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Image: Parthenon Frieze, engraving c. 1880.



CAM

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Editor's letter

Seventy years ago, women were, for the first time, admitted to degrees at Cambridge. Prior to 1948, women studying at Girton and Newnham sat University exams but were unable to graduate or become members of the University. It was a landmark moment for women's education – and for the University.

It feels appropriate that this anniversary falls in a year in which we are also marking the centenary of some women gaining suffrage – and in which many, many more women are demanding change. On page 20 we ask young Cambridge feminists about what the movement means to them and on page 47, Sarah d'Ambrumenil, Head of the Office of Student Conduct, Complaints and Appeals explains why alumni have a role to play tackling harassment and sexual misconduct.

Elsewhere, on page 14, we go behind the scenes with Cambridge's porters to find out what this iconic role entails, and on page 30 we investigate why, in politically challenging times, philanthropy is so crucial to Cambridge's success.

On this, and all other matters, I look forward to your letters, emails and tweets – a small selection of which are printed opposite, and a great many more online.

Mira Katbamna (Caius 1995)

Mailbag

Bop on

I'd normally end the night with *Only Love Can Break Your Heart* (the Saint Etienne cover) when I DJed at Wolfson (CAM 82). Not because it was demanded, just because I wanted to!

Steve Bradshaw
(Wolfson 2000)

I can't remember any anthem for Fitz (88), although we did play Transvision Vamp a lot. I do recall a move to rename the bop in order to modernise it. The name 'fip' was suggested (fully integrated party). Clearly, it didn't take off.

Loona Hazarika
(Fitzwilliam 1988)

I don't remember an anthem for Queens' – can anyone help?

Helen Williams
(née Stokes, Queens' 1984)

As JCR entertainments secretary from 1970 to 1972, I inherited a proud tradition of Churchill discos in the Pavilion. I recall reproducing hand-drawn posters in Engineering, and distributing them as far away as Homerton (sadly, I can't find an example). We also put on events in the Buttery with local rock band Wild Oats.

The 'new' condom machine was also installed during my period of office. I was particularly amused by correspondence with the London Rubber Company's customer relations officer – perhaps we may have been "living off immoral earnings"? Cancellation of the 1969



Write to us

We are always delighted to receive your emails and letters.

Email your letters to:
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 Write to us at:
CAM, 1 Quayside, Bridge Street, Cambridge, CB5 8AB.

Please mark your letter 'for publication'. You can read more CAM letters at alumni.cam.ac.uk/cam. Letters may be edited for length.

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MORE FROM THE MAILBAG

This issue, the mailbag was full of readers writing to add their voices to those who thought economics – and economists – could do a lot better. **Janet Rizvi (Girton 1958)** wondered why climate changes and the fact of finite resources did not figure: “Even without an understanding of economics, it is plain to me that this must involve seismic economic shifts, but it appears to pass the economists by completely. Ostriches? Or am I missing something?”

Brian Luker (Sidney Sussex 1955) suggested that thought should be given to “the moral and political problems associated with calls for a halt to growth”, asking: “Who is to say that the people of the Ganges delta, let alone those in the inner suburbs of our cities or in rural poverty, may not aspire to the standard of living enjoyed by even the average person in the developed world?”

But alongside questions, CAM readers also provided answers. Responding to **Anne Stotter's (Newnham 1968)** request for a “treatise on prosperity without growth”, **Pam Lunn (New Hall 1968)** pointed out that it had already been written. “It’s called, *Prosperity Without Growth: Foundations for the Economy of Tomorrow*” by Professor Tim Jackson – and **Michael Snell (Jesus 1961)** wondered at it not being better known.

Churchill May Ball saved me from the nominated task of “looking after all the needs of the headline band” at the tender age of 18. It was Black Sabbath.

David Bullock
(Churchill 1969)

Female pioneers

This is a special year for me, and my contemporaries, who were admitted to Girton and Newnham in 1948. Twenty years ago, we – and all those who had preceded us as students at Girton and Newnham – were invited to celebrate the 50th anniversary of the admission of women as full members of the University.

The occasion was a very happy one. Having collected our gowns at the “vesting area” at Girton, we drove to Cambridge in four coaches, each accompanied by a police outrider. St John’s Street and Trinity Street had been closed to traffic. Bells pealed, flags flapped. King’s Parade was full of spectators who cheered as we clambered from the coaches.

As we entered the Senate House, a fanfare was played by Crispian Steele-Perkins. There were speeches and an oration delivered by the University Orator. We then proceeded to a marquee for tea and champagne.

It is now 70 years since women became full members of the University. Of my own group of eight friends (who met annually until this became difficult), three have died, along with many others who would have attended the 1998 celebration. I think it would give us survivors

great pleasure if CAM would recall the momentous change in the status of female students at Cambridge in 1948 and the joyful celebration of 1998.

Kathleen Kummer
(Girton 1948)

Admissions

Dr Sam Lucy’s article helped to dispel many of the myths around admissions. There has been a lot of focus in the media recently about widening access to Higher Education, and to Oxford and Cambridge in particular.

Cambridge already does a great job with link colleges for each area of the country. As a senior teacher in a state comprehensive in south Wales, I accompanied some of our brightest year 12 students to a very inspiring talk recently from Dr Jonathan Padley (Churchill). The Welsh government’s Seren programme, now in its third year, is having a big impact on the number of students considering and applying to Cambridge.

The problem that state schools face is that without past students who attended Cambridge or Oxford, running mock interviews or masterclasses in niche subjects can be very difficult.

I would urge CAM readers to get involved. If you want to help the next generation and widen access to Cambridge, please contact your local state comprehensive or sixth form and ask what you can do to help. Those of us already in education

are not the best interviewers as we already know the students!

Lucy Bunce
(King’s 1993)

I read Dr Lucy’s article on admissions with great interest (CAM 82). Were I to go through this process now, I wouldn’t have a hope of being accepted; I was a prime example of someone who benefited from the outdated system of “connections”.

Many members of my family, going back several generations, were at Trinity, and this proved the deciding factor. I didn’t have to sit an entrance exam; instead, I had lunch with Harry Williams, the admissions tutor, and was told, “Yes, you can come, as long as you get your physics A Level” (I had failed it the first time round). So I came in 1959 as a budding medic, managed to get my degree, and qualified in 1965.

Perhaps I should never have been accepted, but I went on to have a reasonably successful career in general practice. I suppose my patients would be the only people to say if I should have been allowed to become a doctor! But I must thank Trinity for the lenient and informal, if now unacceptable, admission system they had 60 years ago.

Tim Paine
(Trinity 1959)

Praise

Your magazine has been a source of great joy to me throughout the years and I always find myself eagerly awaiting the next issue.

Maria Haka Flokos
(Girton 1980)

ALUMNI FESTIVAL, 21-23 SEPTEMBER, 2018

The Alumni Festival is back, offering the perfect opportunity to meet up with old friends and hear directly from Cambridge's world-leading academics about the revolutionary research taking place at the University.



CAMPAIGN

Cambridge campaign marks £1bn milestone

The *Dear World...Yours, Cambridge* campaign for the University and Colleges has passed the £1bn mark, after donations from more than 47,000 contributors from across the globe. Launched in 2015, the campaign aims to raise £2bn, enabling Cambridge to deliver answers to critical issues of our time.

"We are extremely grateful to all those who have contributed so generously to this campaign," said Dr Mohamed El-Erian (Queens' 1977), co-chair of the campaign. "As an alumnus of Cambridge I am privileged and honoured to be part of the work that is having such a profound impact." Vice-Chancellor Professor Stephen Toope added: "There is still much to do; but with generosity such as this from our alumni, friends and partners, I am confident that the University of Cambridge will remain an unstoppable force for knowledge, inclusivity, greater understanding and the betterment of our shared world."

Find out more about the campaign at cam.ac.uk/YoursCambridge

PROFESSOR STEPHEN HAWKING

As CAM went to press, friends and colleagues from the University paid tribute to Professor Stephen Hawking, who died in March. Vice-Chancellor, Professor Stephen Toope, said: "Professor Hawking was a unique individual who will be remembered with warmth and affection not only in Cambridge but all over the world. His exceptional contributions to scientific knowledge and the popularisation of science and mathematics have left an indelible legacy. His character was an inspiration to millions. He will be much missed."



TWICKENHAM TRIUMPH

Double win for Blues rugby teams

It was a double celebration for the men's and women's teams at Twickenham in the 136th Varsity match, the first time both teams have shared victories at rugby's HQ. The women's dominant 24-0 win, coming nearly 30 years after the first game and three years after

the inaugural match at Twickenham, is the 13th time they have won. The men's team, featuring former World Sevens Player of the Year Ollie Phillips in his last ever game, recorded back-to-back victories for the first time in a decade, and extended their record of wins to 64-59.

TWO-MINUTE TRIPOS

SUBJECT
SHEEP CAN RECOGNISE
FIONA BRUCE. DISCUSS WITH
REFERENCE TO LAST NIGHT'S
NEWS HEADLINES.

Baa.

Well, hello, Dolly. What's that you've got in your mouth?

Baa baa. Baa. Baa.

Why, it's a picture of well-known TV newsreader Fiona Bruce. Are you searching for her? Has she fallen down a well? This is a bit surreal, isn't it?

Baaa. Baa, baa, baa.

No, you're quite right to walk away. I'm not Fiona Bruce. Wow, that's amazing. I never realised sheep had the capacity for facial recognition.

Baa. Well, we've known for some time that sheep are capable of recognising fellow sheep and our beloved shepherds. But scientists led by Professor Jenny Morton at the Department of Physiology, Development and Neuroscience wanted to find out if we could recognise people from photographs. I supposed picking Fiona Baa-ruce made sense.

As did including Baa-rack Obama, which works much better as a pun.

Anyway. The study used pictures of celebrities to train sheep to recognise faces. Which, it turns out, we can do.

That's amazing. I always thought sheep were stupid. You know, sheep-like. Sheeple. Not like us clever humans.

Actually, we sheep might be cleverer than you think. Professor Morton says our brains are similar in size and complexity to those of some monkeys. This allows us to be used in studies looking into how brain disorders such as Huntingdon's disease affect cognitive abilities over time.

Yeah, fantastic, amazing. Oh look, my friend just sent me a gif of a penguin dancing and wearing a jacket. Awwwww. **It also might enable us to silently plot how we would run the world much, much better than you, while looking like we're just eating grass. Baa.**

Wait. What? Did the sheep just say something? Did anyone else hear that? **Baa.**

CAMPAIGN

£85m Dolby gift is biggest ever to UK science

The University has received an £85m gift from the estate of sound pioneer Ray Dolby – the largest philanthropic donation ever made to UK science.

The Dolby family's gift has enabled the *Dear World...Yours*, Cambridge fundraising campaign to surpass £1bn – halfway to its

£2bn target. The money will support the Cavendish Laboratory, the world-leading centre for physics research where Dolby received his PhD in 1961. Its flagship building, expected to open in 2022, will be named the Ray Dolby Centre, and will host the Ray Dolby Research Group.

"My father's time at the Cavendish provided him with an environment where he got a world-class education in physics, and many of his successful ideas about noise reduction were stimulated by his Cambridge experience," says Dolby's son, David. "Our family is pleased to be able to support the future scientists and innovators who will benefit from the thoughtfully designed Ray Dolby Centre."



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I'm proud to see my second years swagger with confidence – they are the grizzled veterans now.

Dr Holly Krieger is the Corfield Lecturer in Pure Mathematics and a Fellow of Murray Edwards.

Returning to Cambridge after the holidays, I find myself wishing my neglected email inbox was an actual metal box, so that it could be opened gingerly with a large stick. The first message I open is from a journalist in my home state of Illinois, with questions from a local paper. “Holly – how is life in a foreign country? Are you viewed as exotic since you’re a woman mathematician and a Yankee?” After debating for a while the pros and cons of knocking on colleagues’ doors to ask them whether they find me exotic, I decide to answer the interview questions later and deal with the comparatively pleasant mathematical and administrative emails.

As Director of Studies for Murray Edwards’ mathematicians, I spend most of the first week of term organising supervisions and meeting with students. The first-year students have already been through a couple of long orientation meetings by the time I see them, and are wide-eyed with nervous smiles. I note the contrast with the second years, who, I’m proud to see, swagger with confidence – grizzled veterans of a now-familiar battlefield.

As students settle in and I become comfortable with my teaching and supervising routine, I spend more time on my research. This term, I’m co-organising an

international meeting in dynamical systems, held in Oaxaca, Mexico. The conference brings together mathematicians in the various aspects of dynamics I work on – complex, algebraic and arithmetic. These interdisciplinary conferences are by far the most interesting to me: most of the creativity and new ideas in my mathematics are inspired by work that, at first glance, isn’t connected to my own.

After two years working alongside colleagues from other disciplines at Murray Edwards, I have realised that mathematics conferences don’t much resemble those of other fields – and not just because of our (apparently antiquated) love of blackboards. The portability of research in pure mathematics (when it comes down to it, really, we only need a pen and plenty of paper) means that we tend to use conferences as a time to get serious work done. Most evenings, you’ll find small groups of mathematicians hunched together over paper or puzzling things out on a blackboard, testing out ideas and exchanging techniques.

Oaxaca is no exception to the working-conference paradigm: I learn the details of an interesting paper recently written by two postdocs in my field, and have a series of discussions that begin a new collaboration for me. Before heading to Mexico, I felt smug

about the prospect of some winter sun, but, in truth, I am so busy with work that I don’t realise until the fourth day that I’ve forgotten to bring my sunglasses. I return to Cambridge without any apparent change to my mathematician’s pallor.

After term officially ends, admissions interviews begin. Cambridge is filled with eager applicants and nervous parents. I’m involved in a YouTube channel called Numberphile, which produces mathematics videos accessible to the general public, and so I get a few emails from students who have seen my videos and are curious about studying maths at Cambridge. Weaving through the visiting masses on Trinity Street one blustery December evening, I’m stopped by what turns out to be a very enthusiastic maths applicant, telling me how much he enjoys Numberphile and how he dreams of studying here. Maybe I’ll teach him as a student here next year; maybe he’ll teach me as a colleague at a conference in a decade. I thank him and wish him luck with his interview, thinking of the future as I make my way home.

