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) grows daily – it was nearly 8,000 at last count. In June, we increased participation in Court elections by a factor of nearly fivefold, 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.

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, and 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.

Bill Ray
Chairman of Convocation, Bristol’s alumni association

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A cast of thousands

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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, at 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 p1).

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

Going for gold

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 been 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 1973, Hon DLitt 2013) was appointed as the new Children’s Laureate in 2011. 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 (BA 1986) 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.’
The Inbetweeners becomes a box-office hit

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 awkwardness 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.

Double success for new graduate’s gaming 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.

In pictures

Snapsots

Life and work at Bristol

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

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.

Greenland’s glaciers

Research

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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

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 at 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 2003 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 vessels filled with liquid resin.

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 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 network within its structural materials. But we have to be practical and work with materials that industry is interested in.’

‘And work within existing airworthiness 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’ve 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.’

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Re-make/re-model

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‘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.’

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 taking people out of their own field. Bond and Trask’s discussions with Bristol chemists are proving fruitful for both sides.

‘When 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 cuticles...

‘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.’

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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 work together to lay down new tissue. ‘It’s constantly remoulding itself,’ he says. ‘Ultimately we want to move towards that, too – not just repairing tiny cracks but filling holes and remoulding to deal with any changes in loading.’

But nature works over much longer time scales than that, says Trask, averaging aircraft repair job. ‘In engineering, you tend to want it fixed now,’ says Bond. ‘That’s challenging 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.’

british-ac.uk/composites
Commodities Specialist at Ecobank, London

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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 Brookes, 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.

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.

In from the cold

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, maths and computing, and extended her support network of local community leaders to help her children.

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.

Bristol and beyond

THE GREAT THING ABOUT STUDYING LANGUAGES IS THAT YOU DON'T KNOW WHERE IT'S GOING TO TAKE YOU.
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.
Sam Budd, Chief Executive of the Bristol Students’ Union, looks back at the presidency of alumnus George Odlum (BA 1959) for inspiration.

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.

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.
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 produces £500,000 in the past 18 months.

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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.
by Nick Riddle

I t 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. Glynine Wickham, recently arrived from Oxford, was the driving force behind the foundations of the new department – the first of its kind in the UK – and its birth was not without controversy.

‘Glynine 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 Glynine 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’ and approached John Riddell, in 1952, to establish 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; in 2009 it received the first 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) has increased the Collection's size, thanks to the acquisition of the Mander and Mitchenson Collection (M&M),’ says its Director, Jo Elsworth.

‘The M&M is an enormous asset,’ says Professor Stephen Banfield, a specialist in musical theatre who is also Head of the Department. ‘Their personalities are so embedded in the M&M,’ says Professor Stephen Banfield, a specialist in musical theatre who is also Head of the Department.

The M&M is an enormous asset,’ says Professor Stephen Banfield, a specialist in musical theatre who is also Head of the Department. ‘Their personalities are so embedded in the M&M,’ says Professor Stephen Banfield, a specialist in musical theatre who is also Head of the Department. ‘They were just lovers of performance, and they were 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.’

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 in finding, say, a handwritten piece of paper.

THINGS 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. ‘It’s thinking about how you might bring these together to help us 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 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. ‘Musicians would tend to study music as something that stands apart, but music at the service of a theatrical production is not much looked at by other groups.’

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

THEATRICAL THREADS

Showing and tell

The idea that drama could be studied was a radical one

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.’

As well as a steady stream of researchers from all over the world, members of the public come 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 archive – for an exhibition and a new theatre piece, ‘Unfulf’, 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 stuff of great drama.
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.

Feature

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 Joe Rasbash. 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 larger teams supported by ESRC funding.

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.
"This is because the numbers of children in schools differ hugely in ability. In the 1990s, league tables were only based on results, on which the tables are based, but in the future, they don’t really give a reliable picture of how well a school is doing. Statistical uncertainty is a fundamental aspect you can barely distinguish between schools: how well last year’s results predict those in the future.’ And Leckie and Goldstein’s models show that when you do those calculations, those six years ahead when your child will be at school, as well as adjusting for student intake, as 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 factors such as: a child’s ability, and lack of spoken English at home. But, says Leckie, they don’t really give a reliable measure of school quality, particularly when it comes to school choice. ‘Associations between welfare indicators and results from motivational priority, or choice, experiments,’ says Browne.

The chicken welfare models developed by Nico 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, normal feeding, feather-pecking and wing-stretching in the case of chickens – and they examine how they relate to other indicators. Welfare indicators can be measured in different environments and the animal's preference between the two environments can be established using motivational priority, or ‘choice’, experiments. In the chicken welfare models, this might involve housing a group of chickens in pens with, say, wire floors 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 league table example, it’s essential to factor in statistical uncertainty 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. Statistical uncertainty is a fundamental aspect of communicating school performance, but it is all too often ignored by the media and public.


The University extends its sincere condolences to the friends and families of those listed below who for the University has received notification of death.
Robinson’s studies with rats are not only fast work — 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 which 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 and well-developed cortex. It’d be fascinating to look at what they’re able to do.’

Robinson wanted to find a way of examining the influence of mood (or affect) on how animals learn — 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 which 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).

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**Many of our neural processes are the same**

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.’

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. I’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.