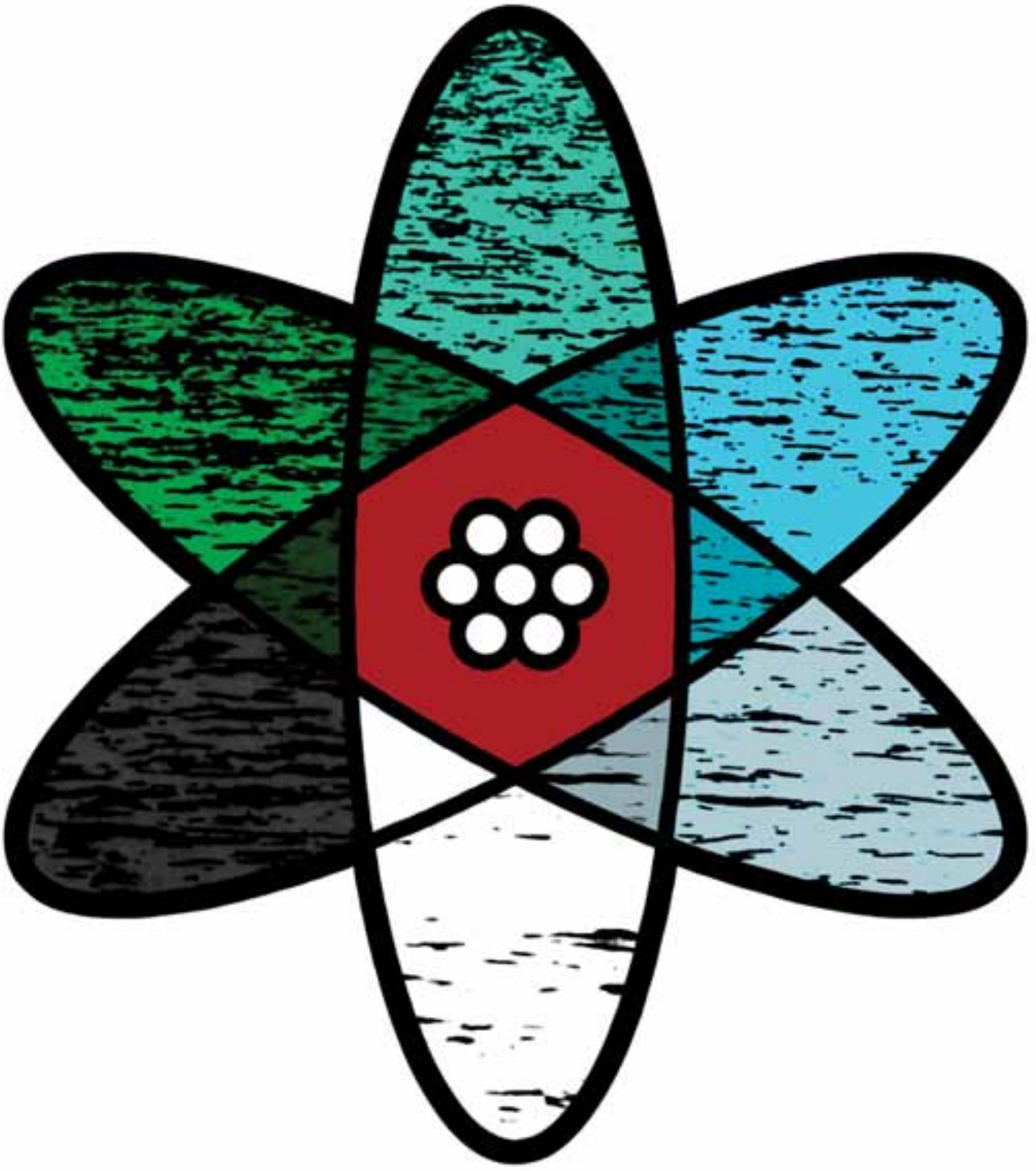
THE UNIVERSITY OF BRISTOL MAGAZINE // SUMMER 2011

nonesuch



CALLING IN THE CLEANERS – MILLIONS OF THEM

NOT DARK YET: DYLAN AND POETRY'S SURVIVAL

GENDER VIOLENCE: SOMETHING TO SHOUT ABOUT

Welcome from the Chairman

Welcome to the first edition of the new *Nonesuch*. The magazine will now be sent twice a year to alumni, in May and October, and will have an expanded audience, including students, staff and others interested in our University. There will be two versions, one with a common section for all and one with additional pages of particular interest to alumni.

This edition is particularly important, since at last year's Convocation AGM it was agreed to allow distance voting for Convocation representatives on Court. Details of how to vote online and a ballot paper for traditionalists are enclosed. Do please exercise your right to vote; all alumni are Convocation members and this is your opportunity to help select our representatives on the University's Court.

Nonesuch contains just a small snapshot of the great things happening at Bristol. So that we can keep you updated on Bristol news, please let the alumni office know of any changes to your contact details and consider joining Bristol's rapidly growing alumni group on LinkedIn.

I hope you enjoy reading about our University.

Bill Ray (BSc 1975)
Chairman of Convocation
alumni@bristol.ac.uk

bristol.ac.uk/alumni

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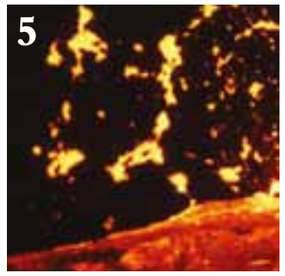

nonesuch
Summer 2011

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Regulars

In the city

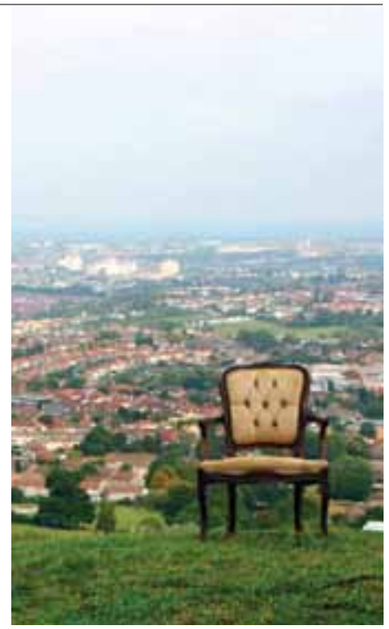
The University in Bristol

Listen In is a low-cost community counselling service run by postgraduates from the University's MSc Counselling programme. It's one of the biggest counselling agencies in Bristol.

There are currently 21 volunteer counsellors working at different city locations. Most of them are mature students undertaking their clinical placement. The counsellors receive ongoing supervision in accordance with the British Association for Counselling and Psychotherapy framework.

'We work with issues like depression, anxiety, bereavement and relationship difficulties', says Jo Buchmuller, the Service Manager. 'Most referrals come from GPs, but clients sometimes find us themselves via our website. For some people, it's their first-ever, and perhaps only, contact with the University.'

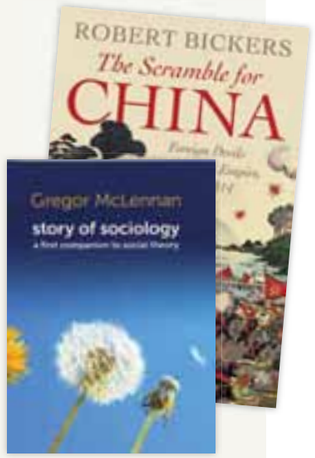
www.bristol.ac.uk/cppd/listenin.html



Numbers
ALSPAC

The **Avon Longitudinal Study of Parents and Children** (ALSPAC), aka Children of the 90s, is a long-term project studying the health and development of a cohort of children in the Bristol area. The vast amount of information gathered from ALSPAC families is an ever-growing resource for research scientists all over the world. **www.bristol.ac.uk/alspac**

The plug
Book reviews



The Scramble for China: Foreign Devils in the Qing Empire, 1832-1914
by Robert Bickers (Penguin)
Robert Bickers, Professor of History, tells the story of European impact on China from the early 19th century to the start of the First World War, reimagining the encounters between two equally arrogant and scornful civilisations. The degradation of China in this period forms an important part of Chinese nationalism and identity that is crucial to understanding China today.

Story of Sociology
by Gregor McLennan (BA 1974) (Bloomsbury Academic)
Situating sociology within the wider context of social theory, Gregor McLennan, Professor of Sociology, takes readers from the intellectual tensions of Enlightenment thought, through the American-dominated 20th century, to the latest debates in the discipline. This interpretative and eloquent overview of the subject has been described by renowned sociological theorist Jeffrey Alexander as 'a brilliant synthetic essay of theoretical importance'.

Regulars

Move over, Colin: Bristol alumnus triumphs at the Oscars

Andrew Ruhemann (BA 1985) scooped Best Short Animated Film at the Academy Awards in February for his short film *The Lost Thing*, which he co-directed with Shaun Tan.

Based on an illustrated book by Tan, the story, set in the near future, is about a boy who discovers a strange creature that seems to be a combination of an industrial boiler, a crab and an octopus. Adopting it as his own, the boy and the creature bond, finding comfort together as outsiders.

Ruhemann said: 'When I first saw *The Lost Thing* at the Bologna Children's Book Fair, it stood apart from all the other books with its unique and striking visuals and the whimsy and melancholy underlying the narrative. To me the film is a kind of poem to all the lost things in this world and beyond.'

In true Oscar speech fashion, Ruhemann thanked his wife, Jennifer Nadel (LLB 1985).

Ruhemann is managing director of Passion Pictures and also worked on *Who Framed Roger Rabbit?* and on promotional videos for Damon Albarn's 'virtual' band, Gorillaz.

www.thelostthing.com

Making it public
Public sector

- The 'mother of all accountants' **Caroline Mawhood** (BSc 1975) (below left) took up Presidency of the Chartered Institute of Public Finance and Accountancy last year. She was interviewed in *Public* magazine, which reported that 'she is not the first woman to hold the office, but the first mother, a distinction of which she is justifiably proud'.

