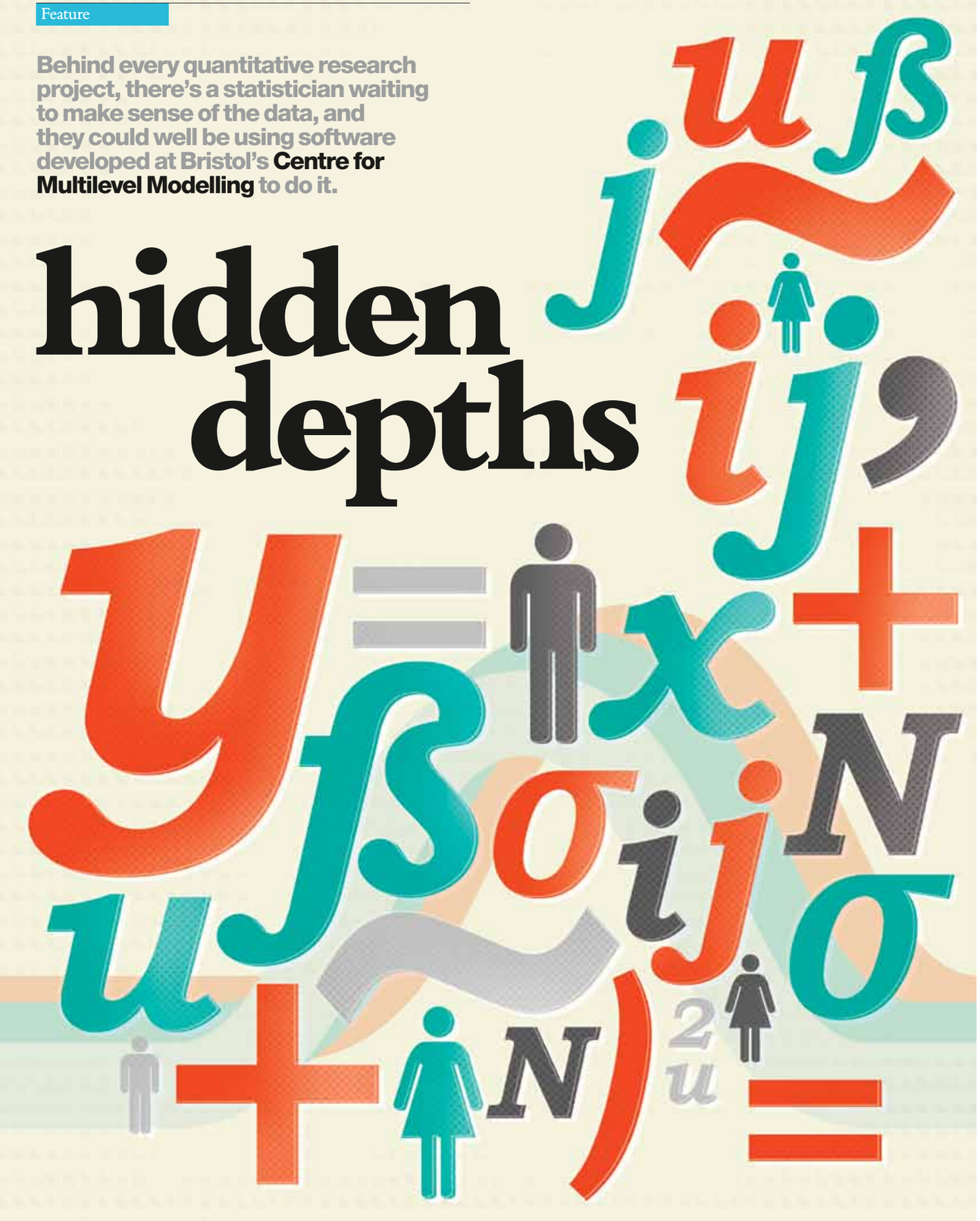
Meanwhile, the M&M is still being unpacked and assessed, and it continues to yield curiosities, revelations and excitements. In more senses than one, it's the stuff of great drama. ●

bristol.ac.uk/theatrecollection

Feature

Behind every quantitative research project, there's a statistician waiting to make sense of the data, and they could well be using software developed at Bristol's Centre for Multilevel Modelling to do it.

hidden depths



By **Hilary Brown**

Statistics. The very word is apt to strike fear into the heart of any failed GCSE maths student. But there's no getting away from the blighters – they crop up in all aspects of everyday life, says Fiona Steele FBA, OBE, Professor of Social Statistics and Co-Director of the Centre for Multilevel Modelling (CMM). Quantitative data – information gathered to summarise the experiences of large groups of people, make comparisons between groups, and track changes among them over time – are used to inform all social and economic policies, from health and education to housing and work.

