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Sara Agutoli

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Welcome to the Michaelmas Term

edition of CAM. Not everyone can make it to a Blue, a Footlights Smoker or CUMS. But no matter: because as anyone who has taken their seat at the back desk of the orchestra, sat on the bench for the College's Third Eleven or featured as a non-speaking spear carrier knows, there is great enjoyment to be had doing things you love, even (especially?) those for which you have no discernible talent beyond enthusiasm. So I was thrilled to discover, on page 18, that performance – no matter how shocking – is good for you.

In normal times, economist Dr Alexander Rodnyansky can usually be found in his office on the Sidgwick Site. But since the start of the war in Ukraine, he has been based in Kyiv, working as economic adviser to Ukrainian President Volodymyr Zelensky. He spoke to *CAM* in September for a vital Don's Diary on page 11.

Elsewhere, on page 24, we discuss the ethics of genomics with Professor Anna Middleton, discuss the meaning of life on page 12, and find out how the Cambridge Stem Cell Institute is unlocking the power of regeneration on page 34.

And finally: Merry Bridgemas! Yes, you heard that right: Bridgemas. And no, it's not too early. Welcome (on page 29) to the Cambridge tradition you never knew you needed – until you did.

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 and email or on social media.

Mira Katbamna
(Caius 1995)



CAM online

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Inbox

Campendium

✉ I have to disagree with you on Shakespeare and Virgil. Old Shakey had his dull moments – but Virge the Dirge was an utter disaster. Line after line of obscure words in random sequence, with no discernible metric to give a touch of oratory. My exam strategy for Virgil was to memorise the general contents of that page. If I then recognised the page on the exam paper, I would spout my memories, in the hope of gaining one or two marks.

Michael Gorman (King's 1963)

✉ Your item about the Raspberry Pi prompts me to relate the widespread international use of the Pi by radio hams. A Pi can run your 'shack' using remote tech. It can run radio telescopes and aerials for satellite tracking and contacts, including for the ISS. It's an excellent 'in the field' ops system. Hams everywhere harness it to do more and more – cheap, robust, reliable as long as you tell it clearly what you need to do. Many of us are also citizen scientists, doing background number crunching using the Pi for SETI and other astronomy projects. Well done to the Cambridge team that made this work. Endless uses and simplicity of concept. Brilliant!

Maggie Atkinson, née Cragg (Newnham 1975)

Personality tests

✉ Once upon a time, I was hiring programmers. My employer required all applicants to take a personality test; I suspected that these were largely bunkum and didn't take the results terribly seriously. "It says here," I read, with a grin, "that you'd be a natural for a salesman's job, so I'm wondering why you're applying for this position as a software engineer?" The answer I got was not one I'd expected. "Hey, yes, what a brilliant idea, thanks!" said the happy-looking applicant as he gathered up his things and walked out of the interview.

Tim Ward (Churchill 1973)

My room, your room

✉ If anyone tells you only a person from 'x' kind of school or home can go to Oxford/Cambridge, please show them this article. Thank you @AshleyJBaptiste for telling it for those of us from state comps, and for students who are #CareExperienced
Suzanne Jacob (Robinson 1999)
@SuzanneEJacob

✉ When I was a First Year at @FitzwilliamColl 34 years ago, I too was on B corridor. These 'my old room' articles are always my favourites @Cambridge_Uni
Stefan Marciniak (Fitzwilliam 1988)
@Prof_Marciniak

✉ As a regular visitor to B staircase Fitz in my first year for after-dinner brainstorming sessions, I was interested in what Ashley John-Baptiste and Stephanie Owen had to say about it.

The rooms had small, wall-mounted electric heaters. By winding small pieces of wire (unwound paperclips were ideal) around the bars of their safety guards, slices of bread could be hung in front of the heating elements and toasted. Someone had to keep an eye on it to make sure the bread didn't get too hot and, of course, turn it round to do the other side.

Three or four of us could get through a thick sliced loaf in an evening as we tried to figure out the intricacies of enthalpy and entropy, bending moments and shear forces, transformers and squirrel-cage rotors.

Do students of today eat toast or have they supposedly more healthy alternatives?

Richard Holroyd (St John's 1968)

✉ I'm really loving the accessibility and immediacy of the online CAM magazine. I was also very inspired by two of the latest articles: the piece on Ashley John-Baptiste's room in Fitz, which looked very familiar because it was two floors directly below my own room in Fitz back in '84, and the lovely article about Fitzbillies.

Jill Marshall (Fitzwilliam 1984)

Quantum

✉ I'd like to nominate CAM 96 for an 'understatement of the year' award. On page 26, Professor Suchitra Sebastian is quoted as saying a milligram of these materials contains 10^{23} electrons.

That ' 10^{23} ' is read as 'ten to the twenty three' and it means one followed by 23 noughts (100,000,000,000,000,000,000,000), a hundred sextillion. The editor apparently read it as 1,023 and put "more than a thousand", but a hundred sextillion is indeed more than a thousand – in fact it is a hundred quintillion times as much.

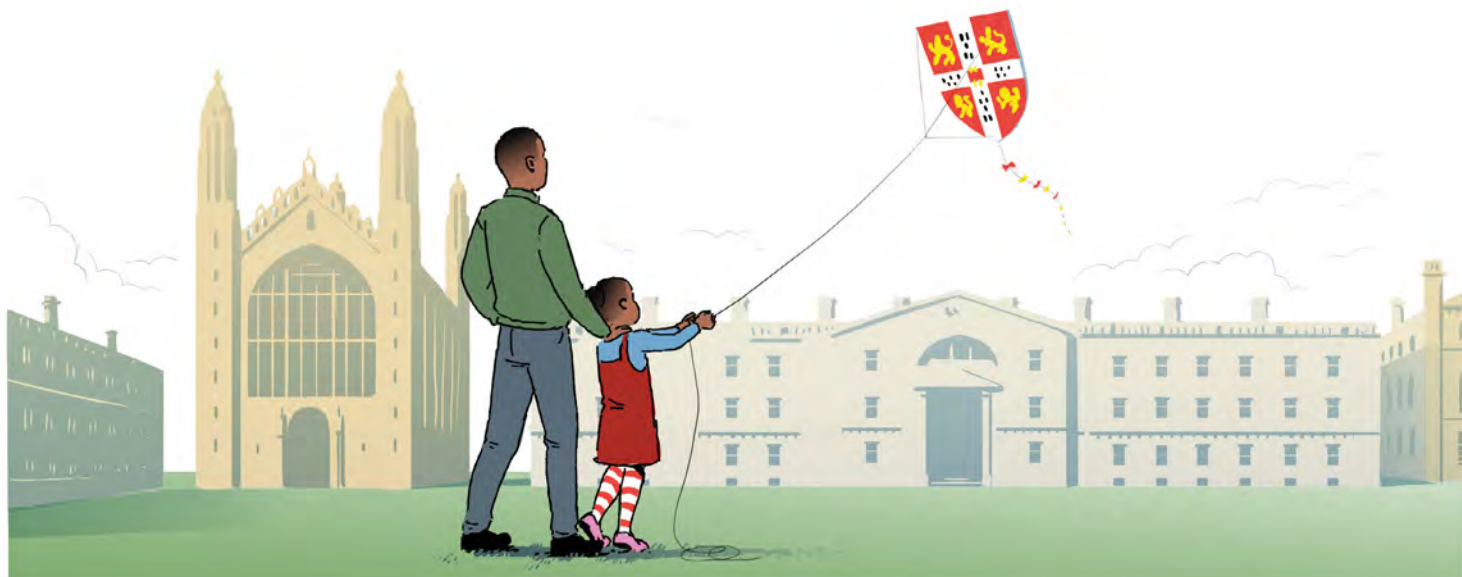
Silas Brown (St John's 1997)

Editor's note: Award sheepishly accepted.

The Nightclimbers

✉ Your article brought forth many sentimental memories. I was an active climber 1957-1959 and used to go out regularly on various structures with my friend, Julian Robinson, from Trinity, after hot soup to bolster courage. My recollection of the climbs are among the most intense experiences of my undergraduate life. I remember the moon over Cambridge rooftops as a beautiful and worldly experience. It certainly intensified my appreciation of architecture.

Stephen Bondy (St Catharine's 1956)



Big number

80,000+ alumni who donated to *Dear World... Yours, Cambridge* campaign that raised £2.2bn

cam.ac.uk/thank-you



Vice-Chancellor

Professor Deborah Prentice appointed new Vice-Chancellor from July 2023

Professor Deborah Prentice has been formally appointed as Cambridge's next Vice-Chancellor. She has been Provost at Princeton since 2017, which she joined in 1988.

After completing a PhD at Yale, she was appointed Associate Professor in 1995 and Professor of Psychology in 2000. In 2012, she became the Alexander Stewart 1886 Professor of Psychology and Public Affairs and chaired the Department of Psychology for 12 years until her appointment as Dean of Faculty in 2014.

Her academic expertise is the study of social norms that govern human behaviour – the impact and development of unwritten rules and conventions and how people respond to breaches of those rules. She has edited three academic volumes and authored more than 50 articles and

chapters, and specialises in the study of domestic violence, alcohol abuse and gender stereotypes.

She will begin as Vice-Chancellor on 1 July 2023. Until that date, Dr Anthony Freeling will take on the role of Acting Vice-Chancellor following the departure of former Vice-Chancellor Stephen Toope, who left in October.

