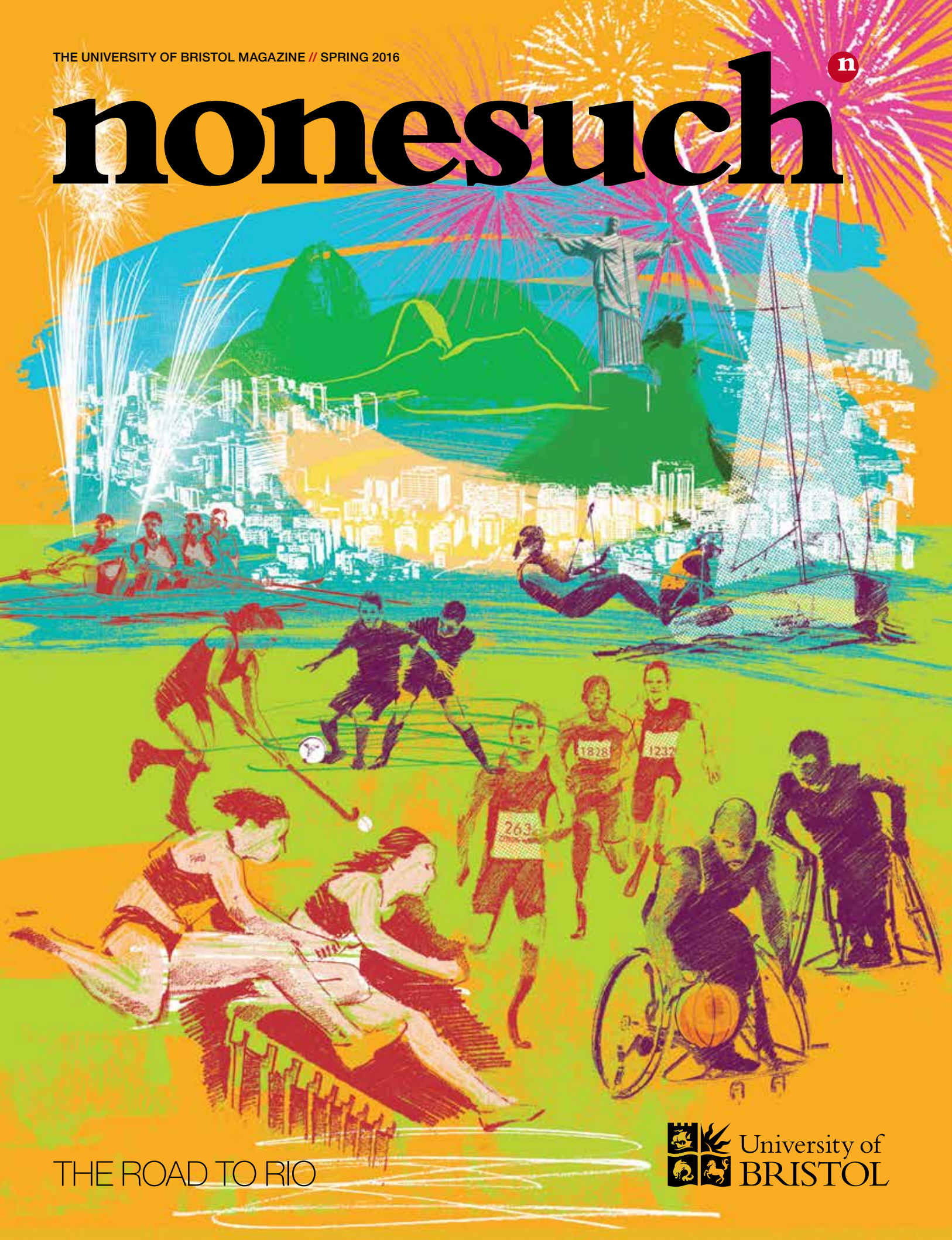


nonesuch



THE ROAD TO RIO



University of
BRISTOL

More online

Make sure you visit bristol.ac.uk/alumni to keep up to date with news and stories from your fellow graduates. From children's book authors to climate change commentators, you'll find advice and anecdotes from alumni working in a wide range of professions, all around the world.

Here are a few of our top picks:

Susan Startin (BSc 1971), Jonathan Ward (MSc 2004) and others share their memories of their favourite lecturers, including Nobel Prize winners and eccentric English teachers.

bristol.ac.uk/alumni/favourite-lecturers



Psychology graduate Michelle Elman (BSc 2014) explains how her life coaching company, Mindset for Life, and #scarednotscarred campaign are helping to build women's confidence worldwide.

bristol.ac.uk/alumni/michelle-elman

Former New Enterprise Competition winner Eddie Matos (MEng 2009) is helping rural communities in developing countries generate clean electricity from solar power.

bristol.ac.uk/alumni/eddie-matos



Eleven o'clock curfews, 'coffee bar' culture, and national service: Quentin MacGarvie (BSc 1956) and Ian Lloyd Davies (BA 1955) remember student life in the mid-1950s.

bristol.ac.uk/alumni/student-life-fifties



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The nonesuch

The red nonesuch, the 'Flower of Bristol', gave its colour to the University's academic hoods and its name to the University's first student magazine, *The Bristol Nonesuch*, in 1911. *Nonesuch* in its current magazine form was first published in 1991 for 'all those who share a common interest in the University of Bristol.'



Nonesuch magazine // Spring 2016
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Spring 2016

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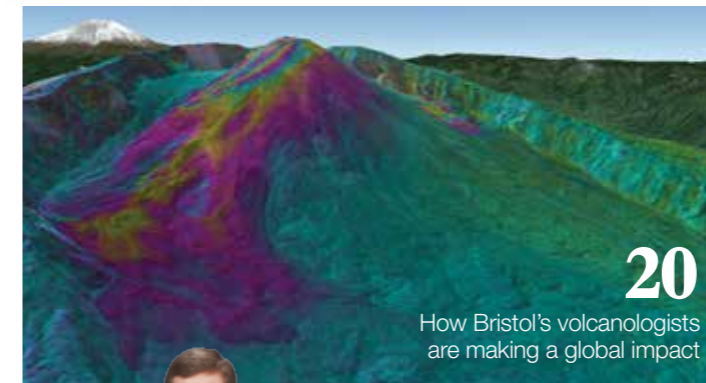
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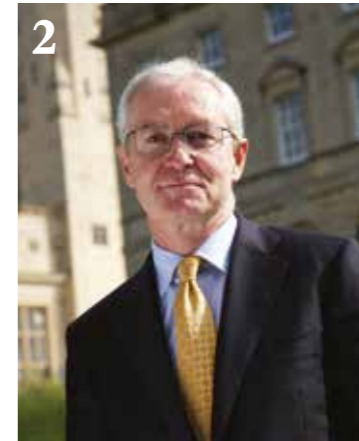


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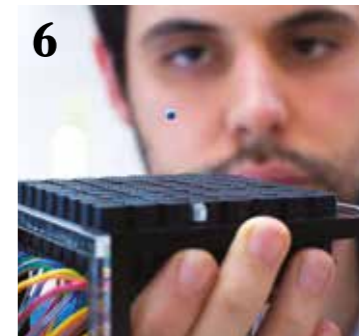
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nonesuch

Spring 2016

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Building a greener future

University

The lasting impact of Bristol's year as European Green Capital 2015 could include more than 10,000 new jobs and a collective saving of nearly £1 million a day in the city's energy bills, according to researchers in the University's Cabot Institute.

Members of the Cabot Institute outlined the economic potential of investing in low-carbon opportunities in a report to Bristol City Council, using data from a range of sources to evaluate the cost and savings of hundreds of energy efficiency measures. Cabot Institute academics and city representatives also engaged in international discussions on sustainable development as part of the United Nations Conference on Climate Change (COP21) in Paris in December.

The University has committed to reducing its own carbon footprint by 2030 and, more recently, pledged £60,000 to plant trees across the city to improve Bristol's tree canopy. Students from both the University of Bristol and the University of the West of England also contributed more than 100,000 volunteering hours to sustainable projects across the city in 2015. Find out more at bristol.ac.uk/green-capital.



A new vision for Bristol

University

Professor Hugh Brady, Vice-Chancellor and President, would like to thank all alumni who shared their ideas and hopes for the future of the University.

Developing a new vision and strategy for Bristol has been a key priority for Professor Brady since he joined the University last September. Staff, students and alumni have all been involved in the consultation process. Thank you to all who shared their thoughts. The vision and strategy will be published online later this year at bristol.ac.uk/governance.

Breaking down taboos

Alumni

No More Taboo, a not-for-profit social enterprise set up by Chloe Tingle (MEng 2014), was named Female Start-up of the Year at the 2015 Festival of Female Entrepreneurs.

No More Taboo sells reusable sanitary products to support projects that help tackle the taboos surrounding menstruation and sanitation in the developing world. Tingle was inspired to set up the enterprise after a volunteering trip to Bolivia. 'The girls I met lacked basic health education, but were genuinely concerned about their impact on the environment,' she explains. 'It made me wonder why we're not doing more to reduce the amount of disposables we use here in the UK.' Over the next five years, Tingle hopes No More Taboo will prevent 743 tonnes of waste going to landfill, save women £16 million, and educate more than 9,000 UK schoolchildren.



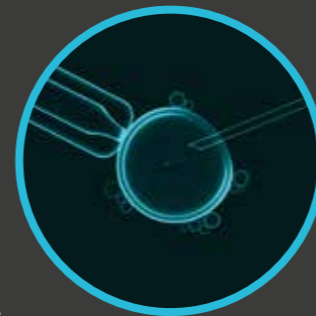
In numbers



1
global ranking for the University's business incubator, SETSquared



4
Bristol's national position as a university targeted by Britain's top 100 employers, including Google, Apple, Amazon and Dyson



6
number of cycles two-thirds of couples undergoing IVF are likely to need before having a baby, according to research by the University's MRC Integrative Epidemiology Unit



100
number of homes in Bristol to be fitted with digital sensors that can monitor a range of health conditions as part of the University's SPHERE project, helping people with complex medical needs to live independently



272,000
number of people who were sterilised, many against their will, in Peru in the 1990s. Some of their testimonies are being shared in the transmedia Quipu Project, a partnership between the University and Chaka Studio, to raise awareness and inform public debate



Royal praise for alumni and staff

Honours

Alumni and staff were recognised in the New Year Honours list 2016, including Professor Malcolm David Evans (above) from the University's Law School.

Professor Evans was awarded a knighthood for his services to torture prevention and religious freedom, while Professor Julie Selwyn (PhD 2008), director of the Hadley Centre for Adoption and Foster Care Studies, received a CBE for services to adoption and looked-after children.

Professor Paul Curran (PhD 1979, DSc 1991), Vice-Chancellor of City University London, received a knighthood for services to higher education and Professor Viv Bennett (MSc 1995, Hon LLD 2015), Chief Nurse for Public Health England, was awarded a CBE for her work as the government's principal advisor on public health nursing and midwifery. For the full list, please visit bristol.ac.uk/nonesuch.

1 Putting geology on the map

// Geology
Researchers in the School of Earth Sciences restored and displayed a copy of the very first geological map of England and Wales, 200 years after it was created by local canal engineer and surveyor, William Smith, in 1815.

2 Chancellor to step down

// University
The Right Honourable the Baroness Hale of Richmond DBE (Hon LLD 2002) will step down from her role as Chancellor at the end of 2016 after 13 years as ceremonial head of the University. Lady Hale's successor will be announced later in the year. Thank you to everyone who submitted nominations.