The Corfield Lectureship in Mathematics was established thanks to a gift from Nick Corfield (St John’s 1978), to encourage young women to study maths and to support the progression of female students and young researchers in their academic careers.

“After two years at Murray Edwards, I have realised that mathematics conferences don’t resemble those of other fields – and not just because of our love of blackboards”



Every now and then
you'd see a bed on the
verge which hadn't
quite made it

Room F35

Professor Dame Ann Dowling (Girton 1970) and third-year mathematician Andrew Pritchard discuss space-time, infinity and corridors.

Professor Dame Ann Dowling and Andrew Pritchard are discussing a problem of infinity and space-time that has long baffled their contemporaries. Where do Girton's corridors begin, where do they end, and have they shrunk?

"I always remember Girton having these infinitely long corridors," Dowling says. "But it's funny – they don't seem so long now. And they used to have a very strong smell of polish, which I'm not detecting." Pritchard agrees. "When I came up for my interview, it just seemed like a complete maze. I've been here for three years and I think I've walked them all now..."

Dowling is the first female President of the Royal Academy of Engineering and was the first female Professor in the Department of Engineering and spent her third year in Room F35, which sits right in the middle of one of those endless corridors, "about as far away as you can get from the bathroom," points out Pritchard.

Pritchard doesn't feel the need to decorate his space, he says: his shelves contain only a few books (including GCHQ's *Puzzle Book*), a couple of tins of shortbread and a Go board.

Dowling, however, did not travel light. "I brought so many clothes!" she remembers. "Piles and piles of clothes. I remember standing in the tiny room I had in the first year and wondering where on Earth I was going to put them. And I had a moped which I'd ridden since I was 16, which was very useful for getting into town."

In the early 1970s, town was the place to be. "I don't remember Girton having a bar," Dowling says.

"There were three women-only colleges and the rest were all men-only, and we spent a lot of time hanging out at the men's colleges. My boyfriend at the time, who later became my husband, was at Churchill, so I spent quite a lot of time there. Or coffee at a greasy spoon. We did a lot of sitting around and talking."



ILLUSTRATION: LA TIGRE; PHOTOGRAPHY: ALASTAIR LEVY



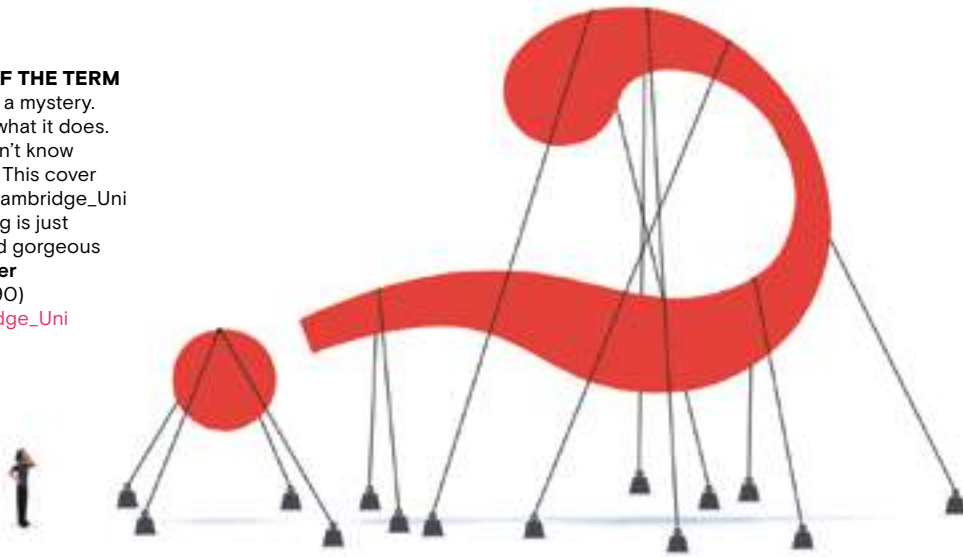
TWEET OF THE TERM

"Gravity is a mystery. We know what it does. But we don't know what it is." This cover of the @Cambridge_Uni alumni mag is just drop-dead gorgeous

Matt Potter

(Caius 1990)

@Cambridge_Uni



IN BRIEF

GLOBAL CAMBRIDGE

After successful events in India, Hong Kong and Beijing, Global Cambridge will be visiting Cardiff, Dublin, Geneva and Singapore showcasing and discussing how the work of leading Cambridge academics is changing our world. For more, visit: alumni.cam.ac.uk/gc18.

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HONOURED

Cambridge academics have been recognised in the New Year Honours list. Professor Sir Keith Peters was awarded the Knight Grand Cross of the British Empire for Services to the Advancement of Medical Science. Professor Diane Coyle, Cambridge's inaugural Bennett Professor of Public Policy, was awarded a CBE. OBES were awarded to Ian Goodyer, Emeritus Professor of Child and Adolescent Psychiatry and Dr Tina Barsby CEO of Cambridge-based crop science organisation NIAB and Fellow of St Edmund's College.

Students these days, she says, seem to organise their leisure time far more than she ever did. "And they have all the technology, of course. We used to have to queue up for the payphone. My mother liked to hear from me once a week." Then there were the 'Girton songs' sung on special occasions (which Dowling insists she cannot remember: luckily, Pritchard points out, Wikipedia has recorded their words for posterity) and the Bed Race down the A10 from Cambridge to London.

"Us girls drove the bed, as we were lighter," she says. "And we had four or so men pushing. We didn't know that they had disconnected the handbrake! Every now and then you'd see a bed on the verge which hadn't quite made it."

Pritchard's spare time also remains determinedly analogue. "Parties do go on, in rooms and bars, but not this room!" he says. "I tend to stay in college. We play pool or cards, and twice a week the board game society meet up. The room is so quiet, it's great for working."

Their time at Girton, both say, helped them find their paths. Pritchard has discovered that he's more interested in pure mathematics. "Proofs, and logic, and that kind of thing," whereas Dowling is the opposite. "I did find that I was more interested in the practical application of mathematics," she says, adding with considerable understatement, "and things came out OK. Although I did adhere to Cambridge mathematician GH Hardy's famous maxim that no mathematician could work for more than four hours a day. That used to be my mantra!"

Andrew Pritchard is a third-year aiming for research or teaching. Professor Dame Ann Dowling OM DBE FRS FREng is the first female President of the Royal Academy of Engineering. She led the Engineering Department at Cambridge until 2014.

A CAMBRIDGE GUIDE TO...

The new ice rink

Ninety years after David Gattiker (Christ's 1929) dreamed of winning a Blue for ice hockey on a University rink, work has begun on the Cambridge Ice Arena – and it is all down to Gattiker himself. Gattiker captained the University team during his time studying chemistry in Cambridge from 1929 to 1931. Later, he helped to smuggle uranium ore out of Germany during the second world war. But he never lost his love of ice, and, before his death in 1993, he bequeathed most of his estate to the University to build an ice rink for the city. Thermal insulation and solar panels will make it one of the most energy efficient in Europe, and the new facility will host competitions, displays, training sessions and more.



AQUILA Magazine: big ideas for curious children!

From The Story of Humankind to Supervolcanoes, this highly-regarded publication has a great line-up of articles you will probably want to read yourself.

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April issue: Pop Art

AQUILA investigates post-war consumerism and the roots of the Pop Art movement. What links Andy Warhol's time capsules to grave goods of the ancient world? Explore graphics, printing and repeating patterns; experiment with oxidation and discuss the meaning of lowbrow versus highbrow in Art.

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online

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In search of Atlantis

The Cambridge University Underwater Exploration Group positively enjoy being thrown in at the deep end.



Below, clockwise from top left:
Marius Weber (Churchill),
Isobel Hambleton (Clare),
Afnan Azizi (Selwyn) and
Alex Taylor (St Johns)

Most of us join societies to meet new people – join the Cambridge University Underwater Exploration Group (CUUEG) and you’re likely to meet new species, too. “On one trip to the Farne Islands in Northumberland, the seals were so friendly that it was like being with huge puppies,” says current chair Isobel Hambleton, a third-year PhD biochemist at Clare. “They swam right up to us, so we could stroke them. In fact, it became a bit difficult to swim, as they were so interested in our equipment, which was very brightly coloured – they were fascinated with it. They kept trying to nibble it. It’s quite hard to discourage a seal...”

These close encounters go back a long way. The club, also known as the Cambridge University Sub Aqua Diving Club, was formed in 1956, making it one of the oldest scuba diving clubs in the UK. Nicholas Flemming (Pembroke 1957) – a distinguished marine geo-archaeologist and former

director of the British National Oceanographic Data Centre – led its first expedition, in 1958, to map the underwater city of Apollonia in Libya. Since then, members have explored underwater sites from Malta to the Red Sea, carrying out research on everything from how diving affects intelligence to the British government’s claim to the uninhabited granite island of Rockall. Hambleton recalls a recent trip to the Valentine tanks site off the coast near Swanage, where a group of the experimental amphibious vehicles sank in 1942. “They’re all still there, and they’re fantastic to dive around,” she says. “But it won’t be long before they all disappear: one really big storm and that will be it. So it’s good to see these things while we still can.”

University is the ideal place to learn scuba diving, says Marius Weber, a fourth-year physicist at Churchill: it is cheaper and more convenient than doing it by yourself, and

there are plenty of experienced members to learn from. He joined CUUEG in his third year.

“I’d been inspired by things like *Blue Planet*, and I like looking at new things and having new experiences,” he says. “I guess you could describe it as being similar to going on a walk, but the environment is so fantastically different.

“I remember doing a training dive at Gildenburgh Water, an old clay pit near Peterborough. The owners have put in submerged attractions, and we were swimming into an old van. I’d just got myself a dive light and as we were going in, I saw this huge pike, slightly longer than my shoulder. When I shone my torch at it, I saw a whole load of colours – reds and blues – that I’d never realised were on a pike. The pike didn’t care at all that we were there. It didn’t move.”

Scuba diving, by its very nature, is collaborative: you

can’t dive safely by yourself. That is part of the attraction, says Hambleton, and it is why expeditions and meet-ups are crucial to CUUEG. “It’s a sport, but not a competitive sport. You’re always going at the speed of whoever you are diving with. I think that’s quite different from doing a sport where, if someone is very experienced, they will go off and leave you. You dive as a team.”

cuueg.org.uk





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We need to consider what it means for democracies to fail forwards.

Professor David Runciman is Head of the Department of Politics and International Studies and a Fellow of Trinity Hall.

Because I write and teach about politics for a living, people sometimes ask whether I've relished the last couple of years. Even if Trump is bad for the world, isn't he good for my line of business? It's true that demand is definitely up. What once seemed like technical or academic questions have exploded into life. The minute workings of the American constitution can now seem like life and death issues. Events about Britain's relationship with Europe that would once have attracted 20 people now pull in crowds of 200 or more.

How democracy works matters for all of us in a way that it hasn't before in my adult lifetime. But the bigger question is whether it still works at all. That is much harder to answer. In tumultuous times, there are twin temptations in how we think about what's happening. The first is to look for historical precedents that will map where we are heading. The second is to assume that no one has ever lived through anything like this before and that what we are facing is a future that is entirely new.

At the moment, I think the first is a bigger danger than the second. As democracy wobbles, we look to the 20th century for evidence of what will make it collapse. I have lost count of the number of times I have seen our current predicament compared to what happened to democracy in the 1930s. I am convinced that this is a big

mistake. Though there are unpleasant echoes of earlier instances of democratic failure in what's happening now – in the rise of racist rhetoric, the spread of conspiracy theories, the deep mistrust of mainstream institutions – they happened in societies that are fundamentally different from ours. The differences matter more than the similarities.

We live in a world that is much richer, older, more peaceful and more networked than anything that existed 50 years ago, let alone 100. That does not mean our democracies can't fail: they can, and at some point they almost certainly will. It may even be happening before our eyes. But far from following the familiar pattern of military takeover or collapse in the rule of law, it is likely that democracy will fail in the 21st century in ways that we are not yet familiar with. Our democracies will not implode. But they may simply fade away, hollowed out by forces of technological progress and social division that we lack the power to understand, never mind resist.

Political scientists still like to describe democratic failure in terms of what they call 'backsliding': going back to a time when strongmen ruled the Earth. We need to consider what it means for democracies to fail forwards, tumbling into an unknown future. A few years ago, Francis Fukuyama popularised the idea that the central

question of social science was 'How to get to Denmark?', the world's most liveable society. I think the central question now is what it would mean for Denmark to fail. Even the Danes don't have a clue on that one.

Yet, at the same time, we need to resist the other temptation too. In so far as what is happening is being driven by new technology – including the rise of intelligent machines – we risk thinking that nothing like this has ever been known before. As a historian, I feel we currently have too much history informing our worries about politics, but not enough informing our worries about technology. Many of the fears people express about the coming of the robots – the rise of heartless, conscienceless, super-capable machines – are the ones they've had about corporations for hundreds of years. In this case, we really have been here before.

In these uncertain times, it's hard to come up with a rule of thumb to guide us. Still, mine would be this. Where history currently speaks loudest is where we should be open to the idea that what is happening is new. Where it all seems new is where we need more history.

David Runciman's new book How Democracy Ends (Profile, UK; Basic Books, US) will be published in May. He leads the democracy research strand at the Leverhulme Centre for the Future of Intelligence (lcfi.ac.uk), which is exploring the social and political impact of AI.

“
It is likely that democracy will fail in the 21st century in ways that we are not yet familiar with. Our democracies will not implode. But they may simply fade away
”



OPPOSITE

Neil Seabridge, Head Porter, King's, in the College's dining hall.

The job runs from the sublime to the ridiculous. They always think they're being original, but we were pulling the same stunts as students 40 years ago

Cambridge's porters spill the beans.

WORDS WILLIAM HAM BEVAN PHOTOGRAPHY DAN BURN-FORTI

The black bowler may be customary, but today's College porters are called on to wear any number of hats during a day's (and night's) work. They might take on the role of security guard, student counsellor, postal worker, tourist guide, conference assistant, locksmith, receptionist or crime prevention officer – and even, on occasion, do a little of the heavy lifting that Cambridge outsiders might assume their job entails.