- The press also reported on another Bristol graduate making waves in the public sector. *Third Sector* magazine featured **Gillian Guy** (LLB 1976) (below right) after she was appointed Chief Executive of Citizens Advice.

News illustration © Alberto Antoniazzi // Gillian Guy portrait © Ian Enness

Young green guns
Business

Nicko Williamson (BA 2006) was one of seven 'young guns' featured in an article in *The Guardian* about Britain's new entrepreneurs.

Williamson's company, Climatecars, was born out of an idea he developed while at Bristol. Having come across a liquified petroleum gas (LPG) conversion centre called Greenfuels, he set about converting a fleet of people carriers to LPG and launching a green taxi service in London. Williamson said that the financial crisis had made entrepreneurship an attractive career option. 'Lots of people have been laid off and are putting their pay-offs towards setting up a business ... they're realising that working punishing hours for someone else isn't that rewarding.' **www.climatecars.com**

Puccini in the pub
Theatre

An opera produced by **Ben Cooper** (BA 2008), co-founder of opera company OperaUpClose, attracted critical acclaim after its debut at the Cock Tavern Theatre in Kilburn. *The Guardian* said: 'Putting on *La Bohème* in a pub is a challenge, but OperaUpClose find that Puccini and pints are a happy mix.'

The show went on to become the longest continuously running opera in history and received a Whatsonstage.com Award for Best Off-West End Production and an Olivier Award for Best New Opera Production in 2011.

Cooper said: 'Winning an Olivier Award, especially after just a couple of years in the business, was a huge surprise. I worked on the Bristol Shakespeare Festival when I graduated, which was very much the training ground for me as a theatre producer.'

Regulars

Rango on the move

Film

The *Los Angeles Times* interviewed Nikita Patel (MEng 2006) about her work on Gore Verbinski's new animated film *Rango*.

As a creature technical director (TD) for Industrial Light & Magic, Patel was responsible for simulations and 'skeletons' of the characters. She and her department added rigging to 3-D models of the characters and objects before passing them to the animators.

She told the *LA Times*: 'Rigging is putting a skeleton inside the model so that the animators can move it around. If we want to see more realism, the creature TDs will go in and add some simulation to the muscles and the flesh.'

Patel discovered computer programming at a summer school at Bristol, where she went on to study Computer Science and French.

www.rangomovie.co.uk

Theatre joins the spending cuts debate

Politics

Eight playwrights, including **Mark Ravenhill** (BA 1987), donated short plays that were performed across the country in March to highlight the potential impact of spending cuts. Some 80 groups staged the works in theatres, pubs, libraries and private houses as part of Theatre Uncut.

In an interview with the BBC, artistic director Hannah Price said: 'Having Mark on board helped get other writers involved'.

In Ravenhill's play, *A Bigger Banner*, students occupying their university building 'summon the ghosts' of students from the 1950s. He told the BBC: 'I thought it would be interesting to put together a couple of students from now with a couple of students from then, for whom future possibilities were optimistic.'

www.theatreuncut.co.uk

Screen highlights

Film

Hauling (above left), a documentary directed, written and produced by **Sean Walsh** (MA 2000), won Best Feature Film at the International Environment Film Festival 2010. Set in São Paulo, Brazil, it follows the day-to-day life of people who make their living out of collecting and recycling material that others have thrown out. *Hauling* is Walsh's documentary directorial debut.

David Nicholls' (BA 1988) bestselling novel *One Day* is being made into a film starring Anne Hathaway.

Deborah Moggach's (BA 1970) novel *Tulip Fever* is to be filmed by *The King's Speech* director, Tom Hooper.

In her new film *Oranges and Sunshine* (above right), **Emily Watson** (BA 1988, Hon MA 2003) plays a social worker who battles to reunite British families with children forcibly sent to Australia. The film is directed by Ken Loach's (Hon DLitt 1996) son, Jim Loach.

Michael Winterbottom (Cert Radio, Film & TV 1983) has started shooting his new film *Trishna*, a contemporary Indian version of the Thomas Hardy classic *Tess of the d'Urbervilles*.

In brief

- Non-profit firm Diagnostics For All, led by **Una Ryan** (BSc 1963, Hon DSc 2009), received a $3m grant from the Bill & Melinda Gates Foundation and the UK's Department for International Development to develop diagnostic tests for agriculture.
- Stage designer **Es Devlin** (BA 1993) talked to theartsdesk.com about her work on the play, *Pieces of Vincent*. She has also designed sets for some of the biggest artists in the music industry from Take That to Lady Gaga.
- Sailor **Iain Percy** (BSc 1998, Hon LLD 2009) was one of four British Olympic champions to unveil the countdown clock in Trafalgar Square to mark 500 days until the 2012 Games.

And finally ...

Charity

The Brentwood Weekly News reported on **Chris Stack** (BA 2006) and his 'madcap caper' which will see him and 49 friends running the Paris Marathon tied together like a centipede. They hope to raise £50,000 for the Teenage Cancer Trust and the Microloan Foundation.

Knitted neurons © Anne Cooke // Erta Ale © Lorraine Field // Roses © Nathaniel Herran // Henry VIII © A & R Rowell // Megalops © Jenni Stanley

In pictures

Snapshots
Life and work at Bristol

Clockwise from top left.

KNITTED NEURONS Creations from a knitting and neuroscience project. www.bristol.ac.uk/changingperspectives/projects/knit-a-neuron

ERTA ALE Night-time shot of lava lake at Erta Ale in Afar Region, Ethiopia. www.bristol.ac.uk/news/2010/7372.html

DIGITAL RADIOGRAPH OF ROSES Winner from this year's Art of Science competition. www.bristol.ac.uk/news/2010/7350.html

HENRY VIII A Tudor wall painting uncovered in Somerset. www.bristol.ac.uk/news/2011/7444.html

MEGALOPS A crustacean capable of detecting reef noise. www.bristol.ac.uk/news/2011/7453.html

Cover feature

Cleaning up pollution: big enough task for you? A new method is being piloted by members of Bristol's Interface Analysis Centre – led by a man with a fascination for uranium.

particle power

Cover feature

By **Nick Riddle**

The landscape of Central and Eastern Europe is haunted. Along with the centuries-old legends of vampires, witches and dragons, there is a newer, more pernicious menace: radioactive pollution, the legacy of the former USSR's extensive programme of uranium mining. A European Commission report in 2001 identified over five-and-a-half thousand 'uranium liabilities' in Central and Eastern Europe, from shafts and boreholes to waste dumps, tailing ponds and leaching fields.

In many cases, however, processing facilities that were meant to clear up these decommissioned mining sites have created further problems, such as tanks and ponds full of contaminated water and slurry that can seep into the land and spread for miles via groundwater.

Heaps of trouble

A case in point is the Banat region of Romania. Since 2006, with funding from NATO, Dr Tom Scott from the University's Interface Analysis Centre has been visiting sites in the area to survey the geophysical conditions, take water samples and assess the level of pollution. He concentrated on two sites, Lişava and Ciudanovita, and found uranium in the water at a level one hundred times the World Health Organization's recommended standard. This was true not only in the mountainous piles of uranium-rich waste rocks, but also in nearby villages and towns, and in local rivers.

'I've seen some horrendous stuff out there,' says Scott. 'I think the worst place was near a town on the bank of the River Danube.' The mining company had tried a method of uranium extraction that involved digging out concentrated ore from the hillside, throwing it into a large concrete pool and adding sulphuric acid to leach out the uranium. The resulting waste acids went straight into the Danube.

'They did this for at least a decade,' says Scott. 'When we found it after its "cleanup", there were still radioactive spoil heaps as tall as houses. And about 20 yards away on the other side of the road, with no barriers or warning signs in between, they'd put a children's playground.'

Contamination of this kind is an enormous and pressing problem in many parts of the world. But Scott and his team have developed a solution that harnesses the power of the miniscule to tackle this modern-day monster.

Iron age

It's been known for a while that iron reacts with uranium and other pollutants in striking and useful ways (see 'How it works', opposite). An established method of treatment uses granular or scrap metal iron to create 'permeable reactive barriers' that cut across the flow of contaminated groundwater and act as a passive filter. But there are drawbacks: it requires the digging of a narrow trench for the filter material; and it only works at shallow depths. Furthermore, because the iron rusts as part of the process, it can quickly clog up and become ineffective.

In the late 1990s, researchers started exploring the potential of iron nanoparticles (INPs). Their size – far smaller than bacteria – gives them a high surface-to-volume ratio, making them highly efficient vehicles for contaminant removal. These tiny, water-suspended cleaning agents can be introduced into polluted areas to immobilise the uranium and remove it from water supplies – for a fraction of the cost compared with other methods, and with much better results.

IRON NANOPARTICLES CAN IMMOBILISE THE URANIUM AND REMOVE IT FROM WATER SUPPLIES

Scott's work has introduced an important refinement to the 'standard' INP idea. Previous lab studies had established the particles' effectiveness by adding them to 'synthetic' solutions of water, contaminants and little else. But groundwater has a much more complex chemistry than that: it teems with salts, minerals and carbonates, in varying concentrations. Scott's team found that the INPs didn't work as well on samples of 'real-world' contaminated water. The effects didn't last as long, and in some cases it was only a week before the nanoparticles released the contaminants back into the water. To remedy this, Scott has gone into the labs at the Interface Analysis Centre to try to modify the properties of these nanoparticles.

'We're using thermal treatments, heating them under vacuum to refine their structure and surface chemistry,' he explains. 'And it's working. We often have to reduce the surface area, but we've greatly increased the reactivity, so it's a worthwhile trade-off.'

