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Aaron Lowell Denton

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Welcome to the Easter Term edition

of CAM. I know you will remember the atmosphere of almost preternatural stillness that descends on Cambridge at this time of year: students are preparing for exams; supervisors are fretting about their charges. But in one grassy corner, this is mere warm up for the real challenge: the Varsity Croquet Match. Read about their efforts on page 7.

Meanwhile, CAM has been pondering the mystery of quantum, and now Cambridge physicists are exploring its impact on the future of energy, as you can read on page 24. While an altogether different kind of magnetic moment is available on page 34 – with sequins, orchestra and heartbreaking moments. The musical is back – so we asked leading theatre-makers just why musical theatre exerts a hold that won't let go.

Elsewhere, on page 12, the Vice-Chancellor Professor Stephen J Toope reflects on the details of his time leading our great university. And finally, on page 16, we examine why satire is so important to public discourse.

On these topics – and on all things Cambridge related – we look forward to your contribution to the debate, online at magazine.alumni.cam.ac.uk, by post, email or on social media.

Mira Katbamna
(Caius 1995)



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Inbox

Night climbers

✉ Your story about the Cambridge Night Climbers reminds me of a similar escapade that happened at Sidney Sussex while I was there between 1973 and 1976. Some unidentified wags had managed to erect the posts from the College rugby ground on the College roof. Impressive yes, but obviously not in the same league as the Austin 7 put on the roof of the Senate House in 1958.

Ian Barclay (Sidney Sussex 1973)

✉ I was at Caius in the 60s; my room was in the turret at the very top corner of the College, nearest to Great St Mary's. I was woken one night by scuffling on the roof – I opened the window, invited them in and so joined the fraternity. Our greatest achievement was putting footprints across New Hall dome – I still have the press cuttings from the time.

Chris Barry (Caius 1965)

Editor's note: That was my room, too!

My Room Your Room

👍 Vice-Chancellor Stephen Toope referred to the must-have items he brought to Cambridge (CAM 95). My brother (St John's) and his wife (Robinson) told me that the most important thing to bring was verisimilitude. Better advice I could not have wished for.

Matthew McDade (Homerton 1996)

This idea must die

✉ Peter Mandler's piece (CAM 95) on the failure of grammar schools to promote social mobility was interesting, but the real question is why the UK still over-values public schools. These institutions buttress social privilege but we persist in seeing them as centres of excellence, even allowing their headteachers to consider themselves experts on education. Shouldn't we be celebrating the achievements of teachers in all state sector schools in confronting the problems foisted on pupils by the remorseless rise in social inequality? And shouldn't we also impose a moratorium on old Etonians entering government?

Simon Kensdale (Peterhouse 1972)

✉ As the son of an illegal bookie, perhaps I could suggest why the "idea that grammar schools were good for social mobility" persists? It's because so many of my post-war generation went to one, became the first member of their family to go to university and rose to positions of local and national importance. Isn't that social mobility?

A more pressing issue is whether all schools are now inspiring young people to realise their full potential – socially and academically. If they don't, they fail not only their students but the country too.

Peter Rubin (Emmanuel 1968)

✉ Peter Mandler's claim that "grammar schools didn't give more opportunities to more people, they gave more opportunities to the same people" may be statistically correct. In the 1950s, however, grammar schools provided the education and socialisation that enabled a small number of exceptionally-talented working class children to realise their potential to achieve at the highest level, rather than merely take their place among the mass of service-industry white-collar jobs to which Professor Mandler refers. This was in stark contrast to their talented forebears, whose self-education and enthusiasm for science and the arts led them only to jobs in white-collared service to the aristocracy or down the pits.

Niall MacKay (Queens' 1985)

Variety show

✉ What I love about CAM is the glorious, apparently serendipitous variety – thank you for this issue (CAM 95) covering night climbers, cancer treatment, camel parasites and more! And there are some articles which live long in the memory – just last month, I was sharing the wonderful story of Cromwell's skull (Michaelmas 1996!) in a sermon. Keep up the good work!

Simon Coupland (St John's 1978)

Faculty of Intelligence

✉ Your article on AI (CAM 95) raises uncertainties about "understanding the potential impact of algorithms on human dignity..." Certainly, internet algorithms are being misused to curb our rights to free speech and unofficial data sources. Moreover, the term AI misrepresents intelligence, a faculty involving information processing, imagining future issues, inventing solutions and initiating them, taking a gamut of externalities into account. Why is there no Faculty of Intelligence? Would it be a threat to the rich elite fearing it may 'level up' people who are potentially intelligent but not adept at regurgitating facts in exams? Or is it too confused with sinister state apparatuses obsessed with spying, fake 'intelligence', dodgy dossiers and making war? Such a faculty could transform education and economic activity from stagnating to thriving, and generate a socially beneficial People's World Order.

James Thring (Peterhouse 1975)

From the mouths of babes

🐣 Proud parent: toddler can say 'CAM' (also known as Cambridge Alumni Magazine). Now just need to learn that's what the river is called too

Sarah Harbour (Emmanuel 1998)



Big number

1:2 the cost-to-benefit ratio of investing in language education, according to research from the University and RAND Europe

cam.ac.uk/languages-investment



Research partnerships

Cambridge biotech spinout awarded £32m to develop coronavirus vaccine

A biotech spinout of the University of Cambridge will receive £32m to develop a vaccine candidate which could protect against existing and future SARS-CoV-2 variants and other major coronaviruses, including SARS and MERS.

DIOSynVax, led by Professor Jonathan Heeney, Head of the Laboratory of Viral Zoonotics, will use the investment from the Coalition for Epidemic Preparedness Innovations (CEPI) to develop an mRNA vaccine. His team will design and select the lead antigen through proof-of-concept preclinical studies and undertake initial clinical development through Phase I/II studies.

All three partners – CEPI, DIOSynVax and the University of Cambridge – are committed to enabling global equitable access to the vaccines developed through this partnership. The company is also working on vaccine candidates for haemorrhagic fever viruses and influenza.

They will use a combination of protein structure, computational biology and immune optimisation to maximise vaccine protection against global threats and create vaccine candidates to be used across vaccine delivery and manufacturing platforms.

If DIOSynVax's novel antigen design is successfully deployed using the intended mRNA platform, it could also potentially be used to enable rapid development of vaccines against so-called Disease X – unknown pathogens with pandemic potential that have yet to emerge.

Professor Heeney said: "Our approach is to be ahead of the next pandemic – to deliver custom-designed, immune-selected vaccine antigens – which is ideal to prevent diseases caused by complex viruses such as the large and diverse family of coronaviruses. If successful, it will result in a safe, affordable NextGen vaccine for widespread use."

Alumni Festival, 23-25 September

We can't wait to see you at the 2022 Alumni Festival on 23-25 September. The Festival brings alumni around the globe together to discover new research from world-leading academics, delve into cutting-edge topics with luminary thinkers and, of course, reconnect with friends and the University. Save the date!

alumni.cam.ac.uk/festival

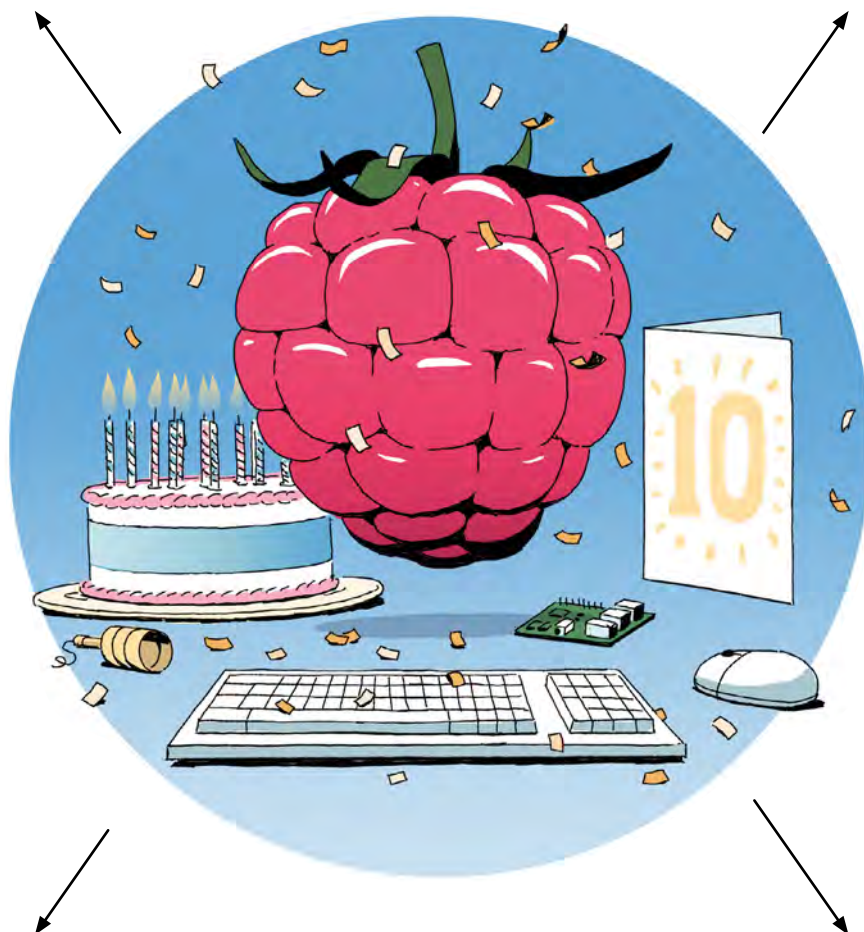


Deconstructed

Life of Pi: celebrating 10 years of the UK's most successful computer

Ten years ago, a Cambridge team including Eben Upton, Jack Lang and Professors Robert Mullins and Alan Mycroft created Raspberry Pi.

It has now sold 40 million units and created a market worth £1bn. Manufactured in Wales, it supports 300 jobs and is the UK's most successful computer.



Designed to give young people access to programmable, low-cost hardware, it made coding accessible to millions through the Raspberry Pi Foundation.

Around 40% of its annual sales are now to industry, where Pi's adaptability and low price have transformed the design of control systems.

Three-minute Tripos

ENGAGING TEENAGERS IN LITERATURE – WHO DOES IT BEST: SHAKESPEARE OR VIRGIL?

Arms and the man I sing, who, forced by fate/And haughty Juno's unrelenting hate/Expelled and exiled, left the Trojan shore...

Oh, hello Virgil. Still hammering out the Homeric hexameters?

Ah, Shakespeare. You weren't averse to lifting a few of those hexameters for Hamlet, I believe?

Only a few. There's a reason why poor Polonius gets bored after 32 lines. And that was my version. You've got to admit that your Aeneid doesn't half go on.

It's an epic poem, Shakespeare. It's not a TikTok video on how to smudge your eyeliner with a credit card. Anyway, apparently today's young people like it better than your stuff.

Thou cream-faced loon!

Dr Frances Foster of the Faculty of Education investigated the views of teenagers who study the Aeneid – yes, there are quite a few, actually – and she found they enjoy it!

Away, you scullion!

They do! They like the 'fast-paced action', 'mythological themes' and 'graphic and often violent plotlines'!

Any two-bit scribbler can do gore, Virgil. Particularly when you're writing for those whining schoolboys, creeping like snail, unwillingly to school...

Well, I'd be unwilling if I had to study you. In fact, studying you can leave them unenthusiastic about literature. That's why Dr Foster thinks that literature from the ancient world should be more widely available in schools, if it transpires that others enjoy it as much as her research group.

[EXIT, PURSUED BY A BEAR]

Now, where was I? Ah yes. Besides, long causes working in her mind/And secret seeds of envy, lay behind...

cam.ac.uk/virgil-in-schools



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Hoop

WORDS LUCY JOLIN

to it!

PHOTOGRAPHY ADAM LAWRENCE



Clockwise from left: Will Yun-Farmbrough, Corpus, third-year Maths; Jerome Gasson, Magdalene, PhD History; and Lachlan Chavasse, Corpus, third-year Natural Sciences.

The Cambridge University Association Croquet Club brings this gentle, tactical sport to a new generation.

It was one of the first sports to be played by both men and women at the same time, has been immortalised in literature by both Leo Tolstoy and Stephen King, and, in its heyday, had its headquarters on the lush, green lawns of Wimbledon. Croquet has a long and fascinating history and it's now being discovered by a new generation, thanks to the Cambridge University Association Croquet Club (CUACC) – whose Life President, John Solomon, is one of the greatest players of all time.

Today's CUACC are a fun, diverse bunch, very few of whom have ever played the sport before but became drawn in by the slower pace and challenging gameplay, explains member Lachlan Chavasse (Corpus Christi, Third Year). "It's very tactical, but it's no good having brilliant tactics if you don't hit the balls right. It's a great combination of thinking and playing," he explains. "The aim is to hit the balls through the iron hoops, but there's an incredible range of things you can do to achieve that, such as hitting two balls together. The pace means it's a very social game.

If you play doubles, there's plenty of time for chatting when you're not hitting. And it's not too strenuous."

Many players – including Chavasse – come to croquet in Cambridge via Cuppers, the annual inter-collegiate knockout croquet competition. "My friend and I entered for a bit of fun, and I found out I really enjoyed it," he says. "You don't even need to know how to play." It's easy to enter: all you need is a team of four friends – last year, Cambridge mustered up 40 teams.

If you've never played, you might be surprised by the size of an actual croquet lawn – twice the size of the average tennis court – and hitting the ball with the mallet requires a lot more force than you might think. But for those who want a

gentler introduction,

CUACC runs regular taster and training sessions aimed at new players.