That list is not exhaustive. Weeks after joining King's as Head Porter in 2014, former police officer Neil Seabridge found himself being measured up for a top hat. "Nobody told me I had a ceremonial role when I

applied for the job," he says. "But I was soon dressed in my number one uniform and top hat to lead the procession for the King's Sermon, carrying a silver-topped mace that was presented to the College by one of my predecessors back in 1645."

Surprises are very much part of the territory. A recent recruitment advert at Homerton specified a "reliable, committed team worker who enjoys the unexpected". And although Head Porter, Gordon Murray, had previously served in the Household Cavalry, for the City of London Police and as John Major's close protection officer when in Cambridgeshire, he admits that he still faces situations he has never encountered before.

He says: "Even after 30-odd years in public service, I'm never surprised at being surprised. Unexpected events spring up in all communities, and an academic place of learning is no different. Some are comical and some less so."

"The job runs from the sublime to the ridiculous," says Seabridge. "It can be chasing geese off the front lawn or fishing students out of the river at 5am."

"And we get all the japes you'd expect, with traffic cones appearing in peculiar places. They always think they're being original with their pranks, but we were pulling the same stunts when I was a student 40 years ago."



As with so much in the University's history, the role of porter developed in piecemeal fashion. A "keeper of the gate" is mentioned in King's 1453 Founder's Statute, with duties that included making torches for the Chapel, waiting on tables in hall, and having to "duly and diligently shave the Provost, Fellows, Scholars and other persons" (indeed, the roles of head porter and College barber were combined until 1861). However, Pembroke did not appoint a porter until the early 17th century, when a new court was added. Until then, gatekeeping was the responsibility of a scholar or 'sizar' – a poor student who acted as a part-time College servant.

By the time *The Student's Guide to the University of Cambridge* was published in 1866, the role had been somewhat standardised. The book, aimed at prospective applicants, notes that a porter's duties varied by College, but "in all cases he has to keep the gate, he has to be ready to be called up at any time of night in case of illness or any emergency, to see to the carrying of luggage, and to fetch and carry the letters to and from the post office, and to see to the lighting of the courts and staircases". It further notes that undergraduates had to pay between five and 10 shillings a term for these services, plus one halfpenny for each letter received.

With five mail deliveries a day, this must have added up to a significant income for the porter and his assistants.

For much of the 20th century, middle-aged retirees from the police and armed forces formed the backbone of the University's cadre of porters. Some Colleges would always seek to recruit from particular regiments; in others, a handful of families supplied generations of porters and other College staff, with plum roles passing down from father to son.

While these traditional backgrounds are still well represented, most lodges are gradually becoming as cosmopolitan as the body of students they watch over. "At King's ›



LEFT

Pembroke porter, Sarah Hendry in Old Court at the College.

RIGHT

Homerton Head Porter Gordon Murray in the College's Combination Room.





we've got two other retired police officers, a former railway worker, an estate agent and a chap who had his own design company," Seabridge says. "One of my porters has a PhD in Chemistry and had a former career as a research chemist at ICI, and among the relief porters is one of our ex-graduate students, who left with a Classics degree.

"We did a tally the other day of the languages spoken in the lodge. We have English, French, Estonian, Russian, Swedish, Classical Latin and Greek, Italian and Spanish, a smattering of Danish and Norwegian.... It all illustrates the varied experience they can bring to the College."

Even at the turn of the millennium, the job was overwhelmingly a male preserve. It was not until 2009 that Helen Stephens became the first woman to take charge of a Cambridge porters' lodge, joining Selwyn after spells as Deputy Head Porter at Trinity and the first female porter at Jesus College. She says: "I still ask myself why it took 800 years, when women have been at the forefront of the University for a long time. But I just applied for the job and was fortunate to be given the chance."

Cheryl Bowran, who was appointed Head Porter at Newnham College after 14 years as a senior prison officer, says: "Having a female

Rookie porters quickly learn that a lost key often signifies more than a lost key: students may have an ulterior motive for showing up at the lodge

ABOVE

Helen Stephens, Selwyn Head Porter, at the top of the flag tower overlooking Old Court.



head porter is still quite a novel idea for some people, and you do get some comments. But I take it in my stride – I know I’m here because I have the skills and ability to do the job.”

She admits that her previous career is the subject of occasional ribbing from the students. But while wielding keys and regulating access might be the most conspicuous aspects of both jobs, for around 40 years Colleges have differed from prisons in allowing inmates to come and go as they please. “No College should be a fortress,” says Murray. “But safety and security are paramount. You just have to be proportionate.”

CCTV and electronic locks have made the task somewhat easier, but some Colleges present a special challenge. King’s attracts more than 350,000 visitors a year, and is a much-used thoroughfare for University members travelling between town and the Sidgwick Site. “The College wants to be welcoming,” Seabridge says, “but we have to apply basic security measures to allow that spirit of openness to continue. It’s good that students feel safe in the King’s environment, but the bad news is that they drop their guard. They’ll leave iPhones lying around, or leave their front doors open. That absence of self-protection sometimes surprises me, so I have to keep encouraging them to take responsibility.”

Sarah Hendry, who spent 25 years in retail before becoming a porter at Pembroke, agrees. “Students can definitely get too comfortable, probably because it’s their first time away from home,” she says. “Within weeks of the new freshers coming in, we go round checking doors. If they’ve gone away and left their doors open, we lock them out!”

Asked how the job has changed over recent years, many porters report that the pastoral side of the role has increasingly come to the fore – something driven by greater awareness of welfare issues. “My number one priority is the students,” says Hendry. “They’re under my duty of care while they’re at College. Often on a night shift, students will just come in for a chat. They want to have a rant because they’re feeling stressed, so we’ll chat about anything – perhaps just a TV programme or a film – and if they want to get something off their chest, they can do that.”

“However, there are times when you’ll see a student’s pattern of behaviour change, and you’ll have a word with the Tutorial Office, the Dean or the nurse. More often than not, you’ll find that it has been noted already.”

A maxim that rookie porters learn early on is that a lost key often signifies more than a lost key: students might have an ulterior motive for showing up at the lodge. “That sort of thing does happen a lot,” says Bowran. “They come to see us with reasons that seem a little specious, and they might actually need a friendly chat, or a bit of support with something. We are often good sounding boards.”

“During exam term, the porters go out and buy sweets. There’s always a big bowl of them on the front desk that we encourage the students to take. It’s a way of giving them an excuse to see us, and letting them know there’s someone who cares. If need be, we can say, ‘You’re a bit quiet nowadays. Is everything all right?’”

Most Colleges now provide mental health training for porters so they can recognise and deal with acute problems and know when to seek further help. Stephens says:

“We see a side of the students that is not always visible to their academic contacts, and it’s a good thing that mental health is being talked about far more openly. We’re lucky at Selwyn, as the College has invested heavily in training me and my team and supporting our members: later this year we will be doing a two-day course on mental health first aid.”

But as well as looking after junior members, porters are charged with enforcing discipline. When College rules are broken, the two sides of the pastoral role must be balanced; and this can present one of the job’s thorniest challenges. “It may sound a bit trite, but I rely on the three Fs: be firm, fair and friendly,” says Seabridge. “You need to beef up the firmness in some exchanges, but you should still be fair and friendly.”

Miscreant students (and sometimes staff and fellows) would do well to remember that honesty is the best policy when dealing with porters. “Remember, there’s nothing secret in a College,” says Hendry. “Someone always talks. So you’re far better off coming to say, ‘Yes, it was me – I broke the door. I was drunk and stupid.’ It’s a lot more painless to go to the senior tutor off your own back, rather than be reported by the porters’ lodge. I’m not the biggest disciplinarian in the world and I’ll always give people the benefit of the doubt. But if someone’s a repeat offender... well, there’s nothing worse than the wrath of an angry porter!”

So what attributes are needed to succeed at the job? A good level of intellect is the first requirement, according to Murray. “You don’t need to be academic, but a lot of the day-to-day tasks are now computer-based, and they’re always changing and modernising. Above all, you need to be a great listener, not just a good one. If you just sit and nod, you may not pick up on some of the things that a student is trying to express to you. You have to ensure that every one of them feels part of the College and no one is excluded.” Bowran says: “It demands a lot of common sense and the ability to think on your feet. We get all sorts of bizarre situations all the time that you can’t prepare for. And you have to be a practical person to deal with door locks and broken bikes.”

All agree that it is a career unlike any other, with a unique set of rewards. But one form of job satisfaction gets a particular mention. “You see this fresh-faced student come in looking like a rabbit in the headlights,” says Hendry, “and you get to watch them grow and turn into a young adult over three years. That’s the part I enjoy the most.” Murray agrees. He says: “It’s a real privilege to go with the Praelectors and Senior Tutor at the head of the procession to the Senate House, to hand the students over to the University and see them receive their degrees. That’s a sheer delight.” ©

SMASH THE PATRIARCHY

2018 is going to be a big year for feminist thought and action. But what does change look like to the Cambridge women leading the charge?

WORDS ANNA-MARIE CROWHURST

The ‘fourth wave’ of feminism was first heralded by *The Guardian*, with journalist Kira Cochrane citing the sudden mass of “protests, marches and talks”, the popularity of Laura Bates’s (St John’s 2004) *Everyday Sexism* project, Caroline Criado-Perez’s campaign for female representation on British bank notes, the No More Page 3 petition, as well as the Reclaim the Night and One Billion Rising marches.

Five years on, and the visibility of feminism is greater than ever. *The Huffington Post* hailed 2017 ‘The year of the feminist’, calling the Women’s March “the biggest one-day protest in history”. In December, the American Merriam-Webster dictionary announced that its word of the year – based on the number of word definitions looked up on its website – was ‘feminism’. The explosion of the #MeToo hashtag, which women around the world use to write about having experienced sexual assault and harassment, continues to receive widespread media coverage.

A space has opened up in which new questions can be asked, rule books can be ripped up and entrenched behaviours challenged. But what does it mean to the young women who are leading the charge? Do they see the new feminism as clearly defined? And where do they think feminism is going?

“Modern feminism is what ‘feminism’ at its core has always been about: striving for equal rights for all people, regardless of gender,” says Heenali Patel (King’s 2008), communications officer for the Fawcett Society and founder of 1000women.co.uk, a website that focuses on the mental and sexual health challenges faced by minority ethnic women. “Being a modern feminist involves campaigning to change the law for a fairer society; challenging sexist attitudes and gender stereotypes; and showing solidarity with others who fight for the rights of oppressed groups.”

CUSU Women’s Officer, Lola Olufemi (Selwyn 2014), coordinates the work of the University’s Women’s Campaign, and points out that feminism today is about more than how any given culture defines what a feminist, or feminism, should look like. “I call myself a feminist, a black feminist,” she says. “It means I believe in the ultimate goal of liberation for everybody. I think feminism allows people to imagine liberatory futures and goes well beyond the concept of ‘equality’. Feminism is justice work. But it’s entirely dependent on context and the way gender is perceived where you are; its social and political meanings.”

That intersectionality – taking into account human factors such as ethnicity, sexuality and economic background – is vital to understanding feminism in 2018. Jinan Younis (Jesus 2013) is assistant politics editor at *gal-dem* – a magazine for women and non-binary people of colour – and was part of a team that successfully lobbied for sexual consent workshops that are still being run by student unions today. Younis came to the attention of the media at the age of 17 when she set up a feminist society at her high school (shockingly, it took more than a year for the school to officially approve the society), and says that creating a more inclusive, more diverse type of feminism is vital. “I think the future of feminism has to be intersectional. We need to actively work really hard to make sure we are as

inclusive as a movement and that we’re not leaving anyone behind. It’s like Audre Lorde famously said: ‘I am not free while any woman is unfree, even when her shackles are very different from my own.’”

Many people consider the chief defining characteristic of feminism today to be its expression via social media and the internet, both of which provide effective platforms for the dissemination of ideas and campaigns. Historian Dr Lucy Delap agrees that, while the DIY ethos of activism has always been a hallmark of feminism, the accessibility of the movement – as a result of the internet – is new. “What’s so powerful about both *Everyday Sexism* and the #MeToo campaign ›

1910

OPPOSITE A suffrage poster from a unique collection – the largest of its kind in the UK – held at the University Library. The poster shows a Lancashire cotton worker protesting at the fact that she has not been informed about changes to factory rules and regulations. “There’s a beautiful contrast between the fiery colours of her shawl and the grey in the rest of the picture, and the use of the woman’s vernacular speech against the sign,” says historian Dr Lucy Delap. “It reminds us that the suffrage struggle wasn’t just about middle-class women – it was speaking for working-class women as well.”



"THEY HAVE A CHEEK I'VE NEVER BEEN ASKED"

PRINTED BY HENRIETTA ACTON, PUBLISHED BY THE ADVOCATE SUPPLY LEAGUE

is the sense of authentic voices,” she says. “It’s all about women saying, ‘This is my experience’ – and that has been radically democratic. It’s really given a boost to the profile and audibility of feminism.”

She adds that the role that men are being encouraged to play might also be new. “It’s never been very easy for men to say, ‘Yes I’m a feminist’. But I do think that that has changed.” Delap believes that self-proclaimed feminist Barack Obama, for example, is a hugely important “feminist icon”. She adds, “You go to today’s feminist conferences and you see lots and lots of men there. Twenty-first century feminism is more comfortable about men’s presence.”

Younis believes the rise of social media in feminism is especially important for more marginalised groups. “Social media

can be a place that’s deeply accessible,” she says. “It provides a space for people to meet, connect and join forces with others across the world. It helps people feel less isolated in their experiences. But the dark undertone of social media must also be recognised, as it opens up another space for women to be attacked.”

Olufemi also thinks social media has been a crucial tool. “It allows people to reframe feminist thought,” she says. “Mainstream feminism insists that it was the suffragettes who invented feminism and that it has moved forward along straight lines. Social media allows us to learn about the stories of people who have been written out of feminist narrative because of their radical work, be they women of colour, trans, queer or disabled.” ›

c.1912

BELOW LEFT:

A photograph from the Newnham archives of a group of women students, carrying the Cambridge Alumnae suffrage banner.