3 It's an honour

// Alumni
Singer-songwriter and former British officer, James Blunt (BSc 1996, Hon DMus 2016), came back to Bristol in February to receive an honorary degree, along with founder of subsea technology manufacturer, Sonardyne, John Partridge (BEng 1962, Hon DEng 2016). Read a full list of honorary graduates and find out how you can nominate someone for an honorary degree at bristol.ac.uk/alumni/honorary-degrees.

4 Sight to behold

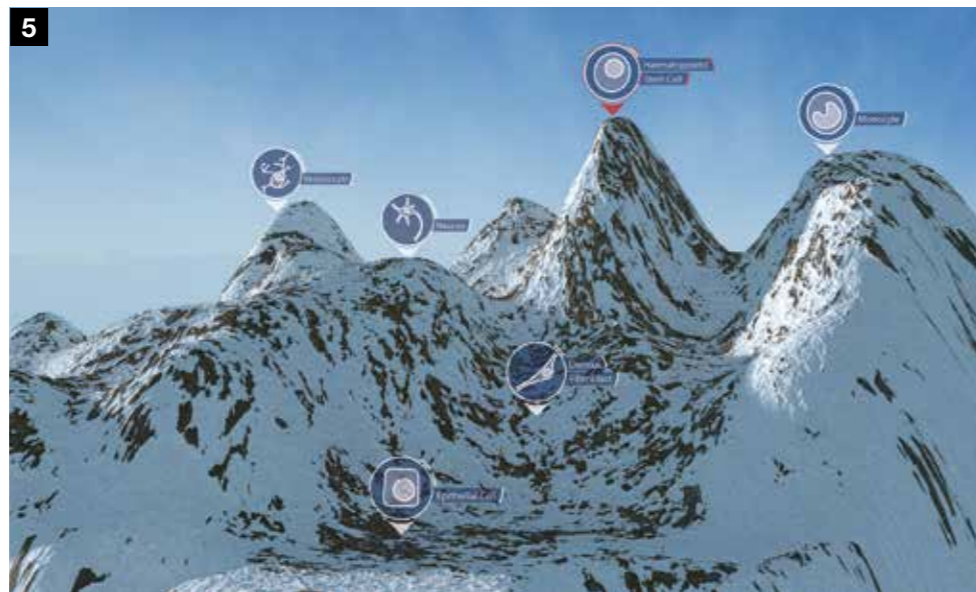
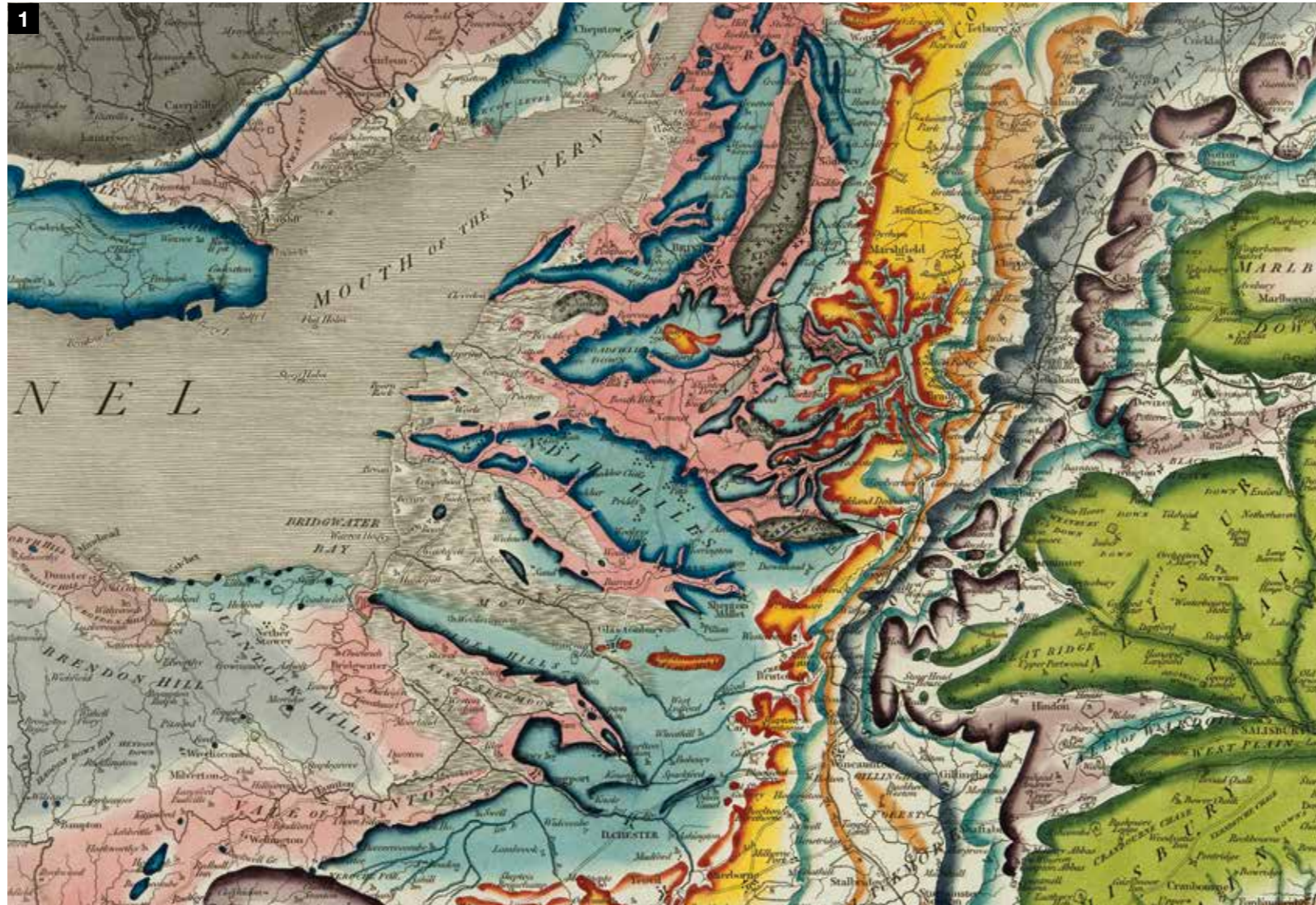
// Alumni
Jack Greasley (BSc 1998) won a Scientific and Engineering Award at the 2016 Oscars for his contribution to visual effects. Greasley and his team developed the MARI 3D texture painting system for the 2009 film *Avatar*, and the software has now been broadly adopted across the industry. You can read an interview with Greasley at bristol.ac.uk/honesuch.

5 New lease of life

// Medicine
An international team, led by Professor Julian Gough at Bristol, has developed a computer system, Mognify, that can predict how to create any human cell type from another cell type directly, without the need for experimental trial and error. This image shows a cellular 'landscape' programmed from real data, and the team's breakthrough paves the way for life-changing medical advances within just a few years.

6 The campaign trail

// Students
Bristol Students' Union won Students' Union of the Year at the National Centre for Diversity's Grand Awards. The team's equality and diversity work includes campaigns like Reclaim the Night, tackling sexual violence and gender equality, and the work of its Lesbian, Gay, Bisexual and Transgender+ and Black and Minority Ethnic student groups.



In brief Alumni



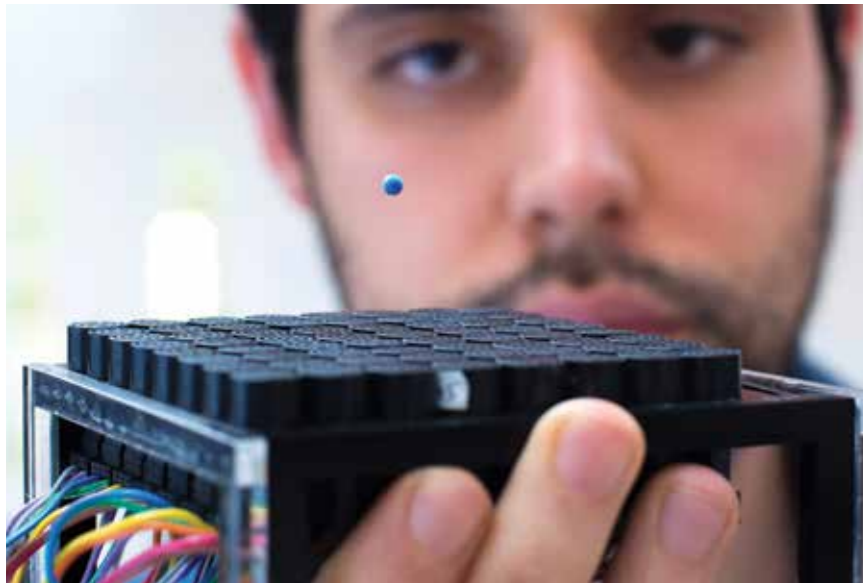
Captain Anne McClain (MSc 2005) was among NASA's 2015 class of graduating astronauts, which was also the first to be evenly split along gender lines. McClain hopes to be part of NASA's first mission to Mars in the not-so-distant future.

Award-winning visual effects engineer **Ben Morris (MEng 1992, Hon DEng 2011)** has added the highest-grossing film of all time, *Star Wars: The Force Awakens*, to his already impressive filmography. Morris won both an Oscar and a BAFTA in 2008 for his work on *The Golden Compass*, and is now working on *Star Wars: Episode VIII*, due for release in December 2017.

Dr Emma Mitchell (PhD 2013) made history as part of the first all-female team, and the first team of four, to row the Pacific. Mitchell and the Coxless Crew covered the 8,446 miles between San Francisco and Cairns in 257 days, raising more than £35,000 for Walking With The Wounded and Breast Cancer Care.

Co-founder of Guerilla Science **Mark Rosin (MSc 2006)** received the 2015 Early Career Award for Public Engagement with Science from the American Association for the Advancement of Science. A practising scientist himself, Rosin designs experiences and events to help people connect with science in creative new ways.

Map image courtesy of the University of Bristol Library Special Collections; The Right Honourable Baroness Hale of Richmond DBE © Nick Smith; James Blunt © Bhagesh Sachanar; MARI 3D image courtesy of The Foundry; Mognify © Cherrie Kong; Students at Bristol Pride Festival © Jess Augarde



Tour de force

Engineering

A team of researchers from the Universities of Bristol and Sussex, in collaboration with spin-out company Ultrahaptics, has built the world's first sonic 'tractor beam' that can lift and move objects – a concept previously only seen on programmes like *Star Trek*.

The beam uses high-amplitude sound waves, created by dozens of miniature loudspeakers, to generate an acoustic hologram that acts like a force field, holding an object in place. By carefully controlling the output of the loudspeakers, the object can be moved or rotated.

PhD student Asier Marzo (PhD 2013-) demonstrated the beam to Hollywood actors Ben Stiller, Owen Wilson and Will

Ferrell during Spanish TV programme *El Hormiguero*. The show combines comedy, science and guest interviews, and Stiller used the beam to levitate an object in his infamous *Zoolander* 'Blue Steel' pose.

The technique could be developed for a variety of applications, including gripping and transporting drug capsules or microsurgical instruments through living tissue.

Breaking news

Alumni

Political journalist Kenneth Ng King Tsun (MSc 2010) made headlines of his own after winning a Professional Achievement Award in the 2016 Education UK Alumni Awards.

Organised by the British Council, the awards honour the achievements of professionals across the globe whose experience of UK higher education has contributed to their success. Ng studied an MSc in International Development thanks to an alumni-funded scholarship from the Bristol University Alumni Association, Hong Kong Branch. Ng says: 'My professors and classmates enhanced my critical thinking and broadened my vision – crucial for my career as a journalist.' Ng hosts weekly talk show, *On the Record*, one of Hong Kong's most popular news programmes.