Braving the element

There's another important advantage to the INP method: when used in a batch system, the iron and uranium can be separated off, allowing for the uranium to be made into yellowcake, a compound used to prepare fuel for nuclear reactors. 'Essentially, you're recycling the uranium,' says Scott. 'It's low-cost as well, so this will be the first remediation technology that countries like Romania can afford. It also allows them to generate some income, which they can re-invest in cleaning up the sites even more.'

You may have gathered from this that remediation is not part of some larger enterprise to remove nuclear power from the menu; that, says Scott, is simply not possible, given the world's growing energy demand. 'Uranium is a very low-cost energy source,' he says. 'Gas is only going to get more expensive, and burning coal actually releases much more uranium into the environment than nuclear power does.' The key to handling our energy needs responsibly, he argues, lies in understanding 'the chemistry of uranium and the fission elements that are associated with it'.

And Scott is the man to ask about uranium. 'It's a fascinating, enigmatic element that doesn't always behave in ways you expect,' he says. 'It's the second heaviest, after plutonium. But unlike plutonium, it's quite common in the earth; you hear about issues with radium in places like Dartmoor and Bodmin, and that's because there's so much uranium present in the granite.'

Uranium
The facts

Atomic number 92

Chemical symbol U

Weight Second-highest atomic weight of naturally occuring elements

Density High

Found In low levels within all soil, rock and water. Extracted from minerals such as uraninite

Uses High-density penetrators (eg tank armour); nuclear weapons; fuel for nuclear power plants

Top Dr Tom Scott
Bottom Abandoned buildings at a decommissioned uranium mine in Banat, Romania

Other irons in the fire

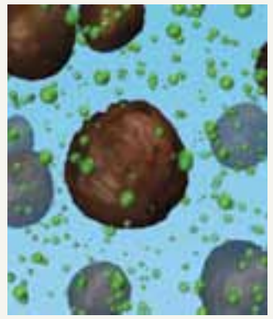
Trials of the new technique are planned in Romania soon, and funding from the Royal Society and the Natural Environment Research Council is paving the way for a range of further research projects. Meanwhile, regulatory bodies across the world – including Defra in the UK – are assessing the safety and effectiveness of INPs as cleanup agents. Scott is confident that they will become a fixture in the toolkit of geotechnical companies: 'Besides the many UK nuclear facilities nearing the ends of their lives, there are leaking landfill sites and other areas contaminated by industrial by-products like chlorinated solvents and heavy metals,' he says. 'INPs are good at clearing these as well, so that could open up a low-cost route to converting "brownfield" sites into areas that can be built on safely.'

That's one of the beauties of iron nanoparticles: uranium cleanup is just the beginning. Other uses include cleaning up oil spills, decommissioning nuclear reactors, and even contributing to household safety: 'We recruited some MSci students in the School of Physics to help develop water filters using a form of iron nano-foam,' says Scott, 'so you could put one on the end of a tap and get clean, filtered water. We'll be ready to patent it pretty soon.'

There's no shortage of haunted landscapes around the world, so these swarms of tiny do-gooders will have plenty of exorcisms to perform, thanks to Scott and his team. ●

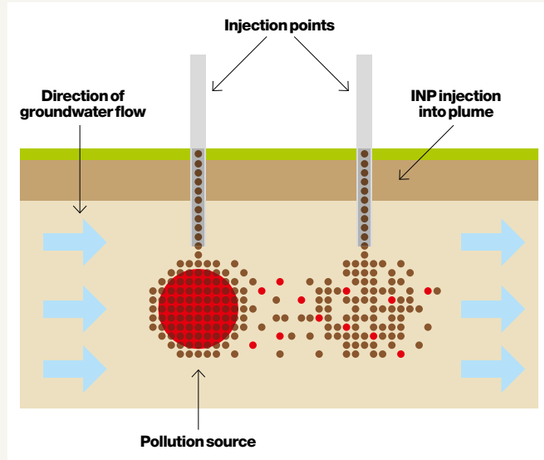
Previous page: chains of iron nanoparticles under a transmission electron microscope © University of Bristol // Tom Scott portrait © Rob Vanderplank

How it works
Tom Scott covers the basics



The reaction

'The dissolved uranium sticks to the INPs. Then there's a chemical reaction in which electrons are swapped between the uranium atoms and the iron atoms on the surface they stick to. This oxidises the iron and immobilises the uranium by reducing it to a crystalline compound called uranium dioxide (UO_2).'



The injection

'Iron nanoparticles are so tiny that they stay in suspension when you add them to water. That means you can inject them into the ground at any depth, as long as you can drill a bore hole. If you then want to move them around, you can use electrical fields by sticking electrodes into the ground and "steering" the particles, a little like herding sheep.'

Regulars

From Bristol to Barbados

Eve MacFarlane interviews **Diana Wilson Patrick** (LLB 1986), partner at Lex Caribbean, Barbados

When I was very young I wanted to be a judge. When my parents explained that I had to be a lawyer first, I announced that I'd just skip that bit.

Law always seemed to me to be a wonderful living thing rather than just a theory. I wanted to study law because I could see its practical application in everything around me.

I grew up in Stafford, so I was never going to choose to study somewhere as small and sleepy. I came to Bristol for my interview just before Christmas 1982 and fell in love with the city. I was drawn to the fact that it wasn't dominated by the University; it had a big, bold life of its own.

We were a very tight-knit group in the Law School. We had the run of the Wills Memorial Building. We studied, partied and lived together.

At first, we were petrified of Professor Roger Kerridge. But we soon realised that underneath the hard exterior he was a big softy. He's a brilliant man and lecturer. He was at our reunion in 2009 and we were still in awe of him.

Bristol was one of those times when all my stars seemed to align. It gave me huge confidence. I felt that I could do anything and go anywhere. It was my passport to the future.

I went to work in the City; everything was booming. I was fresh out of Bar School, the salaries were great and I was four to five years from partnership. I was looking at a secure future, but I had a nagging feeling that I was on a treadmill, and I wanted to get off.

I closed my eyes and stuck a pin in a map of the Caribbean. It landed in Jamaica and I got a placement with a law firm on the island. I sold my flat and filled two trunks with my remaining possessions. If it didn't fit in, it wasn't going.

The Caribbean was very different from London. I didn't miss the pace of the City – I reclaimed my life, starting collecting art, learned to scuba dive and generally exhaled.

In 1997 I got the opportunity to work with the Caribbean Development Bank, a regional offshoot of the World Bank, based in Barbados. For ten exciting, challenging years I worked as a lawyer on development projects all over the Caribbean, from Turks and Caicos to Guyana. I realised that life wasn't just about me.

Things got more difficult when my family came along. I tried to juggle work and home life for a while, but there was too much travelling with the job. I was missing out on my children growing up. And so I decided to go back into private practice, and became a partner with a regional firm, Lex Caribbean.

We travel to England every year, and my girls often ask to visit Bristol. I think they realise how much my time there meant to me. One of my daughters wants to study law at Bristol.

I'm very happy in Barbados. Finally I feel like I've found my place.

BRISTOL WAS ONE OF THOSE TIMES WHEN ALL MY STARS SEEMED TO ALIGN

Diana Wilson Patrick portrait © Mike Toy

Feature

The persistence of poetry

Poetry and song, once inseparable, have long since parted ways. Or have they? **Daniel Karlin**, Winterstoke Professor of Poetry, believes that the work of one songwriter in particular amounts to a fruitful reunion.

By **Nick Riddle**

At the base of the Albert Memorial is the Frieze of Parnassus, an assembly of sculpted figures depicting history's great poets, musicians, sculptors and architects. The south face belongs to the poets and musicians, and at their centre is Homer, bent over a lyre. Poets no longer plucked at stringed instruments or sang their poems by the time the Memorial was created in the mid-19th century, but Homer's pride of place indicates the enduring connection between song and poetry.

'Standing at his shoulder is the philosopher Pythagoras,' says Professor Daniel Karlin, 'who is credited with the idea of the "music of the spheres", a universal, cosmic harmony that all poetry – even in the age of print – aspires towards.'

Karlin uses the figure of the singer to pull together a universe of interests (including most of English and American literature since Chaucer) into his sphere of study. 'Poets continue to refer to themselves as singers, long after poetry and song have gone their separate ways,' he says. Examples are legion, from Petrarch's *Canzoniere* ('Songbook') in the 14th century to modern classics like Ezra Pound's *The Cantos* and John Berryman's *Dream Songs*.

The metaphor extends, says Karlin, to the act of reading. 'When we read a poem, we perform it to ourselves – you could say that we "sing" it, but our performance is partly determined by the form of the text on the page, especially in modern poetry.'

Feature

Bringing it all back home

But forget metaphorical singing for a moment. There is one modern poet who, as far as Karlin is concerned, brings poetry and song back together with resounding success: Bob Dylan.

'It was around 1971 that I started listening to Dylan – in the sense of paying proper attention,' he says. 'I remember hearing "All Along the Watchtower" for the first time, and at the last line, "Two riders were approaching, the wind began to howl", thinking to myself how great it would be if the song ended there, and foolishly betting that it wouldn't – but then it did. That taught me about Dylan's art and jolted me out of my own complacency.'

Dylan's use of literature in his lyrics – with fragments, quotations and allusions woven together into a new design – makes him a poet in the vein of TS Eliot, says Karlin, though his special potency lies in his combination of words with melody and rhythm to drive the songs and elicit a response that can verge on the ecstatic. 'That's true not just of the great driving songs such as "Like a Rolling Stone", but of quieter ones like "I Shall Be Released" – or "Not Dark Yet", which is a great, late masterpiece.' Take away the musical settings, in fact, and you diminish both the pleasure and the meaning of the lyrics to the point of obscurity.

The pleasure principle

'You might not think of the poem on your birthday card and TS Eliot's *The Wasteland* as part of the same phenomenon, but I think that they are,' says Karlin. 'The factor that they have in common is something Wordsworth talks about in the preface to *The Lyrical Ballads*: "... the necessity of giving immediate pleasure to a human being". If a poem doesn't give you pleasure, it can't do anything else. That's as true of the greetings card poem or the song lyric as it is of the poem of high art.'