1944

BELOW: Poster, Equal Pay demonstration

In 1888 Clementina Black, one of only three women delegates to the Trades Union Congress, was the first to propose a resolution that where women do the same work as men, they should receive the same wage. The motion carried. Fifty years later, as this poster demonstrates, women were still fighting for equal pay, as they are doing today.

PHOTO: NEWNHAM COLLEGE CAMBRIDGE



A SHORT HISTORY OF FEMINISM

Historian Dr Lucy Delap says the waves metaphor often used to describe the rise and fall in the popularity of feminism over the years is problematic for many feminist historians because it is impossible to date the periods precisely.

The first wave, she says, is usually agreed to start around the 1860s, when suffragism “became a live issue”, and ends “roughly around the time when some major countries enfranchise women. Women were saying, ‘We want to have equal rights, we want the right to attend university and become a doctor or a barrister – and we want the vote.’” Discussions around patriarchy, men’s sexual objectification of women and sexual harassment in the workplace were also significant.

The second wave in the UK, known as the women’s liberation period, is considered to have begun around 1970. The issues that concerned this generation of feminists, Delap says, included sexual objectification, and workplace and gender pay gap issues including representation of women in leadership roles. But the lack of a distinct ending is where the wave metaphor comes unstuck. Many people believe this happens at the end of the 1970s, but Delap points out a “proliferation” of feminism in the 1980s, including the founding of many feminist bookshops and the launch of many women’s studies courses.

The third wave is generally defined as attempting to move towards a more intersectionalist feminism, recognising difference, yet remaining inclusive. “The third wave is seen to be all about young women who

are sexy and wear high heels and lipstick, and are still feminists,” she says. “Girl power, riot grrrl, all that stuff, but with a decidedly vague beginning and end point.”

And, in Delap’s view, the fourth wave is still defining its parameters. “Some people would say it’s about media-savvy social-media feminism, about moving away from the culturalist feminism of the 90s – which was to do with the recognition of identities and analysis of language and imagery – to get back to more material demands for better pay for women, for an end to sexual harassment,” she says. “Something exciting is definitely happening – I notice it among my students. But no-one seems to know what the waves are about. Let’s just call ourselves feminists and be done with it.”

PHOTO: THE WOMEN'S LIBRARY COLLECTION, LSE LIBRARY



PHOTO: © DAILY EXPRESS/HULTON ARCHIVE/GETTY IMAGES

1977

BELOW: Grunwick Strikes. The treasurer of the Grunwick strike committee, Jayaben Desai, had been picketing for a year. The sign on the left of the image reads: "Defend the Right to Organise".

1971

ABOVE: Members of the National Women's Liberation Movement go on an equal rights march from Speaker's Corner to 10 Downing Street to mark International Women's Day in London on 6 March 1971. One woman is carrying a placard calling for 'Equal Pay Now'. On the right, a woman is holding a copy of the Trotskyist newspaper *Red Mole*.

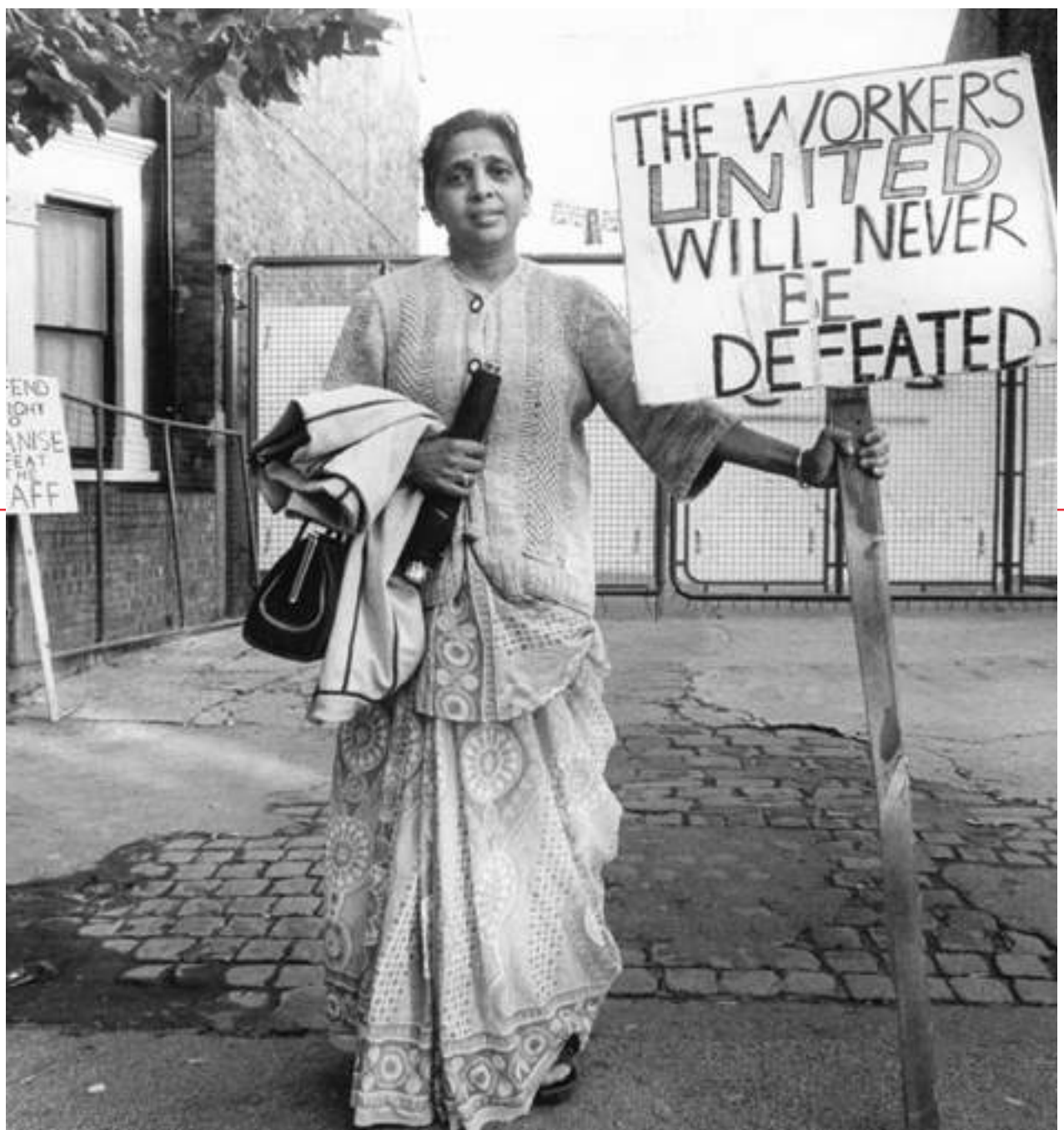


PHOTO: GRAHAM WOOD/GETTY IMAGES



1973

LEFT: A poster by See Red Women's Workshop from the book *Feminist Posters 1974-1990*. The group grew out of a shared desire to combat sexist images of women and to create positive and challenging alternatives. Women from different backgrounds, including prominent member Sarah Jones (Newnham 1971), came together to make posters and calendars that tackled issues of sexuality, identity and oppression.

1992

BELOW: *Young, Female and Black* by Heidi Safia Mirza, whose comparative study challenged the widely-held myth that young black women consistently underachieved at school and in the labour market.

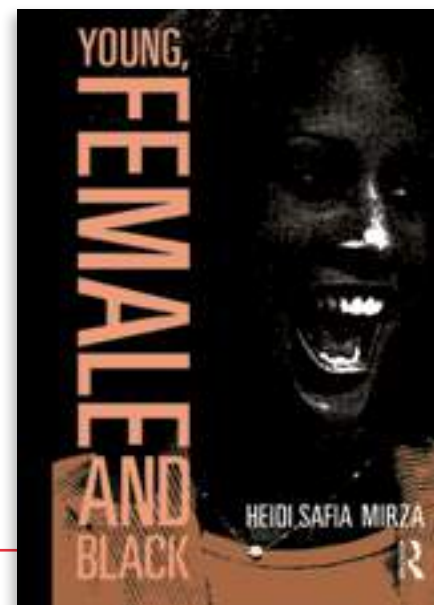


PHOTO: © SEE RED WOMEN'S WORKSHOP

1983

RIGHT: Caribbean-American writer, poet and activist Audre Lorde lectures students at the Atlantic Center for the Arts in New Smyrna Beach, Florida. Lorde was a Master Artist in Residence at the Central Florida arts centre.

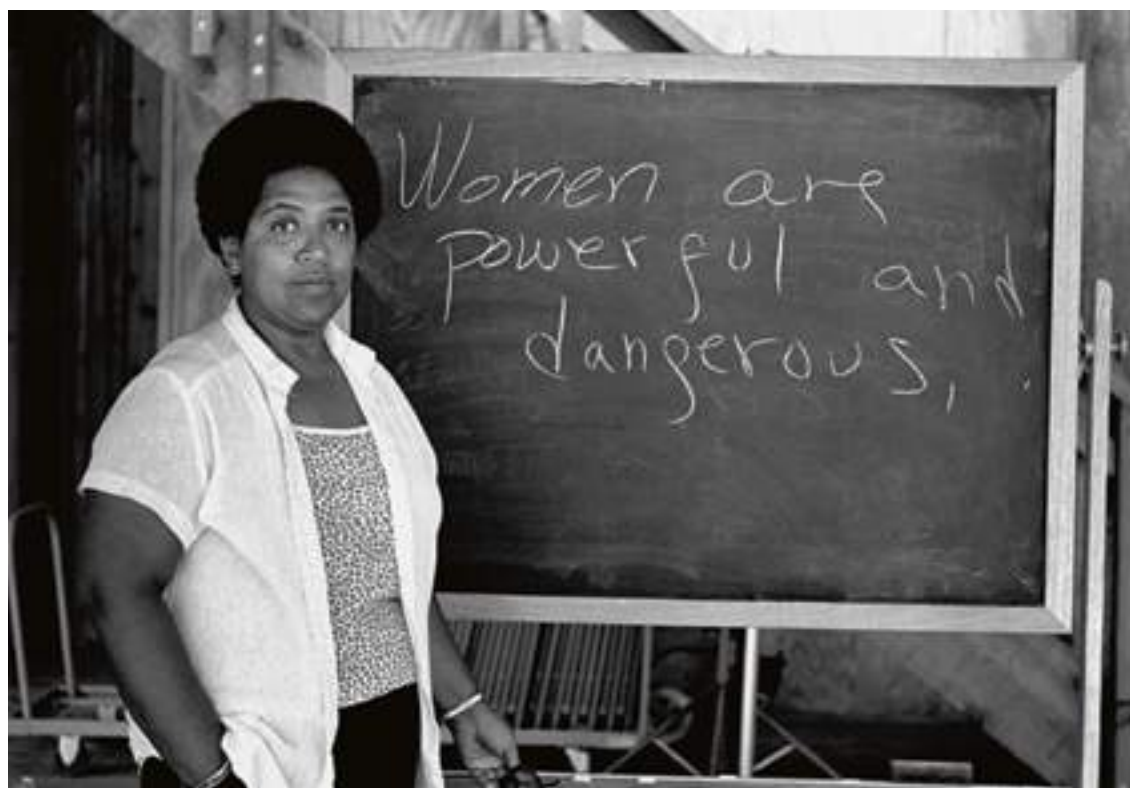


PHOTO: YOUNG, FEMALE AND BLACK, HEIDI SAFIA MIRZA, COPYRIGHT 1992, ROUTLEDGE, REPRODUCED BY PERMISSION OF TAYLOR & FRANCIS BOOKS UK

A large crowd of people, mostly women, are gathered outdoors in what appears to be a city square or park. They are wearing winter clothing like coats, scarves, and hats. Many are holding up handmade protest signs. Visible signs include "#SET HER FREE", "I REALLY WANNA MARRY THE GUY WHO KISSED AT FROM HIS CAR", "WOMEN'S RIGHTS ARE HUMAN RIGHTS", "TIMES UP!", "DUMP TRUMP", "FIGHT BIGOTRY", "UNITY & DIVERSITY", "KEEP YOUR FILTHY HANDS OFF MY SILK PANTS", "MY NAME IS IT SMILE DARLING", "WE SUPPORT", "I'm a woman Phenomenally Talented woman I am me", "TIL TELL YOU WHAT FREEDOM IS TO ME NO FEAR", "G.L.A.", and "DON'T WORRY DUMP TRUMP". The background shows trees without leaves and some buildings under an overcast sky.

"I think where we go next is de-centring the linear narrative of feminism," says

However, visibility is not an answer in and of itself, and many young feminists believe the real battles are still to come. Patel cites

Patel also sees global challenges ahead, from the Trump presidency and from the rise of far right groups seeking to restrict women's reproductive rights and "actively propagate misogynistic attitudes". "There's never been a more important time to protest, petition and use your voice to show solidarity with women experiencing violence or oppression," she says. "The moment we stop fighting for our rights is the moment we leave them vulnerable to being eroded or taken away altogether." ©



Frugal innovation

Professor Jaideep Prabhu says that doing more with less makes sense – whatever your location.

WORDS LUCY JOLIN

PHOTOGRAPHY ANNA HUIX

On 26 January, 2001, an earthquake of magnitude 7.9 hit Gujarat, India, killing over 25,000 people. Mansukhbhai Prajapati, a rural potter, escaped with his life but lost all his stock. All around him were people like him, coping with devastating loss and enormous practical problems. So he set out to help them in his way: he designed a fridge that would keep food fresh without electricity, using the only resource available to him – the clay with which he made pots.

One of Prajapati's small, squat fridges – the Mitti Cool – sits in the corner of Professor Jaideep Prabhu's high-ceilinged, light-filled office at the Cambridge Judge Business School (CJBS). No wires run out of the back: fill the top with water and it keeps the contents cool by the natural process of evaporation.

The fridge is a superb example of the concept the Jawaharlal Nehru Professor of Indian Business and Enterprise highlights in his book *Jugaad Innovation: Think Frugal, Be Flexible, Generate Breakthrough Growth* (co-authored with Navi Radjou and Simone Ahuja). *Jugaad*, a Hindi word, is the art of overcoming harsh constraints by improvising an effective solution, using limited resources. Anyone can do it, with anything, and it can happen anywhere. All it takes is ingenuity.