Along with Cuppers, the highlight of the croquet year comes in summer with the



annual Varsity match with the Oxford University Association Croquet Club. It's hosted at the Hurlingham Club, thanks to the generosity of alumni members. "It's a beautiful setting and it was such a privilege to go and play there," says Chavasse. "They organised a lunch for us and a team dinner afterwards. Sadly, we lost – but a lot of Oxford's good players have gone this year, so I'm hoping this could be our chance!"

cucroquet.uk



B3, Fitzwilliam

Journalist and presenter Ashley John-Baptiste and first-year Geography student Stephanie Owen compare notes on their different journeys to Cambridge.

WORDS LUCY JOLIN PHOTOGRAPHY MEGAN TAYLOR



When it was time for him to come up to Cambridge, 18-year-old Ashley John-Baptiste (Fitzwilliam 2008) left behind the London council flat where he had lived after leaving the care system. “I remember feeling out of place,” he says, now sitting in the room where he spent that first year, B3 at Fitzwilliam. “I remember that feeling of disadvantage: am I going to be able to hack Cambridge? But, looking back, I flourished here. I was meant to be here.”

And walking into B3 – formerly known as B6 and, in John-Baptiste’s day, Bottom B – feels “weirdly normal,” he says. “Walking round College feels the same! It has the same textures, tones and smells – it’s a sort of wood-polish, soft smell that you get when you walk past the Buttery and the bar.”

The room is quite narrow, but does that clever Cambridge trick of packing a lot in,

says current inhabitant Stephanie Owen (Geography, First Year). “I like the set-up, and the fact that we have spacious kitchens – with cookers! – and some shared living space. My room looks over the court, so you can see everything that’s going on. And if I keep my window open I can hear people’s conversations. That’s not as creepy as it sounds! It’s more that you feel like you’re always in College; you don’t feel siloed.”

Owen has surrounded herself with jewellery, clothes and posters, including a menu for beloved takeaway Gardies. “You’ve got a Gardies menu!” crows John-Baptiste. “That’s proper commitment to the Cambridge experience.” Neither of them, sadly, has hit the dizzy heights of having their photo on the Gardies wall, but Owen has hopes. “At least you’ve got the next two and a half years,” says John-Baptiste.

He didn’t bring much to B3, but what he did bring had a big impact. “All-purpose chicken seasoning!” he announces gleefully. “I was very sceptical about the seasoning game in Cambridge shops. I brought seasoning so if I cooked chicken, it would taste like the chicken I knew growing up.” It turned out to be a talking point. “In Freshers’ Week, we had a party and loads of people came back here and just scrutinised the chicken seasoning. But I brought lots of tunes as well. That’s what I was known for: tunes and all-purpose chicken seasoning.”

There were tough times in Bottom B as well, he says: coping with academic pressure and navigating a new community wasn’t easy. But Fitz dispelled a lot of Cambridge myths for John-Baptiste. “I was well-supported, and Fitz has a great culture for state school kids. You really do build a

I was access officer, and the stuff I learned was just as important as my degree – how to use your voice, advocate, speak to the powers that be



wicked, tight-knit community that for me was really important to get through the first year and this big, grand space of Cambridge.”

Owen’s background is very different. Cambridge is a familiar place in her family: her parents met here while her mother was at Girton and her father at Sidney. But she has found the same sense of community at Fitz as John-Baptiste did. “Meeting so many people is really important to me. I can see myself staying friends for a long time with the friends I’ve made here, even after only four months. Sometimes I feel that I don’t go to Cambridge, I go to Fitz which happens to be in Cambridge. Because it’s just so... normal. I won’t get to do this twice. I want to make the most of that. I want to grow up a bit in this environment with so many opportunities.”

John-Baptiste nods. “You don’t need my advice, but those opportunities are so important,” he says. “I was the access officer, and the stuff I learned from that was just as important as my degree – how to use your voice, advocate, speak to the powers that be. Looking back, I am grateful for two things: first, my start in life, as a person in care who was shunted between homes – that informs my work as a journalist and filmmaker; but also, my time here. I learned to navigate privilege, spaces and opportunities that I just didn’t have before I came to Cambridge.”

Ashley John-Baptiste is a BBC broadcast journalist. Stephanie Owen hasn’t made the Gardies wall at time of going to press.



Research

The impact of social media on young people

Girls and boys may be negatively affected by social media at different times, new research has found.

A team of psychologists, neuroscientists, and modellers, including researchers from the University of Cambridge, studied longitudinal data – data that tracks individuals over time – on 17,400 young people aged between 10 and 21.

Their study identified that girls experience a negative link between social media use and life satisfaction when they are 11-13 years old, and boys experience it when they are 14-15 years old. At 19, increased social media use predicted lower life satisfaction for both girls and boys.

However, the researchers have emphasised that the link between social media use and wellbeing is highly complex and requires much more research. It’s not yet possible, for example, to predict who is most at risk.

Dr Amy Orben, group leader at the MRC Cognition and Brain Sciences Unit, said: “With our findings, rather than debating whether or not the link exists, we can now focus on the periods of our adolescence where we now know we might be most at risk and use this as a springboard to explore some of the really interesting questions.”

In brief

ACTING VICE CHANCELLOR

Dr Anthony Freeling (St John’s 1975), the outgoing President of Hughes Hall, has been appointed Acting Vice-Chancellor with effect from 1 October 2022. Dr Freeling takes over from Professor Stephen J Toope (featured on p16) for an expected six-month term of office. Recruitment for the post of Vice-Chancellor is under way and an appointment is expected to be announced in the early Autumn.

DEMENTIA RISK REDUCED

Lithium could decrease the risk of developing dementia, a new study suggests. The research team, led by Dr Shanquan Chen from Cambridge’s Department of Psychiatry, analysed nearly 30,000 health records. Patients who received lithium were less likely to develop dementia than those who did not, although the overall number of patients who received lithium was small.

WOMEN WIN BOAT RACE

Cambridge’s women’s team have won the Boat Race for the fifth time in five years, taking 18 minutes and 22 seconds to beat Oxford by more than two lengths. In the first boat race on the Thames since 2019, Oxford beat Cambridge’s men’s team for the first time since 2017.

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(Gwen Raverat in Time & Tide Magazine)

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Darwin's Granddaughter

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Dr Natalia Buitron is the Jessica Sainsbury Lecturer in the Anthropology of Amazonia.

Why it's time to challenge traditional models of governance

WORDS SARAH WOODWARD ILLUSTRATION KATE COPELAND

I first met Nemonte Nenquimo in 2013. Back then, she was working in the Ecuadorian Amazon to defend the territory of the indigenous Waorani people from oil extraction. Nenquimo would go on to lead a campaign which filed a lawsuit against the state; she won, resulting in a court ruling protecting 500,000 acres of Amazonian rainforest. In 2020, Nenquimo was awarded the Goldman Environmental Prize. From doing what she could to protect those around her, she has become a globally recognised figure.

Her success shows that issues at a local level can be scaled up to have an effect at a national level. We can't look at one model of self-governance and expect it to work the world over. But we should recognise that there are diverse ways of proclaiming autonomy to live in a better world.

In 2008, for example, Ecuador became the first country in the world to enshrine the rights of *Pachamama* (or Mother Earth) in its constitution. And working as a political anthropologist in Ecuador, I see that we in the west need to look beyond national sovereignty as the only model for governance. There are plenty of examples of indigenous territorial-autonomous government working successfully in Amazonia.

The Wampis in Northern Peru are another group who have banded together to protect their territory. In 2015, they established an autonomous territorial government known as the Wampis Nation. Dispersed through more than 13,000 square kilometres of Amazonian rainforest, the Wampis have found a way to have their voice heard at both a national and global level.

But the nation state continues to take priority over natural resources, and has shown itself unable to protect ecosystems and biodiversity against corporate interests. It may sound utopian, but it is in our own practical interests to rethink our approach for the greater good of the world. Many indigenous peoples feel the United Nations has failed them. They are turning to their own local models of governance.

I have watched that process at work in the villages of the Shuar on the borders of Ecuador and Peru. The Shuar are a pre-Columbian people, fiercely independent of the state until the mid-20th century, when they were encouraged by missionaries to settle. With their newly built villages came new systems of local government, including an administrative council and democratic representation through village assemblies.

From the outside, this council system seems to be fully assimilated into the state bureaucracy. But the reality is different. The Shuar join forces to win funding for projects at state level, but then they de-collectivise to see those projects through, assigning individual responsibilities to particular tasks and allowing local families to contribute resources and time as they are able. The Shuar have learnt to think like bureaucrats at a national level and then innovate at a local level to get things done. In this way they achieve 'collective agency'.

Autonomy tends to run up against difficulties when it hits big bureaucracy. Indigenous peoples expend a great deal of their energy on protecting themselves from the state and multi-national encroachment. Yet, if we give them the space and support to do so, they are perfectly able to create their own model to protect their own environment for the good of everyone.

To enable this to happen on a global scale, we must join forces in challenging traditional models of government. We should move away from our Hobbesian narrative that people are not able to govern themselves. In both Ecuador and Peru, many nations exist within one state, so it is natural for local people to challenge the concept of One Nation, One State. Instead, they seek to create new dialogues and narratives.

We need to rethink concepts of territory and develop a way of managing the land that includes the rights of non-humans – the plants, rivers, forests and animals. In doing this, the Shuar people see themselves as neither victims nor saviours. They are simply trying to cope creatively with the changing paradigms in their lives.

The Shuar have learnt to think like bureaucrats at a national level and then innovate at a local level to get things done – in this way, they achieve collective agency

LEADING FROM

As Vice-Chancellor Professor Stephen J Toope hands over the reins, he reflects on his time guiding the 'highly charged, intellectually exciting and enriching place' that is Cambridge.

WORDS JAMES HARDY PHOTOGRAPHY JULIAN ANDERSON



T H E F R O N T



When Professor Stephen Toope first set foot in the oak-panelled office of the Vice-Chancellor five years ago, the world looked a very different place.

The consequences of Britain's growing political polarisation were not fully realised. The UK government was actively encouraging universities to engage with China. The global pandemic was a horror as yet unimagined. Each of these issues would make its mark, in one way or another, on Toope's tenure at the helm of the University.

Reflecting, in that same room, on his period in office, the Vice-Chancellor notes that the disruption of the past few years has had some unexpected upsides. "One of the things I have been most impressed by is the collegiate University's resilience. During the pandemic, staff and students adapted to ever-changing pressures. Academic and support staff were able to successfully switch teaching and assessment online, rearrange timetables and reimagine research."

In adversity, he says, Cambridge found ways of improving the way it did things. It has been, he says, a "very, very demanding time". Yet along with the relentless challenges – including shifting geopolitics and national disputes over pay and pensions – the past five years have offered great opportunities for the University to reinvent itself.

For all the turbulence, Toope is proud to have left his mark on an 800-year-old institution. Under his leadership, the University made unprecedented progress in attracting and supporting hundreds of students from disadvantaged backgrounds. The ongoing £500m Student Support Initiative continues to draw impressive philanthropic support. The rapper, Stormzy, helped highlight the opportunities of Cambridge to a whole generation of black students, helping to treble the number of black undergraduates in only two years.

The Vice-Chancellor believes that Cambridge, so often accused of elitism, is now clearly demonstrating a commitment to serving every level of society. "Being outstanding is ultimately about being elite. But just because you are outstanding does not mean you need to be elitist. I have come across scores of people, including professors and senior researchers, who are the first people from their families to attend university.

"Public universities are really important to the UK. People don't get in because they have money or connections. But I do worry sometimes that when you are in such a highly charged, intellectually exciting and beautiful environment that is as enriching as Cambridge, we could very easily look inward. We do need to constantly challenge ourselves to remember that we are a great public university that exists to serve the nation and the world."

Philanthropy, he believes, is key to delivering outstanding performance. On his watch, the £2bn 'Dear World, Yours Cambridge' fundraising campaign ›

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hit its target ahead of schedule, underpinning vital research and enhancing the University experience. New initiatives have been launched designed to deliver lasting real-world impact in tackling global problems: Cambridge Zero is leading the search for solutions to the climate emergency; AI@Cam will exploit the potential of artificial intelligence; and it is hoped that a renewed focus on the detection, treatment and prevention of cancer will deliver life-enhancing results.

Behind the scenes, there has been a relentless drive to improve the efficiency and effectiveness of professional services – the beating heart of the University administration – by streamlining operational areas that had grown up piecemeal over many decades.

The rapidly changing national political landscape has brought its own pressures. Universities are under an unprecedented level of scrutiny, which plays out in lurid headlines and regulatory intervention. Not all of it, says Toope, is helpful: “More and more regulatory obligations are being imposed which are in danger of eroding the autonomy of universities. Autonomy is central to academic freedom and to the ability of a university to challenge received wisdom where necessary.”

The Higher Education sector has found itself over the past two or three years caught up in the ‘culture wars’ stoked by politicians across the spectrum. In Cambridge, among other things, that has prompted accusations that the University was somehow attempting to limit freedom of speech and that it had become over-reliant on financial support from China. Toope disputes both contentions strongly but concedes that external scrutiny is important. “There is no problem with people advocating for genuinely free inquiry and, of course, freedom of speech. Universities must be bastions of both. If we aren’t, we are failing in our core mission.

“But it feels like in both the US and the UK there is a certain political manufacturing of elements of the so-called culture wars that serves purposes having nothing to do with free inquiry or free speech, and is attempting to drive wedges for partisan political purposes.