Flying high

Alumni

Flight Lieutenant Matt Masters (MEng 1998) will be soaring across our skies this summer as part of the famous Red Arrows as he embarks on a three-year tour with the iconic display team.

Flt Lt Masters joined the Royal Air Force soon after graduating and was selected for the elite Red Arrows last October after a tough and lengthy selection process. 'It is a childhood dream that has become reality,' he says, 'The Red Arrows are known for their legacy of precision flying and their popularity among the British public, and I am extremely proud to be part of a team that has influenced so many people around the world.'

Meeting of minds

Medicine

Thanks to significant philanthropic donations from charities, alumni and friends, a new medical facility, the Bristol Brain Centre, opened at Southmead Hospital in November.

The Bristol Brain Centre is the first of its kind in the country to bring together clinicians and academics researching multiple sclerosis, dementia and movement disorders. Working together this way will not only help researchers deliver new treatments faster, but will also mean thousands of patients benefit from cutting-edge care from experts specialising in a range of different conditions.



Tour de force © Asier Marzo, Stuart Robinson, Bruce Drinkwater and Siram Subramanian
Flying high © Corporal Steve Buckley, Ministry of Defence/Crown Copyright // Breaking news © Television Broadcasts Limited

Cover feature

This summer, Brazil will become the first South American country to host the Olympic and Paralympic Games. But what will the Games mean for the residents of Rio? And what does it mean to represent your country in the world's greatest sporting event? *Nonesuch* spoke to alumni and staff to find out.

The road to Rio



Andrew Honeyman (BA 1985)

Four years on from London 2012, Andrew Honeyman, Head of Physical Activity and Olympic and Paralympic Legacy at the Department for Culture, Media and Sport, outlines how the Games continue to have an impact in the UK.

As Rio 2016 approaches, there's definitely a sharper focus on the legacy of the London 2012 Olympic and Paralympic Games. Some of the benefits are very tangible, like the fantastic sporting facilities that are now open to the public. Others less so, like the £14 billion boost to the national economy through trade and investment.

Legacy was built into the London 2012 bid from the very start. The intention was always to use the Games to help regenerate a disadvantaged part of east London, and government ministers were also keen to drive other possible benefits, from encouraging more people to play sport and volunteer, to improving attitudes towards disabled people.

The most obvious legacy of London 2012 is the change in and around Queen Elizabeth Olympic Park in east London. When I compare the area now to how it was when I first visited in 2009, the change is amazing. Anyone can go and swim in the same pool as Michael Phelps and Ellie Simmonds for under a fiver, and thousands

of people now live in affordable housing in the former athletes' village. Work has started on Olympicopolis too – an education and cultural quarter that will include arts venues, museums and university campuses. A community is growing up around the park, so what's really exciting is that it will be decades before the true legacy story in east London fully emerges.

Companies across the UK won contracts for London 2012: many were small- and medium-sized enterprises that have since gone on to work on other major events abroad, like the Sochi 2014 Winter Olympics or Rio 2016. Get Set, our education programme, continues to provide learning resources to schools around the country, and the legacy charity, Spirit of 2012, funds community-led sports and arts projects.

My colleague Heather Sinclair (BSc 2002) and I are the last two members of the legacy team, and we are involved with the government's preparations for Rio 2016. It's hard to say what the legacy for Brazil will be, but I'm sure it will be a great Games and there'll be something that will really surprise everyone!



Hannah Mills (Diploma 2012)

Olympics debutant Hannah Mills won Team GB's first medal in the women's 470 dinghy in London 2012. But deciding whether to compete again in Rio wasn't all plain sailing.

At first, I was absolutely gutted to win silver in London. We were guaranteed a medal: our final race was a battle for gold, that unfortunately didn't go our way. We had to settle for silver. Very quickly though, the disappointment passed. Then, the high was undoubtedly the best feeling I've ever experienced.

It was followed by an equally big low. Saskia (my sailing partner) and I weren't prepared for how empty we'd feel, and it took us a while to commit to Rio. I felt demotivated for a long time, but at some point in 2013, we decided enough was enough. We knew we had more to give and could do a better job with a three-year campaign (we'd only teamed up 18 months before London).

Going to university before becoming a full-time athlete felt like the sensible option. I'd always managed school and sailing, but doing that at university was a lot harder than I'd imagined. Mechanical Engineering was a demanding course, and required a lot of work

and dedication. Being part of the Performance Squad was a huge help as it meant I could talk to people in similar situations and get their advice, but I had to be organised and make compromises. It was my only option.

Sailing is a big sport in Brazil, and includes some of their best medal hopes, so media coverage will be high. The venue is right in the city, but it is a hugely difficult place to sail. There are six courses and each is different. Some involve big waves off Copacabana Beach or feature crazy winds off Sugar Loaf Mountain. Others have strong tides and currents: if you get it wrong, you can suddenly be a long way behind.

Saskia and I have had a great build-up so far, coming second at the test event, and winning the Copa de Brazil regatta in December. We're in a very different position to 2012: we aren't just competing to do our best and hoping that's enough to win a medal. People's expectations – including our own – change, and managing those will be a challenge.

I think about life after Rio a lot. Saskia will definitely retire, so if I want to continue sailing, I'll have to find a new partner or perhaps change the class of boat I sail. I'm also considering going back to studying, maybe at Bristol, to get a qualification in economics and business.

Sir David Tanner CBE (BSc 1970)

Rowing is Great Britain's most continuously successful Olympic sport. And Sir David Tanner CBE, British Rowing's Performance Director, has been at the helm since 1996.

During my first year at Bristol, I used to row from the old boathouse at Saltford, cycling to and from Wills Hall five or six times a week. In my second year, I offered my coaching services to Clifton College and took the under 16 squad to regattas on the Thames that I'd raced in at school. When they began to win some 'pots', I discovered I had some talent for coaching, and went on to coach the men's four at the 1980 Moscow Olympics.

I knew Sir Steve [Redgrave CBE] and James [Cracknell OBE] well before I became British Rowing's Performance Director (PD). I was Team Leader for Rowing for the 1992 and 1996 Olympics, as well as the World Championships in between, all while being head of a big London comprehensive school. Since 1996, lottery funding has been a game-changer for the sport: we are now the envy of the world, thanks to the British public. Katherine [Grainger CBE]'s first year in international rowing was 1997, and my first as PD, so we've developed our careers alongside each other. Sir Steve, James and Katherine are all 'standout' people with a massive will to win. That doesn't always make them easy to work with: they're strong-minded, ambitious, and uncompromising in their aims. But they're also great to work with: they want the best, and have an innate competitive spirit.

I'm probably most proud of launching our talent recruitment programme, Start, in 2002. Start employs coaches across the UK to find future rowers, most of whom have never thought of rowing. At London 2012, five of our ten Olympic champions learnt to row through Start. We still need to find more coaches though and, particularly in the university sector, unlock the talent of our massive pool of students.

After London 2012, our biggest challenge will be defending our position as the world's leading rowing nation. All the competition is after us and 'winning after winning' is always a challenge. We are always ambitious with our targets, but we try not to be too tied to numbers. For London, our Olympic target was six, and we won nine (from 14 events); our Paralympic target was one or two and we won one (from four). It takes a lot of rowers to win the medals we won in London, and it's hard to be too precise.

Rio is simply beautiful and we'll be racing in a natural lake bounded by Ipanema and Copacabana Beaches, with the statue of Christ the Redeemer just behind. I'm looking forward to the regatta being the centrepiece of the Games: usually our venue is far outside the host city. Be sure to watch all of our boats – we've qualified for 12 events (of 14) for the Olympics and all four in the Paralympics, the best of any nation.





Dr Matthew Brown

Hosting the Olympic and Paralympic Games is a chance for Brazil to assert itself on the global stage. Dr Matthew Brown, Reader in Latin American Studies, looks more closely at the attention the country is receiving in the run-up to the Games.

In the closing ceremony of London 2012, Brazil presented itself to the world as fun, at one with its history and peoples, and ready to welcome hundreds of thousands of sports fans: a young, upbeat country at the cutting edge of global economic development. There was something of reality in that picture, but it was also a conscious construction, a 'myth of nation' that pandered to stereotypes Brazil knew would be lapped up by the rest of the world.

Rio 2016 will be the first time the Olympic and Paralympic Games take place in South America: it's a big deal in terms of Brazil's leadership. But in the last 15 years, a great deal of critical attention has been focused on events of this scale. The 2014 FIFA World Cup was a great example. Journalists went to Brazil looking to cast light on human rights violations, and the internet and social media helped highlight issues the country had hoped no one would notice. The government brought in extra security to clamp down on protests and a PR presence to butter up journalists. It acquired a lot of media experience, painfully. More of the same is happening now. Globally, there is now far greater awareness of stories of

corruption and the country's economic difficulties. Brazil has lost a lot of the international status it dreamed of when it first bid to host the World Cup and the Olympic Games.

Many people living in Brazil won't see the Games as important as a football World Cup: football is their main sport after all. But we often forget that Brazil has just as long a tradition in sports like rowing and sailing as we do here in the UK. Other Olympic sports, like athletics or golf, don't have such big trajectories, and the construction of a golf course in an area of natural beauty has justifiably been the subject of much political and environmental debate. History shows that the authorities can get away with almost anything for football; but do it for golf, and people take notice.

Sport has been part of Brazil's national identity since it became independent from colonial rule in 1822, and the Games are an ideal opportunity for the world to learn more about the country's history, culture and society. More than 50 of our Modern Languages students will be in Rio in August, working, studying or visiting, and will gain fantastic experience and knowledge of the real Brazil – beyond the PR spectacle.

Misha Glennly (BA 1980)

Journalist Misha Glennly spent three months living in Rocinha, the largest slum in Latin America, to research his latest book, *Nemesis: One Man and the Battle for Rio*. He explains how the situation in Brazil is growing increasingly tense ahead of the Games.

Rio's slums are hazardous: it was a struggle to suffer for just three months the indignities that its residents cope with their whole lives. I rented a room the size of a prison cell with only one luxury: its own toilet. But the heat and the humidity made every day tough. The downpours were biblical and when the floods came, human excrement spilled out of the open sewers. The smell was vile and the noise incessant: dogs barking, couples arguing, guns rat-a-tat-tatting as gangs exchanged fire with the police.

Although not too closely examined in the media, Brazil has been in the midst of a monumental political, economic and constitutional crisis for several months. This has led to near complete gridlock in government as President Dilma Rousseff's very own political allies in Congress seek to have her impeached on grounds of fiddling the budget statistics to improve her image. The man who inaugurated the proceedings is himself under arrest on suspicion of fraud and money-laundering.

All this is taking place as the Federal Police and the Public Prosecutor are

investigating what may turn out to be the largest corruption scandal in history. The complex case involves the payment by construction companies for contracts handed out by the state-controlled oil company, Petrobras, who then handed most of the corrupt funds onto political parties, most importantly President Rousseff's Workers' Party.

This existential political battle has led to the near sclerosis of the federal government. At the same time, a steady currency collapse, rising unemployment, falling oil prices and inflation have triggered severe budget cuts across federal, state and municipal administrations countrywide. No sector has been spared, including healthcare and security.

This perfect storm has been crowned by the Zika virus, first sweeping across the country six months before Rio was due to host the Games. It is a uniquely terrifying blight, proliferating at lightning speed and affecting the human race at perhaps our most vulnerable point: species reproduction.

Having spent many months in Brazil, I have grown used to how the country manages its many mega sporting, leisure and religious events by cobbling everything together at the last minute. But the depth and complexity of the current crises mean that, for the first time in a long time, the Olympics could run into serious trouble.