"The fridge is frugal, because it runs on water, which cools as it evaporates," explains Professor Prabhu. "It's flexible, because you don't need electricity. And it's inclusive, because it's for people who would like to have a fridge but can't afford one – and even if they could, they might not have access to electricity. It's a good-enough solution that works. It addresses a large part of the problem, meets an unmet need, and uses resources that are already available."

Professor Prabhu's journey of discovery began, naturally, in India, where he grew up. That India was very different from the one that the world now knows. "Everything was centrally planned," he remembers. "The state was all-powerful. We were more or less equal, but equally poor, so we instinctively understood the ›



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importance of being frugal. In those days, you either became a doctor or an engineer, and that was your ticket out of India. I studied to be an engineer.” He left in 1989, along with most of his graduating class, switching from Engineering to Business and studying for a PhD in Marketing at the University of Southern California.

Shortly after Professor Prabhu’s departure, India changed. The then finance minister Manmohan Singh (a Cambridge alumnus) scrapped hundreds of rules and regulations that governed how businesses could operate, with the aim of growing India’s economy. Younger people still left India, but now their ultimate aim was to go back. Indian businesses such as Tata went global. Western companies came to India not just to set up back office operations but also to do research and development.

In 2008, after posts at the University of California, Tilburg University in the Netherlands and Imperial College, Professor Prabhu became the first Jawaharlal Nehru Professor of Indian Business and Enterprise at CIBS. In 2009, he was appointed academic director of the Centre for India & Global Business, set up to study India’s role in the global economy from a business perspective. “This, in itself, was indicative of the new India,” Professor Prabhu says. “It would have been slightly whimsical to have a centre devoted to the global role of Indian business 20 years earlier.”

Up to this point, Professor Prabhu’s main interest had been innovation in western corporations. The received wisdom was that this was where innovation happened: with big budgets and massive research and development teams pushing the tech frontier. Now he had the opportunity to study innovation in India – and he soon realised that the Indian approach was vastly different from corporate innovation in the west.

“In India, it was all about being affordable,” he says. “Doing more with less. Taking advantage of the limited resources you had. The process was not terribly structured. Indian innovators might have a plan, but they would switch from one plan to another, partly because the environment was changing rapidly. And a lot of the solutions seemed designed to bring people who are outside the formal economy into the formal economy, so they were inclusive.”

His views about innovation, based on western corporations, were challenged. Travelling around India, talking to people from all sections of society, he realised that innovation can happen anywhere. “And it wasn’t so much about technology; pushing the tech barrier for the sake of it. It was about identifying an unmet need and then figuring out: ‘Is there a technology already around that I can use to produce an affordable and accessible solution for this unmet need?’”

Many of the best examples of *jugaad* innovations come from the developing world. For instance, in their Indian R&D lab, General Electric developed a robust and portable ECG machine made from easily available, off-the-shelf components: telephone keypads and a printer originally designed for bus tickets. Practitioners on the ground are creating their own solutions: Dr Devi Shetty, a sort of “Henry Ford for heart surgery”, has applied the principles of scientific management – division of labour, economies of scale – to carry out highly affordable heart operations in resource-poor settings. Microfinance institutions make use of what is already there – people in villages (often women) who pool their resources and act as a joint liability group – to fill the gap left by banks that

The sharing economy typified by companies such as Airbnb is another example of frugal innovation in the west

find it too expensive to reach communities beyond cities and towns.

Professor Prabhu points out that this concept isn’t unique to India. In the US, it’s DIY culture. The Brazilians call it *gambiarra* or *jeitinho*, while Africans know it as *kanju*. It’s not new, either: necessity has always been the mother of invention. But set against today’s backdrop of rapid technological innovation, emerging markets and resource depletion, *jugaad* suddenly becomes very relevant.

The Raspberry Pi, Professor Prabhu points out, is a superb example of a *jugaad* innovation. Developed by a team of Cambridge computer scientists, the £30 Pi is a highly affordable solution for budding engineers looking to gain hands-on experience by tinkering with computers and coding for them. The sharing economy typified by companies such as Airbnb is another example of frugal innovation in the west. “In the west, people are positively empowered to do more with less,” he says. “These pro-sumers – people who are more actively involved in the economic process – are driving things such as the sharing economy, where we can directly trade spare assets with each other on a digital platform.” Makerspaces are another example: places where “makers” can try out equipment, learn skills like coding, and swap ideas, experiences and expertise.

The possibilities are endless. In emerging markets, he points out, people have no choice but to innovate in this way. “In India and China, hundreds of millions of people aspire to the lifestyles of people in the west. Their governments and economies have to deliver, but they can’t deliver in a resource-heavy way. Their solutions cannot be expensive and they cannot be resource-depleting, because that would destroy the planet.”

But in the west, many people are choosing to innovate frugally. Growth must happen to maintain the west’s economic system, but it can’t be done on the back of resource depletion, Professor Prabhu says. People know this. They want to make the world a better place, and leave it a better place, too.

“The economy has to grow in a frugal, resource-preserving way,” he says, “So there’s that pressure – the push factor, if you like. But there’s also a pull factor. People are now empowered. Increasingly, they don’t want to work for large companies. They want to make a difference themselves. And they have access to all these tools – smartphones, makerspaces, cheap computers, the internet, social media: the barriers to innovation have fallen across the board.

“I truly believe that we need this way of thinking in both the developing and the developed world, and I think we’re headed to a place where the two will meet in interesting, creative ways.” The future’s bright: the future’s frugal. ☺

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The campaign for the University and Colleges has passed the £1bn mark. So why does philanthropy matter to Cambridge?

WORDS WILLIAM HAM BEVAN

What does the Cambridge Professor of Innovation carry in his pocket? It sounds like a question worthy of an admissions interview. And if it were, it's unlikely that even the most lateral-thinking of candidates would guess what Professor Tim Minshall keeps with him as a reminder of his mission: a small thermostatic switch, exactly like the one found in almost every electric kettle.

It's a nod to the philanthropist who donated £2.5m to fund Professor Minshall's chair. Dr John C Taylor is one of Britain's most successful and prolific inventors, with more than 400 patents. He made his name by creating the small bimetallic thermostat that ensures electric kettles switch off when the water reaches boiling point – though he's arguably best known to Cambridge students as the creator of the Chronophage clock that gobbles up time outside Corpus Christi.

Professor Minshall, who took up his post in September 2017, says: "When anyone asks me what innovation is about, we can talk about Tesla and Uber and machine-learning and going to the moon. But I can say 'It's also this' and produce this device. It shows that innovation means spotting an opportunity, understanding what technology could be used to address it, developing the solution that uses the minimum necessary resources, and getting it to market where it can improve people's lives."

The creation of the Dr John C Taylor Professorship of Innovation is a clear example of why philanthropy is of such crucial importance to Cambridge, and to every modern university. Without the donation, it simply wouldn't have happened. The story is repeated throughout the University's Schools, Faculties, Departments and Colleges.

Philanthropy has enabled Cambridge to address the most critical issues of our time. It has supported ground-breaking research into treating Alzheimer's and Parkinson's, addressing global biodiversity loss and gaining a deeper understanding of the economic challenges of African

nations. Without it, new centres such as the Cambridge Stem Cell Institute and the Centre of Governance and Human Rights would not have been founded.

Benefactors have funded academic posts to attract the brightest minds to Cambridge, and countless scholarships and bursaries to help the most financially disadvantaged undergraduates meet the cost of their studies. Above all, philanthropy acts as a guarantor of independence and intellectual freedom. It makes academics less vulnerable to reversals in government policy or changing trends in research-council funding, allowing them to concentrate on ambitious long-term goals.

It's certainly not all about seven-figure bequests from individuals or charitable foundations; small, monthly direct debits from alumni add up to a vital enabling force. "We very strongly believe that any gift, however small, is extremely important and each one is received with huge gratitude," says Professor Chris Dobson, Professor of Chemical and Structural Biology and Master of St John's. "Long-term philanthropic success for an institution such as Cambridge involves a large proportion of our alumni being aware of our needs and enthusiastic to support us in achieving our ambitions."

Cambridge is driving this success with a major campaign. Launched in 2015, the *Dear World... Yours, Cambridge* campaign aims to raise £2bn for the University and Colleges from alumni, friends and supporters. To date, more than 47,000 donors have responded to the call. The campaign's co-chair, Sir Harvey McGrath (St Catharine's 1971), is clear about the impact this is already having. He says: "As a result of this support, we are able to attract, inspire and support the brightest in the world, irrespective of their background or financial capacity. We must continue to do so, to ensure that students who would not otherwise be able to come to Cambridge have the financial support they need, now and in years to come."

Philanthropy – from big donations to small gifts from many people – underpins intellectual freedom. We are free to investigate and question, whatever the vested interest. An institution that draws funding from many sources cannot be controlled.

In December 2017, the tally was propelled through the £1bn mark by an £85m donation to the Cavendish Laboratory from the estate of Ray Dolby – the pioneer of acoustic technology.

“Reaching £1bn is an outstanding achievement,” says Vice-Chancellor Professor Stephen Toope. “It reflects the extraordinary commitment of so many alumni and donors to the Collegiate University. Cambridge has had a huge impact on the world for more than 800 years, and our role in society at a time of increasing global complexity and anxiety is more important than ever.”

Stem-cell research and immunotherapeutics are two areas to have benefited greatly from philanthropy. On its completion later in 2018, the new Capella Building will bring scientists together in a purpose-built lab

on the Cambridge Biomedical Campus. Patrick Maxwell, Regius Professor of Physics and Head of School of Clinical Medicine, says: “Historically, we have been brilliant at getting money to fund the actual expense of doing the experiments. But there is very limited government funding for anything like new buildings or key long-term posts.

“In this instance, people working on stem-cell research, regenerative medicine and immunotherapy have been scattered around the University, because they have roots in lots of academic disciplines that were organised that way 20 to 30 years ago. The new building will bring people together from different departments in a facility with state-of-the-art equipment.

“It’s one of the drivers for our brilliant biologists that they want to see their discoveries taken through to patients, and to

make that happen they needed to be up here on the hospital site, integrated with clinical scientists. Without the new building, there was no space for them to do that. And we couldn’t have done it without philanthropy.”

Professor Dobson has been deeply involved with fundraising at both University and College level. A notable success on the research side has been the financing of the Centre for Misfolding Diseases – a specialist unit within the Department of Chemistry pursuing research into disorders such as Alzheimer’s and Parkinson’s. The Centre will be based in a new Chemistry of Health building that has been made possible through support from donors, including £20m from the Elan Corporation and £5m from Emmanuel alumnus R Derek Finlay, after whose wife, Una, the Centre’s new laboratories will be named.

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College campaigns have been equally successful. “Our current campaign at St John’s aims to raise £100m, and we’re now about halfway towards that target,” says Professor Dobson. “What’s particularly exciting is that this campaign is strongly focused on enhancing support for our academic activities – not least the help we can give to students from low-income backgrounds, for example.”

Recipients of philanthropic support via their College include Hannah Lawson (St John’s 2017), a first-year undergraduate in Human, Social and Political Sciences. She is one of two candidates in her year to receive a Salim and Umeeda Nathoo Bursary, which provides £5,000 a year for the duration of her degree. The bursaries are intended to help outstanding students meet the cost of living and learning in Cambridge.

“I applied for the bursary the summer before I came up to Cambridge and was interviewed by Mr Nathoo along with the Senior Tutor and the Scholarship Administrator at St John’s,” says Lawson. “I worked to earn money for university and had some savings, but the bursary means that my time in Cambridge can now be devoted to studying and pursuing work experience.”

University-wide schemes are equally significant in helping all undergraduates make the most of a Cambridge education. Now in her second year, Mollie Georgiou (Queens’ 2016) was awarded a Reuben Scholarship when she was accepted to read Psychological and Behavioural Sciences. The scheme, founded by brothers David and Simon Reuben, provides bursaries for talented students from disadvantaged backgrounds.

She says: “I was the first person from my school to go to Oxford or Cambridge, but I didn’t know about the scholarship before I applied. I receive the money from the scholarship on a termly basis, and it provides reassurance that I can take part in all the things that other students can. I can do my weekly shop and pay for events without worrying about financial pressures. I was also able to buy a laptop, which makes it a lot easier to access the resources I need.

“The networking side of the Reuben Scholarship is important – we help and support each other. When you come to Cambridge from a state school, you don’t necessarily have a ready-made network. We keep in contact via email, and I’ve been invited to the Reubens’ house in London to meet other scholars from Oxford and UCL as well as Cambridge.” ›

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Georgiou strongly believes that scholarships such as hers attract a more diverse set of applicants to Cambridge. “It’s not just about the income,” she says. “It’s knowing that there are people who believe in you enough to support your journey through higher education. They’re also an acknowledgement of the wider issues that can prevent candidates from trying for Cambridge: ‘How could I thrive in an environment like that, when I haven’t had that sort of academic experience before?’ Scholarships encourage academic confidence and help people believe in themselves.” The Vice-Chancellor, Professor Stephen Toope agrees. “Scholarships and bursaries are critical to Cambridge’s ability to attract the very best students regardless of means,” he says. “We need to do much more going forward, and philanthropic support is key to this endeavour.”

Many schemes exist to support researchers at the start of their academic career. The Gates Cambridge Trust, established by the Bill and Melinda Gates Foundation, confers scholarships on “intellectually outstanding postgraduate students with a capacity for leadership and a commitment to improving the lives of others”. They include Ukrainian poet Iryna Shuvalova (St John’s 2016), whose award has allowed her to pursue a PhD in Slavonic Studies. Her work examines the role of poetry in war, and how it has helped people in eastern Ukraine to cope with the trauma caused by the ongoing conflict.