“In any community, there is always a balance to be struck between freedom and autonomy on the one hand, and equality and social cohesion on the other. How do you balance those imperatives? I treasure our ability to have that debate; that’s the debate we should be having. What I don’t treasure is name-calling and false conflicts promoted by some in the media and by some political commentators. That just distracts from the real debates we should be having within society.”

The Vice-Chancellor is equally vehement in opposing the promotion of science and technology at the expense of arts and the humanities. It is simplistic and unnecessarily divisive, he says, to attempt to play one off against the other. “There is no doubt about the importance of the STEM subjects and maths. We need more people in the public service and in Parliament with knowledge of science and technology. I’m a lawyer and, historically, there have been lots of lawyers in public life and not many people with science and technology backgrounds.

“But, of course, we also need to better understand human society, human motivation, human behaviour and human inspiration. There cannot be a society that

says all that matters is STEM education and research. And there can’t be a society that says all that matters is the humanities or the arts. If you think about climate change, for example, it’s clear that you have to change human practices and human expectations. You need to learn from behavioural insight. We also need art to challenge ourselves to imagine different futures.”

And he is clear that a university education is more than simply a route into work. “You should not measure the university experience solely on the basis of the job opportunities that present themselves when you graduate,” he says. “We are looking at a world where careers are changing and shifting all the time. We should be creating educational opportunities that allow people to make the changes they need to meet the complexities of that changing world.”

Though characteristically upbeat, he does not want to make light of the disruptions caused by the pandemic: “I thought, coming in, that I would have

the opportunity to range across the University meeting colleagues and finding tremendous inspiration in an institution with such global impact. I was relishing the opportunity to meet alumni and supporters around the globe, and to hear about the affection they have for their College and the

University. I looked forward to immersing myself in the cultural and sporting life of the University.

“I made a good start on all of this in my first years, but it came to an end rather abruptly with Covid. Happily, as we move out of the pandemic, life is returning to something more like normal – the choirs are singing evensong in College chapels, the Boat Race was back on the Thames, the University is once again flourishing.”

As Toope contemplates a return to his native Canada, he is clear that Cambridge’s innate strengths can help it maintain its relevance in that rapidly evolving world. The College system, he believes, provides an experience for students and staff almost unrivalled elsewhere in Higher Education. That in turn fosters a spirit of inquiry which underpins education and research.

“There is a tremendous intellectual curiosity and ambition here. Our colleagues really want to be world-leading in their fields and work really hard to understand the world better. Of course, all research universities might say that, but Cambridge is unique in the scope and scale of its ambition and its insatiable intellectual capacity. That is what makes it one of the top universities in the world.”

Cambridge is likely to be his last role as Vice-Chancellor, completing 13 years as a university leader following a long spell at the University of British Columbia. An eminent international lawyer by background, he was recently announced as the next CEO and President of the Canadian Institute for Advanced Research, located in Toronto, where his family is based.

With the process of choosing a new Vice-Chancellor now under way, what piece of advice would he offer his successor? “Every Vice-Chancellor has to find their own way because times change. But I would say: remember that you are a trustee of a great social and educational institution that has persisted and strengthened over 800 years. The real goal is to make a contribution that positions Cambridge to be just a little bit better than when you arrived.” ☪

Cambridge is unique in the scale of its ambition and intellectual capacity

The ridiculous to the sublime

Why does satire exist? Why has it been such an important tool for challenging public discourse? And in a world which sometimes seems beyond satire, does it still have the same power today?

WORDS LUCY JOLIN



It is 1963 and the young Professor Vic Gatrell, now a Life Fellow of Caius and author of the Wolfson Prize-winning *City of Laughter*, has arrived in just-about-to-start-swinging London from apartheid-era South Africa, where his liberalism and that of his parents is taboo. One day, he picks up a copy of irreverent

magazine *Private Eye*, opens it, and sees the now-notorious Gerald Scarfe cartoon of a doe-eyed Prime Minister Harold Macmillan, naked and coy, astride an Arne Jacobsen chair in a parody of Christine Keeler's iconic pose. "I had never seen anything like it before," he recalls. "I laughed and laughed. And that image opened the floodgates."

It could be argued that, like Philip Larkin's sexual intercourse, modern satire also began in 1963, and quite a lot of it came from Cambridge: Peter Cook (Pembroke 1957), *Beyond the Fringe*, *That Was The Week That Was* and so on. "It wasn't until the 1960s that a non-deferential attitude to people in charge really started," says Jan Ravens (Homerton 1978), first female president of Footlights and legendary impressionist whose voices have graced groundbreaking satirical puppet show *Spitting Image* and hit BBC radio and TV show *Dead Ringers*. "Before then, there was an unwritten, unspoken agreement – that you didn't take the piss out of politicians."

But 1960s satire, of course, was nothing new. Rather, it was a continuation of a tradition stretching back to antiquity. In fact, one anti-authority Cambridge graduate ›



1500s

Fool's cap map of the world, 1580-1590

This satirical print, believed to be the work of Epichthonius Cosmopolites and based on Ortelius's third 'Typus Orbis Terrarum', ridicules the imperial ambitions of the great maritime nations.

↑ National Maritime Museum, Greenwich, London



“This is world, and this is the substance of our glory, this is its seat, here it is that we fill positions of power and covet wealth, and throw mankind into an uproar, and launch wars, even civil ones.”

Text above the map from the Latin, quoted from Pliny the Elder's Natural History (bk. 2 ch. 72)

“The number of fools is infinite.”

Text below the map from the Latin, from Ecclesiastes, 1.15

1600s

The Ingenious Gentleman Don Quixote of La Mancha, 1605–1615

Miguel de Cervantes' chivalric satire demonstrates the hypocrisy of the knight-errant. This engraving by Jacques Chéreau, accompanying an edition of 1690, entitled *Adventure in the enchanted boat*, depicts the titular Don Quixote standing in a boat and attacking a watermill he has mistaken for a fortress. On the left, two millers in a boat are trying to keep him away from the mill's wheel.

↑ The Trustees of the British Museum (CC BY-NC-SA 4.0)

Satire is comedy's shapeshifter; it takes on whatever form society requires... The world is changing so rapidly that satire is enjoying a kind of heyday, a way of reflecting on the chaos of the grand narrative

may have preceded Cook et al by about five hundred years. Meet orthodox priest and late-15th-century Cambridge graduate John Skelton, who imitates and alludes to the traditions of classical satirists such as Juvenal in his satires, aimed not at the Roman despots but the low-born Cardinal Wolsey. According to Dr Dan Sperrin, junior research fellow at Trinity and cartoonist for The London Magazine, who is working on a complete history of satire: "Wolsey makes his way to high political office and once he has achieved that, he achieves high clerical office. And Skelton is not happy, asking 'Who is this guy? What is this world where upstarts can claim any power they want?'"

An orthodox priest taking a pop at a cardinal for being the son of a butcher might not seem particularly cutting-edge to today's satirists. But satire, says Sperrin, is comedy's shapeshifter: it takes on whatever form that society requires. "We've become used to the idea that satire is one thing, when in fact there have been innumerable models of satire that have served different political agendas at different times."

Take hard-hitting forms of visual satire, like Scarfe's cartoon, which tend to follow certain conventions, says Dr Meredith Hale, Speelman Fellow at Wolfson College





"You are to know, Sancho, that this vessel lies here for no other reason in the world but to invite me to embark in it."

The Ingenious Gentleman Don Quixote of La Mancha

We've become used to the idea that satire is one thing, when in fact there have been innumerable models of satire that have served different political agendas at different times

from 2009 to 2018 and currently lecturer in art history and visual culture at the University of Exeter. "Visual satire tends to be representative and figurative in nature, not abstract," she says. "It also suspends the action: you often find yourself as a viewer entering the action as it's taking place. Rarely do we have a narrative with an arc from beginning to end or see something to its conclusion. That's primarily to keep it from being defined as either tragedy or comedy but also to let the viewer finish the narrative. But that visual chaos is key."

Satire is also deeply implicated in a specific historical moment: it doesn't travel well, geographically or temporally. "I show my students a Steve Bell cartoon from 2004 featuring George Bush in a little onesie, with his very particular monkey-like physiognomy, and Tony Blair as his little lapdog with a British flag sticking out of his backside," says Hale. "They are watching a screen with weapons inspectors wearing Teletubby outfits. One of them is saying: 'Chemitubby can't find weapons of mass destruction.' And my students have no idea what it could be about. There's a huge amount of context required to unpack satire: it's dense with history, nuance, political and cultural references." ›



Above

I The Heir

Rakewell coldly discards his pregnant, lower-class fiancé Sarah Young, even as he is measured for a new suit.



Above

III The Orgy

Rakewell is too intoxicated to notice that his pocket watch is being stolen by prostitutes at the Rose Tavern in Covent Garden.

1700s

The Rake's Progress, 1732–1734

This narrative series by William Hogarth mocks the excesses of Georgian society and warns of the consequences of moral abandonment. Its protagonist, the fictional Tom Rakewell, inherits a fortune from his miserly father, but squanders it, following a path to vice and destruction.

↓ Sir John Soane's Museum, London



Above

VII The Gaming House

Rakewell has gambled away a second fortune – acquired through his marriage to Sarah Young – in a scene redolent of folly, avarice, greed and despair.

However, Tyler Shores, manager of the University's ThinkLab Program, cites one of the most successful satires of all time – the animated series *The Simpsons* – as about as close satire can get to evergreen. (Indeed, he devised an entire course on it at Berkeley: *The Simpsons* and Philosophy, and recently hosted a talk by Harry Shearer, legendary satirist and voice of Montgomery Burns among others, at Jesus.)

For those seeking the perfect example, he suggests a close watch of season 2, episode 4, Two Cars in Every Garage and Three Eyes on Every Fish. (The episode title itself satirises an advertisement for Herbert Hoover's 1928 presidential campaign: A Chicken in Every Pot!). When Bart catches a three-eyed fish, inspectors order evil capitalist Montgomery Burns to fix his nuclear power plant. Burns decides to run for governor, so he can pass laws to bypass costly regulation and keep the plant open. To this end, he hires an actor dressed as Charles Darwin to explain why three-eyed fish are a Good Thing. "Every now and then, Mother Nature experiments with her creatures, giving them longer legs, sharper claws or, in this case, a third eye. If she finds the changes favourable, the creatures will multiply and a new race of superfish will be created," the actor explains. "It's one hundred per cent applicable



Good satire should make us laugh, should make us think and question common assumptions about ourselves. It's not just to get a laugh but to take a step back – we all have our blind spots

to 2022,” says Shores. “It’s got crooked billionaires, political division and even fake news.” To further quote *The Simpsons*: it’s funny because it’s true.

“For me, this kind of satire holds up an honest mirror to the good and the bad of American life,” says Shores. “The importance lies in a thoughtful kind of laughter. Good satire should make us laugh, should make us think and question common assumptions about ourselves. It’s not just to get a laugh but to take a step back – we all have our blind spots, and with social media they have accelerated. We need that prompt.”

We clearly do: there must be a reason why this form of humour has endured for so long. One school of thought, points out Sperrin, has satire as a conservative form of humour, one which gets in the way of active change. Harry Shearer himself says that satire could be defined as the enemy of revolution: a safety valve for anger. “The last thing a committed organiser wants to generate in a crowd is laughter: it dissipates the will to action. I have the opportunity, in my weekly radio show, to make fun of whatever I want. I took great advantage of that during the Trump years, and I noticed that I was less angry about Trump than all my friends, because I had an outlet. It’s hard to attack a building when you’re laughing.” ›

Above

VIII The Madhouse

After losing multiple fortunes and enduring Debtor’s prison, Rakewell lies naked and insane in Bedlam as a grieving Sarah Young mourns.

1800s

The "System" that "Works so Well"!!, 1831

This print by George Cruikshank is a bitter satire on the defenders of the borough system. The House of Commons is shown as a decaying mill, powered by the names of boroughs to be disfranchised, and supported by cannon – indicating military power for civil coercion – beside which lie the bodies of victims of 'the System'. Across 'Borough-Bridge' pours a golden stream into a vat of 'Public Money' where a greedy crowd are filling their pockets.

↓ The Trustees of the British Museum (CC BY-NC-SA 4.0)



You think because satire is extreme it must speak to the extreme wing of political parties. But in fact, it's really about a subtle sort of middle ground. It's planting a seed

Ravens, too, likens satire to a safety valve. "Satire isn't going to bring down the government or change the world. It can, to some degree, change an angle or a perception. It provides a place where we can all say, 'We're pissed off with these people lying to us, patronising us and treating us like we're idiots.'" But the existence of a safety valve can mean the explosion never comes: all that fury is harmlessly expelled. Gatrell points out that there's not a politician in Westminster who doesn't hang a caricature of themselves in the downstairs loo. "You might ask what is the point of satire if the great and the good can survive it – or even be flattered by it? No government has been brought down, as far as I know, by satire, or by jokes at its expense."

Yet while satire might not change things by itself, says Hale, it can make a difference at the right moment. In late 17th-century Holland, etcher, draftsman and political cartoonist Romeyn de Hooghe found himself in the centre of a political moment. William of Orange wanted funds from Holland's merchant elite to invade England and ensure that the country stayed Protestant. But there was

There's not a politician in Westminster who doesn't hang a caricature of themselves in the downstairs loo. You might ask what is the point of satire if the great and the good can survive it – or even be flattered by it?