But analysing such data is a tricky business, because individual behaviour depends on a number of factors that interact in complex ways. Take Steele's work on housing demographics, where, as part of a project funded by the Economic and Social Research Council (ESRC) she is building a mathematical model to predict whether someone will move house in a given year. 'People move for a number of reasons, depending on whether they are single or co-habiting, whether they have children, the ages of those children, and whether they are owner-occupiers or living in rented properties,' she explains. 'The challenge is how to represent that complexity in a statistical model.'

Layer upon layer

As if that weren't complicated enough, for these models to be truly representative, you have to allow for the fact that people are acting within hierarchical structures – at the lowest level you've got the individual, at the second level are households, and at the top level are the areas where those households are clustered.

And that's where multilevel modelling comes in. 'The attraction of this method in quantitative research is that it allows for the fact that people aren't operating independently, that their behaviour is influenced by other people and by social groupings,' says Steele. In CMM, statisticians like Steele produce new multilevel methods for analysing these sorts of data structures, and develop software to apply these methods to research questions.

Blazing a trail

Among the different types of statistical analysis software used by the international research community, CMM's MLwiN is up there with the best, thanks in part to the initial work of Professor Harvey Goldstein and the late Professor Jon Rasbash.

Fiona Steele Professor of Social Statistics

These two pioneers of multilevel modelling brought the centre to Bristol six years ago from the Institute of Education in London. Since then, CMM researchers have further developed the software and made it more accessible through training workshops and online materials, so that it is now used by colleagues around the world. It is also routinely used by national bodies, such as the Higher Education Funding Council for England, the Department for Education and the Office for National Statistics. Chris Charlton, CMM's senior software engineer, and Professor Bill Browne (see below) continue to develop and maintain MLwiN, while also developing new software as part of a larger team supported by ESRC funding.

> THE CHALLENGE IS HOW TO REPRESENT COMPLEXITY IN A STATISTICAL MODEL

One of the major strengths of multilevel modelling is its versatility: it is used in education, medical science, demography, economics and many other areas. CMM researchers are drawn from the Graduate School of Education, the School of Geographical Sciences and the School of Veterinary Science, and collaborate with colleagues across the University. If you thought that school league tables and chicken welfare had nothing in common, read on.

CMM
Vital statistics

25 years
since Goldstein's seminal paper on multilevel modeling*

18,000+
MLwiN users worldwide

2,200+
journal articles cite MLwiN

22 years old
MLwiN software and its precursors

6,000+
users of CMM's online multilevel modelling course

* Goldstein, H. (1986) 'Multilevel mixed linear model analysis using iterative generalized least squares', *Biometrika*, 73, 43-56.

bristol.ac.uk/cmm

Feature

The education specialist
Dr George Leckie (BSc 2003, PhD 2009), Lecturer in Social Statistics, researches various aspects of education and school effectiveness, including the quality of marking of England's national curriculum key stage educational tests, and social and ethnic segregation among schools and neighbourhoods. He is perhaps best known for his work with Professor Harvey Goldstein highlighting the limitations of England's school league tables.

The biostatistician
Bill Browne is Professor of Biostatistics in the School of Veterinary Science and Co-Director of CMM. His research includes statistical methodology and software development in the fields of veterinary epidemiology and bird ecology. He has worked with Professor Christine Nicol in the Animal Welfare and Behaviour research group on a project (funded by the Biotechnology and Biological Sciences Research Council) on chicken welfare.

School league tables are considered by government to be a vital tool in driving up standards and are eagerly scanned by parents hoping to find the best school for their child. But, says Leckie, they don't really give a reliable picture of how well a school is performing.