She says: “Cambridge has one of the best Ukrainian Studies programmes in the world,

KEY FACTS AND FIGURES

£2 billion: campaign goal

£1.13 billion: amount raised by the University and Colleges since the start of the campaign

47,000: number of contributors to the campaign to date

49 per cent: percentage of total raised to date given by alumni

267: number of new graduate studentships funded by philanthropy

but as I couldn’t self-fund, I had to explore how I would finance my research. The Gates Cambridge Scholarship was the best option for me because I have a daughter: it’s the only one that offers support for dependants.

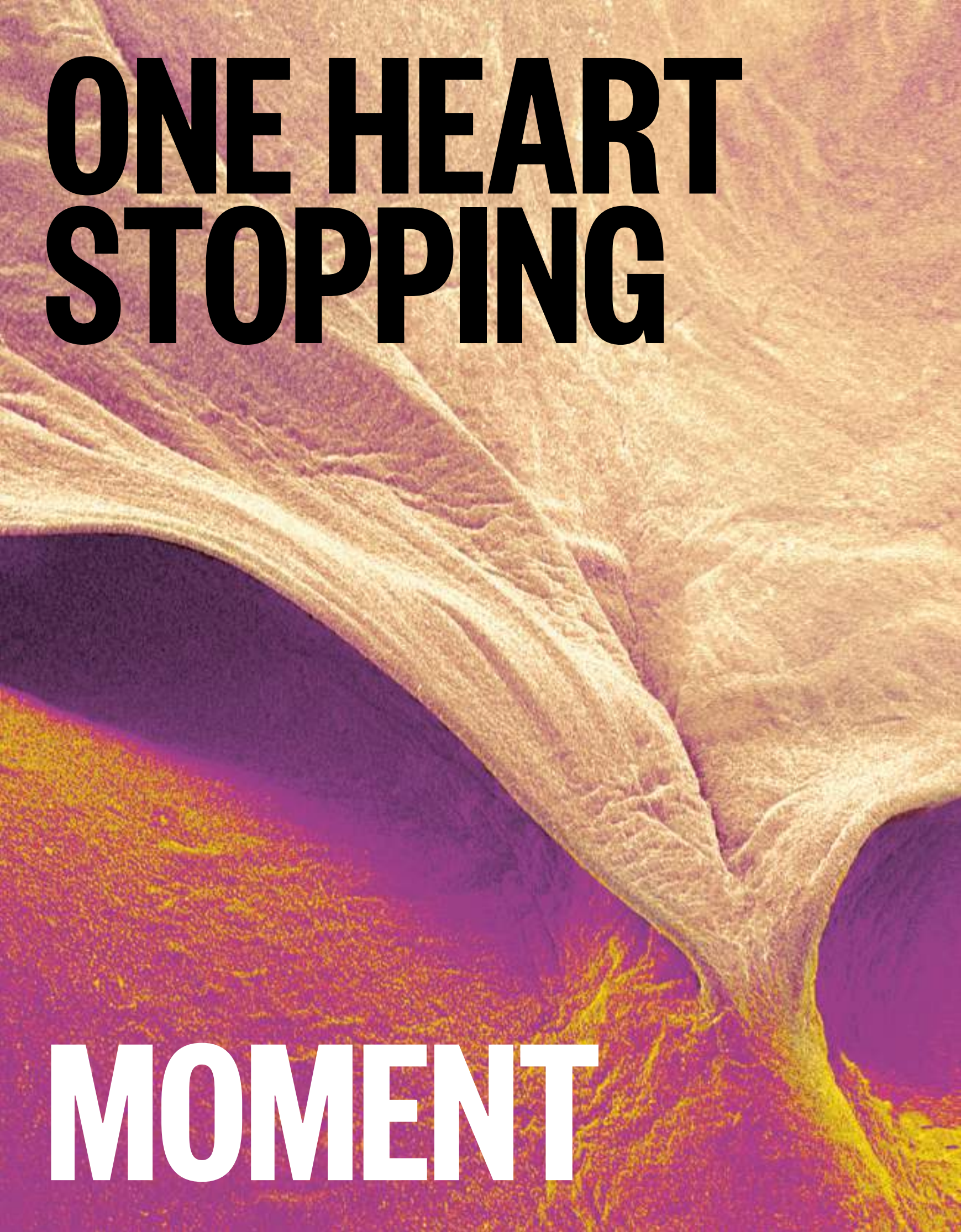
“In my research, I’m bringing together traditional songs and contemporary oral poetry, looking at how the earlier material becomes re-actualised and reinterpreted in the current conflict. The independence that scholarships provide is immensely valuable, and especially when we tackle sensitive political issues.”

Ultimately, there is a strong consensus in Cambridge that philanthropy is no longer an optional extra, if ever it was: it’s now a vital factor in enabling the University to maintain academic independence and pursue its mission at a time of unprecedented financial pressure. “I’ve been in Cambridge for over 15 years,” says Professor Dobson, “and in that time the attitude to fundraising has changed beyond all recognition. Everyone is convinced that it’s a vital part of our ability to remain a world-leading university.

“Our alumni are tremendously enthusiastic supporters of our objectives, and I believe they feel increasingly strongly connected to the University and its Colleges. In turn, we are keen to encourage them to see for themselves the effects of their donations and to meet the students and academics whose activities they are supporting. In the end, their gifts are the bedrock of our future success as a major centre of teaching and research, and we could not be more appreciative of their generosity and encouragement.” ☺

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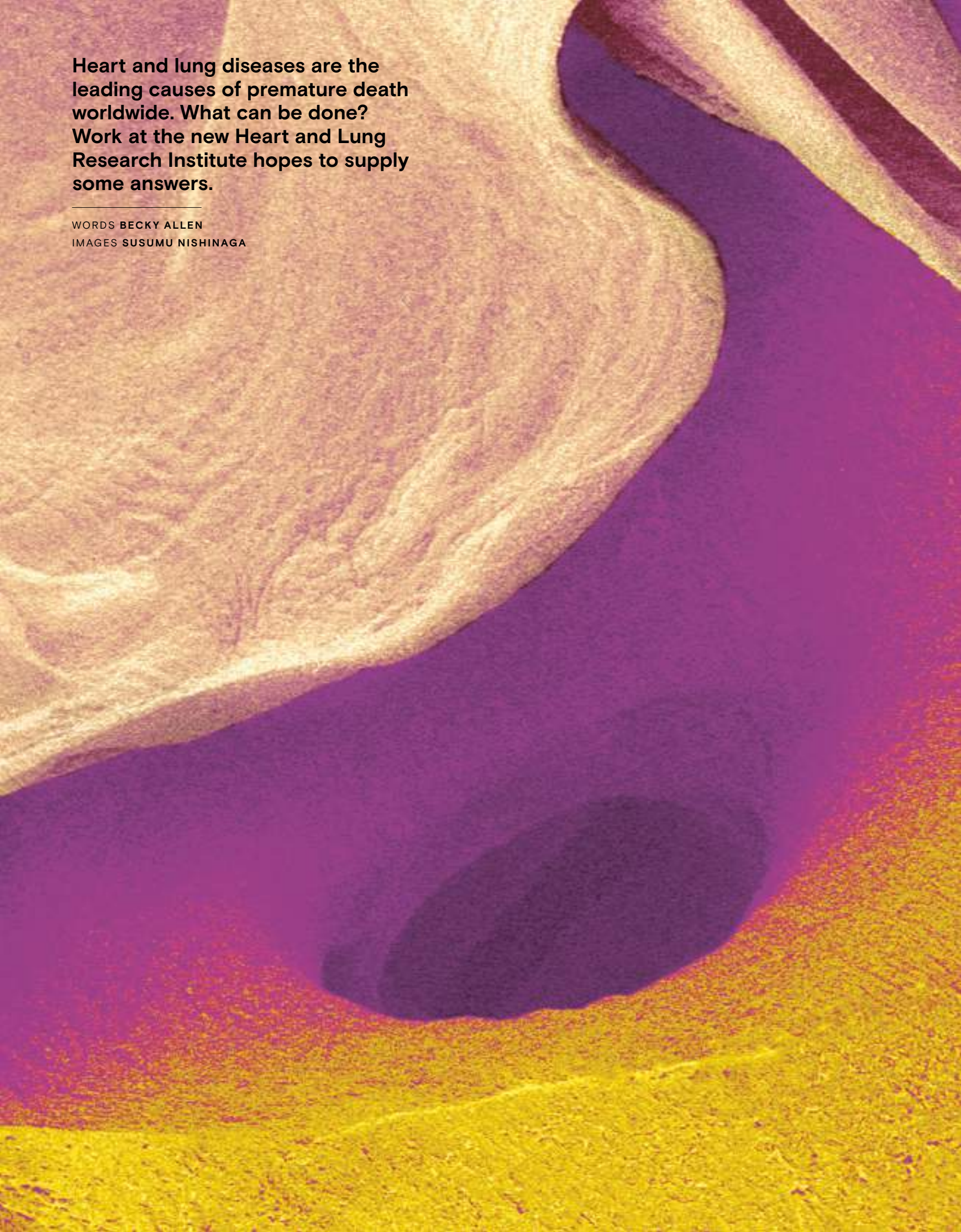
**ONE HEART
STOPPING**

MOMENT

Heart and lung diseases are the leading causes of premature death worldwide. What can be done? Work at the new Heart and Lung Research Institute hopes to supply some answers.

WORDS BECKY ALLEN

IMAGES SUSUMU NISHINAGA



Sean Doyle's heart problems began out of the blue. One moment he was on his way to Huddersfield parkrun; the next moment he collapsed. Doyle had a blocked artery and suffered his first heart attack.

By an extraordinary stroke of luck, his GP and a nurse were both running that May morning in 2013, and performed CPR until the paramedics arrived. Doyle – who had a second heart attack on the way to hospital – was put into an induced coma and had a stent fitted.

A week later he was back at home and, after cardiac rehab, pulling on his running shoes again. Although his marathon days are over, Doyle is back to parkruns and the occasional 10k. "My trainers tend to last about 600 miles," he says. "I'm now on the fourth pair since my heart attack."

Prompt action saved Doyle's life, but many others are not so lucky. What will herald a step-change in tackling the global epidemic of heart and lung disease is the arrival of the Royal Papworth Hospital on the Cambridge Biomedical Campus. By combining the UK's largest specialist cardiothoracic hospital with the University's top-ranked medical research, and providing innovative educational facilities and a 10-bed clinical trials unit, the Heart and Lung Research Institute (HLRI) will attract the best clinicians, researchers and industry partners who together will deliver better ways to prevent and treat heart and lung disease.

Martin Bennett, British Heart Foundation Professor of Cardiovascular Sciences, works on heart attacks. Most coronary heart disease deaths are caused by a heart attack, and in the UK in the 1960s, more than 70 per

PREVIOUS

A coloured scanning electron micrograph (SEM) of the aortic valve (top). The aortic valve prevents the back flow of blood from the aorta (the body's main artery) to the left ventricle of the heart.

BELOW

Coloured micrograph (SEM) of the heart valve and strings. The micrograph shows the mitral valve (upper left), controlling the blood flow between two of the heart's chambers, the left atrium and the left ventricle. The heart strings (thread-like structures) are known as the chordae tendineae, and are controlled by the papillary muscles. The structures at the centre, known as trabeculae carneae, are muscular, columnar protrusions found on the internal surface of the ventricles.

cent were fatal. Today, more than seven out of 10 people survive – a proportion Bennett aims to improve.

Plaques in coronary artery walls are build-ups of material covered by a fibrous cap. Over time, the arteries narrow and restrict blood supply causing angina and, if the plaques rupture, a heart attack. Not all plaques, however, are likely to burst. "Size matters, but structure is most important," says Bennett. "Some are big but fibrous and very stable. Others are small with a thin cap, and these are very dangerous."

To prevent heart attacks, cardiologists such as Bennett need a way of distinguishing the two, something current techniques cannot do. Angiograms produce only a silhouette, showing that arteries are narrowing. A newer technique – intravascular ultrasound – is better, but still only predicts 20 per cent.

"Having reached the limit of detection with imaging, we decided we needed to look at the other side of the equation, and that's why the University is such a great place to work," he explains. "We have engineers who test materials for buildings and bridges, and can work out the stresses and strains materials are under."

By scanning plaques using ultrasound, Bennett and researchers in the departments of Radiology and Engineering can calculate which areas of the artery are under most stress. Trials so far show that the new technique can predict 50 to 75 per cent of events, and he hopes that in five years' time it could change the way cardiologists manage patients. "It's the sort of project that depends on cardiologists, engineers, mathematicians and computer scientists. Cambridge is great because we have all these experts."