Professor Prentice said: "It is a huge honour to be nominated to lead such a renowned institution. I welcome the challenge of helping Cambridge write the next chapter of its long and proud history. Higher education around the world faces many challenges, but I firmly believe there are also great opportunities to demonstrate how our leading universities can, together, harness their expertise to solve global problems. I hope that I can play some part in leading that dialogue."

Help for Ukraine

Twenty Ukrainian medical students from Kharkiv – which was attacked on the first day of the conflict – will take the specialist skills they have learned back home following a seven-week programme of clinical placements at the School of Clinical Medicine. The initiative was part of a twinning partnership between Cambridge and Kharkiv National Medical University.

cam.ac.uk/ukrainian-students-depart



Deconstructed

“Nothing like it in the UK” – new Heart and Lung Research Institute opens

The Heart and Lung Research Institute will tackle some of the world’s biggest killers, including heart attacks, strokes, lung cancer and pneumonia.

The Institute will house wet labs, a clinical research facility, data science and epidemiology research teams, as well as spaces for collaboration.



Its 380 staff will be Europe’s largest concentration of cardiovascular and respiratory experts, covering discovery to implementation.

Researchers at the Institute aim to develop at least 10 new proof-of-concept drugs or diagnostic approaches within the next five years.

Three-minute Tripos

ASPIRIN OR SALTED OWL: WHICH IS THE MORE EFFECTIVE FOR CURING A HANGOVER? OR PERHAPS A HEADACHE. IT DOESN’T SAY. ANYWAY, DISCUSS.

Greetinygs my fyne fellowe, what doth ail ye on this morne?

Geoffrey, I wish you’d stop putting Y or E on random words. Think of how confusing it will be for people studying English in the future.

I was trying to cheer you up. You look terrible.

That’ll be the gout. I know the taverns well, in every town...

Aha! I have the cure right here. It says: “Salt an owl, bake it until it’s ground to a powder, mix it with boar’s grease to make a salve...”

Honestly, these apothecaries. Do they think we sit around all night waiting for owls to fall out of trees? I’ve got a pilgrimage to go on.

How about: “Stuff a puppy with snails and sage, then roast him over a fire. Use the rendered fat to make a salve.”

Look, I know it’s medieval times and everything but that’s just horrid.

You’re lucky you haven’t got cataracts. “First take the gall bladder of your hare...”

Stop, please.

But don’t you think our medical texts have value? Think of what they reveal about our society!

They reveal we had a lot to put up with. This one has a cure for *eyelid-eating worms*, by God.

Maybe a great university library could start a project to keep them safe, catalogue them and put them in a form where people all over the world could read them. You could call it something like... Curious Cures in Cambridge Libraries.

Cambridge? That collection of fen-dwelling Oxford rejects? I hardly think so. Right, I suppose it’s owl-hunting time.

cam.ac.uk/curious-cures



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The art of acceptance

WORDS SARAH WOODWARD

ILLUSTRATION KATE COPELAND

Clockwise from left: Julia Acker, St John's, PhD Biochemistry; Marcus Aurelius, 121–180AD, Roman emperor and Stoic philosopher; Dhruv Makwana, Trinity, PhD Computer Science; Yana Vetrova, St John's, Second Year Human, Social and Political Sciences.



Keep calm and carry on: the Aurelius Society is bringing Stoicism and resilience to Cambridge.

A small group of students sit on the grass tackling the big philosophical subjects, when suddenly a throng of noisy cyclists descends on them. The students quickly realise they have gathered at the very spot where a cycle race ends. What's more, the event is accompanied by blaring music.

"It was super loud," says Julia Acker (St John's, Second Year), a Biochemistry PhD candidate. "And there we were trying to have a really profound discussion about Stoicism." Did they complain about the noise? Did they move? "Not at all. We laughed and carried on talking over it. Through Stoicism we learn to accept what is happening around us and make the most of our own personal strengths."



Welcome to the Aurelius Society, which Acker discovered at the Freshers' Fair last year. "I was very surprised to see a university society centred on Stoic philosophy – it is something I had already thought about before coming to Cambridge, but I didn't think it would be a common interest among students!"

The Society itself was new, started by Dhruv Makwana (Trinity, Third Year), a member of the global Aurelius Foundation. Named after the Roman Emperor Marcus Aurelius, who sought to apply the principle of the ancient Greek and Roman philosophy of Stoicism to his own life, the Foundation urges its members to "take an enriching journey of education, awareness and enlightenment to see the Stoics in action".

The Aurelius Society has rapidly found a niche in Cambridge, attracting like-minded people, as Acker explains. "There is a lot of misconception and cliché around Stoicism, but the first turnout after the Freshers' Fair was amazing, and many still attend regularly. We meet in small discussion groups of seven to ten people – a good number for privacy and confidence. We cover huge topics, such as identifying those



things in life we can control and those we can't, the importance of sharing, and charity. The conversations can become very in-depth – it's definitely not small talk!"

In addition, the society also hosts social and speaker events. The focus in all gatherings is on understanding the principles of Stoicism and how they apply to modern life. Acker sees it as another way to train her mind.

"Working in a high-pressure, competitive environment, your mind is always whirring.

You need to train it to become more resilient, more focused on what is important to you in life. Stoicism is so applicable to everyday tasks – and to research.

If an experiment fails, you don't need to take it personally. You think about it logically and move on to the next step."



cambridgesu.co.uk/organisation/aureliussoccamuni

H8, Downing

Theatre director Sir Trevor Nunn wants to know what on Earth Second Year Natural Sciences student Ameera Cunningham is doing in his room.

WORDS JO CAIRD PHOTOGRAPHY MEGAN TAYLOR



It is absolutely overwhelming – chokingly emotional – to step back into this room that I occupied for the whole of my last year in College. It was an amazing year,” says theatre director Sir Trevor Nunn (Downing, 1959). “And so consequently, I’ve got this all-important question: what the hell are you doing in my room?!”

Nunn and Ameera Cunningham (Natural Sciences, Second Year), H8’s current occupant, explode into laughter. In fact, H8 has changed rather dramatically in the intervening 64 years. Where Nunn had his bed is now an en suite bathroom. What was a working fireplace (“The porters would deliver fire ingredients during the winter months,” he recalls) has been boarded up, its role performed today by a large radiator.

But the feel of the room remains the same, thanks to its soaring ceiling and

a pair of tall sash windows that flood H8 with light. “I thought it had so much potential,” says Cunningham. Nunn agrees: “It’s so spectacular and unexpected. Ceiling height can make you feel uplifted and a low ceiling can make you feel crushed. I think these things are extraordinarily influential.”

Cunningham’s desk is in the same spot (between those glorious windows) that Nunn had his. Not that it’s had much use: Cunningham prefers the library. Nunn, on the other hand, admits he was not overly concerned with academic success during his time at Downing.

“I absolutely shamed myself, the College and my scholarship by being awarded a Third in my prelims – and even that was probably scraped,” says the director. “Because right from the word go I came across the Amateur Dramatic Club.

“I met students by the name of Derek Jacobi (St John’s 1957), Ian McKellen (St Catharine’s 1958) and Corin Redgrave (King’s 1958), and consequently I was doing several productions in my first year. Of course, what I got at the end of the first year was a Third!”

Such a result might motivate some to change their ways. Not Nunn. “I was non-stop doing theatre, right the way through my third year. During my Finals, I was directing a Marlowe Society production and the Footlights Revue at the same time. So when I was awarded a 2:2, it was a miracle.”

Cunningham’s schedule doesn’t give her much time for extracurriculars – “My memory isn’t amazing so I have to work at it,” she admits – and maintaining her own high academic standards takes a lot of hours, she says, professing

During Finals, I was directing a Marlowe Society production and the Footlights Revue at the same time – so when I was awarded a 2:2, it was a miracle



a desire to eventually move into an MSc in Pharmacology and a career in research. “I’ve had a passion for drug research going all the way back to my A-level chemistry extended project on using graphene and graphene oxide as scaffolds for drug delivery for cancer.”

Nonetheless, she has also recently become a member of the Downing College Boat Club and is “really excited, not just for the fitness side, but also the social side of things”. Nunn scoffs at this news: “But we’re not a rowing College, are we?” Times have changed, Cunningham tells him: “We’re pretty good now, rowing is actually quite popular.” “Gosh,” says Nunn. “We were quite proud of the fact that we weren’t!”

Cunningham’s main pastime, however, is music. “It’s really important for me, I’m constantly listening,” she says. “I have about 2,500 songs on my phone.” Nunn can relate, recalling many a late night listening to records in the room across the quad of his friend Dave Gelly (Downing 1958), who went on to become a respected jazz musician and music journalist. Nunn didn’t have a record player himself, so H8 was a place for discussion and debate, mainly about the shows he and his fellow student theatre-makers were involved with. “I had lots of wonderful conversations in this room,” says Nunn. And it’s clear that those conversations have never really stopped.

Sir Trevor Nunn CBE is an award-winning theatre director. Ameera Cunningham plans a career in medical research.



Biodiversity

Missing notes trace whale loss

Human activities are silencing nature: so what better way to convey the enormity of biodiversity loss than through sound? That’s the thinking behind a collaboration from environmental economist Dr Matthew Agarwala and composer Dr Ewan Campbell, director of music at Churchill and Murray Edwards, who have linked Mendelssohn’s Hebrides Overture with the loss of the North Atlantic Humpback Whale.