1900s

L.H.O.O.Q., 1919

One of Marcel Duchamp's most famous 'ready-mades', this cheap reproduction of Leonardo da Vinci's *Mona Lisa* has been adorned with a comical moustache and goatee and the letters L.H.O.O.Q underneath. The letters, when said in French, translate to 'She's got a hot ass', or in Duchamp's own words, "There is fire down below". It's a pointed jab at the bourgeoisie and the cult of art in late 19th century that centred around the *Mona Lisa*, revered as the embodiment of aesthetic beauty. The work criticises the male gaze and the repression of female sexuality. It also alludes to da Vinci's homosexuality and discusses ideas of gender non-conformity – Duchamp's female pseudonym 'Rose Sélavy' later appeared in a series of photos by Man Ray.

↑ Association Marcel Duchamp / ADAGP, Paris and DACS, London 2022

"It is possible to have a good resignation, you know!"

Malcolm Tucker – *The Thick of It*



2000s

The Thick of It, 2005–2012

Armando Iannucci satirises the inner workings of British government and the culture of spin. Apart from its profanity, the series became well known for storylines that have closely mirrored, or in some cases predicted, real-life policies, events and scandals.

↑ Des Willie / BBC Archive

a problem: the action would annoy France, a country key to successful trading. As a result the Dutch oligarchs weren't prepared to pay up.

So, de Hooghe produced a series of satires aimed at persuading those traders who didn't particularly like William, but were concerned about France's Louis XIV's military prowess and his Catholicism. "And it worked," says Hale. "William got the money, invaded and became king. So here we see satire serving a more subtle function. You think because satire is extreme it must speak to the extreme wing of political parties. But in fact, it's really about a subtle sort of middle ground. It's planting a seed."

No era of political upheaval is complete with its proclamation of the death of satire. But Sperrin says that our so-called post-satire, truth-is-stranger-than-fiction times are, in fact, a great time to be a satirist. "Many believe we are living in a world of untrustworthy superiors, where narratives are being rewritten at a pace we can't keep up with. The world is changing so rapidly and, to the satirist's eye, so aimlessly, hectically and chaotically that satire is enjoying a kind of heyday. It's become a way of reflecting on the chaos of the grand narrative. And I trust satire's ability to provide valid, energetic and robust criticism in new forms."

And a post-satire world assumes, says Shearer, that satire has one job: to exaggerate dramatically what we are living through. "From my point of view, that's not its role. For me, satire's job – and there are a million ways to do it – is to observe closely the absurdities of reality, reproduce them as accurately as possible and edit out the boring parts. And we can keep doing that forever." ☺

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ALL IMAGES: MENAHEM KAHANA / GETTY



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When it comes to the future of energy, one Cambridge team is using quantum physics to turn theory into – game-changing – practice.

WORDS **LUCY JOLIN** PHOTOGRAPHY **MENAHEM KAHANA**

If you want answers to the big challenges posed by efficient energy, you have to think... small. Atoms and particles small. And quantum physics takes us there, to the fundamental building blocks of nature.

This quantum world explains the very basics of how everything works – down to the nature of the particles that make up matter and the forces with which they interact – and a team at the Cavendish Laboratory believes it could unlock the secrets of future materials for the generation, storage, transmission and efficient use of energy.

But first you have to get that energy to the right places – and the further you transport electricity, the bigger the losses you incur on the way. “Alternative energy is most abundant in places such as the desert or the coast, whereas the most energy-hungry places are dense, urban locations,” says condensed matter physicist Professor Suchitra Sebastian, Professor of Physics at the Maxwell Centre. “It is a bottleneck that will have to be addressed if we are to move further towards renewables.”

The answer lies in quantum physics, says Sebastian. Her research focuses on creating new quantum phases; she searches for these exotic states of matter at extremes of temperature and pressure or in very strong magnetic fields. Even ordinary materials start to behave very differently when under these extremes, she points out.

Sebastian’s team is hoping that they can develop novel materials to help us get energy from where it is created to where it is needed. Her team has taken magnetic materials and subjected them to intense pressure between the tips of a diamond anvil to transform them into superconductors – materials with zero resistance to the flow of electricity. “It is quantum ›



We understand how a single electron behaves, but a milligram of these materials contains more than a thousand electrons, every one interacting with every other one...

alchemy,” she says. “You change the conditions and things start taking on a wildly different behaviour. If you take an insulator and squeeze it very hard it can transform into a conducting metal or even a superconductor. It is not because the constituents have changed, but because the way they are self-organising has changed.

“Superconducting materials can transport energy over long distances without loss. And they can also help the world reduce energy use in the first place. They can levitate over magnets, for example, which creates the potential for magnetically levitated trains or electrical aircraft that use lightweight superconducting motors without ball bearings.”

But creating new superconducting materials or even more exotic quantum phases of matter is far from easy.

“We understand how a single electron behaves, but a milligram of these materials contains 10^{23} electrons and every one of them is interacting with every other one. It is similar to the collective behaviour you see in murmurations of swallows, where collectively they shape-shift and a new form emerges. That potential for completely unimagined forms of physics to emerge is what makes it so exciting.”

For most of the devices and systems that we rely on in our daily lives, such as computers, electricity grids, solar cells or batteries, the efficiency with which energy is used, transmitted or stored is still significantly lower than what, based on established physical limits, is theoretically possible. Which makes batteries another obvious area for the Cavendish team to concentrate on.

Lithium-ion batteries have been commercialised since the 1990s and have since become the workhorse for portable electronic devices such as smartphones. However, the increasing number of applications requiring higher power or larger devices, such as electric vehicles or renewable energy storage, means new materials are needed, particularly for the positive electrode.

Professor Siân Dutton, Professor of Physics and Solid State Chemistry at the Cavendish, has turned to the quantum world for answers. “We are developing new materials for use in rechargeable batteries, for example,



that have higher capacity, energy densities and charge rates than existing materials,” says Dutton. “We are using our understanding of quantum physics to tune the electronic structure of the material.”

Dutton’s group is working on the next generation of batteries, using new materials with a wide range of novel properties such as superconductivity and thermoelectricity. The research has a number of strands, but includes making complex derivatives of known electrode materials or carrying out targeted searches for new candidate materials.

Many existing lithium-ion batteries use electrodes made from lithium cobalt oxide, but their high cost, toxicity, instability and low energy densities mean battery manufacturers are looking for alternatives. One of Dutton’s recent projects looked at a group of materials called pyroborates, where the cobalt in the electrode is replaced by boron. The research has shown promise for high-capacity, high-rate electrodes.

Another promising candidate uses magnesium instead of lithium. This potentially offers higher energy densities, stabilises the battery materials in the atmosphere, and reduces costs, since magnesium is more than a thousand times more abundant than lithium in the Earth’s crust.

To understand how novel materials might work in practice inside batteries, Dutton’s group is using

quantum magnetism to probe what is happening to the charged particles inside them in a far more sensitive way. “We have been able to show that we can use measurements of the magnetic moment to get a very fine level of detail on the state of charge in our materials and the arrangement of those materials,” says Dutton. “Potentially these have high capacity, but there are real challenges in getting them to work.”

Elsewhere at the Cavendish, Dr Louise Hirst, Assistant Professor in the Department of Physics and the Department of Materials Science and Metallurgy, is proving that it’s not only on Earth that we need to make our means of generating and storing energy better. Her team works on power systems for the next generation of spacecraft, studying the complete technology path from simulating devices, designing them, growing the materials, fabricating cells and exposing them to radiation. ›

... It is similar to the collective behaviour you see in murmurations of swallows, where collectively they shape-shift and a new form emerges



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Mr Hutchinson | Devon



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It really is a sleeping giant. We are a halfway house between academia and industry; there is the expectation that the new materials will reach the commercial market in time

The high levels of radiation in space and the fact that you need very lightweight materials to make them commercially viable to put into orbit mean these systems are very different from the equivalent used in our day-to-day lives – in the solar panels on our houses, for example. She is working with novel semiconductor alloys – such as gallium arsenide and gallium nitride – instead of the silicon-based materials typically used in terrestrial applications.

Since getting things into space is so expensive, Hirst's novel solar cells are built on ultrathin geometries – on the scale of 100 nanometres, a thousandth of the size of a human hair – rather than the micron scale of Earth-based solar cells. This is because in space, photovoltaic devices are bombarded with high energy charged particles that introduce defects into the absorbing semiconductor material, severely degrading the device's performance. Thinner materials means fewer defects.

"When you use material on these ultrathin scales, things get very interesting and the materials start acting differently from the way they react in traditional solar cells," says Hirst. "At this quantum level, light needs to be thought of as individual packets of energy – photons – rather than the wavelike nature we encounter in everyday situations."

Hirst aims to demystify the applications of quantum physics that, she says, we accept without question in everyday life. "The solar cells we use to generate a growing proportion of energy, the microprocessors we use in our devices and even the fact that the Sun shines, all depend on something called quantum tunnelling, where particles can simply pass through energy barriers they don't – or shouldn't – have the energy to surmount. The explanation of how it works sounds counter-intuitive but our very existence means it happens."

Much of the work around solar cells involves trying to increase the efficiency with which photovoltaic materials convert sunlight into electricity. But the natural world puts a limit – the Shockley-Queisser limit – on just how good simple solar cells can be, allowing them only to convert around a third of the sunlight that falls on them. There are clever ways to circumvent this, however, by concentrating the light before it hits the solar panel or by sandwiching together different materials to absorb different parts of the solar spectrum.

"We are getting close to 50 per cent efficiency for these multijunction panels, which is amazing," says Hirst, who expects her work in the space environment to trickle down to more down-to-earth projects. "It really is a sleeping giant. We are a halfway house between academia and industry, and although we're at an early stage of research into new materials, there is the expectation that they will reach the commercial market in time."

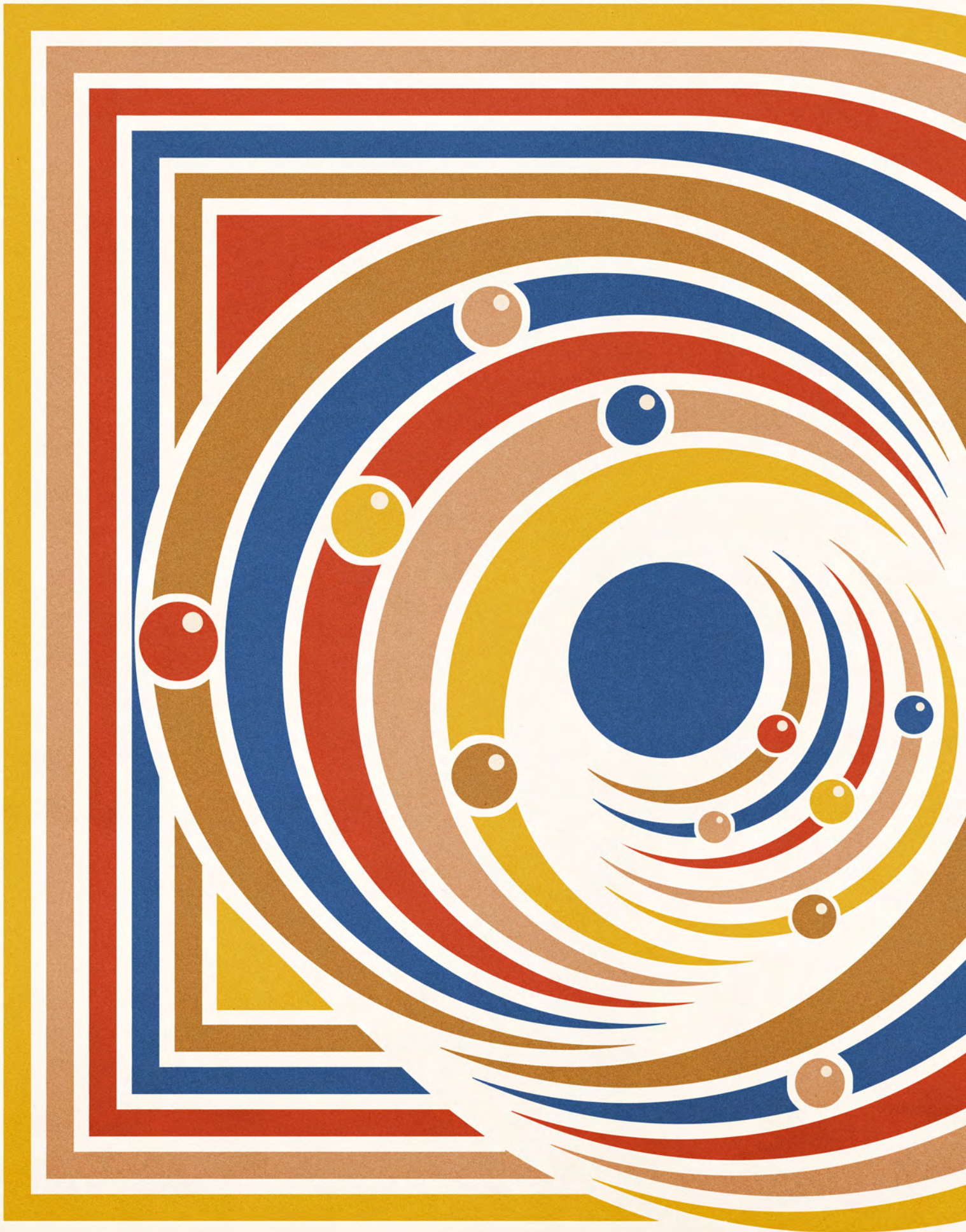
Dr Bartomeu Monserrat, Winton Advanced Research Fellow and a lecturer in computational materials science, is working on topological materials for designing low-power electronics – "computers that don't heat up when you use them" – and novel organic semiconductors that exhibit "singlet fission", which could help break the Shockley-Queisser limit of conventional solar cells and push efficiencies above 30 per cent.