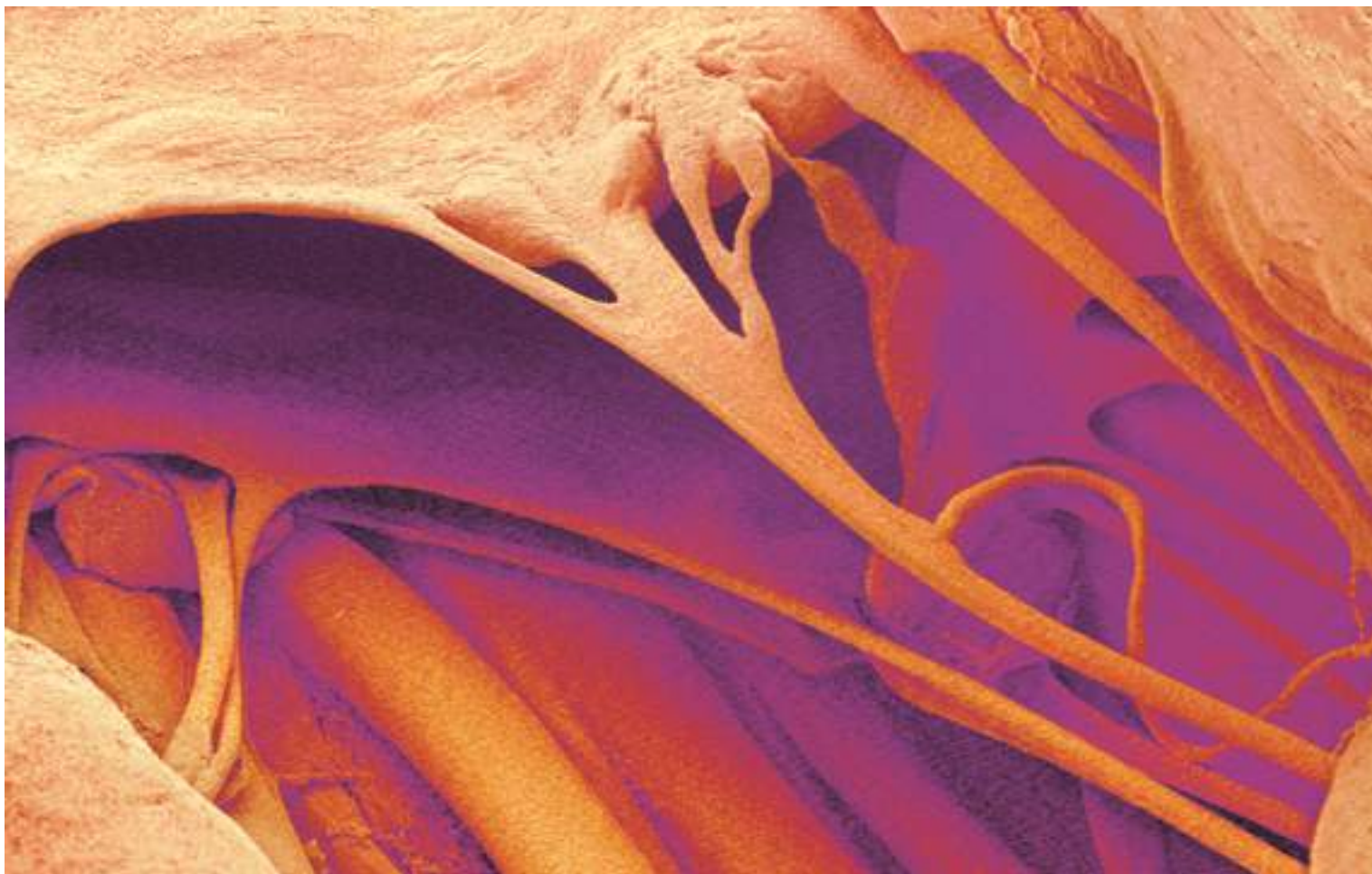


PHOTO: SUSUMU NISHINAGA/SCIENCE PHOTO LIBRARY



The new technique is groundbreaking. It's the sort of project that depends on cardiologists, engineers, mathematicians and computer scientists – making Cambridge the perfect place to do it

ABOVE AND NEXT PAGE

Coloured micrograph (SEM) of the pectinate muscles in the wall of the right atrium of the heart. The woven structure of these muscles allows a large contraction strength with minimal muscle mass.

It's a perfect example of how the new HLRI can change heart and lung research, leading to better outcomes for patients in future, says Nick Morrell, BHF Professor of Cardiopulmonary Medicine. "The HLRI will be a physical and intellectual hub for accelerating research and drug discovery, a hothouse for grand challenges in heart and lung disease," he says. "The clinical resources of the Royal Papworth plus major buy-in from AstraZeneca and GSK, as well as smaller biotech firms, make this a phenomenal opportunity."

Professor Morrell has spent much of his professional career hunting for a cure for pulmonary arterial hypertension (PAH). A chronic and debilitating disease that affects blood vessels in the lungs, PAH causes tiredness, breathlessness and eventually heart failure. Continuous intravenous drugs can alleviate symptoms and buy people a little extra time. Morrell spends part of his time at the Royal Papworth Hospital, a clinical centre of excellence for the disease, which treats and monitors around 700 patients with PAH. But most of his working life is devoted to understanding its genetics and biology.

PAH affects around 6,500 people in the UK and devastates lives. "It's rare but horrible," Morrell says. "It tends to come out of the blue in otherwise fit, healthy people in their 30s, 40s and 50s, predominantly women and often precipitated by childbirth, so diagnosis is associated with a lot of personal tragedy."

The first gene connected with PAH was discovered almost two decades ago. Mutations in the gene, *BMPR2*, explain around 25% of PAH and cause cells lining blood vessels in the lung to malfunction. Deficiency in *BMPR2* means the cells proliferate, become inflamed

and die easily, and understanding the process is key to discovering new therapeutic targets.

"This endothelial dysfunction seems to trigger these profound changes in the lung arteries," explains Morrell. "The simple hypothesis we've been working on for years is that if you can restore *BMPR2* function, can we reverse the effect?" Morrell believes he can, and has set up a spin-out, Morphogen-IX, to develop and test new ways of treating PAH.

"We have a 50-patient trial planned to test whether the treatment lives up to its promise, and we'll have the results in two to three years," he says. "It works completely differently from the existing drugs, and the whole rationale behind it is based on human genetic studies. Because it's such a complicated pathway, the human genetics has given us this razor-like focus."

Across the Cambridge Biomedical Campus in the NHS Blood and Transplant Building is Professor Willem Ouwehand's lab, which is pioneering the genome science that has enabled Morrell to discover other genes associated with PAH.

Using technology that slashes the cost of whole genome sequencing, invented in Cambridge by Professor Shankar Balasubramanian in the Department of Chemistry, Ouwehand is examining large cohorts of patients – and revolutionising the understanding and diagnosis of rare diseases.

"In four years, we've sequenced the entire genome of 13,000 people with rare diseases. Bringing together so many of these patients has never been done before, and significantly increases the chances of discovering the genes underlying these conditions," he says. "Having ›

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this new knowledge we've been able to develop a simple, affordable DNA test that can be used in the NHS, and beyond, to diagnose many rare diseases, including PAH."

Ouwehand dislikes the term 'rare' diseases, pointing out that "inherited rare diseases affect one in 20 children born every year, or three million people in the UK". And they play an important role in medical research: "Discoveries based on these diseases often give a strong signal to researchers and the pharmaceutical industry that the proteins encoded by a particular gene are a good therapeutic target. Several drugs now used to treat cardiovascular diseases, such as statins, were initially developed to treat families with rare diseases."

His group's major focus is platelet biology. Platelets are the second most abundant cell in the blood and, despite lacking a nucleus, these tiny cells are "loaded with goodies" that repair the blood vessel wall and make blood clot in response to the rupture of plaques in cardiac artery walls. This clot formation may lead to occlusion of a coronary artery leading to a heart attack.

Because platelet are integrally linked to heart attack and stroke, Ouwehand's lab is looking for genes involved in platelet production and function. "We've built the biggest collection of patients with platelets that don't look normal and don't work correctly. We have sequenced the whole genome of nearly 2,000 of these people with rare platelet diseases," he says. "They come from across the globe – Austria, Belgium, Germany, France, the Netherlands and the US, as well as the UK – and because Cambridge is a trusted partner, we can have global reach and give global leadership."

While Morrell and Ouwehand focus on the rare, Professor Edwin Chilvers, in the Department of Medicine, treats and studies some of the most common diseases in the world. "Heart and lung disease kills more people than any other group of diseases, but it's one of the most underfunded parts of medicine," he says.

Professor Chilvers treats lung disease where inflammation is the major driver, including asthma (the commonest disease of Europeans) and smoking-induced chronic obstructive pulmonary disease (COPD), pneumonia (the leading cause of hospitalisation and death) and even multiple forms of fibrotic lung.

His research focuses on COPD (which affects 1.2 million people in the UK) and the role of neutrophils, a type of white blood cell that is essential to a healthy immune system. Neutrophils work by finding and eating bacteria, and preventing infections from taking hold. However, this can also result in unintentional injury to healthy tissues and result in chronic inflammation. Once infection is under control, this limb of the immune system should switch off, but in COPD, neutrophils remain activated, dysfunctional and refuse to die.

"Healthy lungs have clear and open breathing tubes that taper beautifully down towards the end alveoli, but in COPD neutrophils damage the airways, causing them to become narrower and often blocked with mucus, making them very prone to infection," Chilvers explains.

To discover what traps these cells into a cycle of perpetual activation, he has been studying the chemical messaging systems inside the cells in order to design a drug that might put these cells back on to the correct path. It sounds simple but, until recently, neutrophils have kept their secrets well hidden.

"It's very difficult to isolate and study neutrophils, especially those that have already moved from the blood into tissue, so we're largely working away from the action. The other challenge is these cells are very easily disturbed, so working with them tends to tickle them up," Chilvers says. Five years ago, he developed a new way of isolating and labelling neutrophils. "It's made a big difference, allowing us to follow these cells around the body for the first time."

As a result of the new technique, Chilvers and the pharmaceutical companies he collaborates with have new drugs in clinical trials that they hope will transform the lives of those living with COPD. "If we can give drugs that strip out neutrophilic inflammation, that would give a good chance of stopping the damage and resolving the inflammation," he says. "People with COPD are on an inexorable decline in lung function. If we could stop that decline, it would be a fantastic achievement." ©

The new HLRI will deliver ground-breaking research thanks to collaboration between the University and Royal Papworth Hospital. For more, visit cam.ac.uk/HLRI.

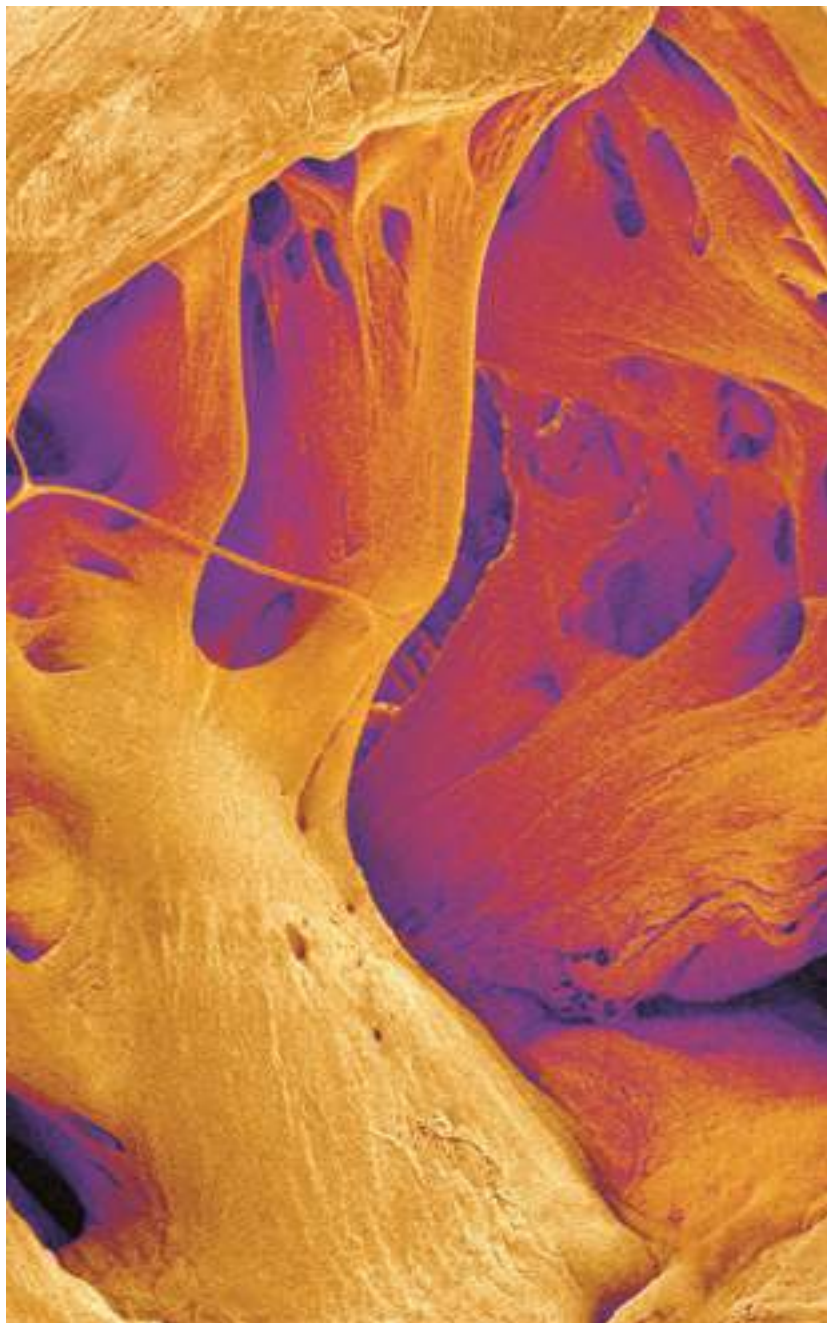


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I ploughed through a lot of Dostoyevsky in the hot strip mill.

Dr Spike Bucklow is Reader in Material Culture at the Hamilton Kerr Institute.



1. ONE HUNDRED YEARS OF SOLITUDE

GABRIEL GARCÍA MÁRQUEZ

In my late teens I worked in an Australian steelworks where, once I'd finished the tasks assigned for each shift, the foreman allowed me to read. I worked like a maniac and then ploughed through a lot of Dostoyevsky in the hot strip mill. From there, I sailed to Malaysia as the only passenger on a Filipino cargo boat. For weeks on end I basked alone over the prow, escorted by dolphins and flying fish. While on board, I read *One Hundred Years of Solitude* very slowly. It was completely idyllic – magical realism for real. And, judging from my continued interest in the magic of art and science, the experience must have been formative.

2. MONKEY

WU CH'ENG-EN

Also in my late teens, I read *Monkey* as a piece of serious 16th-century literature, following the adventures of a Chinese monk journeying to collect Buddhist scriptures from Gandhara. A few years later, I stumbled upon the BBC version of the low-budget cult Japanese TV show, *Saiyūki*, based on the book. I returned to *Monkey* and reread it as a ripping yarn. Funnily enough, I got a lot more out of it.

3. METAMORPHOSES

OVID

Over the decades, I've repeatedly dipped into this extraordinarily deep and subtle book. Each time it gets better. It's my *Desert Island* book.