Matt Birch

As the University's Director for Sport, Exercise and Health, Matt Birch believes providing opportunities for students to get involved in sport and physical activity can have a profound effect on their long-term lifestyle.

Sport plays a really important role in our University's identity. Two of our current Performance Squad students are Olympic and Paralympic hopefuls: Phil Marsh (Chemistry 2014-) hopes to qualify in fencing (épée) for Rio 2016, while Dan Bethell (Law 2014-) has his sights set on being one of the first Paralympic badminton players in Tokyo 2020.

Watching students and alumni compete on the international stage not only inspires and energises all of us here, but also evokes a strong sense of pride and affiliation among everyone associated with our institution.

Our Performance Squad has a number of tiers: we currently have 30 athletes training at the highest level, in sports like hockey, rugby and basketball. Our role is to build on the support they already receive from national governing bodies by providing mentoring, lifestyle advice and, most importantly, peer-to-peer support. Students can often find themselves under all sorts of academic and athletic pressures, so learning from and supporting each other is key.

Of course, as well as supporting our high-profile athletes, one of our priorities is driving participation across the whole student body. But to achieve this, we do need to invest in our infrastructure and facilities. The University has already committed to the refurbishment of the Coombe Dingle Sports Complex, and we've received generous philanthropic support too. Most recently, local entrepreneur John Rutley (Hon LLD 2013) has not only helped refurbish the University's boathouse – our rowing club is now the biggest sports club on campus – but also provided hundreds of students with the chance to become qualified community sports leaders.

Bristol has a long track record of marrying strong academic programmes with sporting excellence: students we've seen excel at both have often gone on to be extremely successful once they've graduated. We believe helping all our students look after themselves physically and mentally is incredibly important, and sport can be a fantastic way for them to improve their employability and leadership skills too. ●

To hear from other alumni looking ahead to the Games, including hockey player Jo Leigh (BSc 2015) and England rugby sevens captain Tom Mitchell (BA 2011), please visit bristol.ac.uk/nonesuch.

'THERE IS FAR GREATER AWARENESS OF STORIES OF CORRUPTION, AND BRAZIL'S ECONOMIC DIFFICULTIES'



Illustrations © Kate Miller

Feature

Last year, film producer **Samantha Chitty (BA 2008)** travelled to the refugee camps in Calais to deliver and distribute much-needed supplies. She shares her experience with **Dr Jon Fox**, joint Head of the University's Migration Research Group.

CRISIS POINT

Samantha Chitty (SC) For weeks, I had been reading harrowing stories of refugees escaping war-torn countries and making perilous journeys across Europe, only to find themselves living in appalling conditions, without any guarantee of asylum. I felt compelled to help.

Dr Jon Fox (JF) The current refugee crisis has certainly grown in complexity and intensity since last summer. With no end in sight, the situation has become increasingly desperate, both for those remaining in conflict zones and for those leaving. And as more and more refugees flee, the conditions in camps like those in Calais will only become even more strained.

SC My experience was as shocking as I could have imagined, almost post-apocalyptic. I was with a volunteer who had basic first aid skills, and we were approached every few minutes for help. A teenage boy who had tried to commit suicide even asked if we could redress the wounds on his wrists. They're hopeless and fearful: some of them have been at the camp for years, without any promise of asylum.

'WHAT WE NEED IS A GLOBAL, CO-ORDINATED RESPONSE'

Dr Jon Fox

JF That's true, and clearly the media and politicians play a huge role in what most people know about the situation. This was brought home by the images of three-year-old Aylan Kurdi in the press last August. Those images drew the world's attention to the crisis, and not only influenced ordinary people's reactions, but also the actions of governments. It was difficult for most people to be unmoved, though that doesn't mean they feel ready to allow large numbers of refugees into their countries.

SC Especially when the media run stories about economic migrants 'window shopping' countries with the best social services. But I can't believe anyone would leave the place and people they love to live on an inhospitable piece of land, where they're only guaranteed one meal a day and have no access to medical care – not unless their alternative is much much worse.

JF Many people are either misinformed or simply uninformed. As academics, we certainly have a role to play in helping to paint a more balanced picture. We can supply the public and the media with unbiased factual evidence so they better understand the dynamics, causes and consequences of refugee flows, and help policymakers and NGOs make informed decisions on how to deal with them.

SC I do understand people's concerns. Here in the UK, we're not a big country and our social services are already stretched. But I don't believe we can stand by while people freeze and starve to death. In my mind, as a democratic country, it's our duty to protect people seeking asylum on our doorstep.

JF Of course, but receiving societies will always face important challenges in accommodating refugees. That's partly because of policies that restrict employment and residency possibilities for asylum seekers: they place a burden on the state (and sometimes, local charities) to provide refugees with basic services, often at considerable cost and for a lengthy waiting period. But most refugees do have skills that can contribute to the local economy. One reason Germany has been more receptive than other European countries is that it sees refugees as one possible long-term fix to their demographic problem: an ageing population that puts a strain on the welfare state. Refugees come from all backgrounds, but it's often those with skills, knowledge and experience who are more likely to migrate. Those who are most socio-economically disadvantaged simply aren't able to migrate, even when circumstances are dire. Integrating refugees is not without its challenges, but time and again countries have risen to those challenges.

SC Sometimes I think the press is more interested in printing stories than the truth. I read an article recently that said refugees in Europe were living the life of Riley. You only need to see photos to know that's not true, and many of the people I met were suffering post-traumatic stress disorder after what they've experienced in their home countries.

JF There's certainly been a shift in public mood since last summer, due to changing media coverage, political indifference, and events that threaten to turn the tide of opinion against the refugees, like the assaults in

Cologne. But the basic problem will remain until there's a place for refugees to go. What we need is a global, co-ordinated response with more equitable distribution of refugees not only throughout Europe but across the world.

SC Absolutely. The people helping in Calais are locals or unpaid volunteers: they just don't have the experience or training to deal with a humanitarian crisis on this scale. But without their help, those refugees simply won't survive.

JF My colleagues and I in the Migration Research Group have been working with Bristol City Council, the Students' Union and Bristol STAR (Student Action for Refugees), to resettle refugees and their families here. The main challenge is providing sufficient support: not just access to housing and employment, but also legal assistance, language courses, education and psychological counselling. We're also helping the University establish a refugee scholarship scheme to meet the higher education needs and aspirations of those we welcome to Bristol, and expect to have this in place by September.

SC I certainly hope to volunteer again: even for a day or two, you can make a real difference and it's an incredibly rewarding experience. ●

To read more about Samantha's volunteering with Help Refugees, or find out more about the work of the Migration Research Group, please visit bristol.ac.uk/nonesuch.



Images © Nick Ball



Knowing Shakespeare

Saturday 23 April 2016 marked the 400th anniversary of William Shakespeare's death. *Nonesuch* unearths a wealth of memorabilia in the University's Theatre Collection, and former and current students explain how the world's greatest playwright has touched their lives and work.

**Jo Elsworth
Director, University of Bristol Theatre Collection**

With Shakespeare being such a key part of our theatrical heritage, and featuring in many of the Theatre Collection's holdings (particularly the London Old Vic, Bristol Old Vic and Shakespeare at the Tobacco Factory archives), it was difficult to decide how best to mark his 400th anniversary.

Our current exhibition of memorabilia, Shakespearabilia, shows how Shakespeare's image has endured. Most of the likenesses we are familiar with today are drawn from just two portraits: the 'Chandos' portrait, painted between 1600 and 1610 and named after its

owner, the Duke of Chandos (attributed to John Taylor) and an engraving by Martin Droeshout that features as the frontispiece to the collected works of Shakespeare (the First Folio), published in 1623. Memorials at Holy Trinity Church (see image overleaf), Stratford-upon-Avon, and in Poets' Corner, Westminster Abbey, have also endured as recognisable images of Shakespeare.

No one is certain how accurate these depictions are, but the images have remained relatively unchanged and even influenced popular culture, appearing on everyday items from shoehorns to beer bottles and tea bags.

Most of the objects in the exhibition come from the Raymond Mander and Joe Mitchenson Collection, acquired in 2011. The collection is a lifetime's work of two actors, who first met in a production of *The Merry Wives of Windsor* in the late 1930s, and formed a personal and professional partnership that lasted until Mander's death in 1983. Many of the exhibition items are on public display for the first time.

Running alongside Shakespearabilia is a display by MA History of Art students focusing on unexpected productions of *Hamlet*. As an accredited museum and one of the world's largest collections dedicated to British theatre history, we hope our activity will pique visitors' interest and show that there are many different ways to think about Shakespeare.

Shakespearabilia will run until Saturday 10 September. For more information, please visit bristol.ac.uk/theatre-collection.

Main image The Jansen Portrait, as reproduced in *Life Portraits of William Shakespeare: A History of the Various Representations of the Poet, with an Examination into their Authenticity*, by J Hain Friswell, 1864 (Theatre Collection Library, Rare Books Collection) **Clockwise from left** Artefacts from the Raymond Mander and Joe Mitchenson Collection: Shakespeare memorial bust by F M Miller, 1864 (MM252); Shakespeare tea – *As You Like It* (MM/O/10/8); spoon (MM/O/34/35); horse brass (MM/O/10/19); beer bottles from Flower & Sons Brewery (2011/008)



Shakespeare portrait and memorabilia © Dan Rowley

Feature

Dr Anna Farthing (BA 1987) Visiting Fellow in the School of Arts, and a creative producer in performance and heritage

I was extremely fortunate to access the Theatre Collection during my undergraduate degree. From studying ‘stuff’ I understood how creativity is stored in material things. My work in performance and heritage is informed by that early experience, as is my approach to Shakespeare.

I have directed productions of *A Midsummer Night’s Dream*, *Pericles* and *Twelfth Night* and I was a board member of the Bristol Shakespeare Festival, which programmes performances in outside spaces each July. But my habit of rummaging in archives has also led to a fascination with how Shakespeare’s life and work can resonate across time and space.

As a trainee director at the National Theatre in the 1990s, I worked with Emily Watson (right) on *Fair Ladies at a Game of Poem Cards* by Chikamatsu (1653–1725), translated in blank verse by Peter Oswald. Familiarity with Shakespeare helped both actors and audiences to access the story, recognising Jacobean themes within the Japanese setting.

Later I wrote an imaginary meeting between Shakespeare and actor-manager Isabella Adreini (1562–1604), who led the *Compagnia dei Comici Gelosi*. Adreini improvised in several languages in the tradition of *commedia dell’arte* and toured Europe at a time when women were still banned from the English stage.

Most recently I created *War, Women and Song* inspired by Lena Ashwell (1872–1957), who not only provided entertainment for troops during the First World War, but also toured Shakespeare to civic halls between the 1920s and 1940s. A stickler for discipline, she famously sacked the young Lawrence Olivier for bad behaviour.

The Theatre Collection is invaluable in providing professional artists with a sense of continuum, as well as the inspiration and confidence to generate new material in any circumstances. I treasure it.

Right Artefacts from the Raymond Mander and Joe Mitchenson Collection: Shakespeare plate with signatures of leading actors of the day, made by Holkam-Lidor for W H Smith & Sons Ltd, 1964 (MM/O/40/12), to mark 400 years since Shakespeare’s birth; painted plaster bust, based on Shakespeare’s funerary monument at Holy Trinity Church, Stratford-upon-Avon (MM344)

Emily Watson OBE (BA 1988, Hon MA 2003) Actor



Shakespeare was a big part of my life growing up: my grandmother and mother had a quote for everything. When I was seven, my parents took me to see a Royal Shakespeare Company (RSC) production of *As You Like It*. I was

enthralled. Shortly after that, I saw Judi Dench in *Much Ado About Nothing* and nearly stopped the show laughing my head off.