Karlin often encounters students who need to be introduced to this pleasure principle. Without it, trying to get to grips with, say, *Paradise Lost* can be a grim undertaking, especially since Milton's epic has resisted a complete understanding by generations of academics. But begin by reading it aloud, Karlin insists, and 'you get a sense of what the physical body of the poem is like, its sound, rhythm and tone. Engaging with its layers of meaning and symbolism does, however, require serious work in order to recover some very specific kinds of knowledge that the poem assumes you have. There's no getting around that.'

Indeed, most poetry before the mid-20th century took for granted an acquaintance with biblical stories, basic Christian and Judaic doctrines and ancient mythology – the furnishings of a classical education. But few poets have been as forbidding as Ezra Pound, who, says Karlin, 'when asked what you should do in order to understand the bits of Homer that he was including in *The Cantos*, replied, "Learn Ancient Greek".'

Poetry spoken here

Poetry stands no chance of dwelling in the shadows at Bristol, thanks partly to the presence in the Arts Faculty of several practising poets – and to the forthcoming launch of the Bristol Poetry Institute, of which Karlin is to be Director.

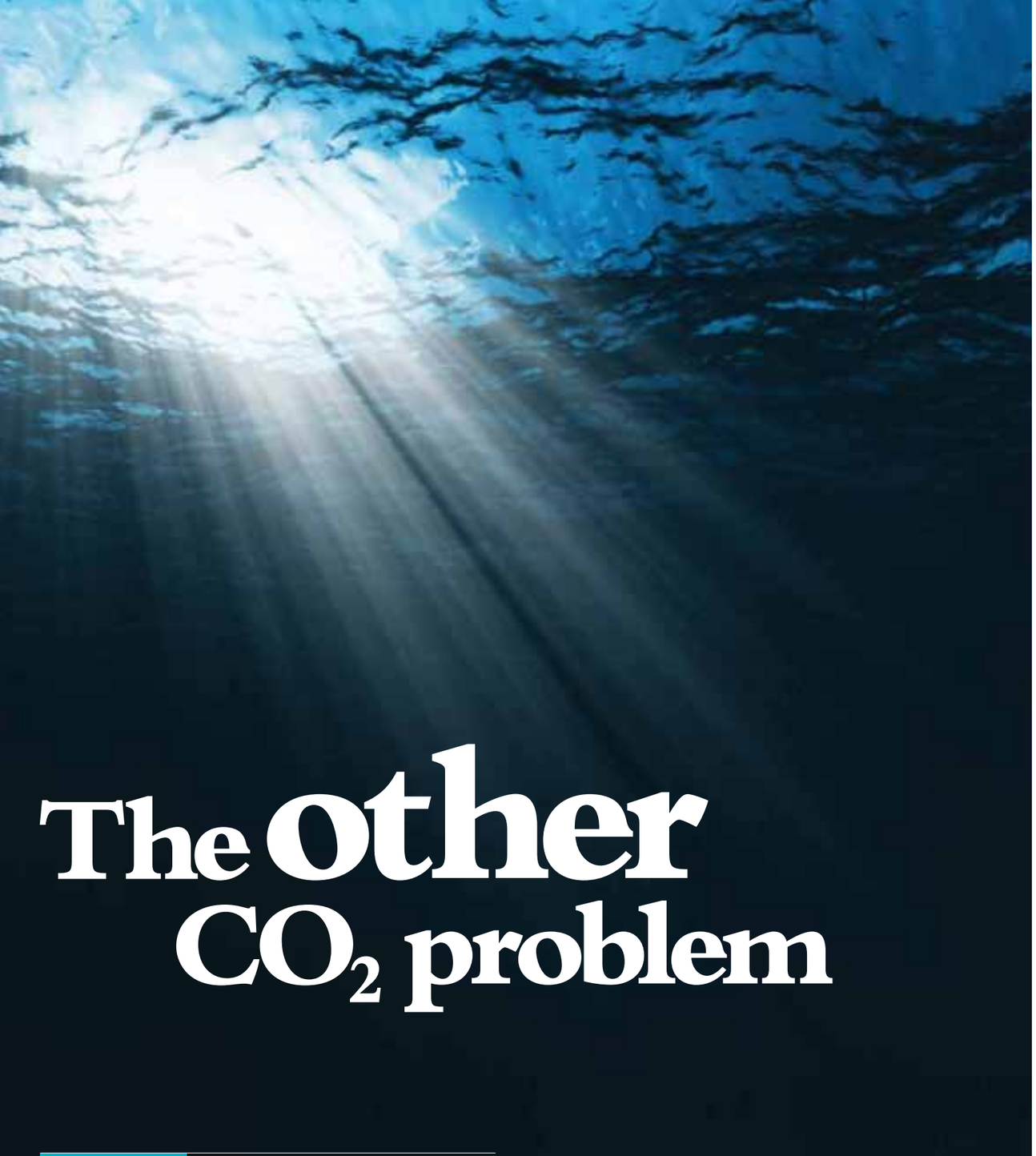
IF A POEM DOESN'T GIVE YOU PLEASURE, IT CAN'T DO ANYTHING ELSE

'We want to draw together the many activities related to poetry and translation within the University, and set up conversations between various parts of the institution,' says Karlin. 'But just as importantly, we want to provide a forum for performance, discussion and interaction with the public in Bristol and beyond.'

For poetry is as much of a public matter as it was when the Albert Memorial was unveiled, and – in the forms represented by Bob Dylan, Leonard Cohen and countless other songwriters, poets, greetings-card hacks and copywriters – it's as popular as ever. ●

Bob Dylan in a Greenwich Village bookstore, 1964

Previous page: Daniel Karlin portrait © Jason Ingram // Bob Dylan portrait © Douglas R Gilbert, Redferns, Getty Images



The other CO_2 problem

Feature

Carbon emissions are making our oceans more acidic. But what does this mean for marine life? Bristol researchers are going back in time to look for the answers.

Feature

By **Eve MacFarlane**

Our oceans represent 70 per cent of the Earth's surface and support vast biodiversity. Since the Industrial Revolution, they've been sucking up almost a quarter of the CO_2 produced by humankind's activities. But CO_2 in sea water forms carbonic acid, which increases the acidity of the oceans. We know this – acidification is easily and immediately measurable. What we don't know is how it affects the sea creatures living there.

Scientists are particularly concerned about marine calcifiers – organisms that make shells and skeletons out of calcium carbonate. With an increase in ocean acidity, these animals may struggle to build these protective structures. It's already apparent that some species are more affected than others. Oysters, for example, seem to deal with increased acidification much better than mussels – bad news for *moules frites* lovers.

Most of what we know has been gleaned from controlled experiments in laboratories, but this only tells part of the story. It doesn't show how organisms adapt to changing conditions over time. The bigger picture lies in the historical record – in the skeletons and shells of dead marine life. And it's thanks to the great British Antarctic explorers of the 19th and early 20th centuries that we have this record.

Stored away in the historical collections at the Natural History Museum are hundreds of samples collected on voyages of discovery such as the Challenger and Discovery expeditions. Gathered from a pristine environment before very much CO_2 had belched from chimneys and exhausts into our atmosphere, they hold key information about ocean acidification and its impact on marine life over time.

Dr Laura Foster and Suzanne Jennions in the School of Earth Sciences have been given access to the collections to extract this information. They'll examine the pre-industrial samples, compare them with modern-day specimens and quantify the changes. Then, with the help of computer model reconstructions of historical changes in the environmental conditions, they'll determine the 'fingerprint' of ocean acidification and reveal how different organisms have adapted over the past hundred years. The result? Scientists will be able to make more accurate predictions for the future.

> STAND-ALONE RESEARCH IS GOOD TO A POINT, BUT THE WORLD IS MADE UP OF COMPLEX INTERACTIONS AND YOU NEED TO LOOK FROM ALL ANGLES

Foster is looking at bryozoans (invertebrates often known as 'moss animals'), while Jennions is concentrating on bivalves (animals with two hinged shells, such as oysters or mussels). They'll determine shell thickness, weight, density and growth patterns, and probe for geochemical clues about historical ocean chemistry using advanced analysis techniques. In particular, they'll be looking to quantify levels of calcification.

Jennions says: 'Some bivalves live for a hundred years. Every time they produce calcite, they capture the chemistry of the sea around them at that moment. They capture history. We're reaching back in time and grabbing that information.' One way of measuring calcification, for example, is by looking at the bivalve's concentric growth rings – the thicker the ring, the higher the rate of calcification.

Most of the specimens in the Natural History Museum have remained untouched. The tools and techniques needed to analyse them properly hadn't been developed – until now. And Bristol's Isotope Lab and Interface Analysis Centre are two of only a handful of

Antarctic explorers (left to right) Ernest Shackleton, Robert Falcon Scott and Edward Wilson; the Discovery Expedition, circa 1903

Behind the scenes

Foster's Postdoctoral Fellowship is funded by Roger Holmes (BSc 1981) and his wife Kate. Jennions' PhD is funded by Mario and Maria Frering, whose son is studying at Bristol.

Holmes and Mario Frering share a love of the sea, a commitment to protecting the environment and a desire to contribute to scientific research. So when they heard, separately, about Bristol's ocean acidification research, they were keen to get involved. 'Climate change has been a concern for me and my wife for a long time, and oceans are our passion,' explains Frering. 'Here was our opportunity to make a difference to something we really care about.'

Holmes was attracted by Bristol's strong research credentials in this field through the work of Dr Dani Schmidt and Professor Andy Ridgwell. Both are partners in the UK Ocean Acidification Research Programme and the European Project on Ocean Acidification. Dr Schmidt is also a lead author for the Ocean Systems chapter of the IPCC's Fifth Assessment Report on Climate Change.