4. THE SECRET OF SHAKESPEARE: HIS GREATEST PLAYS SEEN IN THE LIGHT OF SACRED ART

MARTIN LINGS

In my late 20s, I lived round the corner from the Barbican when it was the temporary home of the RSC. I saw lots of Shakespeare, and my appreciation of the plays was absolutely transformed by the discovery of this modest little book. My eyes were opened to the magical reality of Shakespeare's world. Lings' book led me to others, including CS Lewis's *Studies in Medieval and Renaissance Literature*. These books suggested to me, as a chemist, that artists' materials could be examined in the light of contemporary world views (the four elements, alchemy, astrology etc) to throw light on pre-modern visual culture, in the same way that Lings and Lewis threw light on pre-modern literature.

5. COLOUR AND CULTURE: PRACTICE AND MEANING FROM ANTIQUITY TO ABSTRACTION

JOHN GAGE

I was very lucky to have the late, great, John Gage as my PhD supervisor at Cambridge. He almost single-handedly established colour as an academic subject, so it is rather strange that my thesis was a pretty monochrome affair. However, I see my subsequent work as the expansion of two or three footnotes in his *Colour and Culture*. Following in his footsteps (and those of Michael Baxandall) has been extremely rewarding. I feel very privileged to have such close access to great medieval and Old Master paintings at the Hamilton Kerr Institute. This allows me to consider cultural ideas with reference to scientific analysis; to have my head in the clouds while keeping my feet firmly on the ground, bridging, in some small way, CP Snow's *Two Cultures*.

Spike Bucklow's The Anatomy of Riches: Sir Robert Paston's Treasure will be published by Reaktion later this year.



I'm just there to chat, play games and referee their wrestling matches!

The 'Cambridge bubble' is a comfortable place. But stepping outside the bubble can be hugely rewarding, Cambridge Student Community Action's (SCA) volunteers explain.



Since it began in the early 1950s, Cambridge Student Community Action has had two main aims: to benefit vulnerable members of the local Cambridge community and to encourage students to try new things or develop existing skills. A student steering committee works alongside the more senior executive committee, meaning that student volunteers have a real voice in how the organisation is run.

And there are numerous projects to choose from: everything from entertaining older people with a traditional singalong to buddying up with a teen who has mental health problems.

Volunteering has enabled third-year medic Kieran Kejiou (Churchill) to discover skills he never thought he had. He became a Big Sib – a volunteer befriender for vulnerable children. Every week, he hangs out with his 'siblings', two children aged 11 and eight who recently lost their mother.

"I'm just being there with the kids, chatting, playing games and refereeing their wrestling matches," he says. "They seem to enjoy it! It's fun and it's taught me that, actually, I don't hate kids, which is a nice revelation to have. They're great. I had ruled out paediatrics as a possible future career, because I thought I hated kids. Now I'm very confused! So the

experience has really opened doors for me." Other students have found that volunteering with SCA has helped to reinforce and clarify ideas they've had about their future career.

Finalist Megan Cheyney (St Catharine's, Psychological and Behavioural Sciences) is a project leader at Bounce, a Saturday afternoon club for vulnerable and disadvantaged children. Each session, they decide on a theme to explore through crafts, games and activities – anything from Chinese New Year to Under the Sea.

"Show and Tell is my favourite part," Cheyney says. "All the children are allowed to bring in something from home, or anything



Sometimes we get kids we've never met before, and they will have a specific need that you need to meet on the spot



It is the most sumptuous piece of heart-aching music, and I fully intend to have it sung at my funeral.

Alexander Armstrong (Trinity 1989)

they've made during the sessions. They talk about it and show it around. You can really see them grow in confidence and open up to the group."

Cheyney, who has received an offer for a place on the Civil Service Fast Stream after graduation, says that Bounce has helped her develop some skills vital to a successful career, such as organisation, planning and flexibility. "Sometimes we get kids we've never met before, and they will have a specific need that you need to meet on the spot," she says. "You have to know how to adapt activities to fit in with that need."

Fourth-year medic Shoko Hirose (Lucy Cavendish) has always been interested in teaching. As a volunteer for SCA's Homework Help project, she was matched with a student who needed assistance with GCSE maths. "I really enjoy contributing to the community," she says. "And teaching is important in your medical career, as well: junior doctors need teaching. We're also encouraged to do volunteer work before we start our careers. When I become more senior, I want to be a good teacher. So this skill is very applicable to my future career."

Hirose says SCA's flexibility has made a huge difference. Currently doing hospital placements during the week, she sees her student at the weekend. "The family understand that sometimes I can't make it on one weekend, and, if that happens, I can fit a session into the next," she says. "I've found SCA very supportive – if you have any problems, they're always willing to listen."

Calling volunteer work "rewarding", is, admits Cheyney, "a massive cliché! But it's true. It's unbelievably worthwhile. I've worked with some of the children at Bounce for three years now, and seeing their confidence improve has been wonderful. It's a great feeling to do something for someone other than yourself."

SCA are always looking for new volunteers. To find out more, visit cambridgesca.org.uk.



JESU, MEINE FREUDE JS BACH

I had sort of landed as first bass in Trinity Chapel Choir and spent a lot of my first term mouthing and miming. But then in my second year, I found my voice and it all unfurled and became glorious. Of all the Bach motets, I think this is the longest and toughest. The 'Gute Nacht, O Wesen' movement is the most sumptuous and beautiful piece of heart-aching music, and I fully intend to have it sung at my funeral.



REI MOMO DAVID BYRNE

David Byrne and Talking Heads were kind of an idée fixe at Trinity in the late 80s and early 90s. It's this wonderful immersion in the deep bossa novas and textures of Latin American music, with huge samba band sounds and virtuoso wind playing. It is so capacious in terms of its landscape and ambition you can store a huge amount of memory and texture in it.



WAR REQUIEM BENJAMIN BRITTEN

I went to a performance of this at Durham Cathedral as a school boy. It was the first time I'd ever been to a concert that felt like a devotional experience. When I sat down to write part one of my dissertation on Siegfried Sassoon, the Requiem was my transporter. In its absolute austerity there is a triumph of the human spirit, and there is something so humane and tender within it. I think that's the point.



RAIN DOGS TOM WAITS

Trinity used to have an exchange programme with Rice University, Texas. My friend George Langworthy (Trinity 1989) was one of those students and we bonded over Tom Waits in my first year. I can still hear the Trinity bell chiming two in the morning as we sat and banged on about Tom Waits. And I remember a backgammon board and cigarette ash. Very Tom Waits.

Alexander Armstrong is a comedian, actor, television presenter and singer. He co-hosts the BBC TV game show Pointless.



c) Churchill - Front



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Breaking the silence on sexual misconduct

Sarah d'Ambrumenil is Head of the Office of Student Conduct, Complaints and Appeals.

Research undertaken by the University, the Students' Union, and the National Union of Students confirms that sexual misconduct is just as prevalent within our community as it is at any other university or microcosm of society.

Equally concerning is that victims often say they do not want to raise a formal complaint, reflecting the difficulties they face in disclosing what has happened to them, or in seeing the benefits to them of reliving their experiences through a formal reporting procedure. Students come here from all over the world to be influenced by their professors and peers. Consequently, it can be difficult to challenge others' behaviour or even recognise that it might be inappropriate. But it is not good enough for the University to have support services and reporting options if students do not have the confidence to use them.

The University has been working with students, staff, victims and specialist organisations for the past few years to try to improve things. This work has culminated in the campaign *Breaking the Silence – Cambridge speaks out against sexual misconduct*, launched in October 2017. Spearheaded by the Vice-Chancellor, it raises awareness of the University's zero-tolerance approach to sexual misconduct,

as well as the support and next steps for victims. In the past 10 months the University has received around 140 reports of sexual misconduct taking place between students through its anonymous reporting mechanism, with half of those reports relating to a sexual act or sexual intercourse taking place without consent. This is not information that is easy to accept, though it is perhaps not unexpected – national studies suggest that 68 per cent of students in the UK are sexually harassed while at university.

It is those 'next steps' that my office is involved in: the Office of Student Conduct, Complaints and Appeals. We handle student complaints about the University and University staff, as well as complaints of harassment or sexual misconduct about other students. This is just one component of the resources in place to support victims and prevent sexual misconduct. Students also have access to a University Sexual Assault and Harassment Adviser and can attend bystander training and consent workshops; and student-facing staff receive briefings on how to support student disclosures.

Early indications suggest that the campaign is already having an impact: an increase in the number of cases being reported to our Office, and, via anonymous reporting, a decrease from 52 per cent to

25 per cent in the number of students who believe the University would not take any action if they reported sexual misconduct. However, the University, alone, cannot influence students' confidence when it comes to seeking support and reporting sexual misconduct. Students' behaviour is partly a reflection of society and the wider culture in which we live.

This is why it was so powerful to witness alumni coming out to support the campaign. The support from Colleges, staff and alumni has been overwhelming, with our campaign films being watched more than 85,000 times. By raising awareness – sharing a video, retweeting posts or 'liking' comments relating to *Breaking the Silence* – you are strengthening the message that when a victim comes forward to report, they do so with the backing of the Cambridge community. Your actions help to prevent sexual misconduct, by showing potential perpetrators that the Cambridge community will not tolerate this kind of behaviour.

I hope that in time your support in this area will become unnecessary, but, for now: thank you. You are helping to break the silence.

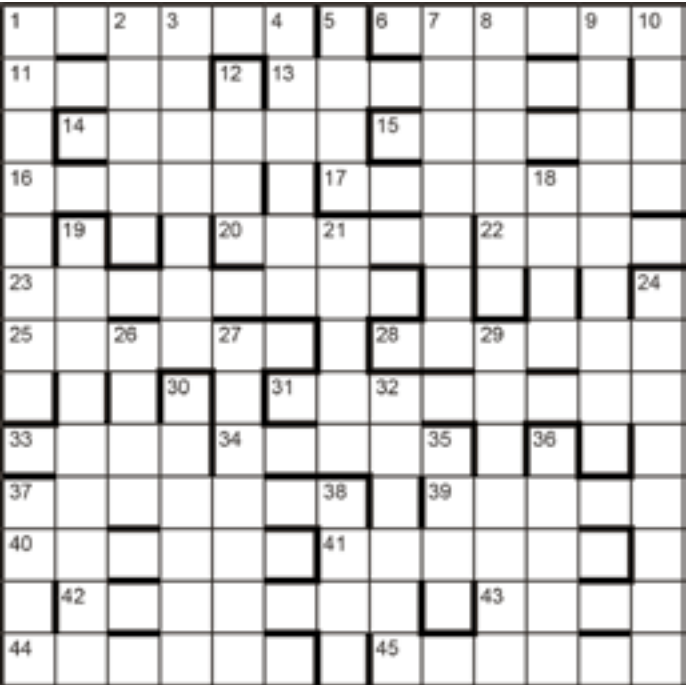
For further information and to see the video, visit breakingthesilence.cam.ac.uk.

“By sharing, retweeting or 'liking' these posts you strengthen the message that when a victim comes forward, they do so with the backing of the Cambridge community”



CAM 83 PRIZE CROSSWORD

Blues
by Schadenfreude



All entries to be received by 11 May 2018. Please send completed crosswords:

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- by email to cameditor@alumni.cam.ac.uk

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poetry which capture the unique spirit of the house. Two runners-up will also receive £50 to spend on CUP publications.

Solutions and winners will be printed in CAM 84 and posted online at alumni.cam.ac.uk/ magazine on 25 May 2018.



INSTRUCTIONS

Seven clues have a misprint in the definition. Clashes in seven cells form names; in these cells solvers must enter the initial letter of the name preceded by one of the misprint corrections. The collective name of the seven (two parallel words) must be highlighted. Numbers in brackets are the lengths of grid entries.

ACROSS

- 1 Religious woman in an excited state outside court knocked back a drink (6, 2 words)
- 6 He rescues judge held in laird's yard by Republican (6)
- 11 Repeat "check" in gambling game (4)
- 13 Noisy game bird caught by the French lizards (7)
- 14 Did raw volunteers fly across lake? (6)
- 15 A kind American to expose earl (6)
- 16 Drama in some trouble (5)
- 17 Travelling on another terrible day (7, 3 words)
- 20 Comparatively thin artist, about eighty (5)
- 22 Bloke ignoring female pass (4)
- 23 Swimmer facing trouble on South Island (8)
- 25 Not more than a thousand stopping for second time (6, 2 words)
- 28 Inbred sow trapped left foot (6)
- 31 Magistrate's office chair hack repaired without compliance (8)
- 33 Curtailed cold kiss (4)
- 34 Faith lives with recurrent pain (5)
- 37 I found in large dictionary "exultation of mythical ring" (7)
- 39 Newspaper covering bird foot disease (5)
- 40 A written composition about Zulu medical decoction (6)
- 41 Plant tree in shelter (6)
- 42 Brisk speed on foot (7)
- 43 Victorian gave me and Kay backing (4)
- 44 Silly director worried about retiring apparently leaves (6, 2 words)
- 45 Poles keeping anonymous greeting promotional tour (6)

DOWN

- 1 Baronet and associate look up and indeed resist (8, 3 words)
- 2 Acting knight protected by our king's companion (5)
- 3 Pass over doctor with zero capital (9)
- 4 Page lied awfully about a brilliant septet (6)
- 5 Bishop led astray by academy member fit for the madhouse (4)
- 7 Peter Ustinov's initial eccentricity stimulated an inspiring deity (7)
- 8 Casual errand boy's game (6)
- 9 Exotic isle's pear trees (9)
- 10 Did fish in Scotland fool local editor? (4)
- 12 Blue, close to sour cheese (4)
- 18 King of France touring US city (4)
- 19 Chap beginning to experience palsy developed a state of body rigidity (9)
- 21 Magnificent magistrate turned up with lire for money (5)
- 24 Prompting device I fixed keeping a robot working (8, 2 words)
- 26 Before one mother would skate (4)
- 27 Shilling gratuity to finish a soldier's day (7)
- 29 Monk nursing tailless sick dolphin (7)
- 30 Parasites? Religious cross carried by each (6)
- 32 Nurse welcoming the start of exciting life (6)
- 35 Maiden queen and goddess join forces (4)
- 36 Dusty shore line followed by old uncle and Penny (5)
- 37 Firm engaging extremely loose feminist sociologist (4)
- 38 British medieval knight protecting learner more likely to snap (4)

SOLUTION TO CAM 82 CROSSWORD
MIXED DRINK BY SCHADENFREUDE



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