In 1829, when the Overture was written, there were around 30,000 whales in the sea – around the same number of notes in the original score. Commercial whaling meant a dramatic decline in the whale population. By 1920, two thirds of all humpback whales were gone.

So Campbell divided Mendelssohn’s score into decades, then scrubbed out notes in proportion to the decline of the whale population as the music – and time – progresses. The result is Hebrides Redacted, with associated film.

“Researchers have been sounding the alarm about the consequences of biodiversity loss for a long time, but the message isn’t landing,” says Agarwala. “Music is visceral and emotional, and grabs people’s attention in ways that scientific papers just can’t.”

cam.ac.uk/hebrides-redacted

In brief

ALGAE POWER

Researchers at the Department of Biochemistry have used a common species of blue-green algae to power a microprocessor for a year – using nothing but ambient light and water. Because it’s made from inexpensive and largely recyclable materials, the system could be replicated to power large numbers of small devices.

ONE GIANT LEAP

Volunteers surveying dormice and bats in trees have discovered a surprising new tree-dweller – common toads. Research led by Cambridge and charity Froglife found around 50 toads in nest boxes and tree cavities at least 1.5m high. Nobody knows yet why they’re there, but the discovery highlights the importance of protecting ancient woodland.

LEGACIES OF ENSLAVEMENT

The University has released a digest of peer-reviewed research into its historical connections to enslavement, including receiving benefactions based on income derived from the slave trade. It will begin to implement the report’s recommendations by creating a Cambridge Legacies of Enslavement Fund, which will fund research, community engagement and partnership activities.

ILLUSTRATION: MICHAEL KIRKHAM

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Dr Alexander Rodnyansky is an Assistant Professor of Economics in the Faculty of Economics, and presidential adviser to Ukrainian President Volodymyr Zelensky. He spoke to CAM in September 2022 from Ukraine, where he has been based since the start of the war.

From Cambridge to Kyiv: the economics of war and recovery

WORDS LUCY JOLIN ILLUSTRATION KATE COPELAND

I've been President Zelensky's economic adviser since 2019. Alongside my work in Cambridge, I sat on the supervisory board of a major bank and provided input on all kinds of financial, macro-economic and fiscal topics. I was used to advising on economics in a relatively stable environment. But that all changed in February.

On day one of the war, everything became very chaotic. Like many others, I suddenly found myself dealing with issues that went way beyond my expertise – arms, supplies, military matters, the media and sanctions. But I knew immediately it would be disastrous for our economy.

Months later, we saw that devastation play out. The forecast was for a GDP contraction of 50 per cent in the worst-case scenario and 35 per cent in the best – so we expect something in the middle. That is a full-blown disaster: many would say you do not even have to reach those numbers for a disaster to be happening. And it reflects, of course, what is happening in our country: business and activity across the whole country is suffering from the uncertainty that comes from the consequences of war.

It's harder to predict what will happen six months from now. At the moment, Ukraine is not investable, and it's difficult to envisage any standard mechanisms through which investment could work. Our capital flows are limited because we don't want our currency to collapse. We need to provide some kind of macroeconomic stability – as much as we can. But we are running a huge budget deficit. Our tax revenues have collapsed and the economy is shrinking, but at the same time, government expenditure has gone up by four or five times for the military sector.

With a huge deficit and a fixed exchange rate – essential if we are to avoid huge volatility – we are on the brink of a first-generation currency crisis. But there is no easy way out. Financial aid from our western partners is happening, but it's slow and fraught with political hurdles. It is not covering our deficit, so we are accumulating a lot of very expensive debt. Our final, worst

option is to monetise the debt: in other words, print more money. That will cause inflation. If inflation skyrockets, we really will have lost all macroeconomic stability.

But we have seen progress. In normal times, exports make up around 45 per cent of our GDP. All the problems I'm describing come from the blockade: it deprives us of the exporting capacity that would otherwise be putting dollars in our reserves, helping us to stabilise our currency. But the opening up of ship routes is a positive development.

Economists have a role to play in wartime, and I've been able to use some of my expertise for the benefit of the country. But luckily, a lot of these decisions are still made correctly without having economic expertise to back them up. Many times, I've observed our president asking the relevant economic questions without the help of an economics professor. Economics provides discipline. It models reality and thinks about how the world and people function. But you don't have to know what a first-generation currency crisis is to figure out that you need more reserves.

We continue to live with uncertainty. I have been very vocal in our Sanctions Group: most of those that have been introduced will play out over time and have a medium-term effect before they start to properly bite. Importantly, we need to limit Russia's ability to export – primarily oil and gas. There is currently a lot of circumvention going on, which is an ongoing concern: Russia's budget revenues are 50 to 60 per cent reliant on energy sales. Personal target sanctions are another tool. They might not stop the war but they could play a part in destabilising the regime, and try to make sure that Russia transitions from this autocratic equilibrium to something that's more democratic.

But we are also looking to the future and to recovery – as much as we can, when any building back could be destroyed immediately. For now, we are deeply grateful for the support we have received from the UK, and from the University: long may it continue.

It became very chaotic. I found myself dealing with issues that went way beyond my expertise – arms, supplies, military matters, the media

Out

THIS IS A NEW PLANET FORMING HERE



SO IS THIS





AND HERE

EVEN THIS TINY ONE HERE



of this world

Want to know the meaning of life, the universe and everything? The Leverhulme Centre for Life in the Universe might just have the answer to the biggest questions.

WORDS VICTORIA JAMES IMAGES JAMES WEBB SPACE TELESCOPE

Previous

Carina NGC 3324

An open cluster of stars in the southern constellation, Carina, located 9,000 light years from Earth.

The cloud-like structure of the nebula along the bottom contains ridges, peaks and valleys – very similar to a mountain range.

← NASA, ESA, CSA, STScI

These days, we have a pretty decent understanding of the functions of life, but when it comes to understanding how it started, we know almost nothing,” says Nobel Prize-winning astrophysicist Didier Queloz, the Jacksonian Professor of Natural Philosophy. “It’s like having a car and knowing how to drive it, how to steer, how to brake, maybe how to do some repairs, but you don’t know how to *make* it. That’s the situation we are trying to solve. But we’re not dealing with a car engine – we’re trying to develop a rational, fact-based approach to something that’s incredibly profound.”

The answer? The Leverhulme Centre for Life in the Universe, the result of a major grant of £10m over 10 years. It’s based at Cambridge, and will collaborate with institutions around the world, including ETH Zurich, Harvard University and the Centre of Theological Inquiry in Princeton, New Jersey. And critically, seeking to understand our place in the cosmos will be putting physicists, chemists and astrobiologists in dialogue with philosophers, theologians and pure mathematicians.

Scientific research on life requires a deep understanding not only of what life is, but what it can be. We need to expand our intellectual horizons

“This enquiry is something that’s ancient,” says Queloz. “If you go back to the history books, there’s a lovely quote from Epicurus, from 300 BCE: ‘The worlds also are infinite, whether they resemble this one of ours or whether they are different from it.’ The idea that we are one among many, and that there will be many of us, was already on the table. And this idea makes sense because it’s clear it is connected to our place in the universe. All through history, all these revolutions in thought have been about trying to place us into context.”

“There was already collaboration between the University’s two schools of Physical Sciences and Biological Sciences, but someone had heard there was a person in Arts and Humanities who was working on this question,” says the Starbridge

Associate Professor in Theology and Natural Science, Reverend Dr Andrew Davison – a man whose intriguing job reflects a quirky career. “I was invited to a lunch at Trinity and Didier had cordoned off a space where we could all sit in a gaggle and talk. We all recognised we had to get people talking to one another, asking questions and having a cross-fertilisation of ideas that hadn’t been happening up until then.”

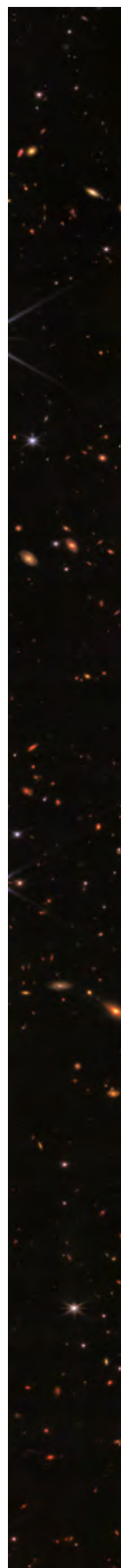
Davison, whose first doctorate was in Biochemistry before becoming a theologian, recently garnered global coverage when he shared details of his participation in a NASA-sponsored programme debating the societal implications of finding life elsewhere in the universe. (“Heavens above: NASA enlists priest to prepare for an alien discovery” was one excitable headline in *The Times*).