'I enjoy getting updates from Suzanne,' says Frering. 'And I'm looking forward to hearing about her upcoming Antarctic expedition.' Holmes agrees: 'It's a privilege to support such important research, particularly knowing that it will go on to influence global policy.'

www.bristol.ac.uk/centenarycampaign

Feature

labs in the world where this work can be done. They offer a range of techniques that Foster and Jennions will use to analyse the samples. One technique, Electron Backscatter Diffraction, determines crystal structure. Changes here will reveal whether ocean acidification has had an impact on the very building blocks of the organism's skeleton. Some of the analysis is destructive, which also explains why scientists have been cautious. 'These samples are invaluable and we don't have buckets of them,' explains Foster. 'We have to be convinced that what we'll find out is worthwhile.'

Foster describes what it felt like opening the samples for the first time. 'Going through all these little bottles of things from the past with their original labels was like taking a step back in time. Some samples were even kept in old snuff boxes. And the names of the collectors are so evocative – great heroes of the past like Scott and Shackleton.'

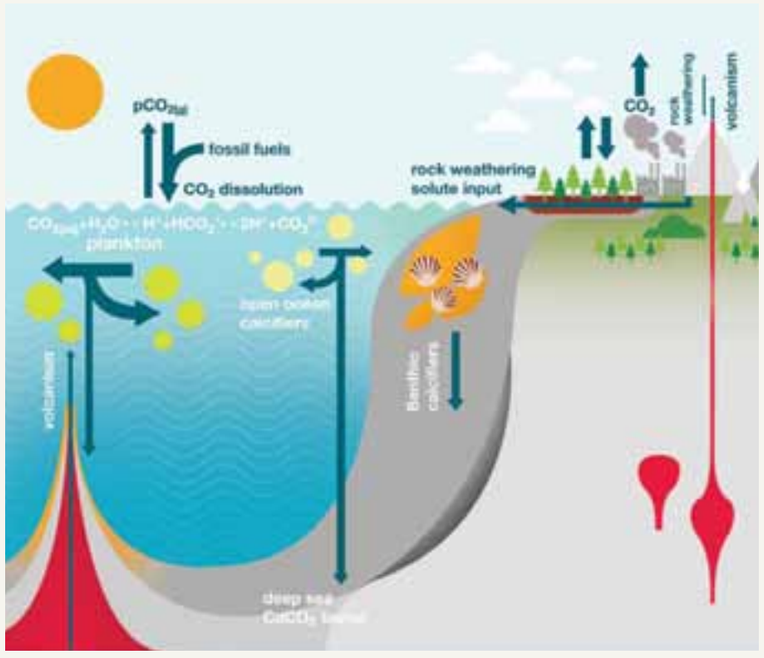
Timing is critical, as the International Panel on Climate Change (IPCC) will publish a major report in 2013. Foster and Jennions' findings will feed into this directly. 'To know that we'll be contributing to a pool of knowledge that will go on to influence policy is just fantastic. This is real and dynamic – it's not happening in a vacuum,' says Jennions.

For the pair, the real excitement of this research lies in its interdisciplinary nature. They're working with people from across the University – chemists, physicists, biologists, paleobiologists. Foster explains: 'It's vital to understand the interactions between things. Stand-alone research is good to a point, but I've never found the linear approach to be the best. The world is made up of complex interactions and you need to look from all angles.'

Foster and Jennions have no preconceptions about what they'll find. What they do know is that their work will help establish a fundamental understanding of acidification in the Southern Ocean. The Antarctic heroes of the past took huge personal risks exploring this largely untouched continent for scientific research. Could they have imagined that one hundred years on their samples would reveal how human activity threatens the oceans in this vast area and how big the 'other CO_2 problem' might really be? ●

Top Suzanne Jennions (left) and Dr Laura Foster
Below Samples at the Natural History Museum

What is ocean acidification?



Ocean acidification describes the changes in the chemistry of the world's seas.

Since the Industrial Revolution, there has been an increase in atmospheric CO_2 as a result of human activity, such as burning fossil fuels. But not all unlocked CO_2 remains in the atmosphere – the oceans have absorbed up to 25 per cent of this excess CO_2.

The increased CO_2 in the water has caused the pH of surface oceans to fall. This reduces the availability of carbonate ions, which many creatures use to build their calcium carbonate shells and skeletons. This means that organisms such as plankton, corals and molluscs may have to work harder to build or maintain their structures.

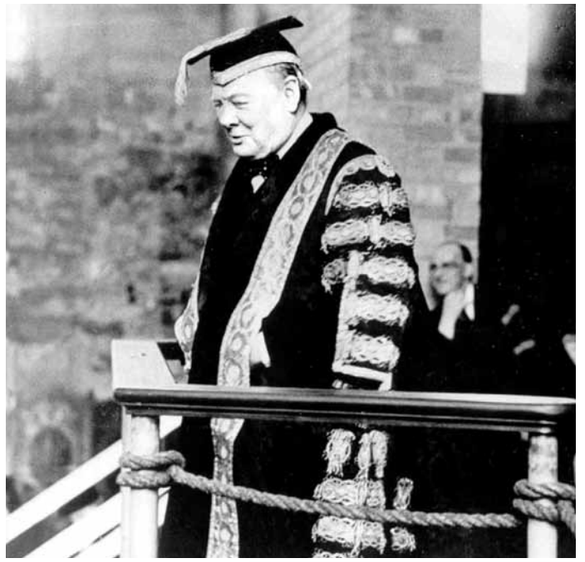
The Southern Ocean could be the first area to see the impact of ocean acidification because its cold water naturally stores a lot of CO_2, and organisms living here already face extreme conditions.

Previous page: Antarctic explorers © Popperfoto/Getty Images // Suzanne Jennions and Laura Foster portrait © Rob Vanderplank // CO_2 illustration © Neil Stevens

Regulars

What happened when ...

Winston Churchill awarded degrees during the Bristol Blitz, 12 April 1941



The morning after one of the worst bombing raids on Bristol, Winston Churchill, then Chancellor of the University of Bristol, conferred honorary degrees on the American Ambassador to Britain, John Gilbert Winant, and the Australian Prime Minister, Robert Gordon Menzies.

'Seldom in the history of universities has a ceremony taken place amid surroundings so unusual,' wrote Charles MacInnes, Professor of Imperial History at Bristol, in his book *Bristol at War*. 'The city was still smouldering, and the crash of walls, where the repair gangs were at work, could be heard as the academic procession formed.'

Churchill himself later wrote: 'Many of the University authorities who conducted the ceremony had pulled on their robes over uniforms begrimed and drenched; but all was presented with faultless ritual and appropriate decorum.'

It could all have ended in catastrophe. At least one later account claims that, after Churchill left, an unexploded bomb was discovered outside the Wills Memorial Building, a few feet from where he had stood talking to reporters.

THE CRASH OF WALLS COULD BE HEARD AS THE PROCESSION FORMED

Rosebud

Everyday objects with a special meaning

Professor Tom Troscianko, School of Experimental Psychology

My interest in colour vision started with an act of vandalism. I had a fortified savings tin issued by a German bank in Munich, where I lived as a kid. I was supposed to save loose change to go towards a new bike. But one day I smashed it open with a hammer, took out all the coins, and rode a tram into town with my friend Steve.

We went to a posh café with chandeliers and ordered as much cake as we could eat. Then I went to a photographic shop and bought my first-ever roll of colour film for my Agfa 'Click II' camera. I'd been wanting for ages to take colour pictures, so I took a lot! My dad had not only to pay for the processing, but to pay the bank to replace the destroyed savings tin. I was in a great deal of trouble. But I loved the pictures.

One last question

Which historical event would you like to have witnessed?

Lois Bibbings, Senior Lecturer in Law and Honorary Research Fellow in Ethics in Medicine

The early-20th-century marches and rallies in London in support of votes for women seem to have been a remarkable spectacle. Many in the processions not only carried embroidered and appliquéd banners (in the Suffragette colours of purple, white and green) but also accessorised their outfits to reflect their allegiances.

Women and men came in their hundreds of thousands to participate, to support or simply to watch. It would have been amazing to have been there and, perhaps, to have taken part.

physical attraction

Feature

Dr Helen Heath (PhD 1986) and **Professor Greg Heath** are both lecturers in the School of Physics and researchers on the Large Hadron Collider (LHC) experiment at CERN. They reflect on the challenges of working with your spouse, explaining interactive forces to schoolchildren and recreating the conditions a billionth of a second after the Big Bang.

Feature

Interview by **Hilary Brown**

THERE'S AN IMMEDIATE APPEAL TO SOMETHING AS FUNDAMENTAL AS PARTICLE PHYSICS AND HOW THE VERY SMALL MAY HELP US UNDERSTAND THE VERY BIG

Random sampling
Teaching or research? Maths or physics? How two careers were launched

Helen: I was encouraged to do A-level Physics by the same teacher who told me off for talking in class. He wanted me to get on, but when you're 14, there's always something you have to tell your best friend. I got interested in particle physics when I did a project on the quark model for the school science prize. The bottom quark had been discovered a few years earlier and signified the existence of another elementary particle, the top quark, which hadn't yet been observed.

Greg: I was a drifter. I was thinking of doing maths at university, but my mother, who was a maths teacher, talked me out of it. She thought I should do something more practical.

Helen: I got turned down for teacher training, so I did a PhD instead; the thought of working at CERN was quite a draw.

Greg: I had plans to do a PhD on grand, theoretical ideas, but got an offer to do experimental work in particle physics and just carried on.

Helen: We didn't have any great career plans then, just a fascination for the subject.

Take one length of knicker elastic
Particle physics can be fun; it's all in the way you tell it

Helen: Any area of advanced physics is hard to understand, but it's not difficult to explain the principal concept of particle physics, that matter is built up from smaller things.

Greg: If you want people to understand everything about particle physics – what we think the universe is made of, the mathematics behind it – you get them to take a degree. But if you're talking to schoolchildren, you pick out the bits they can follow.