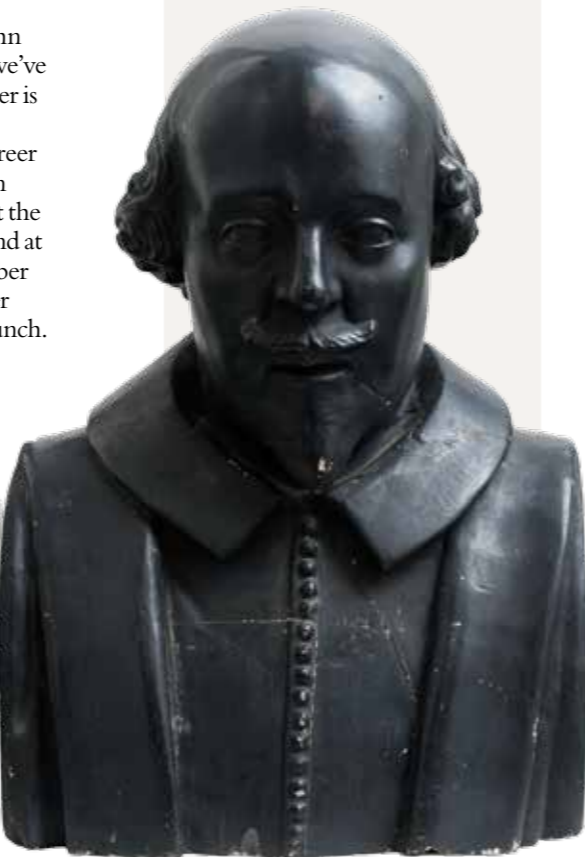
Studying English at Bristol, I played Beatrice in *Much Ado* to Matthew Warchus’ (BA 1988, Hon DLitt 2010) Benedict. He’s a director now [at London’s Old Vic], but he’s also a fine actor and very funny.

At drama school, I really began to engage with the language of Shakespeare. I learned how the rhythm and structure of his blank verse gives you all the clues you need to play any of his characters.

I joined the RSC on a ‘play as cast’ contract, where you play whatever’s thrown at you – for two years, it was mainly spear-carrying and wenching. But I got to understudy some great actors and learned a tremendous amount.

Most importantly, I met my husband John Waters. Although he’s no longer an actor, we’ve always shared a love of theatre. Our daughter is called Juliet.

Since those early days, I’ve had a long career in film and TV, but I did get to play Viola in Sam Mendes’ production of *Twelfth Night* at the Donmar Warehouse in London in 2002, and at the Brooklyn Academy of Music. I remember vividly the heartache of its poetry. However many times I heard it, it was still a sucker punch. I hope I’ll play Shakespeare again one day.



On stage and screen

More alumni bringing Shakespeare to life

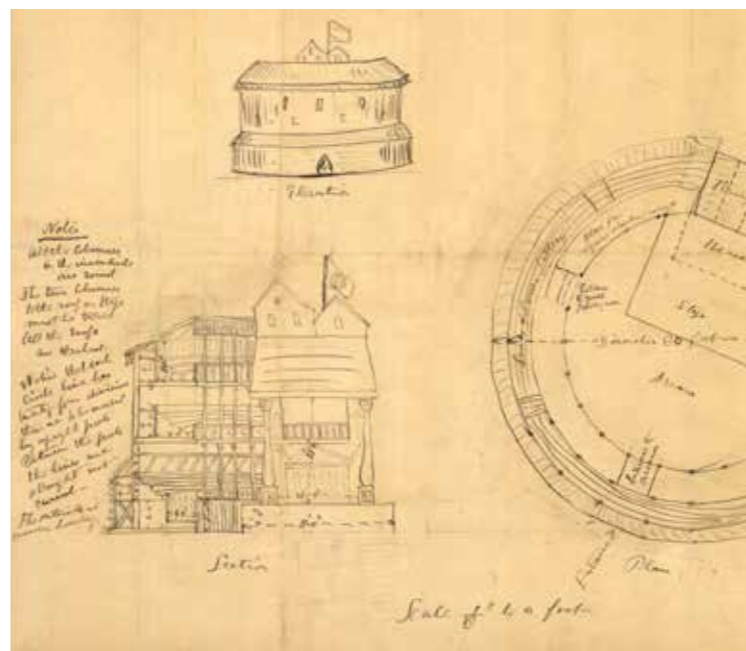
Classical stage and TV actor **Tim Pigott-Smith** (BA 1967, Hon DLitt 2008) has appeared in 18 Shakespeare plays

Adrian Noble (BA 1972, Hon DLitt 1996), former Artistic Director at the RSC, won the **Globe Award for Best Director for *The Winter’s Tale*** in 1993

Greg Doran (BA 1980, Hon DLitt 2011) took up the reins as **Artistic Director of the RSC** in January 2013

Bestselling author **David Nicholls** (BA 1988) reimaged *Much Ado About Nothing* as a BAFTA-nominated BBC drama in 2005

John Heffernan (BA 2003) recently played the title role in a dance version of *Macbeth* at London’s Young Vic



Kieron Mieres (BA 2013-) Third-year English student

I read *Hamlet* at school, and didn’t really understand it; it was like a foreign language. But I’ve come to appreciate that it all boils down to Shakespeare’s understanding of human nature.

It’s amazing, the way he achieves such empathy for such a wide range of people. I feel as if I’d have to live a thousand lifetimes to get under the skin of someone like the 19-year-old Ophelia in *Hamlet*, who’s torn between her father, her brother and her lover, and whose first experience of love ends in heartbreak and insanity.

Shakespeare takes people as they come. He doesn’t judge; his characters aren’t solely defined by their religion, or politics, or philosophy – they’re complicated, conflicted and real. Then he sets them side by side, and watches them interact. The more you study Shakespeare, the more open you become to other points of view.

You get different things from reading and watching the plays. Reading is much more contemplative; at a performance, you get snatched into the world of the play. I saw *Titus Andronicus* at Shakespeare’s Globe last year, and people actually fainted. It wasn’t the violence so much as the raw emotion of the characters – it was visceral. It’s astonishing that a 400-year-old play can have that effect on a modern audience.

I’ve had some great tutors, particularly Dr Laurence Publicover, who has encouraged me to question the Aristotelian definition of the tragic hero as victim. Take *Macbeth*, for example. Yes, he’s unlucky – he’s a great talent in a mediocre world, his wife is plotting against him, he lives in a society where murder is a normal method of advancement. But he’s also ambitious, and a villain.

Studying Shakespeare has enabled me to take a step back and think about what makes other people tick. That’s never going to leave me.

Above Drawing for a model of the Globe Playhouse by William Poel, first analysed by Martin White, Emeritus Professor in the Department of Drama. Professor White has published widely on early modern drama and theatre practice, and worked as an adviser to the Globe reconstruction

Robin Belfield (BA 2001) Director and RSC Young People’s Performance Developer

I work with schools and theatres to develop teachers as directors. I help them explore Shakespeare’s plays from a performance perspective, engaging young people as actors rather than scholars of the texts.

This work feeds into a unique co-production of *A Midsummer Night’s Dream: A Play for the Nation* (also known as dream2016) between the RSC and amateur companies across the UK to celebrate Shakespeare’s anniversary. At 14 venues, the professional cast will be joined by amateur actors playing the parts of the mechanicals (the six characters who perform the play within the play), and schoolchildren in Titania’s fairy train.

As part of dream2016, I worked with 42 schools and theatre companies on a shortened version of the play, *The Dream*. Students from six different regions rehearsed a section of the play, and came together to perform at their local theatres in March. Some of those students from each region will then perform at the RSC’s Swan Theatre in Stratford-upon-Avon in July.

Many of the youngsters I work with are new to Shakespeare and have no preconceptions. But I also meet those who think the plays are difficult or boring, and it’s a challenge to get them to open their minds. The easiest way to do this is to get them to speak the words out loud. There are lots of clues for the performer in the text: the trick is to find them.

I love rediscovering Shakespeare through performance – a speech I think I know well becomes fresh in the mouth of a different actor. But the real reward is to help a young person connect with the language and watch them speak it with confidence and feeling. ●

rsc.org.uk/the-dream and dream2016.org.uk

Below Robin Belfield works with young students in West Yorkshire on *The Dream*





Close Alumni stories encounter

Feature



Major Tim Peake has captured the public's imagination with his adventures aboard the International Space Station. But for one Bristol graduate, following Peake's preparations felt like déjà vu. Air Commodore Nigel Wood CBE (BSc 1971) explains how, 30 years ago, he very nearly became Britain's first astronaut.



In 1981, my young family and I watched the first Space Shuttle land on Earth. As we watched history being made, the shuttle gliding gracefully out of the sky in front of us, I had no idea that two years later I'd get a call asking

me to join the first group of British astronauts. I thought it was a spoof.

I was a Royal Air Force (RAF) pilot at the time. I'd followed in my father's footsteps and had a pilot's licence before I could even drive a car. I never dreamt of being an astronaut. The Apollo 11 mission (Neil Armstrong's moon landing) happened while I was at Bristol and I was just as in awe as everyone else. It was the pinnacle of aerospace engineering – and adventure – at the time, but too far removed from life as a student for me to imagine myself there.

I never saw myself as academic. But when I left school in 1967, I was accepted onto the RAF

graduate scheme, on the condition I went to university. I got an open scholarship on Bristol's Aeronautical Engineering course. It was the era of student protest, sit-ins, student marches and heated debates: a baptism of social and political engagement that was as much a part of my education as my lectures in the Queen's Building.

I was lucky to have Dr David Birdsall as my tutor. He encouraged us to look beyond the confines of the syllabus, and the limitations of our work. Unbeknown to me at the time, that work would lead me into test flying and research – and, in 1986, to within an inch of going into space.

After being posted to Germany, and then the Edwards Air Force Base in California, Houston was an exciting place to work. In 1984, the Space Shuttle was still new. I've never seen such focused engineering talent: these guys could literally fly you to the moon. My daughters were saying: 'Daddy is going to be an astronaut.' Television crews were setting up in our back garden.

There were four of us on the team: myself, Commander Peter Longhurst RN, Major

Richard Farrimond R Signals and Chris Holmes. The Ministry of Defence had ordered a new generation of communication satellites, Skynet 4, and we were to launch the first two on separate Space Shuttle missions.

I was selected for the first Skynet mission, and had 12 months to train and prepare. It only took about 17 weeks to learn how to live and work on the shuttle – the best fun was our zero gravity training, experiencing how to work in weightlessness. I spent the rest of my time preparing secondary experiments from UK research establishments. They covered everything from human physiology and the use of adhesives in space to the effects of cosmic rays on equipment.

The launch was scheduled for 24 June 1986, but fate had other ideas. On 28 January, five months before I was due to blast into space, Space Shuttle *Challenger* exploded a minute after take-off. We lost friends and colleagues.

We carried on preparing, but our mission was put on hold and eventually cancelled.

The satellite was later launched on a Titan rocket. With the shuttle programme grounded, I went back to my day job of test flying, and later became the RAF's Chief Test Pilot. I retired from flying in 2003 and now work as a freelance photographer.

Space flight is still in its infancy: it's uncertain and hazardous. People will look back and say: 'Wow, they flew in those old things!' We were carrying the flag for Britain in space in 1986 but were sadly halted by the *Challenger* disaster.