'In the 1990s, league tables were only based on the percentage of children getting five A* to C grades at GCSE, but that is an unfair measure of school quality, as schools differ hugely in the ability of their student intakes, with some schools starting off with much higher-achieving pupils than others,' he explains. 'You can't use the raw exam results as a measure of school quality, because you're not starting with a level playing field.'

As a result, the government used multilevel models to introduce a 'value-added' system that takes account of the differing achievements of students entering the school, as well as adjusting for other 'contextual' factors such as eligibility for free school meals and lack of spoken English at home.

So far, so good – but still not perfect, particularly when it comes to school choice. Leckie and Goldstein have shown that there is great statistical imprecision in the league tables – meaning that you struggle to separate schools' performances from one another.

'This is because the numbers of children in any particular calculation in a given year (say, 200 pupils per school) are too small to make precise comparisons', says Leckie. 'And if you're a parent, you're not interested in last year's exam results, on which the tables are based, but in those six years ahead when your child will be taking exams. So what you need to know is how well last year's results predict those in the future.' And Leckie and Goldstein's models show that when you do those calculations, you can barely distinguish between schools: 'Statistical uncertainty is a fundamental aspect of communicating school performances, but is all too often ignored by the media and public.'

Leckie, G. and Goldstein, H. (2011) 'Understanding uncertainty in school league tables' ***Fiscal Studies*****, 32, 207-224.**

On the face of it, the Vet School seems an unlikely partner in CMM, but statistical modelling methods are as relevant in animal as in human populations. 'Nested hierarchies in environments like schools – individual pupils, pupils within classes, classes within schools – can be found in, say, poultry operations, where you have individual chickens that are housed in groups within pens, which are clustered on farms,' says Browne.

The chicken welfare models developed by Nicol and Browne draw on two types of data – welfare indicators and results from motivational priority experiments – and examine how these factors relate to each other.

Welfare indicators are measurable factors that scientists assume are associated with the animal's underlying welfare. For example the animal's body condition or the exhibition of specific behaviours may be indicative of good or bad welfare. To collect behaviour data researchers observe and record the frequency and duration of various behaviours – such as sitting, standing alert, feeding, feather-pecking and wing-stretching in the case of chickens – and they can then examine how they relate to other indicators.

Welfare indicators can be measured in different environments and the animal's preference between the environments can be established using motivational priority, or 'choice', experiments. 'In the chicken example, this might involve housing a group of chickens in pens with, say, wire floors for six weeks, followed by a period in an enriched environment containing perches and nesting boxes,' explains Browne. 'You then allow the chickens to choose between the two environments.'

As with the school leagues table example, it's essential to factor in statistical imprecision that stems from the fact that the chickens are housed together in groups and used repeatedly in a series of choice experiments. And this, says Browne, is one of things that multilevel models do best. ●

Nicol, C.J., Caplen, G., Edgar, J. and Browne, W.J. (2009) 'Associations between welfare indicators and environmental choice in laying hens' ***Animal Behaviour*****, 78, 413-424.**

Top Dr George Leckie
Bottom Professor Bill Browne

ONE OF THE MAJOR STRENGTHS OF MULTILEVEL MODELLING IS ITS VERSATILITY

Illustration © Neil Stephens // Portraits © Jason Ingram

Listings

Calendar November 2011 – July 2012

Unless otherwise stated, more information and booking details are available from **bristol.ac.uk/alumni/events** or by calling **+44 (0)117 331 8204**. The events programme is always being updated, so keep an eye on the website for the latest event news.

If you're organising an event for alumni and would like our help publicising it, please email alumni@bristol.ac.uk

November

Saturday 12 November
Medics reunion 20 years on // Bristol

Dr Fong Chau (MB ChB 1991), Dr Su Cronshaw (MB ChB 1991), Dr Polly Davies (MB ChB 1991) and Dr Karen Telford (MB ChB 1991) are organising a reunion for all medics who graduated in 1991 (or started in 1986). Please email Dr Fong Chau at *fong.mark@blueyonder.co.uk* for more details.

Tuesday 29 November
Bristol alumni forum // London

Gianni Angelini, FRCS, FETCS, BHF Professor of Cardiac Surgery and Director of the Bristol Heart Institute, will be talking about the work of the institute. The talk will be followed by a reception.