Helen: It's the same with anything. You can have a good old chuckle at a Shakespeare play ...

Greg: ... as long as it's one of his comedies ...

Helen: ... or you can analyse the text in detail. When I talk to young people, I take things down in scale. I have a demonstration to illustrate the components of a proton, where I use knicker elastic to tie together three people wearing coloured hats. Like quarks in a proton, they are confined (by the elastic). The hats denote the quarks' 'charge', or colour, which means they attract each other. The colours of the quarks can change (by moving hats), but there are always three different charges. It also demonstrates relative size. If the proton is one metre across, about the distance of the three people tied together, the quarks are less than a millimetre. The electron in a hydrogen atom would have a radius of around 10 kilometres.

Greg: Helen's lectures are always interesting and popular, regardless of the audience. Mine ... are difficult and dull.

Balancing act
Opposites attract, and take turns babysitting

Helen: We met at a tedious meeting in Oxford ...

Greg: ... which I was running. I was reporting to colleagues on some new software we were using for a collaborative project, and this attractive young post-doc turned up.

Helen: Except that you didn't talk to me again for five years.

Greg: Well, there was a lot of coming and going; particle physicists have to travel a lot. We've both been in Bristol for around 20 years now.

Helen: We've always worked together to some extent. It was handy when the children were small, before videoconferencing. We could share the childcare and go to conferences for each other.

Greg: We do talk about work at home.

Helen: And sometimes we talk about home at work: '*Your* child just called ...'

Greg: It's helpful to work through a research problem together that we haven't understood individually. Though we may just have a bitch about university politics.

Helen: We have different approaches to doing things. I'm easily distracted and try to do too many things at once. Greg gets absorbed in the detail.

Greg: I'm rather single-minded. I find it hard to juggle lots of different things. Maybe it's just senility.

Small particles, big experiments
Postcards from CERN

Helen: We've been involved in designing CMS, one of the four detectors that measures the energy produced when particles collide inside the LHC.

Previous page, graphic representation of the production and decay of a top quark and its associated anti-particle (same mass and opposite electric charge) at LHC © Nick Smith // Helen and Greg Heath portrait © Nick Smith

Fundamentals
Large Hadron Collider

27 km
length of LHC accelerator

100 m
distance of LHC accelerator below ground

9,300
magnets inside LHC accelerator

-271.3°C
temperature of liquid helium used to cool magnets

600 million
collisions per second at full power

100,000
dual-layer DVDs of data recorded every year

13
years to construct

12,500 tonnes
weight of CMS detector

CMS detector at CERN

Proton collision© CERN / Lucas Taylor // CMS detector © CERN / Patrice Loiez

Greg: LHC enables us to accelerate protons at around 40 million times a second, spraying out new particles in all directions. I work on a system that decides which single event is stored. For every half million collisions, only one can be recorded as there aren't enough computers in the world to store them all.

Helen: The way the new particles decay tells us something about their nature. We don't know what we're going to discover – if anything – but we can narrow down the possibilities by eliminating the things we know about. So far the data generated has reconfirmed the findings of previous decades, starting with the phi, which was first discovered in the 1960s, through the charm and bottom quarks in the '70s and '80s, and the top quark in the '90s. It's like we're retracing the history of particle physics.

Greg: We're increasing the intensity of the collisions all the time so we can collect sufficient data. But you can't operate such a complex machine at very high energy levels without running into problems.

Helen: As everyone knows from the publicity surrounding the first major power failure in 2008. Then there was the time a bird dropped a baguette at one of the points where the electricity supply enters the collider.

Greg: And what became known at CERN as the 'fried fouine' incident, where a marten chewed through some of the electrical plant.

The heat is on
It's a big world out there, if only you could see it

Helen: The thing everyone wants to find is the Higgs boson, which explains why all other particles have mass and is fundamental to a complete understanding of matter.

Greg: It could be a relatively light particle that's easy to produce in a collision but hard to see, because it decays in similar ways to other particles. Heavier particles, on the other hand, are rarer but decay in more obvious ways. So there's not just one way of looking for it; there are dozens of groups working on it in different ways.

Helen: It makes the atmosphere at CERN both competitive and collaborative.

Greg: It's very exciting to be able to generate the amount of data in a day that previously took two weeks, but at the back of your mind you know that it'll be another year or two before there are enough results to enable us to see anything new. And it's more likely to be a full-time researcher at CERN who'll see it, not someone like me based in a university.

The elusive Higgs

The physicist Peter Higgs suggested that the Higgs gives rise to a field through which all other subatomic particles, such as quarks, gluons, photons and electrons, must pass. As they interact with the field, the particles experience a 'drag' – the more 'drag', the greater the mass; the less 'drag', the lighter the particle. Scientists cannot see the field, but they could infer its existence if they can find the particle associated with it in the subatomic debris produced when matter is smashed together at high energies in the LHC.

Without Higgs, the Standard Model of particle physics – the theory that describes the fundamental interactions between all the fundamental particles – breaks down because we cannot otherwise explain the large difference in mass between different fundamental particles that make up ordinary matter and other particles, such as photons (particles of light), that have no mass at all.

A step closer to Higgs? A proton–proton collision in CMS producing more than 100 charged particles

Helen: But you can't do particle physics on your own, it's a team effort – a massive team of around 2,000 people, all of whom are mentioned on every paper that gets published!

Greg: One of the best things about working on an experiment as big as this is talking to journalists and non-specialists about it. People you barely know who've seen you in the local paper will stop you in the street and ask how the project is going.

Helen: It's also the kind of thing that makes students want to come here. They may go into condensed state physics in the long run, but there's an immediate appeal to something as fundamental as particle physics and how the very small may help us understand the very big – the 95 per cent of the universe that we still haven't seen. ●

The regeneration game

Feature

We're already pretty good at fixing ourselves, but stem cell biologists like Dr Wael Kafienah have been working on new techniques to add to our repertoire.

Feature

By **Nick Riddle**

The human body – as Hamlet observed – is a marvel of nature. Infinite in faculty, in form and moving express and admirable ... but in disease, injury and old age, it's often painfully fragile. In the past decade, stem cell biology has begun to yield new treatments for the thousand natural shocks that flesh is heir to. And there's plenty more in the pipeline.

Researchers at Bristol made headlines in 2009 when a breakthrough by Professor Anthony Hollander's (PhD 1990) team in the School of Cellular and Molecular Medicine enabled a woman with a failing airway to receive a new, tissue-engineered trachea, prepared using her own stem cells. This inaugurated an approach to medical treatment that should keep researchers busy for some time.

Dr Wael Kafienah – a long-time member of Hollander's team – is now leading a project that pushes even further into the field of biomaterials in the search for new therapies. The next landmark on the horizon, he believes, is a new generation of surgical implants that are likely to revolutionise the treatment of osteoarthritis, and could ultimately lead to a wealth of other applications including cancer therapy.

A fluid fix

Stem cells are already being used clinically to create cartilage implants for worn-out joints, but their effectiveness is limited: the implants are solid and inflexible, and are only a stopgap measure before total joint replacement.

Kafienah's team, collaborating with researchers in Canada and Qatar, are hoping to develop a biologically engineered, synthetic liquid polymer that would stimulate the formation of new tissue, eliminating the need for further surgery.

'This would be injected as a gel which can assume the form of a defected area – even an irregularly shaped one,' says Kafienah. 'The tissue that forms would then encourage the growth of healthy cells. We've only done initial testing so far, but the results are very promising indeed.'

He is cautiously excited by the world of possibilities now opening up; cautious, because 'there's still so much about the workings of the body that we don't understand'.

The heart of the matter

Kafienah has been conducting his own quest for understanding since he was a child. 'I was fascinated to learn that we have this thing called the heart that we can feel and hear, pumping in our bodies all the time,' he says.

'Then when I was 12 years old, my father had a heart attack. So I realised that this amazing organ can become dysfunctional, and I read as much as I could about it. I was deeply fascinated. But my father got better, and my interest in the heart subsided a little.'

He knew that he wanted to be a scientist. 'I wished I could have a lab of my own and just try things out,' he recalls. 'I wasn't even sure what I wanted to try, but I used to imagine myself wearing a lab coat.'

THE VERSATILITY OF STEM CELLS ENABLES RESEARCHERS TO GROW ALMOST ANY KIND OF TISSUE

As a student he became fascinated by cancer biology and genetics – the idea of sequencing genomes was just gaining ground at the time – but when he came across a postgraduate studentship offered by Arthritis Research UK to work on osteoarthritis, he changed tack and successfully applied for it. Again, there were personal reasons. 'My mother suffered from osteoarthritis,' he explains. 'I became her medical adviser, which made her very happy. I felt I'd made the right decision – for my family and for myself.'

About the project

Osteoarthritis in a knee joint

Funder The Qatar National Research Fund, Qatar Foundation

Funding details Approximately $1 million over three years to conduct the initial research

Partner institutions Memorial University of Newfoundland, Canada; Qatar University

Then what? If the initial research proves successful, clinical trials could be carried out within five years.

Research at work Dr Wael Kafienah in the stem cell labs, School of Medical Sciences

Feature

Insider healing

One more conversion had yet to take place, and this one concerned the field itself. In the 1990s, osteoarthritis research was focused on understanding how enzymes degrade cartilage, and how that process could be inhibited. 'Eventually we concluded that you can't stop it – cartilage will degrade,' he says. 'So we needed to come up with ways of making new cartilage.'

And that's where tissue engineering comes in. The enormous versatility of stem cells enables researchers to grow almost any kind of tissue in a laboratory. Hollander's group was one of the first in the UK to begin using this technique, which was developed at Massachusetts Institute of Technology.

