



Review of the year
2013-2014

Welcome

It is always difficult to capture in such a publication the essence, energy and sheer excellence that underpins a university like Bristol – its leading-edge research, its highly talented and driven students and staff. This is no easy task and I hope that we have managed to convey perhaps a snapshot of what, in my view, makes Bristol such an exceptional university.



I am pleased to introduce the University's annual review for the academic year 2013-2014. This has been another highly successful year for Bristol across the whole spectrum of our activities.

One such measure of these achievements is shown in our continued upward trajectory in the global university rankings, placing Bristol among the world's most prestigious institutions. As a truly global university, we have a positive impact on many people's lives all over the world and this is a position of privilege which we most certainly do not take for granted.

On a personal note, this is the last *Review of the Year* that I will introduce, as I step down as Vice-Chancellor in August 2015. I look back at the University's many achievements over my years as Vice-Chancellor with immense pride. Bristol is recognised globally for the quality of its research and teaching and this is testament to the significant talent and dedication of my colleagues across the institution.

Over the last year the University has continued to attract, and modestly increase in number, high-achieving undergraduate and postgraduate students. It has continued to address the most pressing global issues through its research and it has continued to invest significantly in its estate in order to remain at the leading edge.

All of this places Bristol in a highly enviable and strong position to be able to face the opportunities and challenges ahead with absolute confidence, and to remain true to its vision of being a world-class university.

Professor Sir Eric Thomas
Vice-Chancellor

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The latest University Annual Report and Financial Statements are available at www.bristol.ac.uk/finance/statements/



// Our research

Arts & Humanities

// The School of Modern Languages will form a geographic, historical and linguistic map of Italian mobility



The Italian connection

The School of Modern Languages is investigating how modern Italian culture has developed around the world

Whether it's Umberto Eco on our bookshelves, Tony Soprano on our screens or mozzarella in our shopping baskets, Italian culture is now firmly embedded in the fabric of societies across the world. But while we all enjoy our morning espresso or evening glass of Chianti, we rarely stop to ask how these Italian communities came to establish themselves so far from home.

Our researchers are looking at how modern Italian culture has formed and developed across the world over the past 150 years, from the Orkney Islands to Tasmania, Australia, Africa and, most notably, America.

During the project, called Transnationalising Modern Languages:

Mobility, Identity and Translation in Modern Italian Cultures, academics from Bristol are working alongside colleagues at Queen Margaret University and the Universities of St Andrews and Warwick to study Italian community groups who experience both linguistic and cultural translation on a daily basis to help develop their understanding of how people respond to living in a bilingual or multilingual environment.

In addition, they are examining a wealth of publications and materials – journals, literature, life stories, photographs, memorabilia and so on – from Italian communities to examine the impact they have on notions of national identity.

Professor Charles Burdett, who is leading the project at Bristol, says: "Italy offers an exceptionally rich example for any study of cultural and linguistic translation owing to its global history of migration. Thanks to funding from the Arts and Humanities Research Council (AHRC), we're able to carry out extensive analysis to form a geographic, historical and linguistic map of Italian mobility."

The project has been awarded £1.8 million by the AHRC and falls under its Translating Cultures theme, which addresses the need for better understanding and communication between and across diverse cultures.

The richness of breath

As Harper Lee once noted: "One does not love breathing." It is a basic physiological mechanism we barely notice, but one which has enormous cultural, spiritual and emotional meaning. Breath has traditionally been seen as what connects spirit and body and it is strongly affected by mood and emotion. In their joint five-year project, *The Life of Breath*, Professor Havi Carel of Bristol and Professor Jane Macnaughton of the University of Durham are studying breath and breathlessness in literary and cultural history, philosophy and medical history. The project is being supported by the Wellcome Trust.

New Dictionary of Hymnology published

For the first time in more than a hundred years, a new *Canterbury Dictionary of Hymnology* has been published. The result of ten years' research by editors headed by Professor JR Watson of the University of Durham and Dr Emma Hornby of the University of Bristol, the *Canterbury Dictionary*, the standard historical reference book for pre-20th-century Christian hymns, contains over 4,000 entries written by more than 300 authors from around the world, including America, Canada, South Korea and Brazil.

The *Canterbury Dictionary of Hymnology* is supported by grants from learned foundations such as the British Academy and the Modern Humanities Research Association.

Extreme dairy farming

Whether you add a drop to your morning coffee, pour it over cereal or prefer it straight up with a cookie before bed, milk forms the cornerstone of the average person's diet – and none more so than that of our friends in Finland.

The Finns are the world's biggest milk

// A joint project between the University and Bristol City Council is encouraging people to explore their community



drinkers today but researchers from the Universities of Bristol and Helsinki have discovered that this dates back to 2500 BC.

Experts had previously been unable to establish whether prehistoric dairy farming was possible in the harsh environment of the far north, where there is snow for up to four months a year, but using high-tech techniques, they were able to analyse residues preserved in fragments of ancient pots.

Dr Lucy Cramp from the Department of Archaeology and Anthropology at Bristol said: "This is remarkable evidence which proves that four-and-a-half thousand years ago, Stone Age people must have been foddering and sheltering domesticated animals over harsh winters, in conditions that even nowadays we would find challengin

Exploring local history and culture

Local people are being encouraged to explore and co-create their community's heritage and culture through *Know Your Bristol*, a joint project by the University of Bristol and Bristol City Council (BCC).

Between 2012 and 2013 *Know Your Bristol* worked with local people and community groups to create a history layer on BCC's online interactive map, *Know Your Place*, enabling people to

'peel away' layers to reveal historic maps of the city and see how the urban landscape has transformed over time. The latest phase of the project, *Know Your Bristol On the Move*, aims to connect with even more Bristol residents, but particularly those whose stories tend to be absent from official histories and maps of the city.

Storytelling with a technological twist

In two very different projects, researchers at Bristol have collaborated with creative companies to give storytelling a 21st-century twist. In the first, Dr Victoria Bates and Dr Ki Carter are working with award-winning product design experts Kinneir Dufort to create *InTouch*, a physical story portal that will link the teller and the listener through sound and touch.

Meanwhile, Bristol archaeologists Professor Mark Horton and Professor Alex Bentley are collaborating with design agency Uniform to explore how connected devices might open up new ways to share stories embodied in rare archaeological objects connected with the transatlantic slave trade.

The projects form part of REACT (Research and Enterprise in Arts and Creative Technology), which funds collaborations between arts and humanities researchers and creative companies.

// Our research

Social Sciences & Law

// The number of impoverished families in the UK has doubled in the last 30 years, a study led by the University of Bristol has found



Britain on the breadline

A nationwide poverty study, led by the University of Bristol, called on the government to tackle deprivation

One in three people now live in poverty with the number of impoverished families having doubled in the last 30 years. These were the stark findings from the largest study of poverty and deprivation ever conducted in the UK.

The Poverty and Social Exclusion in the United Kingdom (PSE) project, led by the University of Bristol and funded by the Economic and Social Research Council, found that the percentage of households who fell below society's minimum standard of living increased from 14 per cent to 33 per cent over the last 30 years, despite the size of the economy doubling.

The report received a huge amount of interest in the mainstream media with broadsheets and tabloids, including The Independent, The Telegraph and The Guardian, reporting on the project's findings.

Other key figures revealed that almost 18 million people cannot afford adequate housing conditions; 12 million people are too poor to engage in common social activities; a third of people cannot afford to heat their homes adequately in the winter; and four million children and adults are not properly fed by current standards.

Researchers from the University of Bristol worked with colleagues at Heriot-Watt University Edinburgh, the Open University, Queen's University Belfast, the Universities of Glasgow, Oxford, Birmingham and York, the National Centre for Social Research and Northern Ireland Statistics and Research Agency. They found that around 5.5 million adults go without clothing; 2.5 million children live in damp homes; and more than 20 per cent of adults have had to borrow in the last year to pay for day-to-day needs.

Professor David Gordon from the Townsend Centre for International Poverty Research at the University of Bristol said: "The coalition government aimed to eradicate poverty by tackling the causes of poverty. Their strategy has clearly failed. The available high-quality scientific evidence shows that poverty and deprivation have increased since 2010, the poor are suffering from deeper poverty and the gap between the rich and poor is widening."

Results from the PSE dispel the myth that poverty in general and child poverty in particular is a consequence of a lack of paid work. It found that the majority of children who suffer from multiple deprivations – for example, having inadequate diet and clothing – live in small families with one or two siblings, live with both parents, have at least one parent who is employed, are white and live in England.

Access to justice limited

In July 2013 the coalition government introduced fees to those who wished to bring a claim or appeal to the employment tribunal, in an effort to encourage businesses and workers to mediate or settle a dispute rather than go to a full hearing. However, research by the Universities of Bristol and Strathclyde has found that the tribunal fees have limited access to justice for workers.