December

Saturday 3 December
Institute of Greece, Rome and the Classical Tradition Reception // Bristol

Greece and Rome in silent cinema: a screening of archival films with live music accompaniment, introduced by Pantelis Michelakis, Senior Lecturer in Classics from the University of Bristol and Maria Wyke, Professor of Latin at University College London. The films will be accompanied on the piano by Stephen Horne.

Thursday 8 December
Convocation reception and awards // Bristol

Come to meet students, members of Convocation, staff and find out more about student life at Bristol.

January

Saturday 21 January
AGM of the Midlands Branch of Convocation // Midlands

The University of Bristol Midlands Branch of Convocation invites Bristol alumni based in the Midlands to join them at their annual lunch and AGM. For more information and to book, please contact Tim Drakeford (BA 1966), *timdrakeford@btinternet.com*.

February

Thursday 2 February
Bristol alumni networks // London

Hear guest speakers, exchange ideas and meet with like-minded alumni at this networking event focused on enterprise, followed by a reception.

March

Wednesday 21 March
Bristol alumni forum // London

A great opportunity to engage with guest speakers, network and meet with like-minded alumni. The event will be followed by a reception.

April

Sunday 22 April
Virgin London Marathon

The University has eight golden bond places available for Bristol alumni to take part in the 2012 Virgin London Marathon to raise money for the University of Bristol Cancer Research Fund. If you are interested in taking part, please contact *melanie.peck@bristol.ac.uk*.

Thursday 26 April
Bristol alumni forum // London

This law-focused event will involve guest speakers and networking with other alumni in the same area of expertise, followed by a reception.

May

Wednesday 2 May
Student, staff and alumni golf challenge // Bristol

The Bristol Branch of the University of Bristol Alumni Association will be organising a third golf challenge for 2012, when a team of alumni will take on a combined team of staff and students. If you are interested in playing for the alumni team, please email John Bramhall (BSc 1975) at *john.bramhall@bristol.ac.uk*.

June

Thursday 13 June
Bristol alumni networks // London

A themed event that will enable alumni to explore their field of expertise with guest speakers, exchange ideas and meet with like-minded alumni.

July

Friday 6 to Sunday 8 July
Bristol Alumni Weekend // Bristol

Come back to Bristol and enjoy a packed weekend of lectures, lunches, friends and tours.

Calendar insert

This issue of Nonesuch includes a calendar insert, which includes details of the year's events, as well as information about how to register for bookable events, including the annual Alumni Weekend in July.

If you would like to receive more information about specific events, please return the calendar's reply form.

Calendar illustration © Alberto Antoniazzi

Listings

The University extends its sincere condolences to the friends and families of those listed below for who the University has received notification of death.