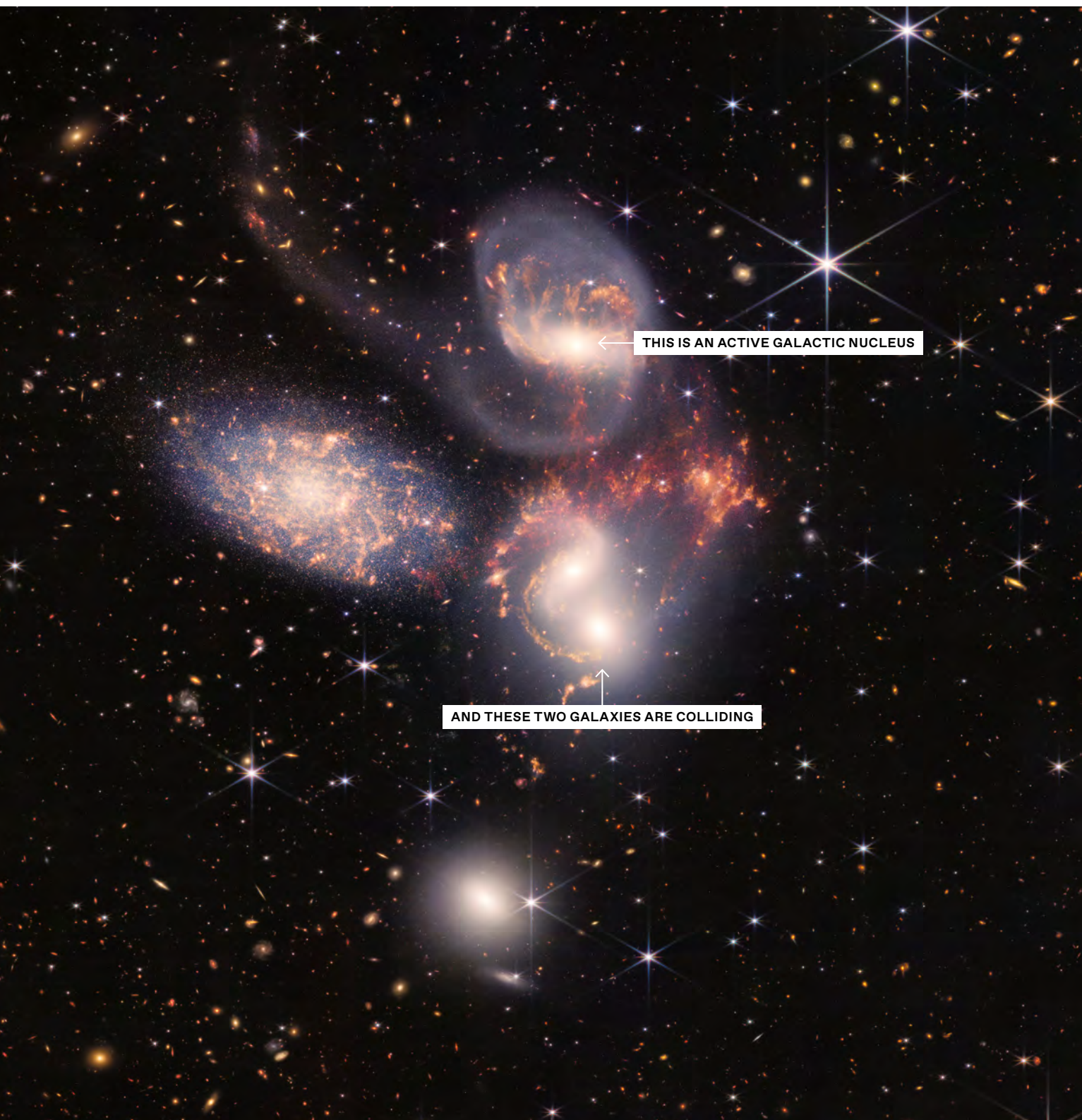
The result of that initial sharing of ideas – and many subsequent conversations – has shaped the Leverhulme Centre’s focus. The team will examine four key questions: what are the chemical pathways that led to the origins of life? How can we characterise environments on the Earth or other planets that could have acted as the cradle for prebiotic chemistry and for life? What observational facilities and methods will enable investigation of bodies beyond the solar system? And how can philosophical and mathematical concepts refine understanding of what is meant by ‘life’?

Of course, the marriage of philosophy and mathematics with science is an ancient partnership. “Reflection on human life is a crucial feature of human scholarship throughout the centuries,” says Queloz. “It is, in essence, what makes us human in the first place. So scientific research on life requires a deep understanding not only of what life is, but what it can be. We need to expand our intellectual horizons.”

Davison agrees. “Those of us involved from Arts and Humanities want to look at the concepts the scientists are using and then consider what philosophical and other humanities disciplines have got to offer that might constructively disorientate, reorientate or excavate what some of those ideas mean,” he says. “That might then offer new ways of conceptualising some of the scientific problems and questions.”

The obvious question is: what is life? “It’s not like that has ever been the sole purview of the





Above

Stephan's Quintet

A visual grouping of five galaxies, of which four form the first compact galaxy group ever discovered. Using its Mid Infrared Instrument (MIRI), the James Webb Space Telescope offers new insights into galaxy evolution.

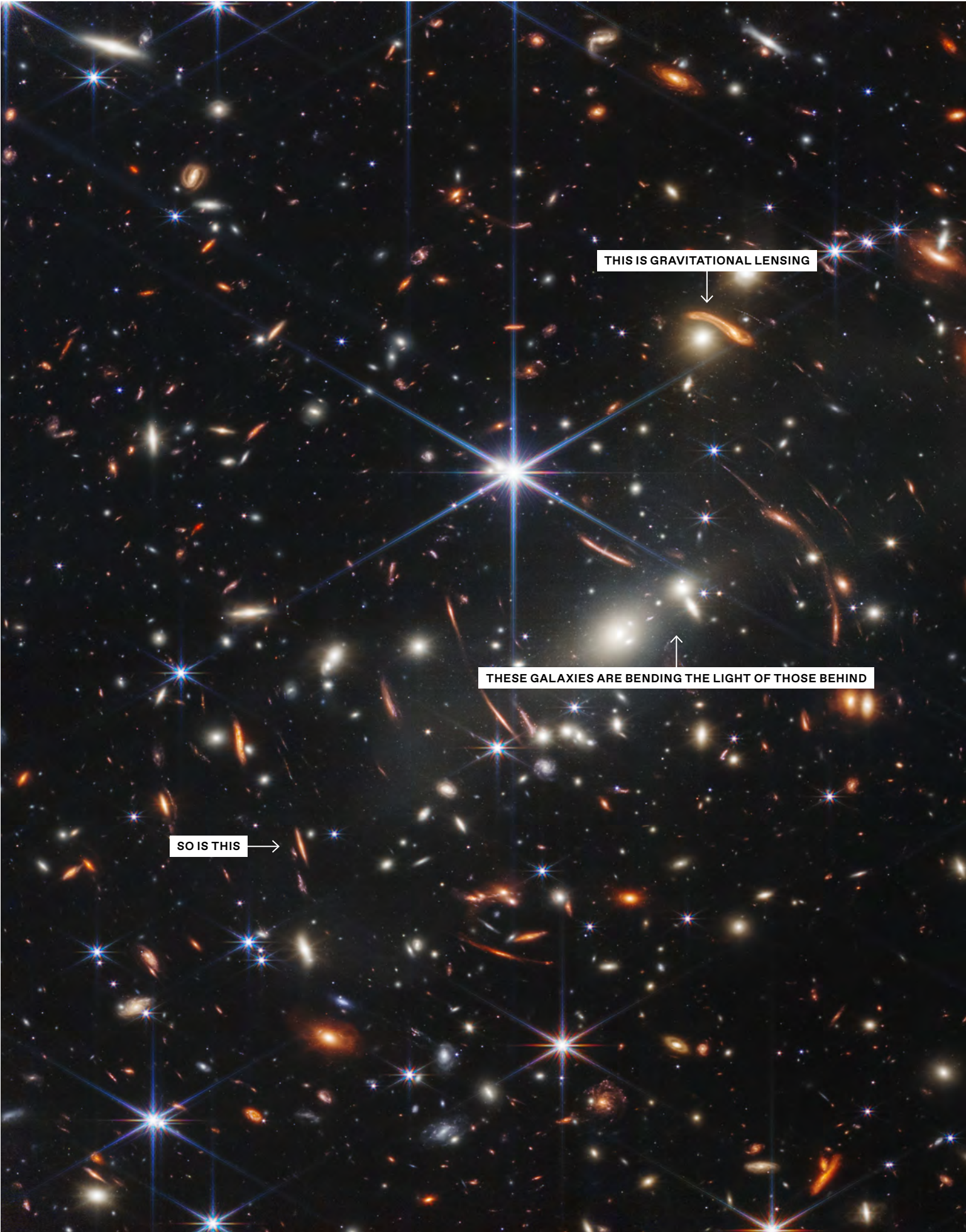
↑ NASA, ESA, CSA, STScI

natural sciences,” says Davison. “Novelists, poets, painters and dramatists are interested in the nature of life. Philosophers and theologians are, too. So our goal with the new Centre is to go further than that. For example, what do we even mean when we talk about an ‘origin’? What do we mean when we talk about a ‘pathway’? By considering some of these categories from new angles, can we open up new ways of thinking?”

The science is accelerating fast. Recent breakthroughs and current research are

redrawing the boundaries of what we know. Queloz was at the forefront of that acceleration when, in 1995 and still only in his 20s, he and Michel Mayor discovered the first exoplanet orbiting a sun-like star – for which the pair received the Nobel Prize in Physics in 2019.