The research, which was part of the Citizens Advice Bureaux and Employment Disputes project and funded by the European Research Council, examined the effect of employment tribunal fees on employees' lives and livelihoods.

With fees ranging from £160 to £1,200, many people reported that they could no longer afford to seek resolution of their employment-related disputes. The number of claims made to employment tribunals in the months January to March 2014 fell by 81 per cent compared to the same quarter the previous year, according to statistics published by the Ministry of Justice.

Physical inactivity prevalent

Keeping fit and staying active is fundamental to our health and wellbeing, but an alarming number of individuals in the UK do not get enough exercise, according to research led by the University of Bristol.

The study, funded by the Economic and Research Council, examined data on over one million adults in England and found that almost 80 per cent did not hit national physical activity targets set by the government. Fewer than 10 per cent of the adult population in England who could walk did not walk for five minutes continuously in a four-week period, 46 per cent had not walked for leisure for 30 minutes continuously, 88 per cent had not swum and nine out of ten had not used a gym.

In stark contrast, a separate University of Bristol study found that older people who undertook at least 25 minutes of moderate or vigorous exercise every day needed fewer prescriptions and were less likely to be admitted to hospital in an emergency.

Adoptive parents praised

The "commitment and tenacity" of adoptive parents has been highlighted as the reason for a lower-than-expected disruption rate in adoptions, a report has found. In the most comprehensive study into adoption in England, researchers from the University of Bristol analysed data on 37,335 adoptions over a 12-year period and found that 3.2 per cent of children moved out of their adoptive home prematurely, known as a 'disruption'.

They found that a disruption was more likely if a child was placed once they were over the age of four, with teenagers ten times more at risk of moving out of their adoptive home than children under the age of four.

Professor Julie Selwyn, Head of the Hadley Centre for Adoption and Foster Care Studies at the University of Bristol, said: "The disruption rate was lower than we expected. The reason for that became obvious when we met families, whose commitment and tenacity was remarkable in very testing circumstances."

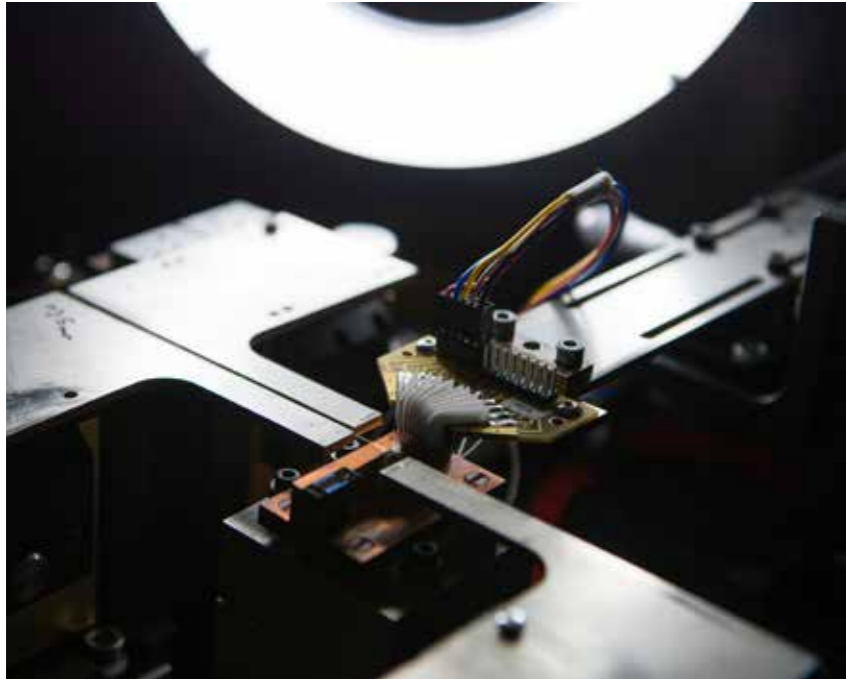


// An alarming number of individuals in the UK do not get enough exercise

// Our research

Engineering & Science

// Assorted equipment from the Quantum Photonics laboratory



// Professor Jeremy O'Brien



The quantum revolution

Quantum technologies are set to fundamentally change our lives as the first commercially available devices begin to emerge

The ability to design and create new materials and pharmaceuticals at a fraction of today's cost is not only an enticing prospect but also a very real one, according to Professor Jeremy O'Brien, Director of the Centre for Quantum Photonics at the University of Bristol.

During his speech to senior political and business leaders at the World Economic Forum meeting of the New Champions 2013, held in China, Professor O'Brien discussed the future of ICT and the impact that the quantum technologies revolution will have on the future of society and economics.

Professor O'Brien, who has been named a RISE Leader for 2014 by the Engineering and Physical Sciences Research Council, said that quantum technologies offer ultra-secure communications, sensors of unprecedented precision and

computers that are exponentially more powerful than any supercomputer for certain tasks. These technologies, he continued, are destined to fundamentally change our lives with the emergence of the first commercially available quantum devices.

The speech proved timely as physicists at Bristol got one step closer to proving the reliability of a quantum computer. This machine promises to revolutionise the way we trade over the internet and offers the hope of quickly solving problems that would take the best supercomputers the lifetime of the universe to solve.

While a fully-fledged commercial quantum computer may take years to materialise, researchers have been testing a more basic device, called a Boson Sampler, which focuses on carrying out one fixed task using the behaviour of photons, or particles of

light, and asking whether large systems of quantum particles behave as predicted by quantum mechanics.

Conventional computers cannot simulate large versions of these quantum devices so it is not clear if they are truly performing complex tasks. To address this problem, the Bristol team devised and demonstrated new techniques using the most advanced techniques of integrated photonics, which showed how to measure certain properties of Boson Samplers to provide experimental evidence to support the correct operation.

The researchers hope that the broader methods behind the experiments will be applicable to other types of quantum devices when conventional verification techniques are not possible.

Using maths to combat cancer

A new branch of mathematics has been established to help develop improved drug control in the battle against cancer. Scientists from Bristol's School of Mathematics, including Professor Tanniemola Liverpool, claim that by understanding how an artificial 'synthetic swimmer' can be made and driven, and how such swimmers behave in large groups, a better drug control system to cure cancer can be developed. While the current chemotherapy approach to treating cancer targets the entire body, this improved drug control would target only the specific affected cancerous area.

Although a lot is now understood about synthetic swimmers, both alone and in large groups, many new questions are being raised, making the topic a very active area of research – and one that lies at the crossroads of physics, chemistry, biology and mathematics.

UltraHaptics allows invisible information to be shared

Interactive touchscreen surfaces, like information displays at museums or smartphones, are common in everyday life and allow users to gain information in a simple and accessible way.

Now a team from the University of Bristol's Interaction and Graphics (BIG) research group have developed a solution that not only allows people to see what is on an interactive surface but also feel it and receive invisible information before they even touch it.

Called UltraHaptics, this system provides multi-point mid-air haptic feedback above a touch surface, using the principle of acoustic radiation force to project palpable sensations through a screen and directly into the user's hands.

// Three Bristol PhD students spent two weeks living in the Utah desert to simulate life on Mars



Life on Mars

Three researchers from the University of Bristol spent two weeks living in cramped conditions in the Utah desert with limited amounts of electricity, water and oxygen in order to simulate life on Mars. Ashley Dale, a PhD student in Aerospace engineering, led a team of seven experts, including fellow Bristol PhD students Michaela Musilova and Sue Ann Seah, on the mission to the Mars Desert Research Station.

The team conducted a range of experiments, including field-testing hardware developed by NASA that extracts hydrogen and oxygen from soil, to help prepare for future missions and to publicise the importance of space travel to the red planet.

Elsewhere, scientists from NASA's InSight mission to Mars have been searching for a suitable location to calibrate the seismometer that they will send to the red planet in 2016. Recent tests carried out at the Ultra-Low Noise Lab at the University of Bristol's Centre for Nanoscience and Quantum Information (NSQI) have shown it to be the quietest location in the UK in the critical seismic frequency range that scientists expect to encounter on Mars.

A team from Bristol's School of Earth Sciences has been working with Dr Pete Dunton at NSQI to help calibrate and test the Mars-bound instrument.

Pioneering sonic 'tweezers'

The development of pioneering 'tweezers' that use ultrasound to grip and manipulate tiny clusters of cells could lead to life-changing medical advances, according to a team of researchers from the Universities of Bristol, Dundee, Glasgow and Southampton.

The tweezers use multiple, tiny beams of ultrasonic waves that manipulate and nudge cells into a required position, turn them around or hold them firmly in place. For example, cartilage cells taken from a patient's knee can be levitated for weeks in a nutrient-rich fluid, enabling them to grow and form better implant tissue than when cultured on a glass Petri dish.

In addition, the tweezers can mould the growing tissue into the right shape so that the implant is fit for purpose when inserted into the patient's knee, reducing the need for knee replacements.