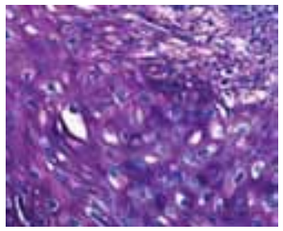
'Regenerating tissues is one of the holy grails of medicine,' says Kafienah. 'But delivering stem cells into the incredibly complex environment of the body is as much an art as it is a science. You need to account for a lot of factors and test many different combinations.' Thus he finds himself doing what he always dreamed of: wearing a lab coat and trying things out.

And there's so much to try. 'Regenerative medicine is a rapidly expanding area,' he says, 'and it's hugely dependent on the kinds of injectable biomaterials we're working on.' From repairing bone fractures to destroying tumours, these revolutionary therapies all work by sending in stem cells to stimulate the body's own repair mechanisms.

Audacity and humility

'This is amazing, beautiful science,' says Kafienah. 'You can make an ear, or cartilage for the knee, or a trachea. You can make ribs. You can shape the tissue and make it stronger or weaker.' There's a godlike aspect to this, he acknowledges. 'It's human nature to want to create and control. That's one of the reasons we raise children – to make our line live longer.

'Rest assured, we're very humble,' he adds. 'We know that growing little pieces of tissue is nothing compared to creating a heart or a brain. And we always, *always* need to act responsibly. But we also need to have a little bit of audacity.' ●



Top Cartilage grown from stem cells (the matrix and cell nuclei are stained purple) **Bottom** The world's first bioengineered windpipe, prepared using the patient's own stem cells

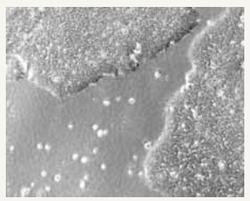
Meet the new breed
Pluripotent stem cells

It stands to reason that, if you're researching stem cell medicine, you need an abundant supply of stem cells to work with. For this project, Kafienah is testing the viability of induced pluripotent stem cells – a new arrival on the cellular scene.

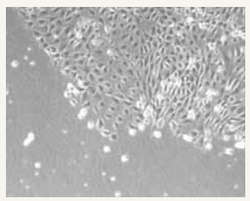
Until recently, there were two basic types of stem cell: embryonic (derived from embryos) and adult (derived from adult tissue). The great advantage of embryonic stem cells is that, unlike adult cells, they are pluripotent – that is, they can become almost any kind of cell in the body and can therefore be used to research a tremendous range of possible therapies. They can also multiply indefinitely, providing an unlimited source of cells for research and therapeutic purposes.

There is now a third type: induced pluripotent stem cells, or iPSCs. These were developed recently by researchers in Japan who successfully reprogrammed mature cells to behave as if they were embryonic stem cells. This new breed can be derived from mature cells collected from the patient's own body, making any 'new' tissue less likely to be rejected by the recipient's immune system.

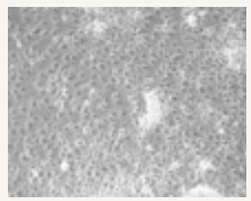
However, pushing this far into new territory requires a much deeper understanding of the mechanisms that control the fate of these cells. This in turn requires a plentiful supply of pluripotent stem cells in order to test as many ideas as possible. Happily, that's exactly what iPSCs provide.



Day 0 Unspecialised iPSC colonies



Day 4 iPSCs begin to change shape as they specialise into primitive cells



Day 9 iPSCs develop into cardiac tissue, blood, bone and cartilage

Previous page and Wael Kafienah portrait © Rob Vanderplank // Cartilage image (top) © Stephan Ellman, Wellcome Images // Pluripotent stem cells © University of Bristol (Aman Ovadiah, Kafienah Lab)

Regulars

Calendar May – December 2011

Unless otherwise stated, more information and booking details are available from www.bristol.ac.uk/alumni/events or by calling +44 (0)117 928 7939. The events programme is always being updated, so keep an eye on the website for the latest events news.

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

May

Saturday 21 May
Western Canada reunion, British Columbia, Canada

Organised by Dr John Weaver (BSc 1953) and Dr Duncan Innes (MB ChB 1957), this reunion for alumni and friends in western Canada will take place in the beautiful wine region of Kelowna.

June

Saturday 11 June
Institute of Astronomy visit, Cambridge

The Cambridge Branch of University of Bristol Alumni invites you to its second event – a visit to the Institute of Astronomy, led by Dr Robin Catchpole, formerly of the Royal Greenwich Observatory and an expert on the evolution of stars.

Thursday 16 June
'Eccentric London' walk, London

Join the London Branch of University of Bristol Alumni on an 'Eccentric London' walk led by an experienced Blue Badge guide.

July

Friday 1 – Sunday 3 July
Alumni Weekend 2011: Back to the future, Bristol

Come back to Bristol and enjoy lectures and lunches at this annual weekend gathering of Bristol alumni. There will be special anniversary celebrations for those who graduated in 1986, 1981, 1971, and 1961 and earlier.

Saturday 2 July
50 years on: Chemists' reunion, Bristol

Following the success of the 2001 reunion organised by Dave Roberts (BSc 1961), Richard Carter (BSc 1961) is planning a second get-together for Chemistry alumni this summer, to tie in with the University's Alumni Weekend 2011.

Sunday 24 July
Clifton open garden day, Bristol

See three of the University's finest gardens: Manor Hall, Clifton Hill House and Goldney. The £10 ticket includes guided tours and tea.

August

Sunday 21 August
Clifton open garden day, Bristol

See above for details.

September

Saturday 10 September
Cambridge annual dinner, Murray Edwards College, Cambridge

The guest speaker for the evening will be Deputy Vice-Chancellor, Professor David Clarke.

Friday 23 – Sunday 25 September
Annual reunion, eastern Canada

Organised by Dr Dennis Osmond (BSc 1951, MB ChB 1954, DSc 1975), this reunion for alumni based in eastern Canada will take place in the UNESCO World Heritage site of Jones Falls.

Wednesday 28 September
Welcome to London

If you graduated in 2010 or 2011 then come along to this career-focused event organised by the London Branch of University of Bristol Alumni Association. It's a great chance to network, meet other alumni working in London and get career advice.

November

Tuesday 1 November
London Branch of University of Bristol Alumni annual lecture, London

Join guest speaker Will Hutton (BSc 1972, Hon LLD 2003), Chief Executive of The Work Foundation and author of *The State We're In* and *The State to Come*.

Saturday 12 November
Medics' reunion 20 years on, Bristol

A reunion for all medics who graduated in 1991 (or started in 1986).

December

Thursday 8 December
Convocation reception and awards, Bristol

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

Lay membership of University Council

Alumni are invited to express interest in lay membership of Council, the University's governing body. There is currently one vacancy for a three-year term of office from 1 January 2012.

Experience at senior level in accountancy and/or audit, finance, banking and/or investment management desirable. Positions are not remunerated, but out-of-pocket expenses are reimbursed.

Deadline: 30 September 2011
www.bristol.ac.uk/council
kelly.archer@bristol.ac.uk

Calendar illustration © Alberto Antoniazzi // Will Hutton portrait © The Work Foundation