The potential for completely unimagined forms of physics to emerge is what makes it so exciting

The modelling of these complex quantum systems requires enormous supercomputing power. "Modelling materials (using either quantum mechanics or machine learning) is computationally very expensive," says Monserrat, "and the only way we can scan over thousands of compounds to identify the optimal ones for technological applications is using the largest supercomputers on Earth. These include hundreds of thousands of central processing units, and also novel architectures like graphics processing units."

So, while energy – and how to store and transport it – looks set to be one of the big global problems of the 50 years, it is at the opposite end of the size spectrum, in the mysterious world of quantum physics, that the answers to these problems may well be found. And the researchers from the Cavendish Laboratory are on track to find them. ☺

Visit phy.cam.ac.uk to find out more about the Cavendish Laboratory's work.





The circle of life: a human obsession with cycles

Cycles are among the oldest ways of grasping human existence, but what does their use tell us about how we understand life itself?

WORDS VICTORIA JAMES ILLUSTRATION AARON LOWELL DENTON

“To everything there is a season, and a time to every purpose under the heaven.” But does the very human instinct to interpret life in terms of cycles make sense? Is it even useful?

Now, two Cambridge scholars, together with an international team, have produced a breathtakingly wide-ranging account of the conceptualisation of cycles and circulation in the history of medicine and the life and environmental sciences. Its scope spans the concept of circulating *qi* from ancient Chinese medicine, and political philosopher Niccolò Machiavelli’s speculations on the life and death of commonwealths. It ranges from modern contraception and assisted reproduction to manipulate fertility cycles, to our intervention in parasite life cycles in attempts to eradicate malaria.

“Our research draws attention to the rich history of thinking in the life sciences in terms of cycles and circles,” says Staffan Müller-Wille, University Lecturer in History of Life, Human and Earth Sciences. “There is a dominant strand in the literature that assumes that the tree is the central visual metaphor in the life sciences – the branching diagrams of species evolution, and so on. We challenge that idea, aiming to show what a rich history awaits if you switch to another visual metaphor, the circle.”

“How things are represented, what is made visible and what is hidden, shapes our actions in important ways,” says Nick Hopwood, Professor of History of Science and Medicine and a co-organiser of the week-long Ischia Summer School, out of which the paper developed. “We wanted to explore why people have so often used cycles as metaphors and icons, and to examine the power of cycles in relation to linear representations. We also wished to highlight cycles’ ambiguity. Circles appear as closed systems, offering the impression of unity and perfection. But we know that cycles may be open and dispersed.”

Take the example of primate reproductive cycles. “In the 19th century, menstruation was pathologised, presented as a debilitating process that disqualified women from entering the professions,” says Hopwood. “Then anatomists, physiologists and biochemists reframed menstruation as not an ebb and flow, but rather part of a cycle. For much of the 19th century, doctors taught that ovulation and menstruation happened at the same time. It took several decades for the cyclical model to be accepted.”

More recently, that model has been modified once more, by assisted reproductive technology – the specialism of lecturer Lucy van de Wiel. “My research looks at egg freezing and its relation to ageing and time,” explains Van de Wiel. “Egg freezing, in which a woman’s eggs are harvested and stored for potential use in assisted conception in the future, is closely linked to the idea of what it means to age, and the gender differences implicit in this process. Women’s ability to conceive and become pregnant changes as they age, which has many social implications and becomes meaningful in new ways as reproductive technologies are introduced.”

The history of reproductive medicine is, Van de Wiel explains, one of continual tension between the linear and the cyclical. Early in the last century, cyclical conceptualisations predominated, with the menstrual cycle seen as a sign ›

Cycles have never gone away as a tool for thinking with; they are fundamental to many ways in which people now conceptualise the world around us

of fertility. Recently, more emphasis has been put on a linear view – “one more focused on eggs and the decline of the ovarian reserve towards menopause,” says Van de Wiel.

Problematically, though, Van de Wiel notes that “a person cannot ordinarily see the eggs inside themselves or even really feel them”. So unlike a menstruation-focused conceptualisation of fertility, this egg-reserve conceptualisation needs to be mediated by clinics. And in a commercial environment, this mediation is not straightforward. “So-called fertility MOTs are often marketed as a way to know where you stand, but it’s really very hard to predict the true state of the ovarian reserve,” says Van de Wiel.

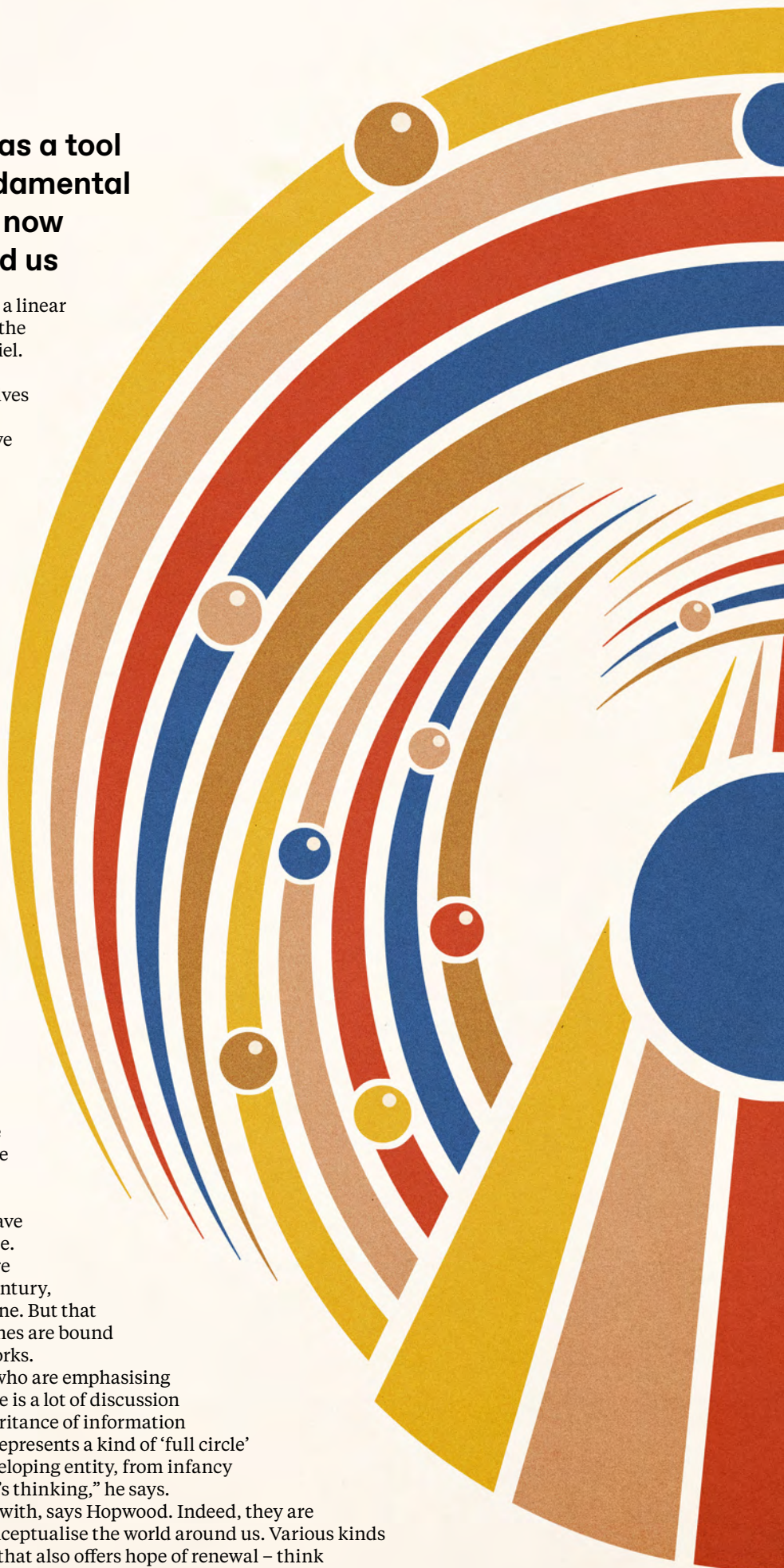
“If women do freeze their eggs, they enter a different kind of time, neither linear nor cyclical,” she says. “These eggs are seen as something unchanging. Something preserved for the future, when they will enable a return to a woman’s younger years.” Again, the language is of ‘freedom from the biological clock’ or ‘turning back time’. “But we know that many of these eggs will not successfully fertilise. And the majority of women will never even seek to use them.” Their very existence in storage, though, disrupts notions of bodily time that have endured through human history. “Previously, there was a certain age at which people anticipated menopause and accepted that they were no longer fertile. But that metric of ageing takes on a different character if you know you have eggs in the freezer.”

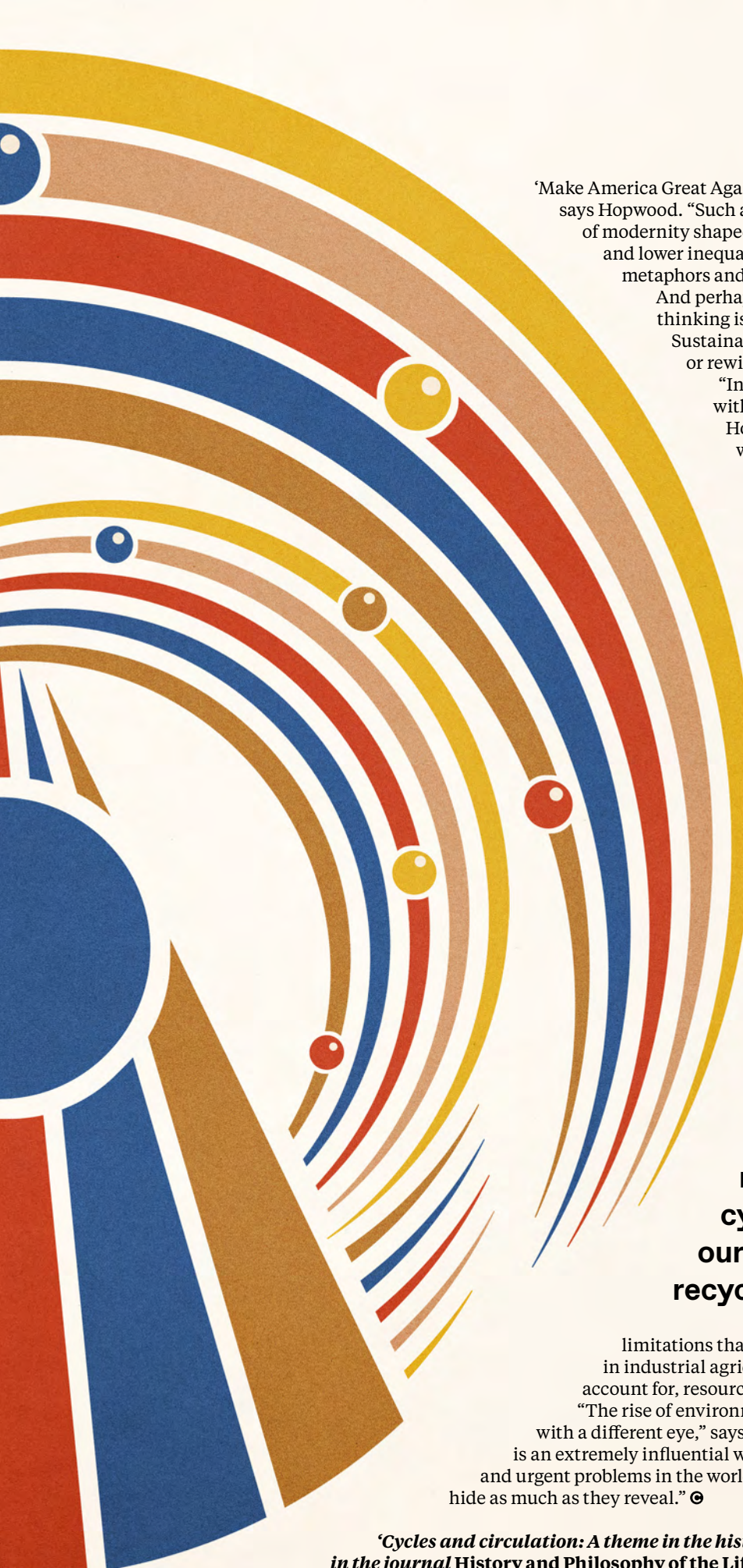
Some cycles are ancient and ubiquitous, such as the seasons. Others represent innovations. William Harvey’s formulation in 1628 of the circulation of blood used an old idea – the perfection of the circle – to promote a new view. Müller-Wille is fascinated by another circular insight taking place right now in evolutionary biology, that promises to be equally transformative.

“The theme of our research – ‘circularity’ – was in part inspired by developments in which life cycles have become more and more important,” says Müller-Wille. “That is, the displacement of the gene from the centre of biology. From the 20th through to the early 21st century, it looked as though everything turned around the gene. But that view has now become problematic. We now know genes are bound into complicated architectures and regulatory networks.

“There are biologists and philosophers of biology who are emphasising the life cycle as the crucial unit of an organism. There is a lot of discussion around extended inheritance – the non-genetic inheritance of information across generations – and inheritance systems. This represents a kind of ‘full circle’ that biology is going through. The organism as a developing entity, from infancy to adulthood, was also the starting point of Aristotle’s thinking,” he says.