“Most of the media questions we had at the time were: ‘Is there life on that planet?’,” Queloz recalls. Today, there are more than 5,000 such planets known in nearly 4,000 distinct planetary systems – most discovered by NASA’s Kepler Space Telescope, now retired. ›



THIS IS GRAVITATIONAL LENSING



THESE GALAXIES ARE BENDING THE LIGHT OF THOSE BEHIND



SO IS THIS





Opposite

Webb's First Deep Field

The first operational image taken by the James Webb Space Telescope, the deep-field photo shows a cluster of thousands of galaxies in the constellation of Volans. It is the highest-resolution image of the early universe ever taken.

← NASA, ESA, CSA, STScI

One of Kepler's most remarkable successors is the James Webb Space Telescope, launched in December 2021, whose first images have already changed how we see the cosmos. The telescope is able to peer 'back in time', capturing light that's more than 13 billion years old – and the resulting images include views of some galaxies formed merely a few hundred million years after the Big Bang. And the current Perseverance mission to Mars is discovering geological records that will shed light on whether the processes that made life possible on Earth might be viable elsewhere.

Amid all these advances, the purpose of the new Cambridge Leverhulme Centre is not to "do the science, but to enable the science", as Queloz puts it. "It's to ask if we can all learn something new together; if we can develop a new way of thinking. Its purpose is to help us all uncover something we would not have thought of alone."

Any discovery of evidence of life elsewhere in the universe will have great impact upon how we understand our own place in that universe

Those questions fielded by Queloz 25 years ago about life on distant planets haven't gone away. But in the future, they'll be answered not only by physicists such as him, but by theologians such as Davison. "Any discovery of evidence of life elsewhere in the universe will have great impact upon how we understand our own place in that universe," he explains. "And most of the world's population will orientate their response to that big question within the framework of one world faith or another.

"My work has been to say: 'Let's try and get ourselves as prepared as possible for that; how can we have thought through some of the implications in advance', so that if the news breaks tomorrow we're not going from a cold start."

While such questions might appear framed by the notion of intelligent, or at least sentient life, the focus of the Centre is at the far opposite end of the biological spectrum – on the emergence of the first cell, what Davison calls "the transition out of the non-living into the living". And here is where the Arts and Humanities collaborators in the Centre aim to offer one of those fundamental

re-evaluations of scientific definitions.

"As the scientists plot the stages of this journey into 'aliveness', some of the other scholars involved are looking to interrogate what 'aliveness' is," says Davison.

"The mathematics of ordering can help us think about how we measure that transition," he continues. "The concept of 'aliveness' can draw fruitfully on mathematical measurement theory. It can draw on deep historical ideas about analogy – how you stretch words to cover more than one thing. In theology, Thomas Aquinas discusses what it means for water to be 'living', for instance. We're talking about really big, blue-sky questions."

Fittingly for an institution that questions and problematises definitions, the new Centre will not have a physical, bricks-and-mortar existence. Instead, it will fund PhD students, postdocs,

senior fellows, visiting researchers and a series of collaborations. Currently in planning is a new MPhil course about life in the universe, to train the next generation of scientists. "The vision is ambitious and long-scale," says Queloz.

And the Centre aims not merely to facilitate invigorating – potentially revolutionary – debate between scientists and their humanities counterparts: at the heart of its mission is communication with the public, "because we're very aware that trying to understand the origin of life touches something related to the true meaning of life," says Queloz. "The impact of scientific research on society is enormous, and exactly what will be done with what we learn is up to future generations. But the question of life's origins brings more than simply knowledge. It touches on profound spiritual elements of: 'Why life?'; 'What is the purpose of life?'; and 'What is the future of life?'"

"For the whole history of mankind, literature, culture and art have addressed these questions. We at the new Leverhulme Centre for Life in the Universe believe that combining the arts and sciences has to be part of our fresh way of thinking." ©

For more on the Leverhulme Centre for Life in the Universe, visit lclu.cam.ac.uk

Encore! Why performance is good for you – even if you’re not good at it

National opera. West End show. An appearance on Jools Holland’s *Later*. Or down the pub on karaoke night. Wherever you do it, performance is proven to have benefits that last long after the final chord has rung out.

WORDS JO CAIRD PHOTOGRAPHY TOBIA NAVA

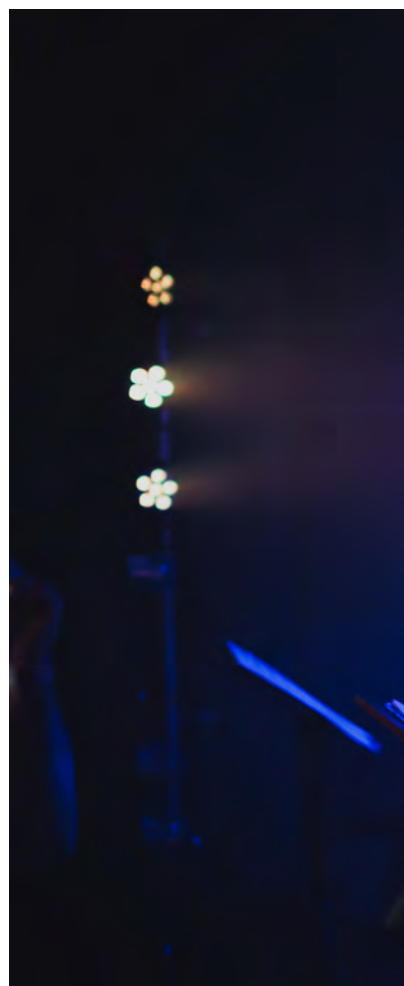
So your recorder is squeaky and your bowing is scratchy and maybe you can’t hold a harmony – or even a tune. No matter! Humans need music. You need music. And that need for music – and performance – can be traced back to the very earliest human societies.

Yet it’s easy to lose sight of our inherent musicality when society tends to exalt musical talent and expertise. “We’ve got this aestheticised notion of what music should be,” says Ian Cross, Emeritus Professor of Music and Science and Emeritus Fellow of Wolfson College. “That it’s got to be beautiful.” In fact, he argues, that’s not the case at all. “Music is for wellbeing. That’s what it is. It’s got to be fun. Beauty is something that just falls out of it having been fun.”

Or rather, it can do. There are plenty of examples of musical performance that we might hesitate to call beautiful, but which undoubtedly foster a sense of wellbeing in their participants. Take crowds singing along at a football match, or a rendition of Happy Birthday at a child’s party: “It’s not the sort of thing you’d actually want to listen to, but it’s definitely music,” says Cross.

Because what matters isn’t only the quality of the sound; it’s also the social interaction that goes into creating it. The social aspect of performance is something that anyone taking part in group music-making feels instinctively, but it’s a phenomenon for which there are also increasing amounts of hard data. Numerous studies demonstrate that making music with other people makes you feel better about both those particular individuals and people in general, says Cross. Music making is an empathy booster.

He gives the example of a study where strangers were paired up and given one of two tasks to do together: making some rudimentary music or building a tower out of blocks. The way they interacted with each other, including unconscious mirroring movements of their bodies, was analysed before and after the task, with striking results. “We found that, after making music together, people tended to behave a bit more like friends,” says Cross, “since when you’re making music together, you’re in time with each other. That does two things: it guarantees that someone is cooperating or is prepared to cooperate. It’s also an indication that they’re like you. So, you get this experience of someone behaving as you behave and showing signs that they’re happy to cooperate with you. That’s a pretty good reason for liking them.” ›





SOFT CRUNCHY LANDING
 DRUMS **MALLORY BEECHEY**
 BASS **PETER SCOTT**
 GUITAR **FELIX ASARE**
 KEYS **GABRIEL MARGOLIS**
 VOCALS **RACHEL OYAWALE**
 TRUMPET **FINLAY WAUGH**
 TROMBONE **JAMIE SCOTT**
 ALTO SAX **MATTHEW NIXON**
 TENOR SAX **NIKLAS FREUND**



**Go Funk Yourself
 at the Portland Arms
 April 2022**

The Varsity event featured two Cambridge bands in a 'funk off' with Oxford University's Green Bean Machine.

"The atmosphere was vibrant and electric; one of those occasions where everyone in the crowd had just as much fun as everyone on stage."

Rachel Oyawale





The social aspect of performance is something that anyone taking part in group music-making feels instinctively, but it's a phenomenon for which there are also increasing amounts of hard data

This keys into the origins of music itself, says Dr Peter Harrison, University Assistant Professor in the Faculty of Music and Director of the Centre for Music and Science. “Music has strong pro-social effects,” he says. “Potentially one of the reasons why music evolved in the way it did was to foster social relationships between people, to keep communities well-bonded and happy.”