Regulars

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

In order of degree date

Mrs Mary Bawn (née Greenhill)
(BA 1938, Dip 1939)
died 28 June 2010, aged 93

Mrs Erin Smith (née Papworth)
(BA 1941) died 2010

Dr Mercia Bradley (née Griffiths)
(MB ChB 1943)
died 3 March 2011, aged 91

Dr David Sarsfield
(MB ChB 1943)
died 4 September 2010, aged 90

Mr John Hutchins
(BSc 1944, Dip 1947)
died 24 November 2010, aged 87

Dr Gordon Maliphant
(BSc 1945, PhD 1950)
died 1 July 2010, aged 83

Mrs Ivy Phillips (née Bowell)
(BA 1945, Dip 1946)
died 13 October 2010, aged 86

Emeritus Professor Edward Burge
(BSc 1946, PhD 1950)
died October 2010, aged 85

Dr John Dunscombe
(MB ChB 1946)
died 9 November 2010, aged 89

Mr Arthur Spencer
(BA 1949)
died 6 December 2010, aged 87

Dr Bryan Wheeler
(BSc 1949, PhD 1953)
died 28 November 2010, aged 82

Dr Gerald Ball
(BSc 1950, PhD 1953)
died May 2010, aged 81

Mr Brian Blythe
(BSc 1950)
died 2 November 2010, aged 81

Mrs Beryl Montague Butlin (née Sims)
(Cert 1950)
died 2010, aged 83

Mr Ronald Harris
(BA 1950, Cert Ed 1951)
died 29 December 2010, aged 86

Mr Thomas Hewitt
(BA 1950, Cert Ed 1958)
died 6 October 2010, aged 81

Mr Sydney O'Connor
(Testamur 1950)
died 10 July 2010, aged 90

Dr Alison Causton (née Prowse)
(MB ChB 1952)
died 11 March 2011, aged 88

Mrs Jean Lloyd (née Samphier)
(BA 1952)
died 2010, aged 79

Mr Brian Ayton
(BSc 1953, Cert Ed 1954)
died 24 February 2011, aged 79

Dr Alison Coulavin-Simmers
(née Simmers) (BA 1953)
died 3 February 2011, aged 81

Mr Colin Fowkes
(BSc 1953, Cert Ed 1954)
died 13 February 2011, aged 79

Mr Colin Owen
(BA 1953)
died January 2011, aged 81

Mrs Vivian Richards (née Luly)
(BA 1953)
died 25 September 2010, aged 79

Mr William Sketch
(BSc 1953)
died 25 November 2010, aged 78

Mr John Williams
(BSc 1953, Cert Ed 1956)
died 12 August 2010, aged 78

Professor Sir Bernard Crossland
(PhD 1954)
died 17 January 2011, aged 87

Dr Anthony Finch
(BSc 1954, PhD 1960)
died 9 July 2010, aged 77

Dr Jill Grigg (née Hilpern)
(BSc 1957, PhD 1960)
died 15 September 2010, aged 74

Mr Rupert Prescot
(MB ChB 1957)
died 2010, aged 95

Mrs Jill Biggs (née Arney)
(BA 1958) died 2011

Dr Anthony Codd
(MB ChB 1958, MD 1972)
died 2010, aged 76

Mr Colin Horwell
(BA 1958)
died 19 January 2011, aged 73

Dr Stewart Evans
(BSc 1960, PhD 1966)
died 11 August 2010, aged 73

Mr Richard Whitehouse
(LLB 1960)
died 2010, aged 72

Professor Chandra Jha
(PhD 1961)
died June 2009, aged 74

Dr Abdul-Razzak Kaddoura
(PhD 1961)
died 2007, aged 79

Professor Alison Brading
(BSc 1962, PhD 1966)
died 2011, aged 72

Dr Adrian Lloyd
(BSc 1962, PhD 1967)
died 9 September 2010, aged 69

Mr Alan Rolt
(BSc 1963)
died 17 September 2010, aged 72

Dr Barry Conway
(BA 1965)
died 20 September 2010, aged 66

Mrs Molly Stephenson
(BA 1965)
died 9 October 2010, aged 66

Mr Peter White
(LLB 1965)
died 10 January 2011, aged 67

Mr Andrew Bond
(Dip 1966, BArch 1966)
died 20 December 2010, aged 68

Mr David Bradby
(Cert Ed 1966)
died 17 January 2011

Mr Anthony Osborne
(LLB 1966)
died 16 March 2011, aged 66

Dr Michael Scrutton
(BSc 1966, PhD 1970)
died 2007, aged 62

Mrs Judith Taylor (née Medlycott)
(BA 1966, Dip 1967)
died 28 July 2010, aged 66

Mr Ian Vine
(BA 1966)
died 2010, aged 68

Mr John Carter
(MSc 1967)
died 10 January 2010, aged 76

Mr David West
(Cert 1967)
died 21 November 2010, aged 67

Mr Ashoke Sen
(BA 1969)
died 19 December 2010, aged 74

Dr Susan Danks
(BSc 1970, PhD 1974)
died 7 December 2010, aged 61

Mr Brian McCarthy
(BSc 1970)
died 10 March 2011, aged 62

Mr John Gaunt
(BA 1971)
died 24 November 2010, aged 63

Mrs Jacqueline Whale
(BA 1972)
died 18 August 2010

Mrs Honor Lowless (née Neath)
(LLB 1973)
died 11 August 2010, aged 57

Mr Glynne Davies
(BVSc 1974)
died February 2011, aged 61

Mr Edgar Watchurst
(MSc 1974)
died 2010, aged 80

Mr Ronald King-Smith
(BEd 1975, Hon MLitt 1999)
died 4 January 2011, aged 88

Dr Helen Dodd
(BSc 1978, PhD 1982)
died 2010, aged 54

Miss Anne Miller
(Dip 1978, MEd 1980)
died 2011, aged 85

Mr Andrew Jarman
(BSc 1979)
died 6 November 2010, aged 52

Mr Andrew Mace
(BSc 1985)
died 16 November 2010, aged 46

Mr Malcolm MacKintosh
(Dip 1985)
died March 2011, aged 70

Dr Sally Masheder (née Backhouse)
(MB ChB 1987)
died January 2010, aged 64

Mr Michael Howarth
(MA 1990)
died February 2011, aged 68

Dr William Dester
(PhD 1993)
died 2010, aged 63

Mrs Judith Weeks
(MA 1993)
died 25 November 2010, aged 61

Mr Adrian Jackson
(MEd 1994)
died 28 October 2010, aged 59

Dr Brian Greally
(PhD 2000)
died 8 December 2010, aged 38

Miss Sarah Mitchell
(BSc 2001)
died 19 October 2010, aged 43

Mrs Mary Phillips
(Dip 2001)
died 28 December 2010, aged 57

Dr Diana Wynne Jones
(Hon DLitt 2006)
died 26 March 2011

Miss Kiera Tongish
(BA 2009)
died 2 December 2010, aged 22

The death of **Dr Colin Shipway** (BSc 1982) was announced in the summer 2010 edition of *Nonesuch*. This was a mistake. Dr Shipway is alive and well and we apologise for any distress caused.

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

Feature

Taking a stand

Since she was 17, Finn Mackay has actively campaigned against violence against women. Now in her mid-thirties, she is drawing on her experiences to study for a PhD in the School for Policy Studies' Centre for Gender and Violence Research.

By **Hilary Brown**

Ask Finn Mackay whether feminism is dead, and you'll get a resounding 'No'. 'The nature of women's involvement in the liberation movement – their motivations and aspirations – may have changed, but there's been a massive resurgence of interest in feminist activism in recent years,' she says.

With over 15 years' campaigning experience behind her, Mackay is well placed to offer an opinion. As the founder of the London Feminist Network (LFN), she revived the national annual Reclaim the Night (RTN) marches in London. She is co-founder of the Feminist Coalition against Prostitution and has spoken and written widely on women's rights. In 2006, she featured in *The Guardian* list of 15 world-changing British women, and last year she won the Emma Humphreys Memorial Prize for outstanding work on tackling violence against women.

Baptism by water

Growing up in rural south-west Scotland, Mackay was entertained with tales of Greenham Common by activist friends of her parents. 'They brought me snippets of the fence, and tapes of women's peace songs,' she remembers. 'I found it so inspirational I entered the Dumfries and Galloway peace song competition with my own refrain.'

Greenham had been disbanded by the time Mackay left school, but that wasn't going to deter her from embracing the protest against nuclear proliferation. When her parents were out ('I wasn't supposed to use the phone without permission'), she

Feature

rang the CND headquarters in London to ask if there were any other women's peace camps in the country, and ended up spending the summer at Menwith Hill in Yorkshire. 'It was the first time I'd been away from home, other than to stay at my Grandma's,' she says. 'I was more worried about the connections I had to make during the train journey than anything else.'

Mackay moved to the camp permanently after training as a countryside ranger at agricultural college and began to cut her political teeth in earnest. She produced the camp's newsletter, organised non-violent protests, got arrested, defended herself in court, and gave talks to trade union organisations and universities. 'It was an excellent grounding, even if I did have to wash in rainwater from the roof of the caravan I was living in,' she says, recalling winter nights so cold that her hot-water bottle froze. 'But there was such solidarity in the camp, and a feeling that women-only action was possible and effective,' she adds.

THE MARCHES ENABLE WOMEN TO VOICE THEIR ANGER ABOUT AN ISSUE THAT IS OFTEN BURIED. THEY'RE VERY EMOTIONAL EVENTS

Lull before the storm

After a stint of volunteering for the Feminist Archive at the University of Bradford, Mackay returned to education to study for a degree in Women's Studies, followed by a Master's in Gender, Culture and Modernity. She then embarked on a professional career as a domestic violence prevention officer in London, but became disheartened by the way that the women's movement had lost its impetus.

'There seemed to be very little feminist activity in the late 1990s outside of established women's organisations like Women's Aid and Rape Crisis,' she explains. LFN, now one of the largest grass-roots feminist movements in the UK, grew out of her desire to recapture the collectivism of the women's peace camps, and provide a forum for all women to discuss and raise awareness of the issues that affect them.

Finding a voice

The RTN marches against rape and male violence reflect the recent renewal of interest in political direct action. 'RTN began in Britain in 1977, but tailed off during the late 1980s and 1990s,' she says. 'Since LFN rejuvenated the marches in 2004, the number of participants has risen from 30 to more than 2,000.' Her PhD will investigate the role of this form of activism in the women's liberation movement, and the extent to which women have actively shaped politics and society.

Mackay's own experience tells her that such action certainly has an effect on the women involved. 'The marches are empowering, especially for women who have been victims of male violence,' she says. 'They enable women to voice their anger about an issue that is often buried. Some women walk the whole way in tears, others sing or shout their heads off; they're very emotional events. We don't expect the conviction rate for rape to improve on the strength of a march, but it keeps the issue alive. And changes in police are evident in the safety awareness work we do with local councils and organisations like Transport for London.'

The demands of a PhD leave little time for active campaigning, and Mackay is adjusting to life as a researcher. 'I find it hard to be objective about something that's been such a big part of my day-to-day life,' she admits. 'But it's a privilege to study in a unit that has pioneered research into violence against women. I never dreamed I'd have women as well regarded as Dr Melanie McCarry (PhD 2004) and Professor Marianne Hester commenting on my work. I'm proud to be part of that world.' ●

Mackay's blog **www.finnmackay.wordpress.com**

Previous page: Finn Mackay portrait © Nick Smith // Illustration © Paddy Mills

In pictures

Spanish and Italian student, Tommy Trenchard, was the winner in the People category of the 2009-10 Modern Languages Year Abroad Photo Competition with this image of a crying child in the aftermath of last year's earthquake in Haiti.

Interview by **Hilary Brown**

'I spent half my year abroad working on an English-language newspaper in the Dominican Republic. I went to neighbouring Haiti to cover the earthquake for the paper and to help out with an aid organisation. On the way there, I got caught up with the thousands of refugees streaming over the border.

I'd never taken anything but holiday snaps before I got the position on the paper. I thought I'd be working as a journalist, but when I first arrived I struggled with the strong Spanish accents and the speed at which everyone spoke, and a misunderstanding with my editor resulted in my press pass reading "photojournalist" instead of "reporter".

These children were sitting on a bench with their mother, looking scared and bewildered; it was a spur-of-the-moment shot. I took it in colour originally, but I think it's more striking in black and white.

The experience has helped me focus on my future career, perhaps doing something that combines photography and aid work.'

The competition received sponsorship from **thirdyearabroad.com**, a website for UK students, run by Bristol graduate Natacha Cullinson (BA 2008). For more information, visit **www.bristol.ac.uk/sml/undergraduates/stuinfo/year3.html**

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