In order of degree date

Kathleen Owen
(BA 1936, Diploma 1937)
died March 2011, aged 95

Thomas Hocking
(BSc 1940, Diploma 1947)
died January 2011, aged 93

Alan Shield
(BSc 1940)
died April 2011, aged 93

Raymond Mare
(BSc 1941)
died 2011, aged 90

Dr Kurt Hoselitz
(PhD 1942)
died December 2010, aged 94

Arthur Gerrish
(Diploma 1943)
died 2011, aged 90

Robert Sandry
(MB ChB 1944, MD 1959)
died 2011, aged 91

Dr John Parker
(MB ChB 1945)
died 2011, aged 88

Dr Dorothy Collins (née Pierce)
(MB ChB 1946)
died May 2011, aged 88

Ellen Rees (née Holyoake)
(BSc 1946, Diploma 1947)
died May 2011, aged 85

Hilary Weatherhead (née Ballance)
(BSc 1947)
died March 2011, aged 85

Mary Price (née Watkins)
(BSc 1947, Diploma 1948)
died February 2011, aged 84

Dr William Williams
(BSc 1948, MSc 1958)
died April 2011, aged 84

Dennis Allsworth
(Diploma 1949)
died July 2011, aged 88

Herbert Conway
(BSc 1949, Cert Ed 1952)
died November 2010, aged 82

David Roberts
(BSc 1949)
died May 2011, aged 88

James Tiley
(BA 1949)
died 2009, aged 87

Dr Michael Davis
(PhD 1950)
died 2011, aged 88

Dr John Rider
(BSc 1950, PhD 1953)
died March 2011, aged 89

Dr William Benson
(MB ChB 1951)
died August 2010, aged 82

Peter Bollen
(BA 1951)
died April 2011, aged 84

Dr Clarence Hardy
(BSc 1952, PhD 1956, DSc 1971)
died April 2011, aged 79

Bernard Harvey
(BA 1952)
died January 2011, aged 84

Evelyn Messer (née Catton)
(1952)
died June 2011, aged 80

Anne Morris
(BA 1952)
died March 2011, aged 79

Neil Ryan
(BA 1952)
died April 2011, aged 81

Patricia Salter
(BA 1953, Cert Ed 1954)
died March 2011, aged 79

Cynthia Campbell (née Dutton)
(BSc 1954, MSc 1956)
died March 2011, aged 78

Charles Field
(BVSc 1955)
died May 2011, aged 80

Michael Snow
(BVSc 1955)
died May 2011, aged 79

Anthony Richardson
(BSc 1956, PhD 1959)
died April 2011, aged 76

Frederick Smith
(BSc 1956)
died May 2011, aged 78

Dr Lionel Townend
(BSc 1956, PhD 1969)
died February 2011, aged 75

John Curzon
(BA 1957, Cert Ed 1960)
died April 2011, aged 75

Dr Margaret Taylor
(MB ChB 1957)
died April 2011, aged 77

Raja Abdul bin Aziz
(LLB 1958)
died 2011, aged 75

Terence Houlford
(LLB 1958)
died June 2011, aged 73

Colin Jacob
(BSc 1959)
died March 2011, aged 73

Professor John Davies
(BA 1960)
died 2011, aged 73

Douglas Brown
(LLB 1961)
died April 2010, aged 71

David Morris
(BA 1961)
died December 2010, aged 71

Percy Newbery
(BSc 1961)
died July 2009, aged 69

David Parker
(BA 1961)
died April 2011, aged 71

Professor Arthur Stoneham
(BSc 1961, PhD 1964)
died 2011, aged 71

Dr Roger Sykes
(MB ChB 1961)
died March 2009, aged 75

William Temperley
(LLB 1961)
died December 2010, aged 70

Keith Hilton
(BA 1963)
died January 2011, aged 68

Michael Mussell
(BA 1963)
died February 2011, aged 69

Dr Brian Stringer
(BSc 1963, PhD 1969)
died 2011, aged 70

Emeritus Prof Philip Rahtz
(MA 1964, Hon DLitt 2002)
died June 2011, aged 90

Martin French
(BA 1965)
died March 2011, aged 68

Dr Michael Kneebone
(MB ChB 1965)
died July 2011, aged 69

Professor John Swaffield
(BSc 1965)
died February 2011, aged 67

Norman Ziman
(LLB 1966)
died January 2011, aged 66

Dr John Bazley
(BSc 1967)
died June 2011, aged 65

Andrew Kidd
(BSc 1967)
died April 2011, aged 64

Dr Margaret Wilkins (née Clark)
(MB ChB 1967)
died 2011, aged 68

Michael Hallam
(BArch 1968)
died 2011, aged 67

Andrew Perkins
(BSc 1970)
died September 2010, aged 61

Stephen Groom
(BA 1971)
died April 2010, aged 60

Michael Pearson
(BA 1971, Cert Ed 1973)
died July 2011, aged 62

Alan Hedgcock
(BDS 1972)
died July 2011, aged 63

Clive Hardy
(BA 1973)
died 2011, aged 64

Dr John Hughes
(MEd 1974)
died 2011, aged 78

Dr Anthony Wigram
(BA 1974)
died June 2011, aged 57

Patricia Riley
(Diploma 1975)
died 2011

Dr Glen Buxey-Softley
(BDS 1976)
died May 2011, aged 56

Dr Robert Hoyle
(MSc 1980)
died March 2011, aged 54

Christine Wilkinson
(BSc 1980)
died April 2011, aged 51

Christopher May
(BA 1981)
died 2011, aged 52

Dr Martin Burton
(BVSc 1983)
died March 2011, aged 51

Dr Margaret Taylor (née Brownill)
(PhD 1983)
died December 2010, aged 56

Paul Fairley
(BA 1985)
died February 2011

Norman Lowdon
(MEd 1985)
died 2010, aged 66

Sofia Santamaria
(1994)
died April 2011, aged 39

Alan Rowlett
(MSc 1995)
died December 2009, aged 76

John Gammon
(Certificate 1996, LLM 1998)
died June 2011, aged 88

Paul Lowery
(MEd 1997)
died January 2011, aged 51

Kate Franklin
(BSc 2002)
died 2011, aged 30

Emily Goodman
(BSc 2002)
died September 2010, aged 29

Jeongshik Min
(MEd 2005, MA 2010)
died June 2011, aged 50