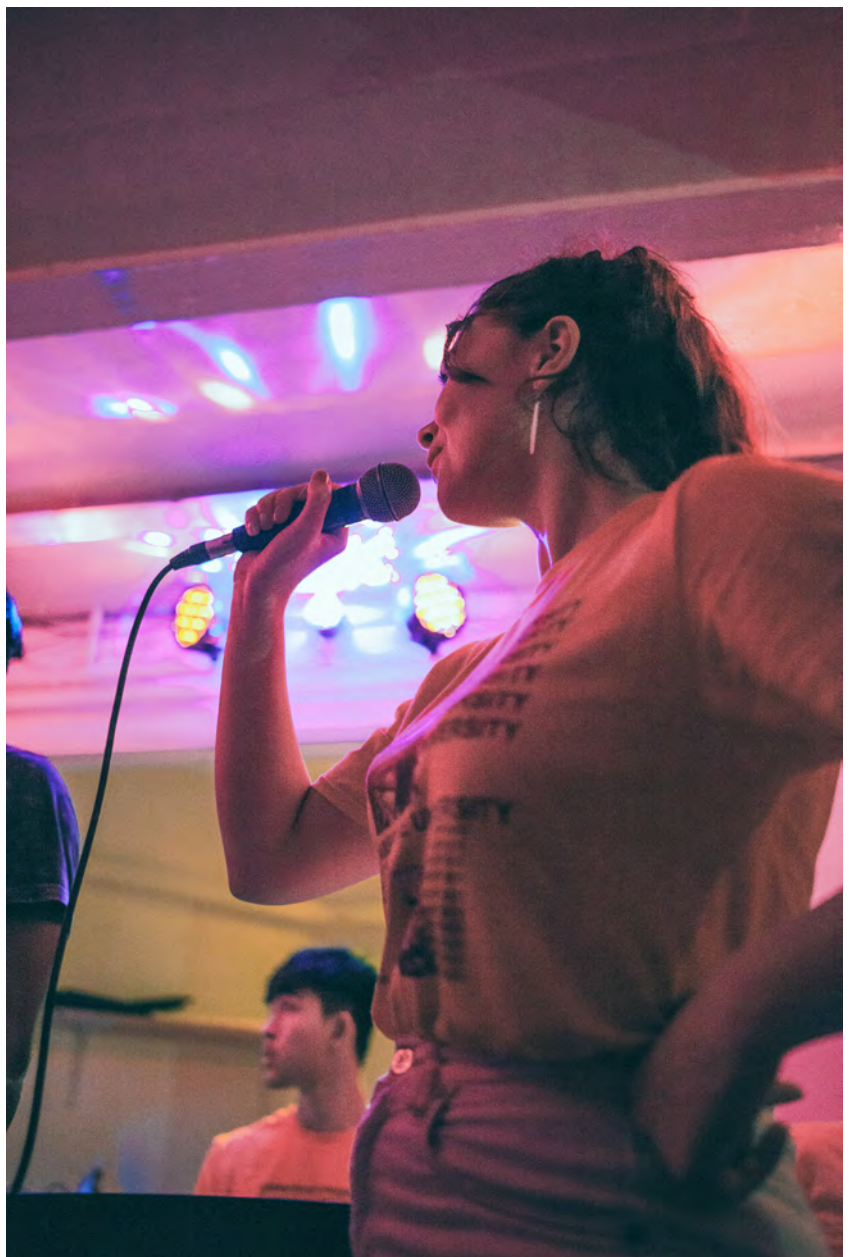
And music is particularly effective for this type of group bonding because it works at a scale beyond that of individual encounters. “Music-making allows you to develop these positive relationships with many people at the same time,” says Harrison, “whereas you can only talk to one or two people at once.”

That’s certainly been the experience of flautist Lottie Anstee (Churchill 2019) who, as well as reading Music, threw herself into all manner of extracurricular performance opportunities during her time at Cambridge. “Music is a great way to build communities of people,” she says. “Just being able to play together creates a sense of bonding, even without getting to know them. I love solo performance, but it never had the same feeling as being able to play with a massive group of like-minded people.”

Performing offers other benefits too, says Anstee, who this autumn began a Master’s degree in Psychology at Goldsmiths, University of London, specialising in the psychology of music. “There are so many skills that music enhances. One of the biggest ones for me has been confidence: I’ve definitely felt that throughout my time at Cambridge, constantly putting myself out there and being able to build on that.”

It’s these sorts of skills – confidence included – that the University hopes to foster through the work of the new Centre for Music Performance (CMP), which formally launched this academic year. “You develop really wonderful, world-class technical skills in whatever academic discipline you follow as a student at Cambridge,” says Simon Fairclough, Director of the CMP. “But actually, in order to maximise your contribution to society or in the workplace there are other skills that are needed as well: social skills; the ability to work with other people; and the ability to appear confident, even if you might be bricking it slightly. And so many of those skills can be developed through the act of taking part in musical activity.” ›





CAMBRIDGE UNIVERSITY

HIP HOP SOCIETY

VOCALS **VINCENT MASTIN**

VOCALS **REECE D'SOUZA**

VOCALS **ELIZA PEPPER**

GUITAR **FELIX ASARE**

DRUMS **WYNN TASKER**

BASS **GABRIEL DUVAL**

KEYS **FREEMAN LOK**

Hip Hop After Dark **at Union Cellars** **May 2022**

Quasar's final Hip Hop After Dark of the year, held in the Cambridge Union Cellars, was a night of laughs, lyrics and live music.

"The night really showed me the importance of having spaces which encourage the expression of creativity."

Vincent Mastin

Broadway & Beyond!
at Cambridge Junction
June 2022

A collaboration between Cambridge University Sinfonia, the University Musical Theatre Society and members of the University Jazz Orchestra, conducted by Jess Hoskins.

“It was a real thrill to bring together so many talented performers from different parts of Cambridge’s musical scene.”

Jess Hoskins



HOSTED BY CAMBRIDGE UNIVERSITY CENTRE FOR MUSIC PERFORMANCE

FEATURING CAMBRIDGE UNIVERSITY SINFONIA

WITH CAMBRIDGE UNIVERSITY MUSICAL THEATRE SOCIETY

AND MEMBERS OF CAMBRIDGE UNIVERSITY JAZZ ORCHESTRA

CONDUCTOR JESS HOSKINS



There is a really important preventative role for activities like music in puncturing the stress bubble that can very easily develop for young people going through a hothouse environment like Cambridge

Cambridge, of course, is renowned worldwide for its musical output, including the University's centuries-old choral tradition, what Fairclough calls "the crowning glory of music at Cambridge as it exists today". The CMP will play a vital role in maintaining and enhancing opportunities for the University's most able young musicians, but it also seeks to create a range of new performance opportunities, across different genres and ability levels. Building on the concept that music transcends words – developing students' teamwork, resilience, empathy and emotional intelligence – the Centre hopes to inspire generations of future students to perform, and experience music as a core part of what it means to be at Cambridge and life beyond.

It's about mental health too. "There is a really important preventative role for activities like music in puncturing the stress bubble that can very easily develop for young people going through a hothouse environment like Cambridge," says Fairclough. "If you're singing, for example, you're filling your lungs with air, thinking about your posture and re-engaging with your physical body rather than your brain – as well as using a different part of your brain."

And what about music's effect in general on that brain? Spend enough time engaging in musical activity, and you might even see tangible cognitive benefits, says Harrison. "Musical experiences are associated quite strongly with various kinds of cognitive effects in different domains. That's something that many studies show over and over again. You'll find that, on average, people who've spent several years doing music lessons will have higher IQs than people who don't. And you'll find children studying music do better at maths. We don't know for sure that music *causes* these effects, but it's considered a strong possibility."

This is because when we use our brain in certain ways repeatedly over the course of time, real structural changes occur, just as they do in any other muscle that's exercised. That might lead to improvements in areas such as memory function, fine motor control and emotional processing, all of which can have positive knock-on effects when completing other tasks.

The effects are most pronounced in children, because younger brains are more adaptive to the structural changes caused by repeated musical activity, but research has shown that this process does continue throughout our lives, and even into old age. In any case, says Harrison, "students at undergrad age are definitely still young enough to be experiencing some kind of benefit".

Not that we should be getting too hung up on this particular potential impact of music on our lives, Harrison is keen to add: "There are other useful benefits to music in its own sense. We shouldn't have to rely on justifying it through the claim that it's going to make us better at other things. There should be something more integral about it."

Fairclough is of the same mind. By facilitating a wider uptake of music at Cambridge, among both students with prior musical experience and those with none at all, he believes the CMP is helping to ensure that the full human experience is being nurtured at the University.

"We are incredibly proud of the many world-class musicians who launch their careers at Cambridge, but you don't need to be operating at the highest level in order to get full value out of musical development, or indeed any kind of performance," he explains. "This is about a rounded education and students discovering passions that will be with them throughout their lives." 🎵



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WORDS **MEGAN WELFORD** PHOTOGRAPHY **SARA AGUTOLI**

Genomics – the study of every living thing’s genetic material, and how that information is applied – has the potential to find treatments for incurable diseases. So why is the public so suspicious?

“The problem is that we, the public, just haven’t been told much about it, nor been invited in to have a conversation,” says Professor Anna Middleton, social scientist, genetic counsellor and Director of the Kavli Centre for Ethics, Science and the Public at Cambridge. “The genome is the collection of around 20,000 genes that make up each human being,” she says. “It’s what, who and why we are. And genomic medicine offers mind-blowing possibilities in the diagnosis, prediction and prevention of disease.

“If you bring in genetic information to tumour profiling, for example, you can shape exactly the kind of chemotherapy you offer,” says Middleton. “You can personalise treatment to that individual. You can end the diagnostic odyssey for children with unusual conditions, who go through repeated, sometimes invasive investigations – MRI or biochemical, for example – over many years. The vision is we will pick up disease and prevent it. But it needs to be presented carefully.”