The research was funded by the Engineering and Physical Sciences Research Council.

// The discovery of the *Kulindadromeus zabaikalicus* suggests all dinosaurs could have been feathered



Evidence suggests all dinosaurs had feathers

How many feathered dinosaurs can you name? Archaeopteryx, velociraptor, ornithomimus...? In fact, you could probably name a great deal more following the discovery of fossils in Siberia that suggest all dinosaurs could have been feathered.

The new dinosaur, named *Kulindadromeus zabaikalicus*, is the first ever example of a plant-eating dinosaur with feather and scales. Previously only flesh-eating dinosaurs were known to have had feathers, but this discovery suggests that feather-like structures were likely widespread in dinosaurs.

The feathers were studied by the University of Bristol's Dr Maria McNamara and Professor Michael Benton, and Professor Danielle Dhouailly of the Université Joseph Fourier in Grenoble, France.

Computing and cyber security

More secure computing could be one step closer thanks to a breakthrough in cryptography by the University of Bristol and Denmark's Aarhus University. The academics worked together to develop the SPDZ protocol (pronounced 'speedz'), the fastest protocol known to implement a theoretical idea called 'multi-party computation', which allows two or more people to compute a function on their secret inputs without revealing their inputs to anybody else – for example, when voters wish their vote to be counted but don't want their decision to be made public.

The SPDZ protocol turns this theoretical idea into a practical reality, allowing the team to compute complex functions in a secure manner, enabling possible applications in the finance, drugs and chemical industries.

Elsewhere, researchers from the University's Cryptography Group and the Safety Systems Research Centre have contributed to an EU paper on the resilience of critical information structures.

The aim of the white paper is to raise awareness about how organisations can respond to the increasing numbers of recent security incidents against industrial control systems (ICS) and supervisory control and data acquisition (SCADA) and provides recommendations regarding prevention and adequate response.

Bubbles for the 21st-century

Imagine a clock that releases a number of bubbles corresponding to the hour to help children tell the time. Or bubbles with images projected onto them to help advertisers reach an audience in a new and innovative way. These are just some of the possible applications of the SensaBubble, a new multi-sensory technology that creates soap bubbles to deliver information to people using different senses.

The SensaBubble technology, which was revealed at ACM CHI 2014, one of the world's most important conferences on human-computer interfaces, creates bubbles with a specified size and frequency, fills them with an opaque fog that can be scented, controls their route, tracks their location and projects an image onto them.

Medical & Health Sciences

// Groundbreaking research at Bristol on cooling babies who've suffered from perinatal asphyxiation has been hailed as revolutionary



Tackling brain damage in newborn babies

Cooling newborn babies deprived of oxygen at birth significantly reduces the risk of brain damage

It has been hailed as life changing and revolutionary, saves 1,500 babies from death and disability each year and helps the NHS and families save more than £200 million per annum. Small wonder that Professor Marianne Thoresen's groundbreaking treatment on cooling babies who've suffered from perinatal asphyxia has been among research at Bristol that has been awarded the Queen's Anniversary Prize for Higher Education, the highest accolade for any academic institution.

During the trial, newborn babies that suffered from a lack of oxygen at birth

were randomly assigned into two groups within six hours of delivery. One group was treated with standard care while the other group was treated with standard care plus hypothermia, where their body temperature was reduced to 33.5°C for three days.

Researchers found that over half (51.7 per cent) of infants treated with hypothermia survived with an IQ of 85 or above, which is considered to be within the normal range, compared with 39.4 per cent of those treated with standard care. Furthermore, children who received the cooling treatment

were less likely to suffer from cerebral palsy and other moderate or severe disabilities, and showed improved motor functioning.

The study was conducted by a team of researchers from the Universities of Bristol, Oxford and Leeds, University College London, Queen's University Belfast and Homerton University Hospital. It was the largest study of its kind and the first to show improved brain function in children treated using this method in later life.

// Medical & Health Sciences

// The carotid body could be the key to successfully treating high blood pressure



Treating high blood pressure

Removing one of the tiniest organs in the body could revolutionise the treatment of the world's biggest silent killer. University of Bristol researchers have discovered that the carotid body – a nodule no larger than a rice grain found on the side of each carotid artery – appears to be a major culprit in the development and regulation of high blood pressure.

Researchers, led by Professor Julian Paton from the School of Physiology and Pharmacology in the Faculty of Medical and Veterinary Sciences, found that by removing the carotid body connection to the brain in rodents with high blood pressure, blood pressure fell and remained low.

The carotid body regulates the amount of oxygen and carbon dioxide in the blood and is stimulated when oxygen levels fall in your blood – for example, when you hold your breath. This causes a dramatic increase in breathing and blood pressure until blood oxygen levels are restored, a response that comes about through a nervous connection between the carotid body and the brain.

“We knew that these tiny organs

behaved differently in conditions of hypertension but had absolutely no idea that they contributed so massively to the generation of high blood pressure,” Professor Paton said.

£13.6m grant for new research centre

The University of Bristol's bid to become a world leader in the emerging field of synthetic biology got a huge boost following the award of a £13.6 million grant from the Biotechnology and Biological Sciences Research Council and the Engineering and Physical Sciences Research Council. The award, which is spread over five years, will be used to establish a new research centre in synthetic biology.

Professor Dek Woolfson of the University of Bristol's Schools of Chemistry and Biochemistry, who will be the Director of the centre, said: “We are over the moon. This is the culmination of hard work from a number of us over the past five years to initiate synthetic biology research at the University. It will now allow us to begin some extremely exciting multidisciplinary and adventurous new research programmes.”

Landmark moment for ALSPAC project

One of the world's largest population studies, which has been charting the health of 14,500 Bristol families since the early 1990s in order to improve the health of future generations, celebrated an important landmark in its acclaimed history.

Researchers from the University of Bristol-based Avon Longitudinal Study of Parents and Children (ALSPAC), which has provided data to almost 600 academics worldwide, published their 1,000th paper, showing that men who started smoking before the age of 11 had fatter sons.

In 1991 and 1992 more than 14,000 pregnant women in Bristol and the surrounding area agreed to take part in a groundbreaking study that would help scientists investigate the ways in which the environment and genetics interact over time to influence health and development.

Unlike other studies, ALSPAC recruited women during pregnancy so that precise information could be gathered about their children's lives even before they were born, and which followed their development through to adulthood. The project, also known as Children of the 90s, today has 32,000 participants including the original mothers, their 14,500 children, 3,000 fathers, 200 grandchildren and 550 siblings.

The project has received almost £8 million in core funding from the Medical Research Council and the Wellcome Trust to continue its work until March 2019.

// A new MenB vaccine could be introduced



MenB vaccine gets green light

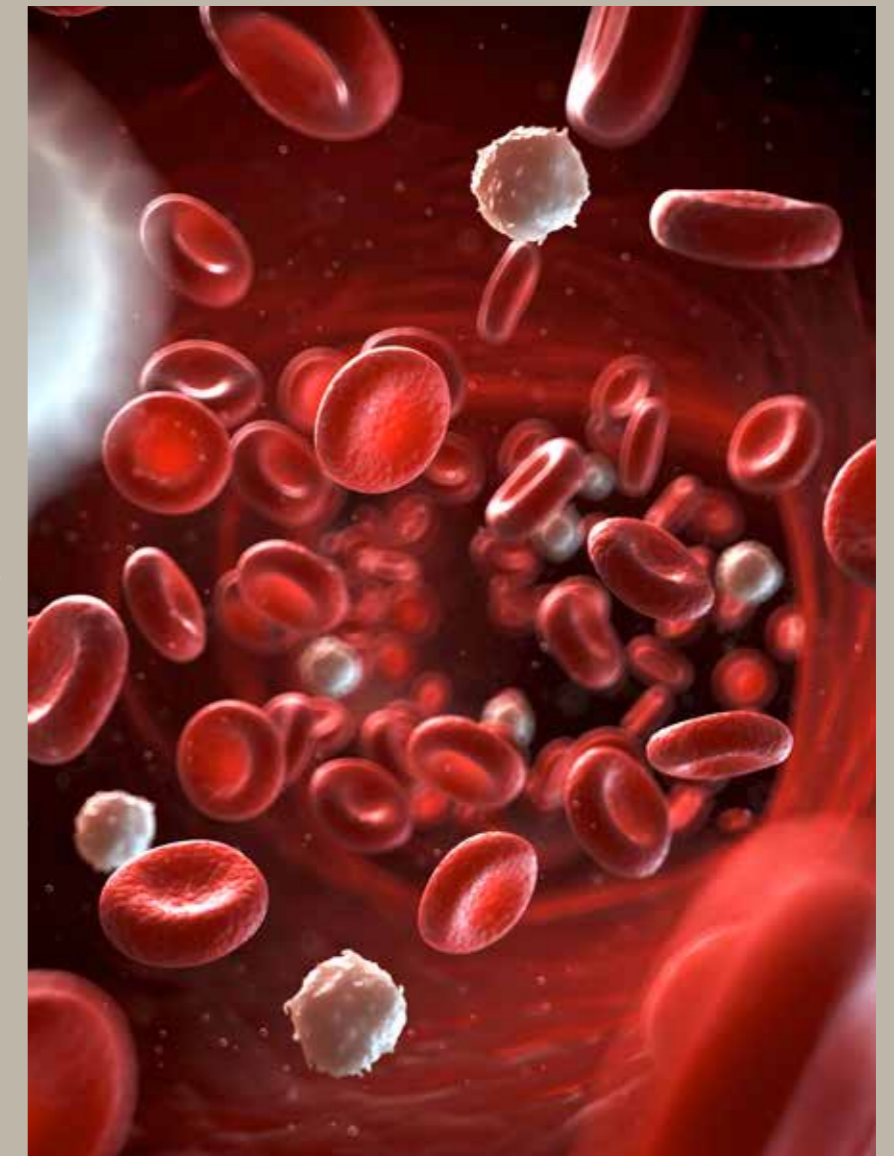
In a move described as a “wonderful outcome” by the Chief Executive of the Meningitis Research Foundation, the Department of Health announced that it would be working towards introducing a life-saving vaccine for meningitis B (MenB).