Cycles have never gone away as a tool for thinking with, says Hopwood. Indeed, they are fundamental to many ways in which people now conceptualise the world around us. Various kinds of politics hold out the promise of a nostalgic return that also offers hope of renewal – think





'Make America Great Again'. "The promise of return can also appeal on the Left," says Hopwood. "Such as going back to the postwar decades as a golden age of modernity shaped by greater working-class power, with welfare states and lower inequality. Our article draws attention to the force of cyclical metaphors and their travels between society and nature."

And perhaps the most foundational way in which cyclical thinking is embedded in our modern consciousness?

Sustainability – whether that's recycling and upcycling, or rewilding and renewable energy.

"In the 18th century, the botanist Carl Linnaeus worked within the framework of an 'economy of nature,'" says Hopwood. "In one passage he wrote about whether we should use the earth from cemeteries to fertilise fields and grow crops – though he admitted he'd have to be really hungry to eat a head of cabbage grown from the soil of a human head. Nineteenth-century materialism radicalised these ideas. They shaped the development of sewerage systems in optimistic visions that recycling would solve the problems of industrialising cities."

Even our current greatest shared fear – of a climate long in balance now disrupted by human-made global warming, and perhaps approaching a tipping point that may render the planet unliveable – has historical antecedents. Theories of the Earth in the 17th and 18th centuries combined cycles and linear change – variously describing a planet slowly cooling, completing one cycle to end in flames or oscillating forever. "By the early 19th century, geologists were committed to an irreversible, directional history and the notion of extinctions," says Hopwood. "Yet Charles Lyell defended a more cyclical view in which, should the same conditions return, such beasts as iguanodons and ichthyosaurs might reappear."

What's changed, though, is a new awareness of human impacts and of externalities, or hidden costs within systems, which can be obscured by the elegant cycles that symbolise them. The notion of recycling may distract from practical

Sustainability is perhaps the most foundational way in which cyclical thinking is embedded in our modern consciousness, from recycling to renewable energy

limitations that prevent any full restoration. Cycles of production in industrial agriculture have typically failed to represent, and so account for, resource depletion or land contamination.

"The rise of environmental consciousness was partly about seeing cycles with a different eye," says Hopwood. "The circle, with its promise of return, is an extremely influential way of thinking about some of the most important and urgent problems in the world today. But we should remember that cycles may hide as much as they reveal." ©

'Cycles and circulation: A theme in the history of biology and medicine' was published in the journal *History and Philosophy of the Life Sciences* in July 2021.

It's showtime!





Is there any thrill like the thrill of musical theatre? We don't think so. We talk to eight prominent Cambridge alumni about why musical theatre exerts a hold that just won't let go.

WORDS JO CAIRD



Toby Marlow (Robinson 2014)
Composer, writer and actor
Credits include: *Six*; *Hot Gay Time Machine*; *Senseless*; *Shadows in the Sun*

What I want from a musical depends on what kind of musical I'm seeing. But in general, having some absolute bangers in it, just really good songs, that makes me really happy. If it's a commercial show, I also really enjoy the big production elements: big sets, amazing tap dancing, whatever. They bring out the eight year old in me. *Cats* is the perfect example: you can't get better than a bunch of people throwing themselves around the stage screaming about what kind of cat they are.



Lucy Moss (Caius 2014)
Writer, director and composer
Credits include: *Six*; *Ratatouille: The TikTok Musical*; *Legally Blonde: The Musical*

There's nothing quite like the delight you can get from a comedy song – making people laugh with a song is so different to stand-up. Similarly with storytelling, the music heightens the emotion or the hilarity. It can be so much more joyful and also so much more moving as a way of communicating ideas. But a musical will only work if it's in the best form for that story. My favourite is *Oliver!* I like the fact that Bill Sykes doesn't sing in the film version, while he does in the stage show. Singing in the film is a way of embracing the joy and lightness of the story, so it's indicative that Sykes doesn't join in with that. ›

The best musicals do something to us, they're thrilling in a visceral way. When it works, the musical takes you to another dimension because it brings together the communal, the intellectual and the physical. The music lifts you to another level



Trevor Nunn (Downing 1959)
Theatre director
**Credits include: *Cats*; *Les Misérables*;
*The Life and Adventures of Nicholas Nickleby***

When Shakespeare was writing plays, a popular theatre format was the masque – huge musical entertainments with spectacular designs and spectacular costumes. The whole point of the masque was to completely blow the audience away with a mixture of music and visual. Then, in the 18th-century, *The Beggar's Opera* was an extraordinarily impactful, successful work. And we shouldn't forget that hard upon the heels of the invention of opera came an entertainment known as the Singspiel – the singing play. Who wrote one of the first Singspiels? A bloke called Mozart. It was *The Magic Flute*. It has spoken scenes, it has rapturous music, it has comic songs. It was intended to appeal to a mass audience.

So it's no surprise that musical theatre, as each decade goes by, becomes more and more and more successful – reaching a wider and wider demographic – because it's been developing for so many hundreds of years. Take *West Side Story*, my favourite. Based on *Romeo and Juliet*, with astonishing virtuoso musical input by Leonard Bernstein, and Stephen Sondheim writing sensational lyrics, it's unquestionably the great 20th-century musical.



Kate Pakenham (Caius 1993),
Independent theatre producer
**Credits include: *City of Angels*; *Heart*;
*Committee... (A New Musical)***

Why I do theatre rather than screen work is because of the communal experience of it. And musical theatre is the ultimate version of that. The best musicals do something to us, they're thrilling in a visceral way. When it works, the musical takes you to another dimension because it brings together the communal, the intellectual and the physical. The music lifts you to another level.

It's an interesting genre because it's apparently light and flippant and frivolous – the stories of musicals often aren't very complex – but actually have more depth than you might expect. Take something like *Mamma Mia!* – behind it is this very smart, almost Shakespearean story of lost souls washed up onto a magical island, all taking place within the classical 24-hour time frame. I loved it as a 25-year-old girl and I love it as a 45-year-old mother. The dual generational story gives it a kind of timelessness that means that you can draw together an audience across age groups.

For me, the best musicals are very clever in their structure: they reach us as an audience member on one level, dancing and prancing, but actually, beneath the surface, the best of them are really very smart.





Previous

Cats

Premiering in 1981, and created by Andrew Lloyd Webber, Trevor Nunn and Richard Stillgoe, *Cats* remains the fourth-longest-running show on Broadway and the sixth-longest-running show in the West End.

Cameron Spencer / Getty

Left

West Side Story

Its original Broadway run of 732 performances between 1957 and 1959 reflects its initial moderate success, but after the film version of 1961, it has gone on to become one of the most popular musicals of all time.

Ernst Haas / Getty



Josie Rourke (New Hall 1995)

Theatre director

Credits include: *Sweet Charity*; *City of Angels*; *Les Liaisons Dangereuses*

Musical theatre is mainly about pleasure and joy – whenever I’m rehearsing I have a running joke with my dad that people are just singing *and* dancing everywhere. It’s heavenly for me as a non-singer and moderate-to-dangerously clumsy person to be around all that. That’s the reason I ended my time at the Donmar with *Sweet Charity*. Although it’s a thoughtful show and it’s got stuff to say that can be extremely raw and touching, it also just soars to great heights of delight and pleasure. *City of Angels* is another that’s very much in my heart. We were two days from opening its production at the Garrick Theatre when the country locked down at the start of the Covid-19 pandemic. I’m really hoping I find a way to return to it at some point.

Musicals transport me back to the Palace Theatre in Manchester; it was there, as a tiny child and after an excellent Italian meal, I watched my first ever musical (*My Fair Lady* with Rex Harrison – many years after the film – touring as Higgins). In my head, that’s probably the memory I revisit more than anything else.



Jeremy Sams (Magdalene 1975)

Director, writer, composer and translator

Credits include: *Chitty Chitty Bang Bang*; *Spend Spend Spend*; *Amour*; 13

The alchemy of musical theatre isn’t in the success but in the attempt. I worship at the shrine of Stephen Sondheim and so many others – but I still don’t know of a musical that isn’t flawed at some level. That’s because it’s an attempt to put our feelings into sound and encompass our stories on a stage. It’s basically trying to put magic in a bottle and it’s really hard. Audiences are unanimous in recognising that this is something they want and need. That’s because most people at some point in their lives have been made happy by a musical, whether it’s a movie musical, or a tap thing or whatever it happens to be. My personal favourite is *Sunday in the Park with George*. I was musical director on the show at the National Theatre in 1990 and it’s a piece that continues to give me philosophy and beauty and inspiration.

That’s the sort of high we’re all chasing, really. Putting on a piece of musical theatre is an attempt to find that thing, to find story through music, and it’s very hard. The attempt is glorious enough to be almost as good as a success. ›

It's the excess of it all. A lot of it is very camp and that's refreshing – a world where people just spontaneously burst into song: how can that not be absolutely incredible?



Tim Sutton (Clare 1993),
Director, lyricist and composer
Credits include: *Memphis the Musical*;
Beauty and the Beast; *To the Streets!*

When watching a successful musical, everybody is disarmed: their analytical faculties are turned off. If it's an overwhelming emotional or sensory ride that you're on, then you want to go with it. It's hard to say why a musical theatre song is or isn't working, because it's an abstract form; but when it is working, you know that you're in good hands. *Sweeney Todd* was the perfect example for me: it was an enormous revelation that a team of writers could control their elements so brilliantly and that such dark material could be handled with such wit and aplomb.

In a great musical, you're hoping to see many different elements, from comedy and drama to introspection. You have a chance to experience a whole range of emotions. A well-crafted score should be able to display all those factors and it's the mark of a really well-rounded theatre composer and lyricist to be able to flex in all these directions. As audience members, we're looking to see how flawed but sympathetic heroes fail, learn and grow through the course of the show. The richer the nature of the score, the better the experience for an audience.



Aisha Wheatley (Fitzwilliam fourth year),
President of the Cambridge University
Musical Theatre Society and appeared
in CUMTS' *Chicago* and *Guys and Dolls*

It's the excess of it all. A lot of it is very camp and that's refreshing – a world where people just spontaneously burst into song: how can that not be absolutely incredible? When it's really well done, a musical is more than the sum of its parts and the audience can feel that. My favourite is *An American in Paris*: 1940s, set in Paris, all the transitions are ballet, but it's jazz music. It's just everything I love.

From a performer's standpoint, it's the amount of time and energy and the fun of the rehearsal process, getting to know people and having inside jokes. When it comes to opening night and you hear the band tuning up – the rush of it! The audience responds to that heightened emotion and you get an energy from them. That cheering and screaming and whooping offers a different feeling than you get from a moving piece of straight theatre, where the audience are quite subdued. ☺



Below

An American in Paris

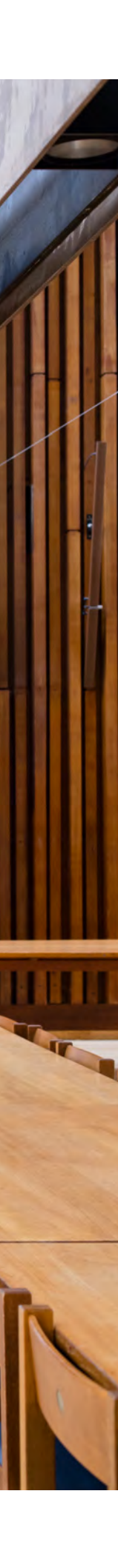
With songs from George and Ira Gershwin, and inspired by the 1951 film of the same name, the Broadway hit musical won four Tony Awards in 2015, including Best Choreography and Best Orchestrations.

Chesnot / Getty



Course leaders Jason Mellad (Clare 2004), CEO of healthcare accelerator Start Codon, and Karina Prasad, Head of The Postdoc Academy, photographed at Churchill.





Cambridge Advance Online: a place to learn, connect and give your career a boost

A changing workplace demands a changing workforce: Cambridge Advance Online offers you the chance to develop the skillset you need to succeed.

WORDS **LUCY JOLIN** PHOTOGRAPHY **MEGAN TAYLOR**

Lifelong learning – it's not the most cutting-edge of phrases. For many, it might refer to subjects or hobbies that we do out of work, for our own personal satisfaction. But while that aspect is, of course, hugely valuable, lifelong learning also has another side which is becoming increasingly important for career progression. It's no longer enough to have that degree or postgrad under your belt. The 21st-century workplace is changing fast – and to succeed, we need to change with it. That means we all need to embrace the concept of lifelong learning.

We're living longer and, consequently, we're working longer. The average age of exit from the labour market in the UK – for both men and women – has continued to increase over the past 20 years. And those 20 years have seen extraordinary flux, disruption and change in every sector, from healthcare and finance to the creative arts. Automation, globalisation and digitalisation, for example, demand new skillsets which reach across sectors: creativity, curiosity, problem-solving and leadership.

But lifelong learning isn't just for those who are advanced in their careers. It's also hugely valuable at any stage – indeed, today's graduates need to be constantly seeking new ways of thinking and doing. And the rapid rise and evolution of effective online learning means lifelong learning is more accessible than ever before to those juggling upskilling with a demanding career.

Cambridge Advance Online's new programme of online short courses is aimed at professionals at all stages who want to advance their careers, connect with a network of peer learners, and gain insight from leaders in the field.

Take, for example, the importance of becoming culturally competent in today's global market, and the opportunities it creates to open new markets and networks, promote mutual enrichment and improve productivity and efficiency. The Intercultural Communication for Global Business course, led by Kasia Lanucha, Intercultural Trainer and Coach at the Centre for Languages and Inter-communication at the Department of Engineering, will help build a better understanding of what qualities are required of professionals working internationally, and help you learn to identify the gap between the demands of your role and the people skills you need to work globally.