Which is where Middleton – and the Kavli Centre – come in. Middleton studied genetics as an undergraduate, did a Master’s in genetic counselling, then discovered something during her PhD that would change the course of her career. “I was part of the team that identified ‘the deafness gene’ – at the time, we thought there was only one – in the late 1990s. It was incredibly exciting: the scientists were going to cure deafness! I went out into the community to talk to people, and got a huge shock when I discovered how frightened Deaf people were of the idea of genetics. It made me realise that so much of science is done with one missing piece – the patient. And it redirected me into a career of social justice.”

After her PhD, she became a registered genetic counsellor, working with families dealing with difficult decisions as a result of genetic testing. “It’s about helping people make sense of what’s right for them. Being curious, together.” She would go on to co-write the curriculum for genomic counselling training in England.

Working in the NHS gave Middleton a clear understanding of what was happening on the ground, while the UK Government and industry surged ahead in its mission to become a world leader in genomic medicine. “For the past 15 years or so the Government, industry and funders have been ploughing cash into it,” says Middleton. “The rationale is to increase knowledge, power, investment and skills, and it’s worked – more and more health professionals are ordering genetic tests and using them to diagnose and predict disease as well as to define treatment.” >

THE KAVLI CENTRE

A key part of the Kavli Centre’s role is involving the public in the ethical debates raised by cutting-edge science such as genomics, but also in AI and Big Data. Professor Middleton says: “It’s about closing some of the gaps that exist between healthcare and patients; science and the public; those who are building AI and those who might be most disadvantaged by it. We are creating a space and actively bringing in those whose voices we don’t often hear, so that artificial intelligence can be used to improve society, not widen the gaps. And so that we understand the barriers to coming to a shared understanding of data, as something that belongs to all of us, and serves us all.”

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RAPID ADVANCES IN GENOMIC MEDICINE MEAN WE ARE JUST A FEW YEARS AWAY FROM ROUTINE SEQUENCING OF EVERY NEWBORN

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Nonetheless, she worries that we are powering forward before answering key questions, and in some cases, before even asking those questions. “Questions like, what are we testing for? What does an individual’s result mean for relatives? What services and support are there for families with a diagnosis, at different ages and stages?”

“The problem is, we don’t exist in a theoretical framework, and we don’t live in an equal society. The reality is that there is unequal access to healthcare; there’s a postcode lottery in the NHS. If you need care for your special needs child, you have to fight to access it.”

These issues are amplified if you come from a particular background. “Deaf people I’ve worked with hold back from going to see their GP,” says Middleton, “because they’ll need a sign language interpreter, and they’re too difficult to get. It’s the same for other community groups and languages.”

And your place in society impacts your trust in whether the society has your interests at heart. “When we asked

people from minority ethnic groups in the UK what they thought of when they heard the word ‘genetics’, they said eugenics, crime and police databases. We need to recognise that.”

And it’s true that our genetic information is finding its way onto police databases, as we use DNA testing to map our ancestry. “The business model of some ancestry firms is to sell data to pharmaceutical companies; for others, the companies post it onto publicly accessible websites. How did police in the US catch the Golden State Killer in 2018? They used DNA from an ancestry testing site. Have we had a global conversation about that?”

Rapid advances in genomic medicine in the UK mean we are just a few years away from routine genome sequencing of each and every newborn child, says Middleton. And if we are about to sequence every newborn, how long before we sequence during pregnancy for all serious disease? This raises more urgent questions. “At what point would we test? What do we mean by serious disease? Do we mean only life-threatening disease? Or serious but actionable disease? Can you opt out of testing? You certainly can’t if you don’t know it’s happening.”

She cites a blood spot test given to her son, Charlie, at six weeks, where she was told, ‘Congratulations, your son doesn’t have Duchenne muscular dystrophy’. “They hadn’t asked me! And I wouldn’t have wanted to know. Now, the direction of travel is to develop AI – chatbots in waiting rooms – to manage consent. But we know about the biases in AI, such as lack of diversity in who’s created the coding. There is such a push for shiny new technology, but I would have preferred an old-fashioned conversation, with a kindly nurse who had time to explain the implications of testing

so I could make an informed decision about it. There is a lot that could be fixed in the NHS with a decent investment in the nursing infrastructure.”

Indeed, more thought needs to be given to how we operationalise genomic medicine, she says, from clinical pathways to upskilling staff. “The move towards ‘Generation Genome’ requires an entire shift in the patient care model. For instance, if you are found to have a lump in your breast, the breast surgeon is interested in you. But if, as part of your treatment, a genetic test shows that your breast cancer is an inherited sort, then they need to be interested in your sisters and your children too, and the NHS is not readily set up for that. If the test shows that you have a fault in the BRCA gene – a high indicator of breast cancer – whose result is

that? Who should you share it with in the family? There was a case where this happened with identical twin sisters whose mum had an inherited sort of breast cancer, and one sister wanted to know whether she had the faulty gene and the other didn’t.”

Genetic counsellors have training in biomedical ethics and use this to support discussions with patients, Middleton says. “It’s the constant weighing up of doing good versus harm. In that case it was decided that the other sister would have to know as the balance was in favour of being able to save lives through treatment.”

That ethical framework should also incorporate accuracy and risk, she says. “At the moment, a cluster of genes points to a risk of disease, rather than disease itself. And we’re not sure of the degree of risk. There’s a lot we don’t yet understand – we might see scary genes but no disease present, for example. And we’re not sure how genes interact with other genes, or with their environment. How much of this uncertainty should we share? This is a living experiment in which we will only know if we were right in 10 years’ time. Those at the frontline of genetics are basically giving uncertain information about life and death.”

Middleton’s work at the Kavli Centre involves communicating genetic science with humility, so that people will feel able to ask the questions that need to be asked. She leads a team of researchers and engagement experts who study how to connect science and society. She also works with experts from the worlds of film and animation. “We need to meet people where they are,” she says, “and that might be at *X-Men*!”

Because the questions are not a reason to stop pushing at the boundaries of science, she says, but they are a reason to bring the public in, now. “It’s why the Kavli Foundation chose us to lead a Centre at Cambridge. We presented a vision that facilitates intentional connections between scientists and members of the public, so that both can anticipate the ethical issues raised by cutting edge science – together.”



The Johann Sebastian Bach Journey

Photograph: John Butt OBE conducting the Dunedin Consort
at the 2019 J.S. Bach Journey ©Ben Ealovega.

4–10 SEPTEMBER 2023

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Jingle bells. Tinsel. Mince pies. And choirs. But wait! It's not the 25th yet, is it? What's going on? Welcome to Bridgemas, a Cambridge tradition you never knew you needed – until you did.

WORDS CLARE THORP ILLUSTRATION ZOË BARKER



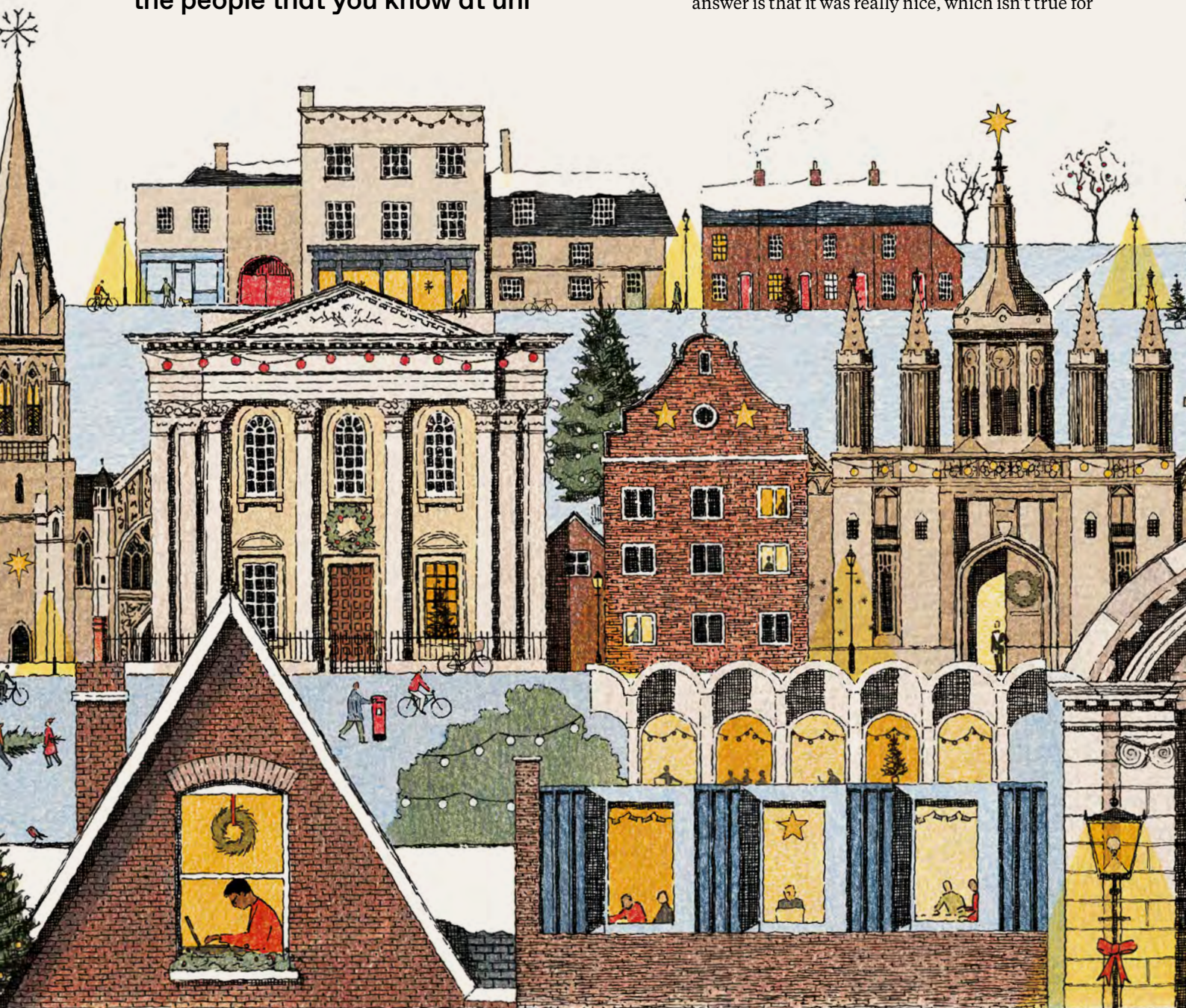
The halls are decked with boughs of holly, twinkling lights and copious amounts of tinsel. The aroma of warm mince pies and mulled wine fills the air. Listen carefully, and you're almost certain to hear someone, somewhere, singing *Silent Night*. Yes, it's beginning to look a lot like Christmas. Except, we've already had one – a uniquely Cambridge Christmas.