Bexsero is the first lifesaving vaccine for MenB, which is the leading cause of death from infection in young children, and would be free on the NHS for babies.

The Joint Committee on Vaccination and Immunisation (JCVI) recommended the move to the government using the mathematical and economic models developed by researchers from the University of Bristol's School of Social and Community Medicine, alongside colleagues from the London School of Hygiene and Tropical Medicine.

The models were used as a tool to help predict the number of cases prevented under several potential introductory vaccination programmes and whether these programmes would be cost-effective. The JCVI concluded that evidence showed Bexsero is effective in preventing MenB in infants and should be rolled out, subject to it being made available by the manufacturer at a cost-effective price.

// A consortium that includes the University of Bristol aims to tackle insufficient red blood cell supplies



Cultured blood cells ready by 2016

Every year over 90 million red blood cell transfusions take place across the world, playing a vital role in current clinical practice. These are currently made possible by blood donation programmes, but supplies in many countries are insufficient and donations bring a range of challenges, including the risk of infection, incompatibility and overloading iron levels.

New research carried out by a consortium that includes the University of Bristol, aims to tackle these issues through the use of red blood cells cultured in the laboratory.

The consortium will use pluripotent stem cells, able to form any other cell in the body, to multiply and become fresh red blood cells that, it is hoped, will survive longer and perform better than donated blood cells. The first human volunteer will receive these cultured red blood cells within the next three years.

The work is being carried out as part of a long-term research programmed funded by the Wellcome Trust.

// Patients are more likely to raise health problems with a GP they've seen over time // Apitope has announced positive results from its latest clinical trial



Consistency is key

Seeing the same GP is good for your health, according to two pieces of research carried out by the University.

In the first study, researchers from the School of Social and Community Medicine found that patients were more likely to raise a health problem with a doctor they'd seen over time, and that those GPs could provide a good quality of patient care as they would have better knowledge of the patient's history, medications and health-related behaviours and attitudes.

Researchers collected data from 22 practices, recording consultations between 190 patients and 30 GPs, and found that almost a third of patients had a "deep" relationship with their doctor, which in turn encouraged them to raise 0.5 more problems (requiring a GP to make a decision or diagnosis) and 0.9 more issues (such as symptoms) during each consultation.

In a separate study, carried out by the University's Centre for Academic Primary Care, researchers found that attendances at emergency departments could be reduced if patients saw the same GP every time they visited their doctor's surgery. The report looked at evidence from studies around the world and found that patients who saw the same doctor every time they attended their GP surgery were less likely to require emergency care.

Dr Alyson Huntley, Research Fellow at the University of Bristol and lead author of the report, said: "A recent report by the King's Fund suggested that admissions among people with long-term conditions that could have been managed in primary care cost the NHS £1.42 billion per year. This could be reduced by up to 18 per cent through investment in primary and community-based services."



Positive results in MS trial

Apitope, a drug discovery and development company founded by Professor David Wraith of the School of Cellular and Molecular Medicine, has announced positive results from its latest clinical trial.

The company, which focuses on treating the underlying cause of autoimmune diseases, such as multiple sclerosis (MS), completed its second phase I clinical trial to assess the safety of its peptide therapeutic in 43 patients with relapsing MS. Review of the MRI data showed a significant decrease in new lesions – an early indicator of potential efficacy.

Addressing key global challenges

The University currently has two University Research Institutes whose remit is to address some of the world's most challenging issues by bringing together leading academics from a wide variety of fields from across the University and beyond. Both foster interdisciplinary research on an ambitious scale in recognition of the fact that humankind increasingly needs creative and innovative solutions in order to address its most pressing problems.

The Cabot Institute

Named after John Cabot (Zuan Caboto), the Genoese explorer who is credited as discovering North America after setting sail from Bristol, the Cabot Institute carries out research on living with environmental uncertainty.

The Institute drives new research in the interconnected areas of climate change, natural hazards, water, food and energy security, and the structure and governance of resilient, sustainable cities. The Institute is a multidisciplinary venture that spans the breadth of intellectual endeavour across the University as well as that of its civic and industrial partners.

Cabot Institute member Dr Jo House of Bristol's School of Geographical Sciences recently contributed to the latest report of the Intergovernmental Panel on Climate Change, which assessed all relevant options for mitigating climate change through limiting or preventing greenhouse gas emissions.

In another landmark development, Dr James MacFarlane of the Cabot Institute helped develop a drone to safely and accurately assess dangerous nuclear accident sites.

The Advanced Airborne Radiation Monitoring (AARM) system integrates an unmanned aerial vehicle with a lightweight gamma spectrometer and other positional sensors to capture high-resolution images. The AARM system,

the joint winner of the ERA Foundation Entrepreneurs Award, could significantly improve the safety and effectiveness of hazard response operations while supporting routine monitoring at nuclear sites and naturally occurring radioactive materials at mining operations and oil and gas facilities.

The Elizabeth Blackwell Institute for Health Research

The Elizabeth Blackwell Institute (EBI) brings together leading researchers from a variety of fields to find solutions to the most pressing health problems of the 21st century.

Co-funded by the Wellcome Trust and the University of Bristol, the EBI sets out to 'widen the gene pool' of health research by fostering novel interdisciplinary research communities and translating their breakthroughs into benefits for patients. It does this by identifying and supporting talented young people, developing trusted external partnerships and encouraging public involvement in research.

The University of Bristol is currently leading a key collaboration to help address the challenges faced by the UK's healthcare system by developing a digital 'home health assistant' that would operate around the clock, monitoring individuals with health conditions, such as diabetes.

The flagship project, known as SPHERE (Sensor Platform

for HEalthcare in a Residential Environment), was awarded £12 million by the Engineering and Physical Sciences Research Council and brings together scientists from the Universities of Bristol, Southampton and Reading, who will work in partnership Bristol City Council, Knowle West Media Centre, Toshiba and IBM.

The EBI is also supporting a pioneering project to help create a chemical compound database, which could lead to the creation of new medicines, materials and agrichemicals.

The National Compound Collection (NCC) began life in 2013 when the University of Bristol's Dr Laura Broad spent four months collating interesting chemical compounds found on the shelves of the School of Chemistry, cataloguing any that were in a usable state and that could have a range of applications in the future.

Since then, the project has grown and evolved with Dr Broad coordinating a team of eleven data collectors who search for compounds from 15 partner universities. Now in its pilot phase, the NCC is funded by the Royal Society of Chemistry and supported by the EBI.

A global institution

Many of the University's activities and partnerships support its role as a global institution. It seeks to address key global challenges through its research, it builds partnerships with other leading international universities, it attracts the brightest minds from across the globe and its alumni are present in more than 180 countries. Meanwhile, the University's home students are encouraged to take advantage of the many overseas study opportunities available to them.

The University has over 150 exchange links with top ranking universities in more than 30 countries around the world. Depending on a student's degree programme, they are able to choose from these exchange links in order to study abroad for a semester or a full academic year as part of their course at Bristol. Possibilities include the Sorbonne in France, the University of Chicago in the United States and McGill in Canada.

Some students also have the option of taking part in a work placement abroad that forms an integrated part of their study. Bristol students have worked at companies such as Sotheby's in Madrid, Vogue in Paris and Credit Suisse in Milan. Students benefit from the opportunity to learn a new language, experience a new culture and enhance their desirability with prospective employers. >



// A global institution

Forging links with the US

The University of Bristol's Pro Vice-Chancellor International, Professor Nick Lieven, led a delegation of academics to New York's University of Rochester to strengthen ties between the two institutions and explore further opportunities for collaboration.