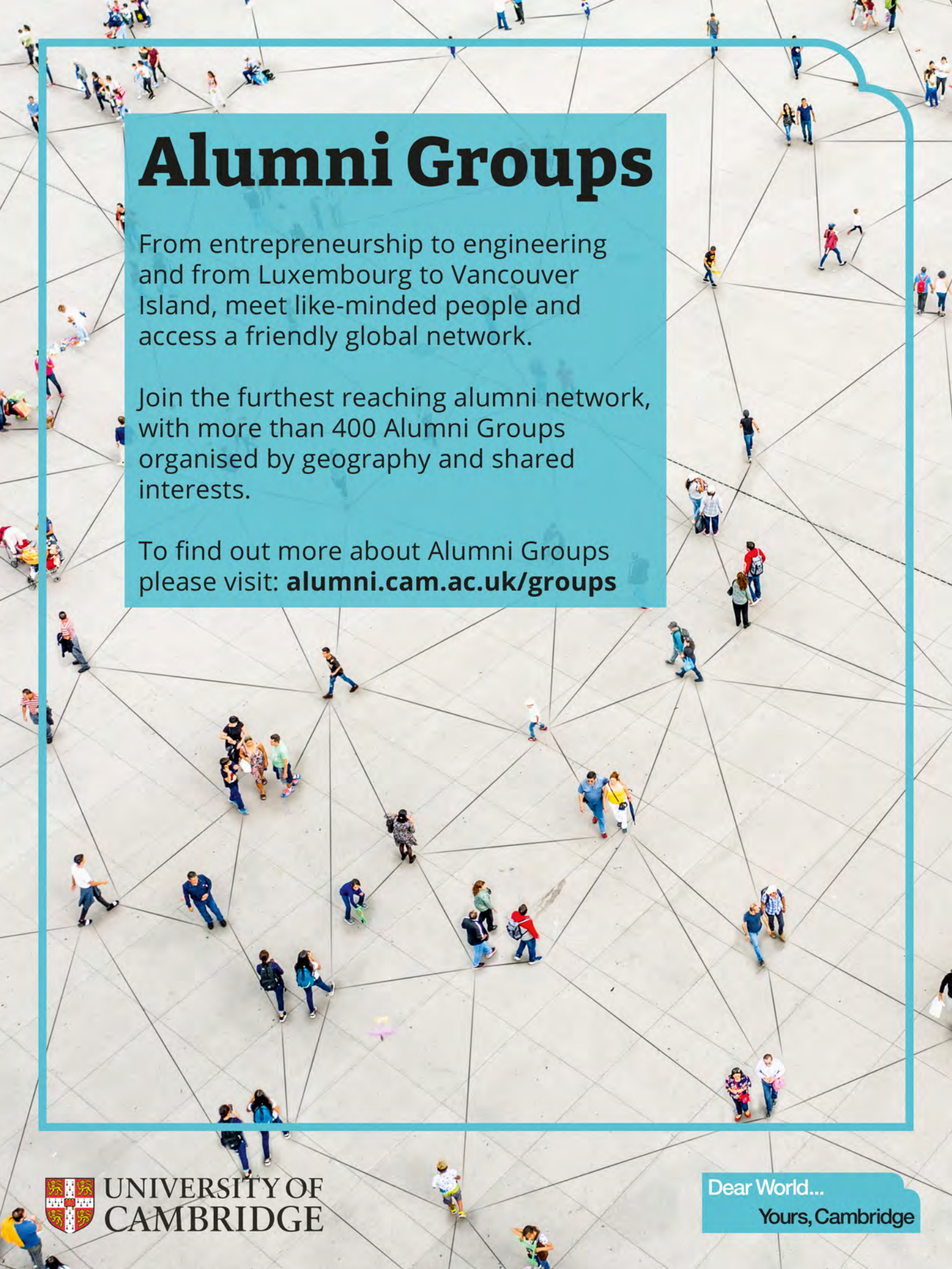
This relevance to your working life is key to effective lifelong learning. The Accelerating Organisational Innovation course is aimed specifically at those seeking to launch new projects in the workplace. Led by Jason Mellad (Clare 2004), Chief Executive Officer of Start Codon, and Karina Prasad, Head of The Postdoc Academy, it will kick-start your entrepreneurial skills, helping you develop capacity in your business and an entrepreneurial mindset. You'll hear directly from some of the most innovative minds in the history of the Cambridge cluster and discover how culture plays a significant role in developing innovative ecosystems.

There's a real-life example on the doorstep: the incredible success of the Cambridge cluster has shown what can be achieved when entrepreneurship and the latest scientific and engineering thinking go hand in hand. Biotechnology from Theory to Practice, led by Dr Ljiljana Fruk, Associate Professor of Bionanotechnology, Department of Chemical Engineering and Biotechnology, offers an up-to-date overview of the field, plus techniques applicable to industries including energy, agriculture and the environment.

And for those looking to start their own thing, Biotechnology Entrepreneurship is aimed at bioscience professionals who want to understand and act on business opportunities in the field. You'll be guided through identifying, developing and evaluating business opportunities by experienced course leaders Professor Seamus Higson, current programme manager for the MPhil in Bioscience Enterprise, and Professor Elizabeth Hall, a leader and innovator of 30 years' experience in academia, technology startups and third-sector organisations.

From signing up to a taught course to just listening to a TED talk on your commute, everyone can benefit from developing the habit of lifelong learning. Today's career path is no longer a well-trodden, signposted route. Rather, it's a journey of discovery. Embrace lifelong learning and you could find yourself taking twists and turns that you never expected.

Visit advanceonline.cam.ac.uk/courses to see all courses and to book a place. Cambridge Advance Online is offering alumni a 15 per cent discount on all courses – to get the discount, simply enter the code Alumni15 at the checkout when booking.



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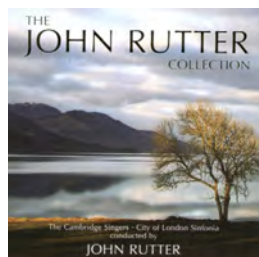
Dear World...

Yours, Cambridge

“I feigned a headache, sneaked downstairs and bumped into the Pope!”

The 21-year-old Kit Hesketh-Harvey (Clare 1975) used his outlandish experiences as a Cambridge choral scholar to plot his course through a life in music.

WORDS MEGAN WELFORD



Shepherd's Pipe Carol John Rutter

I can't bear this song, but it's very much part of my Cambridge experience. We had endlessly to sing it because John Rutter (Clare 1964), our choirmaster, had composed it. He was barely older than us and was an enchantingly modest man. He was part of a movement,

along with my friend, the director Nick Hytner (Trinity Hall 1974), advancing the idea that theatre and choral music should be entertaining – a radical approach at the time. This piece of music was the start of the ascension of Clare's choir, which was seen as 'unclean' because we had girls in it. Rutter was swimming against the stream in many ways. He would be proved right.

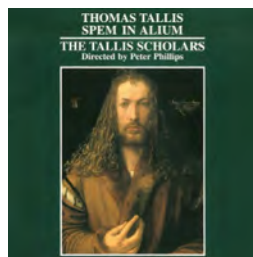
I can't bear this song, but it's very much part of my Cambridge experience



Being Alive Stephen Sondheim

This song will make you cry. It's about yearning for love, and the nuisance of living with someone ("Someone to hold you too close, someone to hurt you too deep"), but how the alternative – being alone – is not being alive. I was 21 and didn't know about love,

but I was stunned by the artistry of this song. The lyrics are flawless, it's accompanied by a gentle bossa nova, and I learned something about the way words and music can intersect. It's the perfect 'end of the first act' song. The theatre was beckoning me at this time; I was learning from being a chorister that I wouldn't be a singer, but I could rewrite lyrics to make the choristers corpse. I could write libretti, and maybe one day I would write lyrics. I didn't know then that I would go on to study under Sondheim and would feel his loss deeply.



Spem in Alium Thomas Tallis

During my third year, the choir went on a spring tour that included Venice. We had fashion ideas by then – my friend and nemesis Simon Butteriss (Clare 1975) and I went around dressed as Tadzio in *Death in Venice*. We were guests of the British Council, and the idea of the

tour was to sing in the buildings the music had been written for. No-one cared, but we music nerds loved it. In the Basilica San Marco we were in one of the domes singing Thomas Tallis's piece for 40 voices, and it was so beautiful I needed to hear it, not sing it, so I feigned a headache and sneaked downstairs, where I bumped into the Pope! It was John Paul I, I think. He was sitting in an apse. He saw me and winked and tapped his nose.



When the Night Wind Howls Gilbert and Sullivan

I had gone to the Minack Theatre in Cornwall with the Cambridge Gilbert and Sullivan Society. We were sleeping on the floor of a school and, by the end of the trip, everyone had slept with everyone else and no-one was speaking to anyone.

It was wonderful. The creator of the Minack, Rowena Cade, had literally hewn the theatre out of the rock. She was about 83 when we went and had a cloud of white hair. During a tech rehearsal for our show, she had broken her hip and everyone was very worried about her. There's a butler character in *Ruddigore* called Old Adam and, weirdly, Rowena also had a butler called Adam. On the last night, we were really hamming it up and, at one point, possibly during this song, there was a big moon rising behind the theatre. There, silhouetted against the moon, appeared Adam, pushing Rowena in a wheelbarrow. It was an exquisite moment.

Kit Hesketh-Harvey is a screenwriter, performer, librettist, lyricist and one half of comedy musical duo Kit and McConnell.

This idea must die: Personality type tests are a good indicator of performance potential

Dr David Stillwell says that when it comes to predicting performance in the workplace, it is traits, not types, that count.

WORDS **MEGAN WELFORD** ILLUSTRATION **GEORGE WYLESOL**

People love to know their personality type. It's a bit like those quizzes in magazines: 'Who am I going to marry?' or 'What is my *Star Wars* character?'. But the problem is... personality types don't exist.

Personality *traits*, such as curiosity or assertiveness, do – and that can be tested. But personality types, where you put people into boxes such as introvert or extrovert, then group those boxes, and say that makes up a personality – that's over-simplistic and inaccurate. It's a shame that people like this idea so much, because it encourages thinking of others as one-dimensional beings who fit into boxes, and it misses the nuances of being human. And when personality-type tests are used to predict job performance, they can lead to errors.

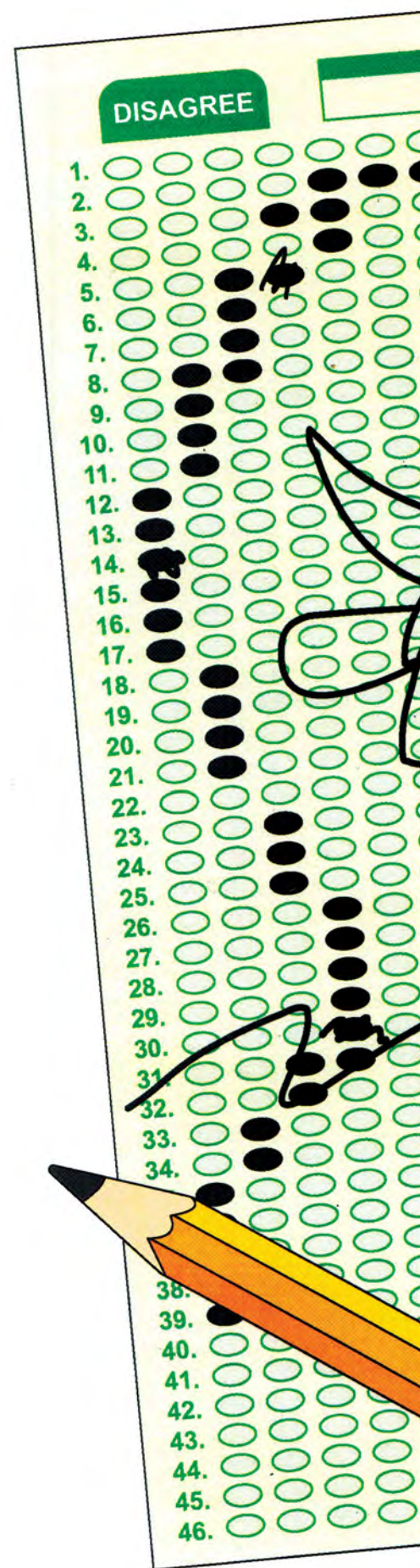
There are two ways workplaces use personality tests. One is for personal development and to start conversations, which is fine. In fact, it can be good, because not everyone understands that other people can think differently from themselves, including managers, and that can be problematic. So it's good to understand that people have different personalities and so are motivated by different things. But then there's the other use, using personality type when the stakes are high, such as hiring or promotion or building teams, and that is much more problematic.