Gareth Crockett
(BSc 2007)
died April 2011, aged 27

The University extends its sincere condolences to the friends and families of those listed below for whom the University does not have graduation details.

Stella Saywell (Hon) died June 2011

Please email any notifications of death to **alumni@bristol.ac.uk**

Feature

Asking the animals

We're not the only species to express emotion. **Dr Emma Robinson** (BSc 1995, PhD 2000) has been looking at affective states in animals in order to gain a better understanding of depression in humans, and to establish a basis for a new generation of antidepressants.

By **Nick Riddle**

The whole thing was an accident: in the early 1950s, US researchers treating tuberculosis patients with a new compound reported that the subjects tended to become 'inappropriately happy'. Subsequent investigations gave the world antidepressants – and a puzzle.

'We know that antidepressants work in most people, but we don't know exactly how,' says Dr Emma Robinson, Senior Research Fellow in the School of Physiology and Pharmacology, 'and until recently we've had only the sketchiest notions about how depression itself works.' An unfortunate state of affairs, considering that depression is the most prevalent psychiatric disorder in modern society.

Of rats and men

It was during her PhD in depression research that Robinson noticed a lack of studies comparing the human experience of depression with behaviour in animals. 'I've always liked working with animals,' she says, 'and I absolutely believe that their behaviour is influenced by their affective state.'

Affective state, notice – not emotions. Even for us humans, it's no easy matter to arrive at a clear definition of emotion. 'We talk about a positive or a negative affect, instead of happy or sad,' says Robinson. 'I thought it should be possible to understand these states better in animals, by looking at their behaviour while in those states.'

Robinson's research is focused on anxiety and depression, which are closely linked. 'We know that anxious people have attention biases,' Robinson explains. 'In a room full of people, the anxious person is very focused on potential threats and negatives, whereas someone in a neutral or a positive mood takes in everything, and even focuses on good things.' It's harder to make such an observation of a person with depression, but both conditions, in all their varied forms, involve a negative bias in how memories are formed and processed.

Feature

'It's normal to remember when something's bad,' says Robinson. 'What's not normal is to keep dwelling negatively on things that don't merit it – like "Why did that person look at me a bit funny in the street three days ago?".'

Robinson wanted to find a way of examining the influence of mood (or affect) on how animals – in this case, rats – remember something. Asking them to tick boxes labelled 'Quite happily' or 'Not at all' clearly wasn't going to work, but she and her team developed an animal equivalent.

'We devised a simple test,' she says, 'in which rats learn two separate pieces of information while in specific mood states, and we then "ask" them to indicate which they prefer.' These mood states were induced either by drugs (antidepressants or those known to cause anxiety) or by 'ethological manipulations' – that is, simple changes in their routine such as periods of isolation (for a negative affective state) or social play (for a positive one).

The 'learning' involves associating two mediums – for example, sawdust and shredded newspaper – with finding a sugar pellet; the rats then indicate their preference through a test.

'Under normal control conditions, rats show no preference,' says Robinson: 'they go randomly between the two mediums. But when we have manipulated their affective state before the learning exercise, it causes them to be drawn more towards the medium they encountered when in a positive affective state, or away from the one they encountered when in a negative state.'

Creature features

So what can the behaviour of rats usefully tell us about that of humans? There's a growing consensus that many neural processes are the same – especially when it comes to learning.

'Compared to us, rats have a very small cortex – the "thinking" part of the brain,' says Robinson. 'But a lot of what goes wrong in depression occurs in the brain's deep structures, and you find those right across the species.' Rats, besides, are social animals, says Robinson: 'They love to play, and they don't like isolation.'