The University of Rochester in upstate New York is one of the top-tier research universities in the United States and is placed within the top 100 of the Academic Ranking of World Universities. Its alumni include Nobel Prize winners Steven Chu, Masatoshi Koshihara and Arthur Kornberg, Pulitzer Prize-winning historian Steven Hahn and composer George Walker.

Bristol and Rochester have existing links within the areas of vision science and translational medicine and are seeking to establish collaborations in areas within engineering, digital humanities and brain and cognitive science. The universities will also discuss student exchange to enrich the experience of students in both Bristol and Rochester.

Back in Bristol, the University welcomed students from United States as part of the second annual Fulbright Summer Institute, which was established to increase knowledge of the culture, heritage and history of the UK.

Nine undergraduates from America took part in workshops, seminars and field trips during their visit, looking at the role Bristol has played in American history.

Bristol-Kyoto Symposium

Institutional links between the University of Bristol and Kyoto University were further strengthened at the second Bristol-Kyoto Symposium, held in Kyoto. Dr Hiroshi Matsumoto, the President of Kyoto University, was presented with an honorary degree from Bristol at the start of the symposium, which was attended by Vice-Chancellor Professor Sir Eric Thomas alongside 60 academics from across all University of Bristol faculties. Kyoto University is one of the top global

// Bristol hosted the China-UK Higher Education Forum // Pro-Vice Chancellor International, Professor Nick Lieven
// Andrew Nix, Professor of Wireless Communication Systems // Academics from Bristol tackle global food production // Delegates attend the second Bristol-Kyoto Symposium // Professor Malcolm Evans OBE



research universities, placed 23rd in the Times Higher Education World Reputation Rankings. It boasts eight Nobel Prize laureates among its alumni, including Professor Shinya Yamanaka, who won the Nobel Prize in Physiology or Medicine in 2012.

The developing relationship between the two universities reflects the increasing importance of international research partnerships to address global issues.

Strengthening ties with China

University colleagues from China and the UK visited Bristol to discuss research and collaboration at the China-UK Higher Education Forum, which was jointly arranged by the University, the British Council and the UK Higher Education International Unit.

Speakers from the University of Bristol, the Technology Strategy Board, Tongji University, the University of the West of England, the West of England Local Enterprise Partnership, Hunan University, Nanjing University of Science and Technology, Watershed, the National Composites Centre and BAE Systems shared examples of innovative working methods within the UK and China with delegates. Attendees

included 20 senior representatives of top Chinese universities as well as UK university pro vice-chancellors and colleagues.

Staff and PhD students from the Bristol Centre for Functional Nanomaterials (BCFN) travelled to China to attend a symposium at the Chinese Academy of Sciences National Centre for Nanoscience and Nanotechnology in Beijing. Following the meeting, staff and students attended the ChinaNANO 2013 conference where a number of BCFN academics made speeches and Bristol students presented posters – one student, Sara Carreira, winning one of 10 international student poster prizes.

The engagements continued as Professor Academician Xi Zhang, Head of the Chemistry Department and Dean of the Faculty of Science, hosted the first Tsinghua-Bristol Joint Nanoscience Symposium at Beijing's Tsinghua University, where eight students gave short talks.

International engagements

Professor Malcolm Evans OBE of the University of Bristol Law School made his annual address as Chair of the largest international torture prevention body in New York.

The United Nations Subcommittee on Prevention of Torture (SPT) is a treaty body comprising 25 independent experts. In his presentation, Professor Evans set out the key developments made by the SPT during 2012.

In a separate engagement, two Bristol academics were invited to discuss the future of wireless communications at a major 5G summit held in New York. Andrew Nix, Professor of Wireless Communication Systems, and Mark Beach, Professor of Radio Systems Engineering in the Department of Electrical and Electronic Engineering, who are leaders in the field, represented the University and the UK at the Brooklyn 5G Summit.

Leading European industrialists and researchers were invited to Bristol to discuss the future of the high-speed internet. The University's High-Performance Networks Group in the Faculty of Engineering hosted a plenary meeting of the EU-funded IDEALIST project, which discussed the development of critical optical solutions to cope with the forecasted increase of internet traffic demand.

Representatives came from a variety of research organisations and institutes

“Staff and students are encouraged to participate in WUN's range of activities, tackling major research challenges”

including Alcatel-Lucent, Coriant, Ericsson, Cisco, BT, Deutsch Telekom and Telecom Italia.

Worldwide Universities Network

The Worldwide Universities Network (WUN) is a leading global higher education and research consortium made up of 16 universities from 10 countries on five continents. As a member of the network since 2001, the University of Bristol is able to forge close partnerships with leading institutions around the globe.

Staff and students are encouraged to participate in WUN's broad range of activities, tackling major research challenges that no individual institution could address alone.

In a recent project Professor Susan Robertson in the Graduate School of Education, alongside Professor Kris Olds from the University of Wisconsin-Madison, launched an inter-institutional open online course designed to examine issues related to the globalisation of higher education and research.

Students overseas

Each year the University of Bristol awards scholarships to encourage and recognise high achievement in internships overseas from international students. The initiative is led by the Faculty of Engineering's Industrial Liaison Office and seeks to build on the Faculty's strong links with industry to benefit home and overseas students.

Applications this year came from a diverse range of countries and industries, including a student working on the design of a building in St Petersburg in Russia and students working on the development of traffic

database and transportation models in China. Eight students in total received the award: Sahaj Sawhney, Andrey Smirnov, Shivam Chauhan, Brian Li Kam Wah, Chung Sing Yuen, Yiheng Chen, Ambuj Agrawal and Gurashish Singh.

Elsewhere, two University of Bristol students took part in a fact-finding mission to help to bring sustainable electricity to a Mumbai slum and two remote villages in India.

Working with Bristol-based charity The Converging World, the students travelled to the south Indian state of Tamil Nadu to discuss ways in which villagers can improve their lives by generating their own power.

Tackling global challenges

With one in seven humans undernourished and climate change already affecting global food production, according to the Intergovernmental Panel on Climate Change, the need for efficient food production has never been greater.

In response, an international team of scientists, led by academics at the University of Bristol, have put forward eight strategies to help cut the environmental and economic costs of keeping livestock while also boosting the quantity and quality of the food produced.

The eight strategies include:

- // feed animals less human food
- // farm regionally appropriate animals
- // keep animals healthy
- // use smart supplements
- // aim for quality not quantity
- // tailor farming practices to local culture
- // track costs and benefits
- // study best practice to share with local farmers

Working in partnership

The University works in a highly collaborative way to deliver major interdisciplinary projects. These partnerships extend way beyond academia and embrace all sectors as well as many parts of the community. Part of the University's ethos is that it should play an active role within the region. These activities encompass everything from the regional health agenda and supporting the region's economy, to supporting and contributing to the city's globally renowned cultural, creative and scientific output.

Partners

Bristol Health Partners is a leading collaboration between the University of Bristol, the University of the West of England, Bristol's three NHS trusts, three clinical commissioning groups and the local authority which aims to help maximise the city's health research, and to transform the understanding, prevention and treatment of key health problems in Bristol.

Inspired by the success of similar collaborations in the USA, Europe and East Asia, its mission is to generate health gains and improvements in service delivery in the city by promoting and developing Bristol's strengths in health services, research, innovation and education.

In December 2013 Bristol SETSquared was awarded the Business Incubator Design Award for its new enterprise hub at Brunel's Engine Shed in Temple Meads. The award was given in recognition of the hub's highly-connected location, the entrepreneurial heritage of the building and the "oxygen supply" created by the businesses using Engine Shed.

The Bristol SETSquared Centre has consistently achieved a very high success rate – 98 per cent of businesses it has supported since 2007 have succeeded and the current 65 members have raised over £65 million worth of investment in the 18 months to July 2014.

Centre Director Nick Sturge says: "The work we do at SETSquared, connecting SMEs with the university, and the university with the city-region's world-class innovation ecosystem, has been phenomenally successful. With Engine Shed, our new collaboration with Bristol City

Council, we are better able to sustain that and play an even more significant part in the long-term growth of the local economy and the University."

The National Composites Centre is a leading example of university-industry collaboration. This world-leading research and technology hub, owned by the University, draws on established links to world-class composites research at Bristol, the University of Bath and other UK universities and is set to double in size following government funding of £28 million, allowing it to extend its capabilities to develop composite technology for the aerospace, automotive, renewable energy and rail sectors.

The University also has a number of industry partnerships with companies including Rolls-Royce, EDF Energy, Arup and Toshiba.

Universities

Working in partnership with universities across the region and the rest of the world is increasingly important, helping institutions to share research infrastructure, address global challenges and maximise the impact of and return on investment.

The Universities of Bristol, Bath, Cardiff and Exeter announced a formal collaboration, known as GW4, in 2013, bringing together a high concentration of research expertise and capability in the region.