The story picked up again five years later, when Helen Sharman joined the Russian Mir Space Station to become the first Briton in space in 1991, but that was without UK government backing. Now Major Tim Peake has finally got there – but it's taken 30 years. I couldn't be more thrilled for him. Good luck to him and his successors! ●

The Department of Aerospace Engineering celebrates its 70th anniversary this year and will open its doors to alumni as part of the Best of Bristol Alumni Weekend on Saturday 9 July. For more information, please visit bristol.ac.uk/events.

Training in Houston © NASA

Bristol's hotspot

Feature

Other than meteors, volcanic eruptions are the only natural hazards to have potentially global consequences. But how much do we really know about what triggers an eruption, or what those consequences might be? Two world-leading volcanologists in the University's Cabot Institute explain.

By Catherine Treble

In 1995, after lying dormant for more than 300 years, the Soufrière Hills Volcano on the small Caribbean island of Montserrat, a British Overseas Territory, erupted. For the next five years, it sent fast-moving gas and rock flows across the island, and, in 1997, buried the capital city, Plymouth, under metres of debris. More than 8,000 people – two-thirds of the island's population – were forced to leave their homes.

The disaster prompted the British government to call on Professor Steve Sparks, from the School of Earth Sciences at the University of Bristol, for help. Sparks' knowledge of how volcanoes behave – and, just as importantly, how they *might* behave – proved crucial for co-ordinating the effective evacuation of the island's residents.

Today, the Soufrière Hills Volcano has become one of the most important and best-studied eruptions of its type, and more than 20 years later, the research Sparks and his colleagues embarked on in Montserrat still underpins the longest-running and most sophisticated volcanic risk assessment of its kind.

Sparks and his colleagues in Bristol's Volcanology Research Group, headed by Professor Katharine Cashman, AXA Chair in Volcanology, now represent one of the largest and most successful volcanology groups in the world. Last year, Sparks won the Vetlesen Prize (the Nobel Prize of the Earth sciences) for his contribution to the field, and in November, the group received the prestigious Queen's Anniversary Prize for Higher Education in recognition of their outstanding research.

'THE UK DOES HAVE A VOLCANO PROBLEM: IT'S CALLED ICELAND'

Professor Katharine Cashman

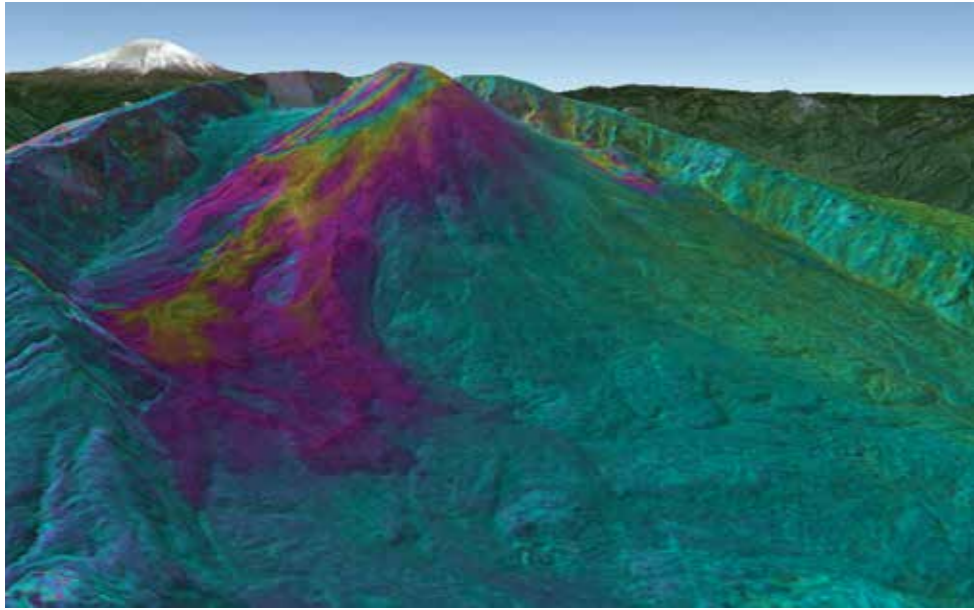
The group works closely with researchers from a range of other disciplines, including engineering, mathematics, history and social sciences, within the University's Cabot Institute. Co-founded by Sparks in 2010, the Cabot Institute brings together world-class expertise to tackle some of the most pressing environmental challenges affecting how we live with, depend on and adapt to our planet.

'Our work falls broadly into two categories: hazard and risk,' explains Professor Cashman. 'For us, the terms have quite different meanings. "Hazard" describes fundamental volcanic processes – the probability of an eruption, the direction of lava flow or the volume of gas emissions. "Risk" occurs when those hazards intersect with people – with local, regional and global populations.'

The two categories are, of course, intrinsically linked: only by carrying out fundamental, curiosity-driven research can the team begin to understand the impact natural hazards have on life above the surface.

Left The Soufrière Hills Volcano on Montserrat, venting an ash and steam plume on 11 October 2009

Image courtesy of NASA Earth Observatory, provided by the ISS Crew Earth Observations Experiment and Image Science and Analysis Laboratory, Johnson Space Center



So, what makes a volcano erupt?

'That's the question children always ask when they learn about volcanoes,' says Cashman, 'and it's very difficult to answer. One of the biggest challenges is that what triggers an eruption happens where we can't see it.'

'However, volcanology is undergoing a scientific revolution, and the techniques we apply to our research are rapidly changing. We used to think that volcanoes such as the Yellowstone Caldera in the US produced large eruptions from a "vat" of melt below the surface. Recently this view has changed. We now view magmatic systems as vertically extensive and transiently connected regions of melt and (mostly) crystals, or solid particles. In fact, the magma chambers that feed volcanoes may be more akin to mushy snow and ice than smooth-flowing liquid. Importantly, "mush" is likely to produce different geophysical signals than melt, and thus we are rethinking our interpretations of volcano monitoring data.'

Working collaboratively to decipher how all aspects of the volcanic system interact – and respond to changes in the external environment – the group uses a combination of laboratory studies, geophysical and geological observations and satellite data. Additionally, studies that might once have been the preserve of volcanologists, petrologists or geophysicists now more often include experts from other disciplines too.

'Collaborating across disciplines helps us think about volcanic systems as a whole, and see how different pieces fit together,' Cashman explains. 'For example, we are working with statisticians on the probability of eruptions, and with applied mathematicians

on the behaviour of lava flows, mudflows and volcanic plumes. We're also working with atmospheric scientists on the climatic impacts of eruptions, with social scientists on risk assessment and communication, and with historians on past eruptions.'

Can we predict when an eruption will occur?

Typically, before a volcano erupts, the ground may swell, and migrating magma may trigger tiny earthquakes and release gases. Scientists have used ground-based monitoring for a number of years to detect these subtle changes, but researchers at Bristol now measure these small deformations in the Earth's surface using satellite-based techniques.

For example, Dr Juliet Biggs was studying the East African Rift, a 6,400km trail running through Djibouti, Ethiopia, Kenya and Tanzania, when she discovered that some of the rift's 100 volcanoes weren't as dormant as previously thought. These observations led to a significant grant from the Natural Environment Research Council for further study of the Main Ethiopian Rift – these volcanoes could seriously disrupt the densely populated cities of Addis Ababa and Nairobi, yet until recently, have gone largely unstudied.

In fact, more than 1,000 active volcanoes worldwide currently go unmonitored, either because of their remote location, the political climate, or because countries simply don't have the money or the technology to observe them more closely. 'Using satellites is a big step forward in monitoring individual volcanoes,' says Cashman, 'and could pave the way for a global forecast system.'

In numbers

35

active volcanoes on and around Iceland

100,000

flights cancelled when Eyjafjallajökull erupted in 2010, affecting more than ten million people*

\$5 billion

estimated cost of Eyjafjallajökull eruption to the European economy**

*International Air Transport Association **Organisation for Economic Co-operation and Development

What happens after an eruption?

Satellites aren't just providing new ways of forecasting natural hazards: they're also helping to monitor activity after eruptions too.

'Contrary to what most people believe, the UK does have a volcano problem,' says Cashman. 'It's called Iceland.' In 2010, Iceland's largest volcano, Eyjafjallajökull, sent a giant ash cloud across northern Europe, forcing the unprecedented closure of airspace, and costing the aviation and tourism industries hundreds of millions of pounds.

Since then, thanks to a seven-figure grant, Bristol's Volcanology Research Group has been working closely with the Met Office to increase the UK's resilience to the hazards posed by Iceland's volcanoes. 'We're helping them better interpret satellite images, improve existing models of volcanic ash plumes, and track how ash is transported before settling,' Cashman explains. 'A volcano can erupt in a number of different ways and produce ash particles that vary in size, density and shape, affecting how an ash cloud will be dispersed.'

The potential impact of Icelandic eruptions on the UK extends beyond ash alone. In 1783, for example, a large lava flow eruption generated an acid fog that caused crop failure and increased mortality in many parts of Europe.

Will there be more volcanic eruptions in Iceland? 'The answer is certainly yes,' says Cashman, 'but, as elsewhere in the world, we're working hard to minimise their impact.'



Global perspective

Bristol has been the driving force for the Global Volcano Model, a free, online resource for researchers, community leaders, politicians and industry, co-founded by Professor Sparks in 2011.

'The aim is to co-ordinate international activity and create an authoritative source of information,' he explains. 'One example of how Bristol has contributed is by providing data on the size and frequency of every volcanic explosion around the world. That data can be useful both for scientists, and for local and regional communities.'

Last year, Sparks delivered a synopsis of global volcanic risk to the United Nations, forming the basis of their Sendai Framework for Disaster Risk Reduction. He has also been involved in international discussions encouraging more governments to invest in risk reduction – preventative measures that are sustainable in the long-term – rather than simply ring-fencing money for emergency relief.

'Governments and policymakers tend not to look beyond the next election cycle,' says Sparks. 'But environmental strategies have to be long-term. Natural disasters will happen, and large eruptions can have global consequences, years into the future.'

History certainly offers some foreboding examples. In 1815, Indonesia's Mount Tambora launched more than 12 cubic miles of gas, dust and rock into the atmosphere, blocking the sun and chilling much of the northern hemisphere. A year later, clothes froze to washing lines in north America; the highest summer temperature recorded in Spain was 15°C. Crops failed around the globe, and an estimated 70,000 people died from starvation or disease.

'An eruption on the scale of Tambora in today's world would be devastating,' admits Sparks, 'and there have been even larger eruptions in the past. Yellowstone Caldera gets a lot of headlines. If it were to erupt today, it would cover most of north America and Canada with ash, with huge consequences for the global climate.'

Local impact

Yet even with comprehensive hazard and risk assessments, communicating the risks of an eruption can pose significant and surprising challenges, as social scientists from the Cabot Institute, led by Dr Ryerson Christie, have discovered.

In 2013, Christie and his team conducted hundreds of interviews with people living near Cotopaxi in Ecuador. Their research revealed

that most inhabitants had actively relocated to the volcano, believing the area offered them better security than nearby cities. Existing evacuation procedures also required residents to cross areas depicted as dangerous in folklore, leaving many conflicted and confused about how to respond in an emergency.

Studies like these highlight the importance of taking local knowledge and beliefs into account when devising natural disaster educational tools, and the Volcanology Research Group is currently involved in a pilot project funded by the World Bank to develop jargon-free public information films to help some of the world's most vulnerable communities.

'How our work supports emergency management is hugely important,' says Sparks. 'It's about resilience: strengthening the capacity of communities to deal with eruptions when they happen. Yes, at its most fundamental, volcanology is about understanding how our planet works, but it's also about saving lives and protecting people.'