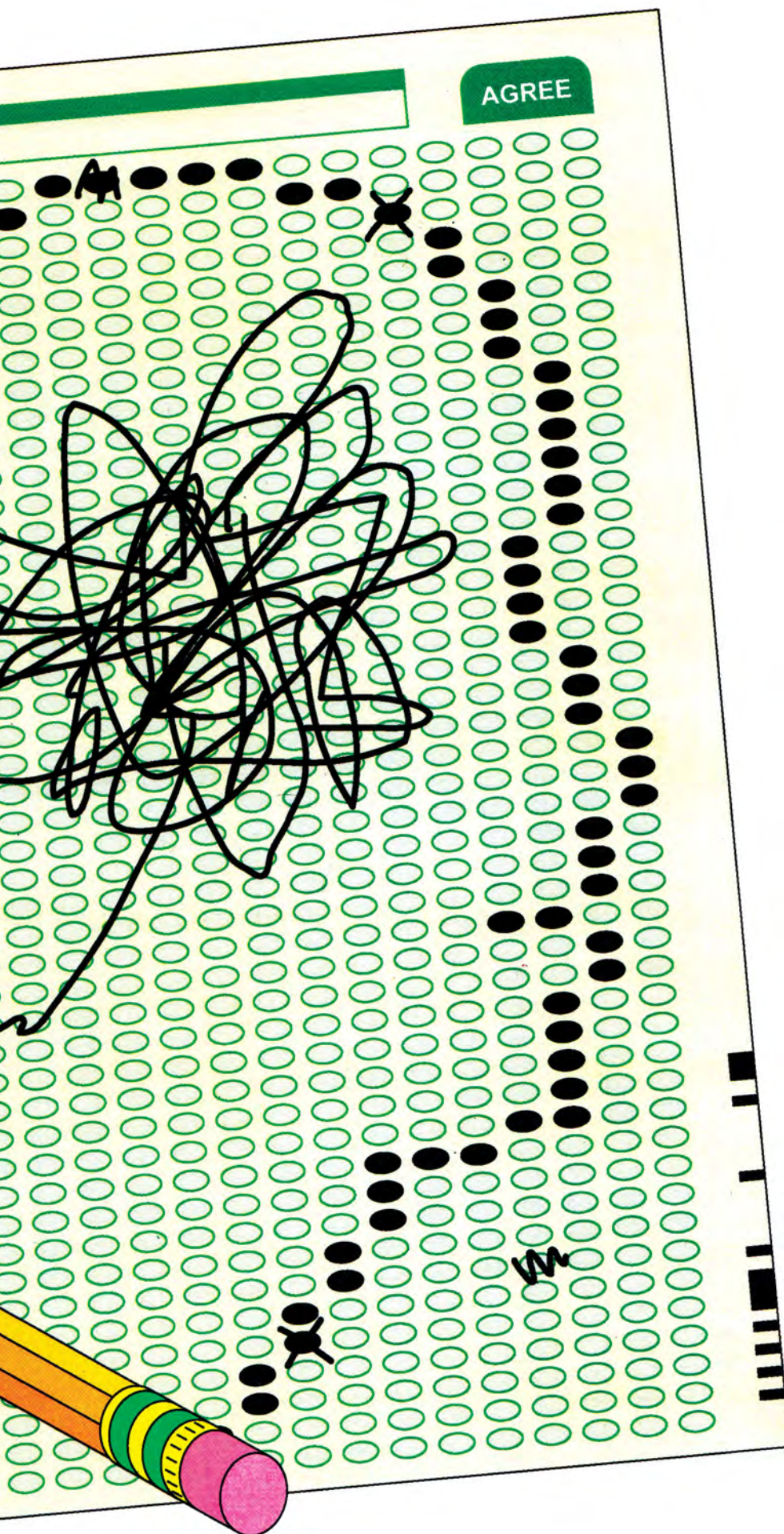
For example, the first thing a type-focused test might measure is introversion versus extroversion. So you answer the questions

and if you turn out to be 51 per cent extrovert, then you go in the extrovert box. But you might answer the questions the next day feeling more subdued, and get 49 per cent. And then you go in the introvert box. This type of test only really works when you're at the far ends of the scale, but most of us fall in the middle. It would be more useful to think about the traits where you differ from the average. Also, there are only a couple of traits that matter for any role. For example, an accountant needs to be conscientious, but whether they're extrovert or introvert doesn't matter.

The small print of these type-focused tests usually say something like 'use these for personal development, not for predicting performance'. But now picture the manager who goes to the personal development workshop and sees one person who matches their own 'type'. There is a very good chance that manager will make more effort with this person, subconsciously preparing them for promotion because they think they recognise someone like themselves.

The 16 types used in many popular type-based tests come from Jung's theory of personality, which is based on Freud's thinking. Jung and Freud were writing in the 1920s and their theories are not even taught to students any more, unless as part of history, because psychology has moved on. Their theories are not borne out in the data – it's not possible to construct questions that actually measure these personality types, because as I've said... they don't exist.





It encourages thinking of others as one-dimensional beings who fit into boxes, and it misses the nuances of being human

In contrast, models of personality based on traits, like the Big Five, are data-driven. They don't have a theory to prove. They are measurable. And they can be evaluated for how predictive they are of performance. Big Five was created using the dictionary – researchers took all the words that describe people and clustered them into five traits, for example 'sociable', 'outgoing' and 'talkative' go together and become 'extroversion'. Then people are scored on a scale for each trait, from 0-100 per cent, so it's clear that scoring 49 per cent is very similar to 51 per cent. These tests have been proven to predict performance about as accurately as a job interview. Furthermore, because the questions have been constructed to only test personality traits, they minimise the unconscious biases, such as racism or sexism, that job interviewers may have.

These are the best tests we have now, but I'd be disappointed if in another 100 years we're still using them. We may discover more nuanced personality traits, or better ways to measure them. Then there's the potential for artificial intelligence. Machine learning can already accurately predict behaviour, such as 'will someone like this book?', but it can't explain why. When machine learning can teach psychologists why its predictions are so accurate, then that could revolutionise personality testing!

Dr David Stillwell is Academic Director of the Psychometrics Centre and Professor of Computational Social Science.

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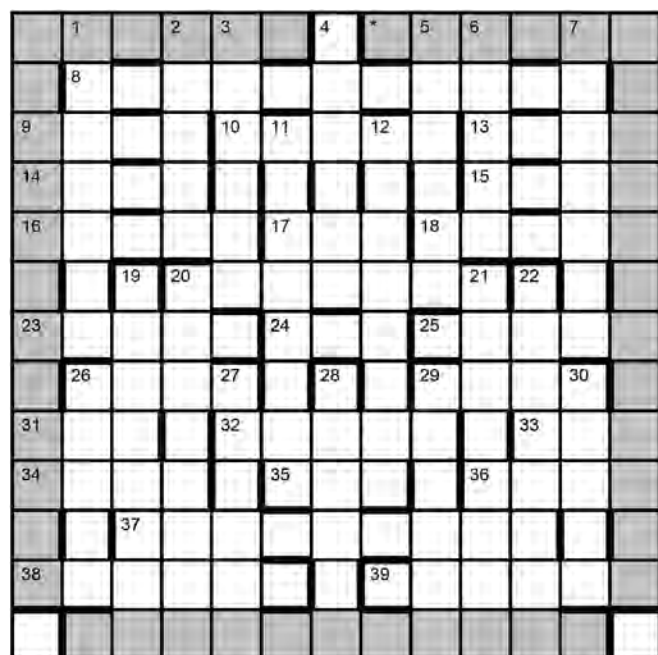
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Odes by Nimrod

The four thematic items (two of two words) that run clockwise around the silvered perimeter from the starred cell are the subjects of as-yet-unwritten odes. The titles of two other imaginary odes are spelt by single letters yielded by the wordplay in each clue. Upon completion of the grid, solvers must highlight a fifth thematic item; then enter under the grid a well-known three-word phrase to complete the title of another unwritten ode and an alternative title for the puzzle. One answer is an abbreviation; 11 is verifiable online.



ODE: _____

Solution to CAM 95 Crossword Match of the Day? by Nimrod



Phrase: **BIG FIVE**

corrected from BIG GAME, are joined to form a BIG (Roman numeral) FIVE, the non-match being MAN V. the BIG FIVE.

Winner: David Pennycuik (Clare 1958) **Runners-up:** Philip Mitchell (Churchill 1972) and Chris Williamson (Churchill 2005).

The final grid depicts MAN's pursuit of Africa's so-called, difficult-to-hunt, "BIG GAME" animals, LION (named examples: SIMBA, ASLAN), LEOPARD (change-a-letter: LEOTARD, JEOPARD), black RHINO (money slang: BRASS, GRAVY), bush ELEPHANT (anagram: HELEN, PAT) and BUFFALO (type of: TREEHOPPER, MOZZARELLA).

The Vs in the grid,

Across

- 8 Different, SAS men, to many professionals (11)
- 9 Bill's loving partner at home frames picture (4)
- 10 Rubbish city at night-time? (5)
- 13 The finale in Edinburgh, we performed at Fringe (4)
- 14 Looking back, one's owed this silver ornament (4)
- 15 Young woman on board touring Ireland (4)
- 16 Filter alight on platform European put out (5)
- 17 American who wrote about relationship, but not with King (3)
- 18 The newspapers etc made it up (5)
- 20 The ultimate gravity of westerly weather alert (7)
- 23 Being artless, returning from China? (5)
- 24 Loan taken out when distributing conjugal property of northern musicians? (3)
- 25 Deoxygenated blood? Woman's injected mixture (5)
- 26 Who can top one's first big fish? (4)
- 29 Quantity of E this chap's stolen from the research rooms (4)
- 31 A colossal plodder, essentially (3)
- 32 Church is beyond tidy, of course (5)
- 33 Lamb's output, say, reviewed by an expert (3)
- 34 Poet's kept secret with craft fuelled by nitrogen (4)
- 35 Top singers backing sand dancer in hit (3)
- 36 Sources often sadly not given with faulty definition (4)
- 37 A new gig? Band feeding press rewritten chords (9)
- 38 Having more bristles to check over after a week on vacation (6)
- 39 Boat impounded by Shetland Island yet to be let off (6)

Down

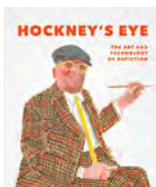
- 1 Worm casts reacting with air (7)
- 2 Your setter eschews lifting artworks (5)
- 3 With elder of Annecy from the mountains (6)
- 4 A double life revolving around maiden name of woman (6)
- 5 Alaskan, maybe occupying desk? I am obsessed! (6)
- 6 For one detective, it was painful picking up a bulky mass (5)
- 7 Den's escalation in vice is suppressed by love of God (7)
- 11 Engine part almost ready for Malaysian's attention (8, 2 words)
- 12 Clown has no fun playing with fire (8, 2 words)
- 19 Jonathan's local rhubarb crumbles appealing, wanting a very little taste? (8)
- 20 Military vehicle transporting one from underneath monuments (8)
- 21 At first Gorbachev's sadly at a loss to describe new policy (8)
- 22 Refuse to ignore union stuffing born victim (8)
- 26 This music is able to attract bar audiences, primarily (5, 3 words)
- 27 Cycling is doing something easy as a gamble (6, 2 words)
- 28 Thank you letter from Athens has a special mark (6)
- 29 For something stimulating, mother's ruin is necked by old solver (6)
- 30 "Mr Uncool", retro verse Igor's sure found boring (5)

All entries to be received by 2 September 2022. Send your entry:

- **by post to:** CAM 96 Prize Crossword, University of Cambridge, 1 Quayside, Bridge Street, Cambridge CB5 8AB
- **online at:** magazine.alumni.cam.ac.uk/crossword
- **by email to:** cameditor@alumni.cam.ac.uk

The first correct entry drawn will receive a £75 CUP book token and a copy of the catalogue that accompanies the acclaimed exhibition, *Hockney's Eye: The Art and Technology of Depiction*. The exhibition runs until 29 August 2022 at The Fitzwilliam Museum and The Heong Gallery, Downing College.

Two runners-up will receive a £50 CUP book token. Solutions and winners will be published in CAM 97 and online on 16 September 2022 at: magazine.alumni.cam.ac.uk/crossword

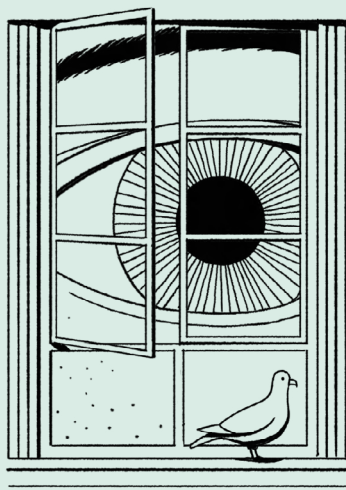


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New Heads of House

Three Cambridge Colleges have recently announced new appointments, with the Heads of House taking up their positions in October 2022. Arabist academic Dr Elisabeth Kendall, who has undertaken extensive fieldwork in Yemen, will become the 20th Mistress of Girton, while senior diplomat Sir Laurie Bristow (Trinity 1983), UK Ambassador to Afghanistan until November 2021, will become the tenth President of Hughes Hall. Finally, Mary Hockaday (Trinity Hall 1981), broadcast journalist and previous Director of BBC World Service, has been appointed Master of Trinity Hall, the first woman to take up the role.

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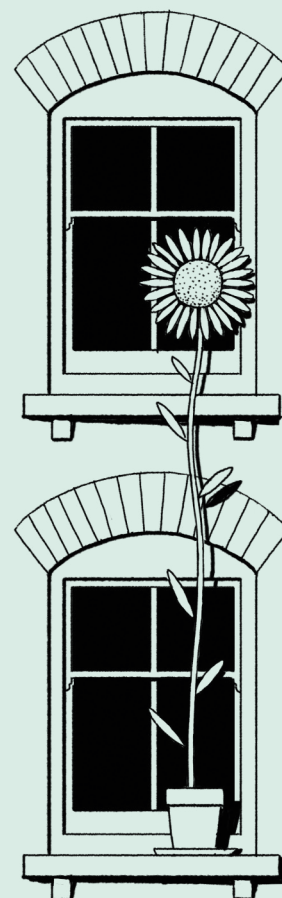
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