These four research-intensive universities, which already have strong partnerships, each have significant research capabilities that represent a total turnover in excess of £1 billion.

The GW4 Board is chaired by

// The University engages with the public through events like Doors Open Day // Professor Guy Orpen



"With SETSquared, we are able to play an even more significant part in the long-term growth of the local economy"

Professor Guy Orpen, the University of Bristol's Deputy Vice-Chancellor. In addition, the University has embarked on a pioneering partnership with Kyoto University to explore how collaborative research and thinking could help tackle some of the world's biggest challenges. The University welcomed a record-breaking 90 delegates from Kyoto as a Memorandum of Understanding was signed.

The public

The University is committed to engaging the public through its research and through the activities of its students. It also hosts the National Coordinating Centre for Public Engagement, in partnership with the University of the West of England. In addition, it hosts a variety of events to bring together academics, students and the public while also collaborating

with external organisations interested in engaging with the University. For example, the University played a key part in the Bristol Festival of Nature, hosting interactive exhibits and activities aimed at families, and invited members of the public to explore the contemporary and historic buildings not usually open to visitors as part of the annual Doors Open Day.

The University continues to invest in primary school science through the Primary Science Teaching Trust. Professor Dudley Shallcross from the School of Chemistry has been seconded part-time to be Director of the Primary Science Teaching Trust and, over the last four years, has developed and implemented a new strategy for the Trust, where the focus is on developing and supporting teachers in their pursuit of excellence in the teaching of Primary Science. ✎

Education and the student experience

At Bristol we expect the best for and from our students. We aim to educate the brightest of their generation to become leaders in their chosen career. Central to our ethos at Bristol is research-led teaching. This means that our students are involved in and exposed to the very latest thinking in their academic discipline, as well as benefiting from core skills driven through research projects that include tackling challenging problems, managing their own projects and taking responsibility for decisions. We continue to invest comprehensively in facilities, training and technology, as well as seeking to remove barriers for those people who may not traditionally consider a university like Bristol as being an attainable goal.

The University's priorities in this area are to:

- // attract and retain academically gifted and highly motivated students from a wide range of backgrounds, creating a diverse and international university community
- // provide an education of the highest quality that is research-led and focused on the needs and expectations of our students
- // ensure students have a fulfilling, challenging and intellectually stimulating experience while at university, that prepares them for employment and worldwide opportunities when they leave
- // provide effective and enabling educational leadership and structures that support educational enhancement
- // ensure that learning takes place within a high-quality environment that enables both students and staff to achieve their full academic potential



// Students can take advantage of a range of opportunities to help develop their skills and gain useful experience

The Bristol experience

At Bristol we set the bar high and we encourage excellence in our teaching and the overall student experience in many ways. Our 2014 National Student Survey results showed that 84 per cent of our students expressed 'overall satisfaction' and 90 per cent indicated that they found their course intellectually stimulating. While we deliver excellence in many areas, we are aware that more can be done to give students the best possible experience at Bristol and this is currently a key focus of activity.

We take steps to promote student engagement and satisfaction, with strong leadership in subject disciplines to provide a strong sense of academic community. Our framework for student support and tutoring encourages independent and active learning, while our work with the University of Bristol Students' Union (UBU) aims to champion greater student engagement and student representation within the academic life of the University. Similarly, we maintain rigorous processes to maintain our high standards of teaching, including periodic peer review and encouragement to push forward pedagogic boundaries.

Research-led education

The University is dedicated to providing the highest quality education to its students, exposing them to the very latest thinking in their academic discipline through research-led teaching.

This approach is seen right across the University's curriculum. For

"Our framework for student support and tutoring encourages independent and active learning"

example, the University's eBiolabs and ChemLabS (Bristol Chemical Laboratory Sciences), which developed web-based, fully-interactive Dynamic Laboratory Manuals (DLM) to support undergraduate laboratory-based teaching and learning with video, interactive simulations and virtual instrumentation alongside inbuilt pre- and in-laboratory e-assessment and safety training. The DLMs have replaced the traditional printed lab manuals, allowing students to practise methods online prior to going to the lab, thereby increasing preparation and confidence.

The DLMs were shortlisted in the Teaching Excellence category in The Guardian's first ever University Awards, which recognises best practice, achievement and innovation in a range of categories.

The recently launched Bristol Doctoral College (BDC) provides a focal point for doctoral training activity and researcher development across the University and in collaboration with the University's partner institutions. It aims to provide information and guidance for all postgraduate students working towards a doctoral degree;



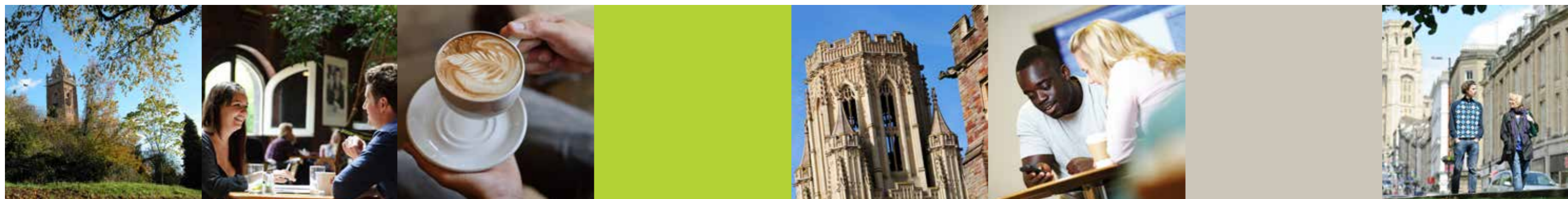
support postgraduates in maximising their potential and succeeding in their chosen careers via a skills training and researcher development programme; and drive the development of the University's postgraduate research processes and data management systems.

With over 250 PhD scholarships, Bristol has one of the largest concentrations of funding for collaborative research training in the UK. This includes doctoral training grants from all UK Research Councils alongside EU funding and charitable organisations. During the academic year the University secured 14 EPSRC funded Centres for Doctoral Training and one AHRC and one NERC Doctoral Training Partnerships.

We are committed to continually raising awareness of the value we place on excellence in teaching. The Bristol Teaching Awards is a recent illustration of this commitment. Now in its second year, the scheme made 16 awards across the Institution to recognise and promote teaching excellence. In addition, the University awarded three University Teaching Fellowships. The Fellowships recognise those individuals >

// Education and the student experience

// Students are supported socially, culturally, pastorally, financially and academically



who make an outstanding impact on the student learning experience and allow members of staff a dedicated period of time to develop a scholarly and evidence-based approach to the learning experience and teaching practices.

Skills development

The University provides its students with the academic and personal development opportunities that will enable them to respond to the intellectual, social and personal challenges they will encounter throughout their lives and careers.

This is achieved partly through participatory teaching and learning methods that motivate and empower students to achieve their personal goals and serve society's needs across the globe. Such methods include incorporating key sustainable development issues into teaching and learning through the University's Education for Sustainable Development initiative, which encompasses environmental factors as well as social, economic, ethical and cultural values.

Other teaching and learning approaches that reflect the

international profile of the University's students as well as its global reach include the International Foundation Programme. This is an expanding area that prepares students for undergraduate study in the UK through English language classes and lectures and seminars in their chosen subject area. Another example is the Applied Foreign Languages programme, which offers modern languages units open to undergraduate students across the University.

Enterprise education opportunities are available to all students – for example, through our Enterprise Competition which awards financial, legal, marketing and business acceleration support for the best business ideas. In addition, the University's Basecamp supported over 200 students to explore business ideas across the academic year. Students can take advantage of a range of opportunities to help develop their skills and gain useful experience.

More than 2,000 paid roles are available to students across the University, including Campus Internships, which provide demanding, project-based work, and via the University Internship Scheme, which funds students to work

with small and medium-size enterprises in a variety of sectors.

The Bristol PLuS Awards recognise and reward University of Bristol students who have gained significant professional and life skills through work experience, volunteering and other activities outside of their studies. During 2013-2014, 450 of our students successfully completed the award and 51 students who demonstrated exceptional skills development completed the Outstanding Award.

All of this means that our graduates are highly sought after by employers (Bristol was named as the fifth most targeted university by top employers in 2013-2014 in The Graduate Market 2014 Report).

Curriculum development

We continually refine our curriculum through the development of new programmes of study across all disciplines and across our undergraduate and postgraduate teaching. For example, during 2013-2014 we developed 14 new postgraduate taught programmes and a further 11 postgraduate taught programmes had their first intake.

International students and international study

We strive to maintain a rich and diverse student body and attract the most able scholars from across the globe. We believe this to be a fundamental strength and characteristic of the University and critical to the overall student experience.

We also encourage our home students to take advantage of the many opportunities we provide for overseas education. This includes our exchange links with over 150 top-ranking universities in more than 30 countries around the world.