'Certainly for me, Earth sciences is the most important branch of science in the 21st century. Volcanoes are responsible for our atmosphere, our oceans, and our land formations – and the impact they have on our environment profoundly affects how nine billion of us are able to live on, and adapt to, our changing planet.' ●

You can find out more about the work of Bristol's Volcanology Research Group at bristol.ac.uk/volcanology. Professor Sparks and other members of the Cabot Institute will also talk at a panel discussion event, 'Living with volcanoes in the 21st century', on Thursday 27 October in the Wills Memorial Building. For more information, please visit bristol.ac.uk/cabot/events.

Clockwise from opposite Topographic fringes from a TanDEM-X image pair, showing the thickness of new lava flows at Volcán Reventador, Ecuador. One complete colour cycle corresponds to 25m of new lava. Images like these supplement limited ground-based measurements, and allow volcano observatories to see how the rate of eruption is changing over time; assisting with the monitoring of Paycaya in Guatemala using infrared spectroscopy to record gas emissions; eruption column from the explosive phase of the Eyjafjallajökull eruption drifting over a farm to the south of the volcano in May 2010; Dr Maria Elisa Balen conducting risk perception interviews near Cotopaxi, Ecuador



'HOW OUR WORK SUPPORTS EMERGENCY MANAGEMENT IS HUGE IMPORTANT'

Professor Steve Sparks



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Your University has a remarkable legacy of firsts – from Professor Cecil Powell's discovery of the pion, to the first transplant of a tissue-engineered trachea.

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'Nature is inexhaustible and the process of discovery endless'

Professor Cecil Powell after receiving the Nobel Prize in Physics in 1950

Cecil Powell used specially designed balloons in his study of cosmic radiation and is pictured here on the HH Wills Physics Laboratory in 1950. University of Bristol Library Special Collections (DM1137/A125)

Fighting talk

Feature

As the 2016 US Presidential Race continues to unfold, media scrutiny around the world has never been more intense. From reporting on the latest chapter in America's complex and controversial story to analysing prodigious amounts of data, Bristol alumni and academics have been getting to grips with the US election.

Find out more and give online today at bristol.ac.uk/alumni/give-back



By Nick Riddle

This is an exciting election to cover, with so many twists and turns,' says Laura Trevelyan (BSc 1990), an anchor on BBC World News America whose career as a journalist has included covering several UK general elections and, since 2009, American current affairs.

'After years as a political correspondent excitedly covering the key marginal constituencies in the likes of Swindon, Reading and Leicester, the experience of reporting the vastness of the United States is quite different,' she says. 'Here, you have to grasp the difference between the Cuban, Puerto Rican and Dominican vote in the pivotal swing state of Florida, and try to assess what impact President Obama's rapprochement with Cuba may make in November's election. Quite a change from my days on Spain's Costa Del Sol interviewing the British expatriate voters.'

Besides excitement, there's also – times being what they are – a high degree of anxiety. 'I was watching the Republican candidates' debates with my children,' says Trevelyan, 'and the

messages were all negative: ISIS are round every corner, the economy's cratering, President Obama's been a disaster. There was none of the upbeat "It's morning again in America" rhetoric of Ronald Reagan, for example.'

At the centre of the national mood, as ever, is the economy. 'After the economic catastrophe of 2008/9, real wages are still stagnant,' says Trevelyan, 'so even though job creation seems to be strong, many Americans are feeling insecure. Something I hear a lot is that people think that their children aren't going to have the same standard of living as they've had, because of house prices, healthcare, and huge hikes in college tuition. Both Bernie Sanders and Donald Trump have tapped into that quite successfully: Sanders with his anti-Wall Street stance, Trump with his anti-immigrant populism.'

Power of the visual

For Dr Elspeth Van Veen (PhD 2011), Lecturer in Political Science in the School of Sociology, Politics and International Studies, the 2016 campaign has provided the latest wrinkles in America's presentation of itself, especially the visual aspects.

'Increasingly, political scientists, and politicians themselves, are recognising the power of the visual and how that has to be in sync with the messages they're trying to communicate,' she says. 'I try to get my students, especially those new to American politics, to understand how strongly the visual is factored into US political campaigns – everything from how a stage is set up for a political campaign speech to political ads that are filled with subtle cues.'

She cites the video with which Hillary Clinton launched her campaign, 'really slick and sophisticated, which not only in the spoken words, but also visually, emphasised the message of the diversity of the US: gender and sexual diversity, religious diversity, and ethnic diversity – there was even a dog and a cat. Everything was perfectly crafted visually to send out the message that she's supporting diversity, but it also made sure to connect with people who are still suffering from the consequences of the 2008 financial crisis – the "hard-working Americans" – so that they can see themselves represented in her campaign and feel they're being listened to.'

Sometimes, the visual is hard to control: when Republican Senator Marco Rubio delivered the opposition's rebuttal to President Obama's 2013 State of the Union speech, his evident nerves and a fumbling moment with a glass of water ('a lot like Ed Miliband's bacon-sandwich-eating moment,' suggests Van Veen) created an awkward impression that, three years on, still haunted his campaign for the 2016 Republican nomination. Then there was Jeb Bush's tweet of a photograph of an engraved handgun in February, which prompted a deluge of parodies.

Big data, big picture

The sheer quantity of content – parodic or otherwise – generated by the media makes the US elections an ideal candidate for large-scale pattern analysis.

In 2012, Nello Cristianini, Professor of Artificial Intelligence, and colleagues in Bristol's Intelligent Systems Laboratory seized the opportunity to put some advanced algorithms to work. 'We can use computers to detect sentiment and opinion,' explains Cristianini. 'They can analyse text and images, and extract macroscopic patterns and trends that help us better understand the workings of the media.'

The team collected more than 130,000 newspaper articles from American online news outlets, using computers to analyse these articles sentence by sentence, identify

subject-verb-object triplets (such as 'Romney criticised Obama' or 'Obama praised the Senate'), and assign a weighting for each verb according to the degree of support or opposition it represented.

'Our analysis could automatically identify the two key parties in this huge network, which confirms that the method works,' says Cristianini. The study showed that media reporting in 2012 featured more frequent positive statements about the Democrats than the Republicans, and that the Republicans had more divisive opinions on issues compared to the Democrats.

Cristianini has found this method less successful in the UK. Some of the reasons are easy to deduce: the US is a much larger country, its elections are longer and more 'fixed' in the calendar, and the binary nature of the campaigns suits computer programmes nicely. But Cristianini also suggests another reason: a lot of the US discourse around elections is plain-speaking, even brash on occasion, compared to the British idiom, and some issues in the UK are harder for a computer to parse. 'One subtle way to be negative about Labour in the last election was to suggest they may end up in an alliance with the SNP,' he says. 'That is not a negative statement in itself – the reader has to join the dots. A computer can't do that. But if you say "this person is an idiot", the computer gets it.'

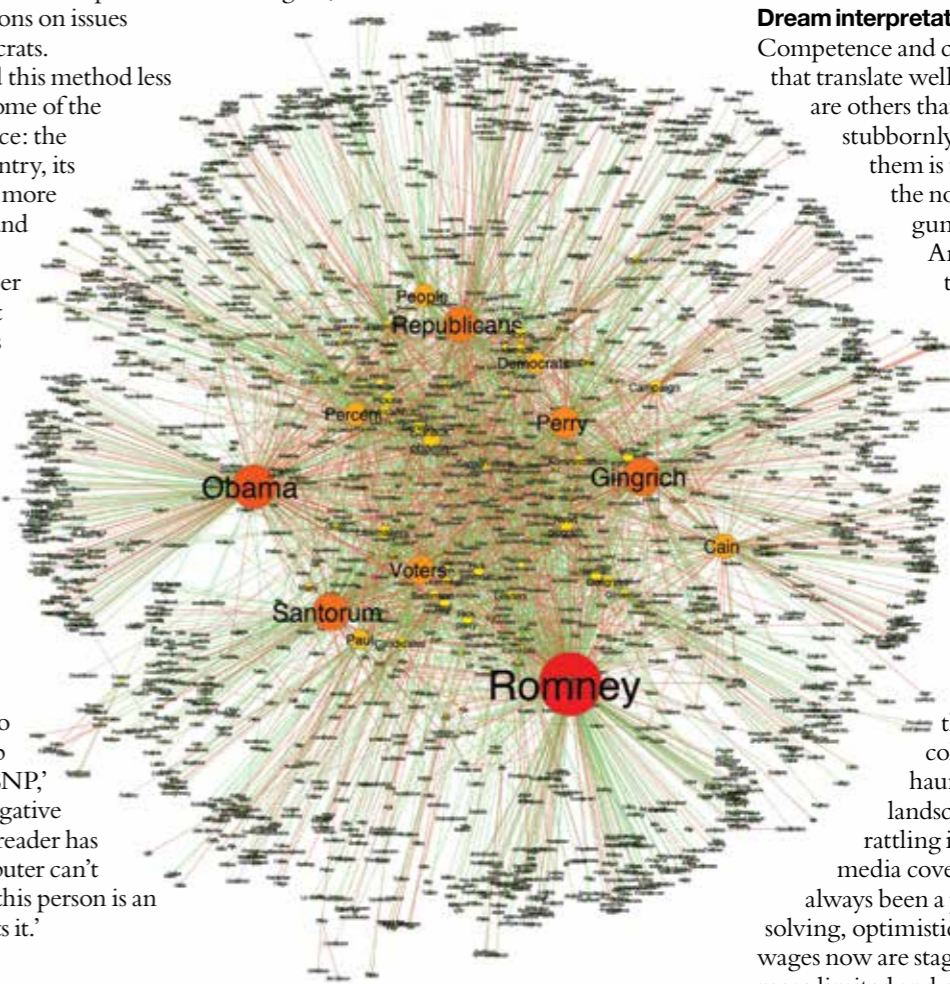
Let's get qualitative

'The purpose of our work,' Cristianini points out, 'is not to predict but to understand.' A veritable industry, however, has been built around the desire for accurate predictions about voting behaviour. Needless to say, it works to a tighter deadline.

Political polling has reached a peak of sophistication in the US thanks to statistician Nate Silver, whose carefully weighted methods, partly derived from his nuanced analysis of baseball statistics, proved outstandingly successful in predicting the state-by-state outcomes of the 2008 and 2012 US elections. Not so in the UK, where polls

during the 2015 election were so wide of the mark that the British Polling Council launched an inquiry into current practice.

'We can learn a lot about polling from the US,' says Deborah Mattinson (LLB 1978), who worked as a pollster for former British Prime Minister, Gordon Brown, before co-founding the research consultancy BritainThinks. 'We only do elections every five years, and they do them all the time and spend much more money.' But, Mattinson argues, the US can also learn from the UK.



'We use much more sophisticated qualitative, ethnographic techniques that allow us to get a better understanding of the deeper views and perceptions that influence people's behaviour at the ballot box,' she explains. 'We're much more interested in "small data", and more deliberative data.'

In a 2015 collaboration with *The Guardian*, Battleground Britain, Mattinson and her colleagues set up a 50-strong panel of swing voters in five marginal constituencies to get a deeper understanding of how this key group of voters thought and felt about the UK election. Among the methods they employed

was the relatively new approach of mobile ethnography, in which participants use their mobile phones to record their reactions, opinions and feelings 'in the moment'.

Hundreds of hours of focus groups, workshops and mobile usage later, the findings suggested that the Conservatives won over the swing voters because they were perceived as having the twin attributes of competence and certainty – qualities that Labour too often lacked – in addition to a clear message.

Dream interpretation

Competence and certainty are concepts that translate well between cultures; there are others that resist translation more stubbornly. Perhaps chief among them is the American Dream: the notion that, with enough gumption and self-belief, Americans can advance themselves and achieve prosperity and happiness.