They're quick learners, too – hence their talent for survival. 'But our rats don't sit around reflecting on what happened today,' says Robinson. 'They live in the here and now, and they act on cues around them.' We humans wield our sizable cortices to intergrate everything, and our brains are ticking over all the time. That facility is our strength – but where depression and anxiety are concerned, it's a liability.

Fast work

Robinson's studies with rats are not only demonstrating the importance of memory bias in mood states; her findings go some way to confirming a theory, proposed a few years ago, about how certain classes of antidepressant work in humans.

'It's always been said that these drugs take a few weeks to work,' says Robinson. 'It's still in all the textbooks.' But that orthodoxy is based on simply asking patients how they feel – and that, it turns out, may not be the most accurate way of measuring the effects of the drugs.

A group in Oxford tested patients' emotional processing of words and faces and discovered that, in fact, antidepressants begin working immediately; their early effects are simply too subtle be consciously experienced by the patient's mind. Robinson's findings confirm this: the rats given antidepressants show immediate effects on how they remember new experiences. 'Over a few weeks you start to feel better,' she says, 'because your brain is no longer full of negative thoughts and memories.'

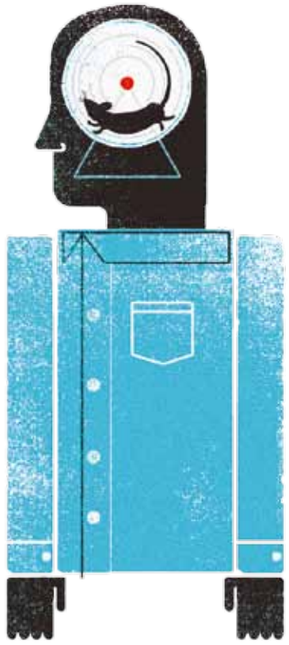
> MANY OF OUR NEURAL PROCESSES ARE THE SAME

Rats, birds and bees

The idea that animals make judgements influenced by their affective states is now fairly well established: Robinson's colleague at Bristol, Professor Mike Mendl, demonstrated in a 2004 paper that rats can display optimism or pessimism in their decision-making, depending on their affective state. Similar results have since been obtained for dogs, birds, and even bumble bees. Such a broad application suggests that this could be important in the animal welfare field, as well as in biomedical research.

'By its very nature, our work is speculative,' says Robinson. 'I'm not suggesting that animals have anywhere near the sort of complex cognitive processes that humans have, but where that dividing line lies is a very interesting question. Pigs, for example, have a very well-developed cortex. It'd be fascinating to look at what they're able to do.'

As this work gets less speculative and the results continue to be corroborated by other groups, our understanding of the workings of the brain – human, rat, bird, dog – grows stronger. So, too, does the prospect of a new generation of antidepressants, and with it, a greater chance of relief for those suffering from anxiety and depression. ●



Previous page Dr Emma Robinson with her lurchers, Hadron and Alfie, at the Centre for Clinical and Comparative Anatomy's Living Anatomy Barn, where a small assortment of domestic animals help with the teaching of the veterinary courses. 'Students can practise things like feeling pulses, listening to heart and lung sounds and palpating lymph nodes. It's not the easiest thing finding a dog's lymph node.'

Emma Robinson portrait © Nick Smith // Illustration © Telegramme

In pictures

Timo Kunkel (PhD 2010), who created the winning image in the University's centenary banner competition in 2009, is currently a Senior Design Engineer at Dolby Laboratories in Santa Clara, California.

I have a great interest in optical phenomena in the atmosphere: I studied climatology as an undergraduate, and the focus of my PhD at Bristol was colour science and computer graphics. When I recently visited Whistler in British Columbia, I managed to take this picture of a full rainbow.

Most of the time, we can only see the top parts of a rainbow. But if the observer is on higher ground looking down on a rainbow, its circular nature becomes apparent. The full circle can also be seen when the water droplets are close to the observer, which was the case here. I was taking the picture from inside a cloud of spray water, so I got the full rainbow circle (using a waterproof SLR). This is actually a stitched panorama from two shots I took with a 15mm fisheye lens.

More information on rainbows (and much more on colour) can be found in *Color Imaging: Fundamentals and Applications*, written by (among others) Kunkel's PhD adviser Dr Erik Reinhard, Senior Lecturer in the Department of Computer Science.