Student wellbeing

An important element in supporting the transition from school to university is the first-year residential guarantee to all undergraduate students. We ensure close integration between the residential experience and the students' wider university experience.

Pastoral and educational support is embedded within the residences, with wardens, deputy wardens, senior residents, Junior Common Room committees and senior and personal tutors all on hand to ensure that students are supported, socially, culturally, pastorally and financially as well as academically.

The University provides outstanding student-centred health, welfare and counselling support structures, designed to ensure that all of our students are supported through their

education. These include the Students' Health Service, Multifaith Chaplaincy, Disability Services, Student Counselling and Vulnerable Students' Support Service.

Widening participation

The University has developed an innovative and creative outreach culture while adopting an evidence-based approach to policy and procedure. We remain determined to achieve a more diverse student community, recognising the social, educational and cultural benefits this confers to the individual and institution. We believe that widening participation has a moral as well as a pragmatic foundation. It is right that anyone with the necessary abilities should feel encouraged to aspire to Bristol, regardless of their background.

In order to help raise attainment within local schools and colleges, 80 Bristol students act as mentors and tutors, working in 15 educational establishments.

Each year 500 school students take part in the Access to Bristol scheme for local students in school years 12 and 13, and each year 245 school students engage in our residential summer schools, which the University has been running for over a decade.

One such example is the Sutton Trust Summer School, which is designed for year 12 students from disadvantaged backgrounds who have outstanding academic ability. Students can apply to one of seven subject streams, including engineering, humanities, law and medical sciences, and attend a number of taster sessions. They also receive guidance on other key areas of student

“It is right that anyone with the necessary abilities should feel encouraged to aspire to Bristol, regardless of their background”



// The University boasts exceptionally talented students across a wide variety of disciplines



life, from UCAS applications to finance. Similarly, the Pathways to Law programme is aimed at those students from non-privileged backgrounds who aspire to a career in law. The two-year programme gives students the chance to experience lectures and seminars held by the University's internationally recognised academics on various aspects of law.

Employment and opportunities

At Bristol we seek to deliver a challenging and intellectually stimulating overall student experience, ensuring that our students are adequately prepared and equipped to become highly professional graduates and potential leaders.

As part of its commitment to preparing its students for life after higher education, the University offers a number of enterprise education initiatives and mentoring schemes aimed at those who wish to gain further insight into their profession.

Spark, based at the University of Bristol, runs a course for students wishing to set up their own business and covers topics like business model development, sales and pitching.

"We seek to deliver a challenging and intellectually stimulating overall student experience"

The initiative was awarded the Best Student Enterprise Experience at SETSquared's Student Enterprise Awards. The Industrial Mentoring Scheme introduces students to the various challenges of a career in the civil/structural engineering profession while also enabling them to relate their studies to industrial life. Small groups of students meet with their industrial mentor several times during their first year either at the University or in the mentor's office or construction sites.

Extracurricular activities form an integral part of the student experience and Bristol students embrace these with focus and energy. Every year students raise more than £100,000 for charity, contribute over 100,000 hours to volunteering projects and compete at the highest level in a number of sporting disciplines, all while participating in a highly challenging curriculum.

Student activities

The University's students are involved in a variety of extracurricular activities, from the running and management of a number of successful media organisations to partaking in a wide-ranging sports programme, all of which they do on a voluntary basis and in addition to their academic studies.

In 2013 *Epigram*, the University's student newspaper, celebrated its 25th anniversary with an eight-page supplement reflecting on the last quarter of a century. A leader in its field, *Epigram* was the first student newspaper in Europe to go online and the first in the UK to be printed in colour. It has a circulation of around 6,000 and past editors include James Landale, the BBC's Deputy Political Editor.

Participation in sports continues to grow with a range of initiatives offering sporting activities at every level, from top-flight competitions to recreational leagues and occasional keep-fit sessions.

Our British Universities and Colleges Sport ranking placed us 11th in the country. Other notable successes included the participation of six of our students and graduates in the Commonwealth Games.

UBU Active and Fit and Fabulous give students the opportunity to try non-competitive affordable activities, while the Intramural Sports Programme runs a series of leagues to allow students to compete at a purely recreational level.

Students also take part in a diverse range of volunteering and fundraising projects across the region, raising thousands of pounds for local charities annually and contributing countless hours to sports, educational and community projects.

During the Bristol Big Give, students

raised over £100,000 for local and national charities by donating over 50 tonnes of unwanted items, including kitchenware, clothes, food, sports equipment and books. In addition, students took part in another successful RAG (Raising and Giving) Week, raising almost £120,000 through a variety of activities.

University of Bristol Students' Union

"The University of Bristol students creating a world-class student life for themselves." This is the vision set out by the University of Bristol's Students' Union (UBU) and its student body fully embraces this ethos, running and managing more than 200 student groups and societies, volunteering locally and overseas and making meaningful contributions to University and city life.

UBU remains committed to promoting environmental and sustainable issues and its efforts were recognised by the National Union of Students, who awarded the University a Gold Standard Green Impact Award.

Environmental and green activities include UBU Get Green, which has helped reduce the University's carbon footprint via the student switch off campaign to encourage students in halls of residence to reduce energy usage and recycle.

Rogue landlords and sub-standard student properties were put under the spotlight as UBU invited Labour

"The University of Bristol students creating a world-class student life for themselves"

Party Shadow Housing Minister Emma Reynolds to the Richmond Building to discuss the issue. Nearly a third of privately rented homes in Bristol now fall below the 'decent home' standard. In response, UBU set up its own letting agency to improve the rental landscape for all its students. Key features of the service include a Landlord Code of Conduct, to ensure properties are of an acceptable standard.

Student achievements

The University boasts exceptionally talented students across a wide variety of disciplines and is proud to have consistently produced a number of professional athletes and Olympians.

Exceptionally talented students are supported through the High Performance Squad, which helps athletes pursue their sporting careers without compromising on their academic studies. One such athlete is law student Jazmin Sawyer, who won a silver medal in the women's long jump at the Commonwealth Games 2014. She is now working towards the World Championships in Athletics in Beijing and the Rio Olympics in 2016.

Each year the University awards the Bristol Red to students who have produced exceptional performance in

their chosen sport and whose level of achievement and commitment goes beyond University first team level.

In 2014 Reds were awarded to Josh Kyme (ultimate Frisbee), Georgina Barrington (fencing), James Peters (sailing), Rafal Szwalbe (fencing), Humphrey Kayange Emonyi (rugby), Alun Welsh (hockey) and Andrew Crawford, Kieran Whittle, Charlie Harbot, George Mack and Adam Clarke-Williams (all water polo).

Away from the sporting arena, a cohort of students became the first group in the country to complete an innovative new programme. The University of Bristol's unique BA English Literature and Community Engagement (BA ELCE) degree saw students and staff work together over six years to plan and run community projects that promote the positive impact of reading, while simultaneously studying a wide range of literature at degree level. 📖

Honorary degrees

The University considers the awarding of an honorary degree as one of higher education's most significant accolades. Each year, following very careful consideration, the University bestows a number of honorary degrees on individuals who merit special recognition for outstanding achievement and distinction in a field or activity which reflects the University's high standards and values.



// Honorary fellowship

Dr Moger Woolley, DL LLD(Hon)

// Honorary degrees

January 2014

Jasmine Whitbread

(Doctor of Laws)

Andrew Shore

(Doctor of Music)

Professor Steve Kay

(Doctor of Science)

Dr Jacqueline Cornish, OBE

(Doctor of Science)

Administrator Charles Bolden

(Doctor of Engineering)

Sir David Carter

(Doctor of Laws)

July 2014

Dr Julian Hector

(Doctor of Science)

Rosalind Savage, MBE

(Doctor of Laws)

Professor Sir Mark Welland

(Doctor of Engineering)

Steven Dayman

(Doctor of Laws)

David Scott

(Doctor of Engineering)

Princess Campbell, MBE

(Doctor of Laws)

Professor Sir John Temple

(Doctor of Science)

The Rt Hon Lady Justice Sharp, DBE

(Doctor of Laws)

Professor Steve West

(Doctor of Laws)

Professor Eric Sheppard

(Doctor of Science)

Bob Reeves

(Doctor of Laws)

Robert Dufton

(Doctor of Laws)

Paul Stephenson, OBE

(Doctor of Laws)

Investing in our estate

The University continues to invest in its estate to ensure it provides the best research and teaching facilities for its students and staff. For the second consecutive year, the University has invested over £100 million in its buildings, public realm and major equipment.

Capital programme

The largest project in the capital programme is the Bristol Life Sciences Building. This new landmark for the estate was completed earlier in the year and now houses staff from the School of Biological Sciences. The building and its associated landscape, which includes a major improvement to the Royal Fort, has cost £56 million and constitutes the University's largest ever investment in the Estate.