'The American Dream is one of the intangibles about America, certainly,' suggests Trevelyan. 'Gun culture is another one that's pretty hard to explain to an outsider. And I'd say the role of religious faith is much stronger here than in Europe.'

But it's the spectre of the American Dream's collapse, she argues, that haunts the current electoral landscape and can be heard rattling its chains beneath the media coverage. 'Americans have always been a practical, problem-solving, optimistic people, but the fact that wages now are stagnant, opportunities seem more limited and costs are rising – that's definitely a threat to the dream, and there's a lot of campaign talk about how to reignite it.'

For Trevelyan, both the challenge and the excitement of covering this year's election is the complete absence of certainty. 'You simply don't know what the day will bring – it's like a rollercoaster,' she says. 'This race has conventional wisdom turning cartwheels!' ●

Above The network generated by Professor Cristianini's project showing media patterns in the primaries phase of the 2012 elections. The lines linking the nodes (actors or issues) represent statements by one actor about another (green is positive, red negative). For more details, please visit mediapatterns.enm.bris.ac.uk/USElections



Alumni in memoriam

The University extends its sincere condolences to the friends and families of those listed below for whom we have received notice of bereavement.

Sir Jeremy Morse KCMG (Hon LLD 1989), former University Chancellor, died February 2016, aged 88

Sir Jeremy Morse KCMG, Chancellor of the University of Bristol between 1989 and 2003, was widely regarded as the most successful senior banker of his generation and was the inspiration for Colin Dexter's fictional detective. In 1975, he was made KCMG for his contribution to international discussions aimed at creating a more stable banking environment. Sir Jeremy was also a chess expert, and a lover of poetry and brain-teasers.

You can read an extended and moving tribute to Sir Jeremy, written by Sir John Kingman FRS, former Vice-Chancellor, at bristol.ac.uk/alumni/inmemoriam.



Edward Hinton
(BSc 1938, Diploma 1939) died December 2015, aged 100

Dr Marjorie Reeve (née Organ)
(MB ChB 1940) died 2015, aged 99

Hugh Macturk
(BSc 1943, MSc 1953) died August 2015, aged 93

Edwin Boldero
(BSc 1945) died February 2015, aged 88

Norman Wootten
(BSc 1945, Cert Ed 1948) died 2015, aged 91

Dr Eileen Nicholas (née Moore)
(MB ChB 1946) died July 2014, aged 91

Dr Stuart Mellish
(BSc 1947, PhD 1952) died October 2015, aged 89

Geoffrey Pike
(BA 1948, Cert Ed 1949) died 2015, aged 88

John Apter
(BSc 1949) died August 2013, aged 85

Sister Monica Alexander
(Cert Ed 1950) died 2015, aged 93

Emeritus Professor Francis Kufuor
(BSc 1950, PhD 1954) died December 2015, aged 89

Dr Thomas Shuttleworth
(BSc 1950, PhD 1953) died March 2014, aged 89

John Smith
(BSc 1950) died 2015, aged 87

Norman Wilcock
(BSc 1951, Cert Ed 1952) died September 2015, aged 85

Patricia Gill (née Fox)
(BA 1952) died October 2015, aged 85

Dr Sidney Humphries
(BSc 1953, PhD 1958) died August 2015, aged 85

The Rev Ivan Selman
(BA 1953) died 2015, aged 83

Roy Dommett
(BSc 1954) died November 2015, aged 82

Dr Norman Moore
(PhD 1954) died October 2015, aged 92

Dr George Pope
(BSc 1954) died September 2015, aged 84

Dr Anthony O'Connor
(BSc 1955, PhD 1959) died May 2015, aged 81

Keith Attryde
(BA 1956) died November 2015, aged 80

Alan Rodely
(BSc 1956) died October 2015, aged 80

Stephen Trinder
(LLB 1956) died June 2015, aged 79

The Rev Geoffrey Reynolds
(BA 1957) died 2015, aged 80

Dr Sheila Sandry (née Faint)
(MB ChB 1957) died August 2015, aged 83

John Bonny
(BSc 1958, MSc 1962) died December 2014, aged 80

Diana Gould (née Young)
(BA 1958) died August 2015, aged 78

John Green
(BA 1958) died November 2013, aged 77

Jennifer Machin (née Bolt)
(BA 1958) died October 2015

Tanis Haig (née Gardam)
(BA 1959) died July 2015, aged 77

Dr Colin Lipscomb
(MB ChB 1959) died September 2015, aged 80

Dr Robert Searle
(BSc 1959, PhD 1962) died May 2015, aged 76

Dr Martyn Gay
(MB ChB 1960, MD 1969) died July 2015, aged 78

Dr Henry Haskins
(MB ChB 1960) died July 2015, aged 82

Donald Higham
(Cert Ed 1960, MEd 1981) died January 2015

The Rev Graham Haslam
(BA 1961) died September 2015, aged 79

Dr David Kennedy
(MB ChB 1961) died November 2015, aged 78

Dr Anthony Hughes
(PhD 1954) died October 2015, aged 75

Dr Arthur Wooster
(BA 1962) died April 2015, aged 83

Carole Howells MBE (née Roffe)
(BA 1963) died June 2015, aged 73

Ann Rance (née Bridgman)
(BA 1964) died September 2015, aged 72

Peter Alcock
(BArch 1965, Diploma 1965) died November 2014, aged 71

Steven Wroe
(BSc 1965) died July 2015, aged 71

The Rev Donald Humphries
(BA 1966) died October 2015, aged 72

Frederick Lewis-Smith
(BSc 1966) died September 2015, aged 70

Nigel Walton
(BA 1966) died November 2015, aged 71

Roger Clive-Powell
(BArch 1970) died October 2015, aged 70

William Harris
(Cert 1971) died 2015, aged 74

Dr Robert Smith
(MB ChB 1972) died 2015, aged 70

John Edmonds
(MLitt 1975) died November 2015, aged 88

Ruth Pottinger
(Diploma 1976) died October 2015, aged 80

Susan Goodall (née Wright)
(BSc 1979) died October 2015, aged 59

Sir David Willcocks CBE
(Hon DMus 1981) died September 2015, aged 95

Susan Squire (née Horner)
(BA 1982) died August 2015, aged 55

Christopher Rowe
(BSc 1984) died March 2015, aged 52

Ernest Saka
(Diploma 1984, MEd 1985) died July 2015, aged 71

Richard Dunn
(LLB 1985) died October 2015, aged 51

Dr Stuart Calder
(MB ChB 1986) died October 2014, aged 52

The Rev Edward Coombs
(BSc 1988) died September 2015, aged 49

Dr Helen Cooney
(MA 1991) died 2015, aged 53

Warren Trotman
(BSc 1991) died October 2015, aged 46

Dr Peter Laughton
(BSc 1993, PhD 1998) died July 2015, aged 43

Christopher Martin
(BSc 1996) died November 2015, aged 42

Dr Katherine Barlow
(PhD 1997) died November 2015, aged 44

Juliet Morse
(BSc 1997) died January 2016, aged 39

Clare Squire
(MEd 1998) died 2015, aged 68

Rob Mundin
(BSc 2000) died August 2015, aged 50

Alexander Gattas
(BSc 2001) died January 2016, aged 37

Colin Luger
(Diploma 2001, MSc 2003) died September 2015, aged 63

Edward Poulter
(MSc 2004) died April 2015, aged 70

Emeritus Professor Alfred Tomlinson CBE
(Hon DLitt 2004) died August 2015, aged 88

Dr Richard Bolster
former staff member, died 2015, aged 78

Dr George Dibdin
former staff member, died July 2015, aged 79

Professor Sally Duensing
former staff member, died November 2015, aged 66

David Higgins
former staff member, died 2015, aged 80

Professor Niall Rudd
former staff member, died October 2015, aged 88

David John Saunders
former staff member, died December 2015, aged 52

Professor David Smith
former staff member, died November 2015, aged 64

Professor Charles Tomlinson
former staff member, died August 2015, aged 88

Please email any notifications for alumni in memoriam to alumni@bristol.ac.uk.

Calendar July to December 2016

Make sure you're invited to relevant events in your area by updating your details at bristol.ac.uk/alumni/mydetails.



Friday 8 to Sunday 10 July
Best of Bristol Alumni Weekend 2016 // Bristol

Rediscover your University with friends old and new, and hear from our Vice-Chancellor and President, Professor Hugh Brady. The weekend will start with a garden party in Goldney Hall Orangery, including a tour of the gardens and grotto, and will feature a celebration lunch in the Great Hall of the Wills Memorial Building, a talk from Professor Viv Bennett CBE (MSc 1995, Hon LLD 2015), Director of Nursing, Public Health England, and a tour of the newly refurbished student space in Beacon House. If you would like help reuniting friends to attend, or have any questions, please contact alumni-events@bristol.ac.uk.



JULY

Saturday 9 July
Department of Aerospace Engineering: 70th anniversary celebration // Bristol

Saturday 9 July
Law alumni reunion (2011-15) // Bristol

Sunday 17 July
Cambridge Branch concert // Cambridge

SEPTEMBER

Thursday 1 September
Bristol medics reunion (1996-2001) // Bristol

Friday 23 September
Alumni reception with the Vice-Chancellor // New York

Friday 23 to Sunday 25 September
Eastern Canada reunion // Montréal

OCTOBER

Saturday 1 October
Cambridge Branch annual dinner // Cambridge

Tuesday 18 October
Bristol Pioneers' reception (invitation only) // London

Thursday 20 October
Wills Hall Association annual reception // London

NOVEMBER

Saturday 12 November
Officer Training Corps annual dinner // Bristol

DECEMBER

Thursday 1 December
Alumni Association Student Awards and reception // Bristol

Monday 12 December
London Branch carol service // London

Convocation and Alumni Association Elections

Julie Goldstein (BSc 1978), Chair of Convocation and the Alumni Association

Our University values and appreciates the varied ways that we, as alumni, contribute to building and maintaining Bristol's prestige and reputation. Together, we represent a strong community linked by the past and focused on the future, sharing both a common heritage and a willingness to provide inspiration, advice and encouragement to those who follow in our footsteps. Please do look out for opportunities to get more involved with your local alumni branches at bristol.ac.uk/alumni.

We are currently looking for more diverse representation on the Convocation and Alumni Association Committee and on Court, and I would urge you to please vote for your alumni representatives at bristol.ac.uk/take-part today. If you would like a paper ballot form, please contact the Volunteers team on +44 (0)117 394 1051. Online and postal voting will close at midnight on Friday 8 July. You will also be able to vote in person at the AGM on Saturday 9 July, part of the Best of Bristol Alumni Weekend.



For more information and details of how to book, please visit bristol.ac.uk/alumni/events or call +44 (0)117 394 1149.



Everyone can leave a legacy

**Please consider leaving
a gift to Bristol in your Will.**

Every two minutes, someone in the UK is diagnosed with cancer. But scientists at the University of Bristol are leading the fight back, by pursuing some of the most innovative and promising research ideas to help prevent, diagnose and treat cancer.

From new diagnostic tests to pioneering drug treatments, your gift will help the next generation of scientists make the life-changing breakthroughs we need to do more, faster, in the fight against cancer.

Contact:

Laura Serratrice, Head of Fundraising, University of Bristol, Senate House, Tyndall Avenue, Bristol BS8 1TH
T: +44 (0)117 394 1044 **E:** laura.serratrice@bristol.ac.uk

Hayley Ellis (BSc 2014, PhD 2014-)

bristol.ac.uk/leave-a-legacy

Exempt charity number: X1121

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