The Richmond Building is now nearing the end of a lengthy £30 million renovation while the revitalised Anson Rooms reopened at Christmas 2013, providing a complete refresh of the popular student venue alongside a range of new student activity spaces, including state-of-the-art facilities for dance, art and radio.

The relocation of staff from the Fry Building, the former home of Biological Sciences, marks the start of the scheduled renovation work on this Grade II building, which will provide a new home for the School of Mathematics and transform this historic part of the campus.

Elsewhere on the main Clifton campus, work is near completion on a 450-seat

lecture theatre, located in Priory Road, which will open its doors in October 2014. This £4 million development will be the University largest and most comprehensively equipped teaching space and will also serve as a venue for public engagement events and conferences.

In Tyndall's Park Road, the University has completed the renovation of three buildings, purchased last year from the BBC. These buildings now provide an exciting new home for the School of Economics, Finance and Management. In an exciting development, the University has purchased Beacon House on Queen's Road, the site of the former Habitat retail store. This is planned to house a new University student and engagement centre, with a reception, marketing activity, meeting space, a large student learning zone and coffee shop. It is hoped that the building can be refitted for a September 2015 opening.

At Stoke Bishop, 325 new student bedrooms have been built as an extension to the Hiatt Baker Hall. The new rooms are built to the latest standards and are fitted with a number of energy-saving initiatives, including solar panels and low-energy lighting.

Environmental efforts

The University's sustainability team achieved a number of national awards, recognising the quality of their work on a variety of fronts. In November, the Sustainability team won the annual Green Gown Award for 'Continual Improvement: Institutional Change'. This award represented achievement across a broad spectrum of sustainability activity over the past five years.

The team also won the prestigious Community Champion of the Year Award, an initiative launched by the Chartered Institute of Wastes Management as part of their Environmental Excellence Awards. The award recognised the combined efforts of the Sustainability team, the University of Bristol Students' Union (UBU) and Unite to collect unwanted goods at the end of the academic year. The team collected nine tonnes of unwanted goods and raised £16,000 for local charities.

In August, UBU launched its Green Transformation Project, a sustainability scheme aiming to change the environmental behaviour of University students. UBU became one of 25 students' unions to receive funding from the National Union of Students for this transformational project.

The Life Sciences Building, Priory Road Lecture Theatre, National Composites Centre, and Richmond Building have all achieved or are on target for the BREEAM Excellent Award for attainment in sustainable design. The Life Sciences Buildings showcases work being progressed across all laboratory buildings to provide solutions to high-energy demand in highly serviced buildings, both through design innovation and through improved management practices.

Bristol alumni

Bristol alumni are an exceptional group of individuals. Below, we have highlighted just some of our alumni's recent achievements.

Professor Cecil McMurray CBE (PhD 1970), Managing Director of SciTec Consulting, was named in the Science Council's list of the top 100 practising scientists.

Annie Burnside (MA 1971), former Warden of Clifton Hill House, was made *Chevalier dans l'Ordre National de la Légion d'Honneur*, the highest decoration in France.

Loraine Knowles (BA 1974), Stonehenge Director at English Heritage, received an OBE for services to heritage.

Matthew Warchus (BA 1988, Hon DLitt 2010) has been named Kevin Spacey's successor as Artist Director of The Old Vic in London.

David Nicholls' (BA 1988) latest novel, *Us*, has been longlisted for the 2014 Man Booker Prize.

Sri Nazir Razak (BSc 1988), Group Chief Executive of CIMB Group, was named CEO of the Year by the Minority Shareholder Watchdog Group at Malaysia-ASEAN Corporate Governance Index Awards 2013.

Jaya Chakrabarti (BSc 1993, MSc 1995) received an MBE for services to the creative digital industries and the Bristol community. Jaya set up digital agency Nameless and founded the Yes campaign for the Bristol mayor referendum in 2012.

Miranda Krestovnikoff (BSc 1994) was elected the new president of Europe's largest nature conservation charity, the RSPB.

Matthew Baugh (BA 1994, MSc 1997) received an OBE in the Diplomatic Services and Overseas List of the 2013 Birthday Honours for promoting peace and security in Somalia.

Anna Turney (BSc 2002) finished fourth in the super-G, sixth in the slalom and eighth in the giant slalom events at the 2014 Sochi Paralympic Games.

Will Dean (BSc 2003), founder and CEO of the popular military-style obstacle event series Tough Mudder, won the National EY Entrepreneur of the Year 2013 Emerging Award.

Edd Read (MEng 2007), founder of graze.com, and **Ben Taylor** (BSc 2001), founder of Language Connect, both featured in *The Sunday Times'* Fast Track 100 league table. The list ranks Britain's top 100 private companies with the fastest-growing sales in the previous three years.

Nishtha Chugh (MSc 2011) won *The Guardian's* International Development Journalism Competition 2013 for her reports on attempts to change attitudes towards gender in Rwanda.

George Cave (MEng 2011), **Clay Conlon** (BSc 2011), **Ross Davidson** (MEng 2013), **Harry Bloxham** (MEng 2014), **Harry Kingston** and **Alistair Docherty** (MSci 2014) achieved a world first by conquering the Djangart mountain range, between Kryrgyzstan and China.

Centenary Campaign

In July 2014, the University's Centenary Campaign passed its £100 million fundraising target six months ahead of schedule, thanks to the generosity of more than 19,500 alumni, friends, staff and students.

Philanthropy is key to the University's mission of learning and discovery, and the impact of the campaign will be felt for generations.

A full campaign report will be published in 2015. Below are some of the campaign's highlights so far:

// Hundreds of students from disadvantaged backgrounds have experienced higher education thanks to bursaries and scholarships, Access to Bristol and IntoUniversity

// More than 600 grants have been awarded to students involved in societies and sports clubs, or travelling to conferences to present their research

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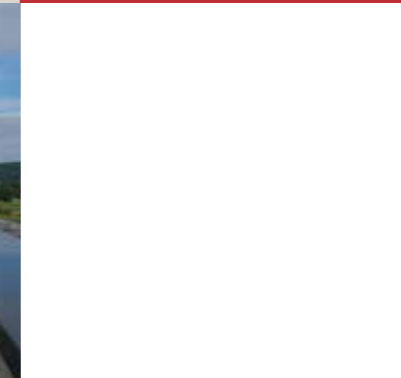
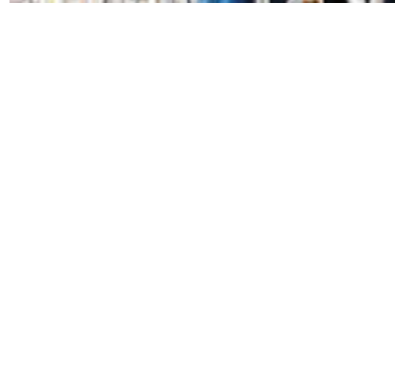
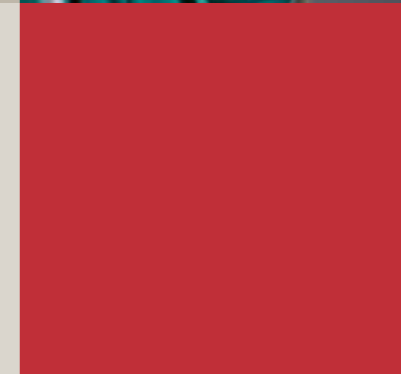
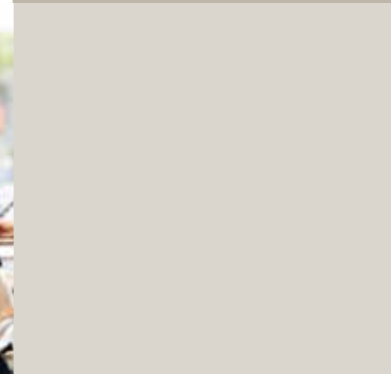
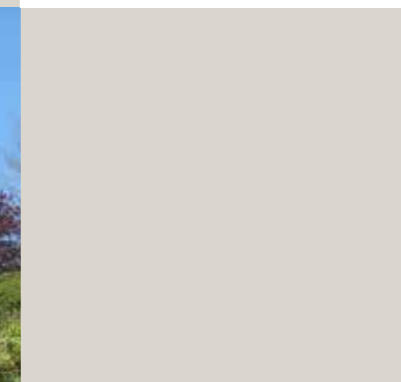
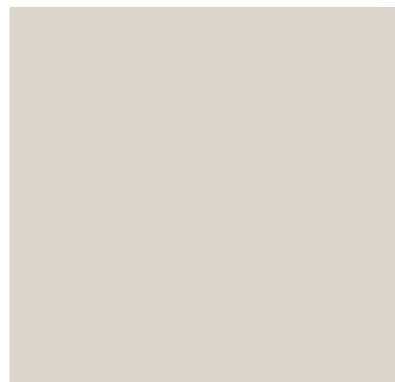
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