'Bridgemas', as it is affectionately known, takes place in November, at the very end of the Michaelmas term, so that students can get festive together before going down for the holidays. Carol concerts and Christmas formals are the usual headline events – but everyone finds their own way to celebrate, from dinners with housemates and Secret Santa exchanges to festive movie marathons and Christmas jumpers.

It's different to celebrating in a family context because you make your own traditions together with the people that you know at uni

"I loved it," says former Philosophy student Rachel Mander (Newnham 2015). "It's different to celebrating in a family context because you make your own traditions together with the people that you know at uni." For her, that meant opening advent calendars in November and cooking a Christmas feast that incorporated everyone's different family traditions. "I'd bring cranberry sauce, while someone from Ireland would insist we needed mashed potato," she says. "It's a nice way of getting to know more about everyone's homes, with everyone sharing different sides of themselves, as well as marking the end of that first term before people disappear."

There is some debate over whether there is an official Bridgemas Day. Some students insist it's 25 November – others say it's whenever you decide it is. "There's some flexibility. You can have your Bridgemas when you want your Bridgemas," says Mander. In fact, that lack of pressure is one of the best things about it, she says. "In January, people usually ask how your Christmas was, and the expected answer is that it was really nice, which isn't true for



Each College embraces Bridgemas in its own way. At Jesus, it's traditional for the Head Porter to lead the carol singing after the Christmas formal dinner

lots of people. But no one is going to ask you how your Bridgemas was; it's unmoored from any expectation, and that frees you up to just see it as a chance to do something fun as a friendship group. Having a low-key version of Christmas is really nice."

For some international students, Bridgemas offers a chance to experience a British Christmas for the first time. "I really like Christmas, but I never celebrate it in the UK because I go home to Milan," says Holly Sheridan (Queens, Second Year), who enjoyed her first Bridgemas last year. "We don't really have turkey and trimmings, so it was great to have a traditional Christmas here – as if I was in a movie or something."

However, Bridgemas is one of those strange traditions that everyone accepts but no one is quite

sure where it started. "It was already pretty entrenched when I was an undergraduate," says Alice Oates (Caius 2011), who has been studying for a PhD at Pembroke since 2019. "Obviously the Christmas carol concerts have been going on for the longest, then other traditions have built up around that. The Michaelmas term can feel very long. You get to the end of November, and everyone just feels very tired. Having something that's light and fun is a nice way to end the term and helps cement some of the friendships you've been making. I always think there's a really warm feeling around Bridgemas."

Oates was College Recorder at Pembroke for three years from 2016, so knows all about the College's specific traditions – including the Dean singing the Hippopotamus song at his Christmas party. "I don't know where that came from, but it happens every year," says Oates. As does a festive book sculpture made by Second Year engineering students – the 'Pemgineers'. Past creations have included a fireplace, igloo and Christmas tree. Then there's the catering department's famous gingerbread house, which has previously been ›



You could experience a Bollywood Bridgemas, with a party hosted by the India Society, or enjoy one of the hundreds of fresh waffles served up at the Belgian Society's Wafflemas event

a painstaking reconstruction of Pembroke College buildings. Although don't be tempted to taste it – it's coated in hairspray to preserve it.

This being Cambridge, Bridgemas is embraced in 31 different ways, with every College having its own traditions. At Jesus, it's traditional for the Head Porter to lead the carol singing after the Christmas formal dinner. Once he has burst into the opening bars of *Jingle Bells*, it's the cue for everyone else to join in. And unique to Jesus is the College's Music Society performance of Raymond Briggs' *The Snowman*, narrated by one of the College Fellows, Dr Anthony Bowen, a former University Orator. "It's an absolute

highlight of the year," says Olly Doggett (Jesus, Second Year). "*Walking in the Air* is always sung by a member of the choir and it's a beautiful, feelgood moment which is unique to Bridgemas celebrations at Jesus. It's a real bonding moment."

And while there are plenty of opportunities to embrace age-old traditions at Bridgemas, it's also a chance to make new ones – and for students to share parts of their own culture. You could experience a Bollywood Bridgemas, with a party hosted by the India Society, or enjoy one of the hundreds of fresh waffles served up at the Belgian Society's Wafflemas event.

"I do think Bridgemas is ingrained in the psyche at Cambridge, but people experience it differently," says medical student Rohan Yesudian (Robinson, Fourth Year), who made a YouTube vlog about his last Bridgemas. "My experience is quite heavily influenced by belonging to the Christian Union, who run the carol service at the University's Great St Mary's Church. We get hundreds of students coming to that over two sittings, and it's quite an operation providing mince



pies and hot chocolate for everyone.” For Yesudian, the early celebrations offer a chance to connect with others over what Christmas means to him as a Christian.

“I’m glad that Bridgemas is a thing because it allows me to share my enthusiasm over Christmas and talk about why it’s important to me personally,” he says.

Of course, Christmas isn’t always a time for celebration. The Cambridge branch of Student Minds – the UK’s student mental health charity – knows that it can be a difficult period for some, and uses Bridgemas to foster a sense of community and remind students that they’re not alone. “We have always had informal socials organised around that time of year so that those who wish to have company always do,” says Sharliny Ratnasingam (Fitzwilliam, Second Year), Vice President of Student Minds.

Unique to Jesus is the Music Society performance of Raymond Briggs’ *The Snowman*, narrated by one of the Fellows

They’ve previously hidden presents around the Colleges for people to find, delivered 20,000 Happy Bridgemas cards to undergraduates and held arts and crafts sessions for students to bond and make gifts for others. “We believe that people feel their best when being in service to others and so we also provide an opportunity for members to be involved in a charitable cause during the festive period,” says Ratnasingam.

The pandemic inevitably put a dampener on some Bridgemas traditions, but everyone hopes things will be back to full festivities this year. “You kind of worry a bit that the fun, silly traditions that students have might get lost because too many undergrads have not really experienced them in Cambridge before,” says Oates. “But I’m sure Bridgemas will persist, even if it has a slightly different form than it did before.”

For those no longer at Cambridge, Bridgemas remains one of those strange quirks of University life that continues to be fondly remembered. “I do miss it,” says Mander. “I miss the slightly ridiculous proportions of it. It felt like I had two Christmases every year.” ©

Can you help CAM discover the origins of Bridgemas? Our Editor confirms that it was unheard of in 1998 at Caius. But is it 10 years old, or 20? Get in touch with your Bridgemas stories and become part of its official history: cameditor@alumni.cam.ac.uk



Beyond repair

As the body's raw materials, stem cells have almost unimaginable potential to repair and regenerate. A new Cambridge Institute may just have the key to unlock that potential.

WORDS MARK FRARY PHOTOGRAPHY ALUN CALLENDER

Stem cells, our body's raw materials, are the ultimate shapeshifters. With their extraordinary ability to develop into any type of cell in the body, their potential is mind-boggling. But unlocking that potential has long been something of a holy grail for biological, clinical and physical scientists.

Now, the Wellcome-MRC Cambridge Stem Cell Institute is breaking new ground in its quest for human repair and regeneration, starting at the very essence of our being – the heart. “There are a million people who have heart failure in the UK and the current treatment regime reduces the load on the heart but can't replace the lost muscle,” says Professor Sanjay Sinha, British Heart Foundation Senior Research Fellow and a Professor in Cardiovascular Regenerative Medicine. “The only real treatment is a heart transplant – but we only do 200 of those a year in the UK,” he says.

Sinha's team is working on turning stem cells into the types of cell that are usually found in the heart: cardiomyocytes, or contracting heart muscle cells, and the epicardium, a thin layer of cells found on the outside of the heart that is vital to its development and repair. The researchers use collagen scaffolds, built by Professor Ruth Cameron and Professor Serena Best of the Cambridge Centre for Medical Materials, which are populated with a combination of heart cells and epicardial cells to create fingernail-sized patches of new material.

The cells then do something amazing. “Normally when you look at cells under a microscope, they just sit there. But these heart patches start beating. The first time I saw it, I almost fell over,” says Sinha.

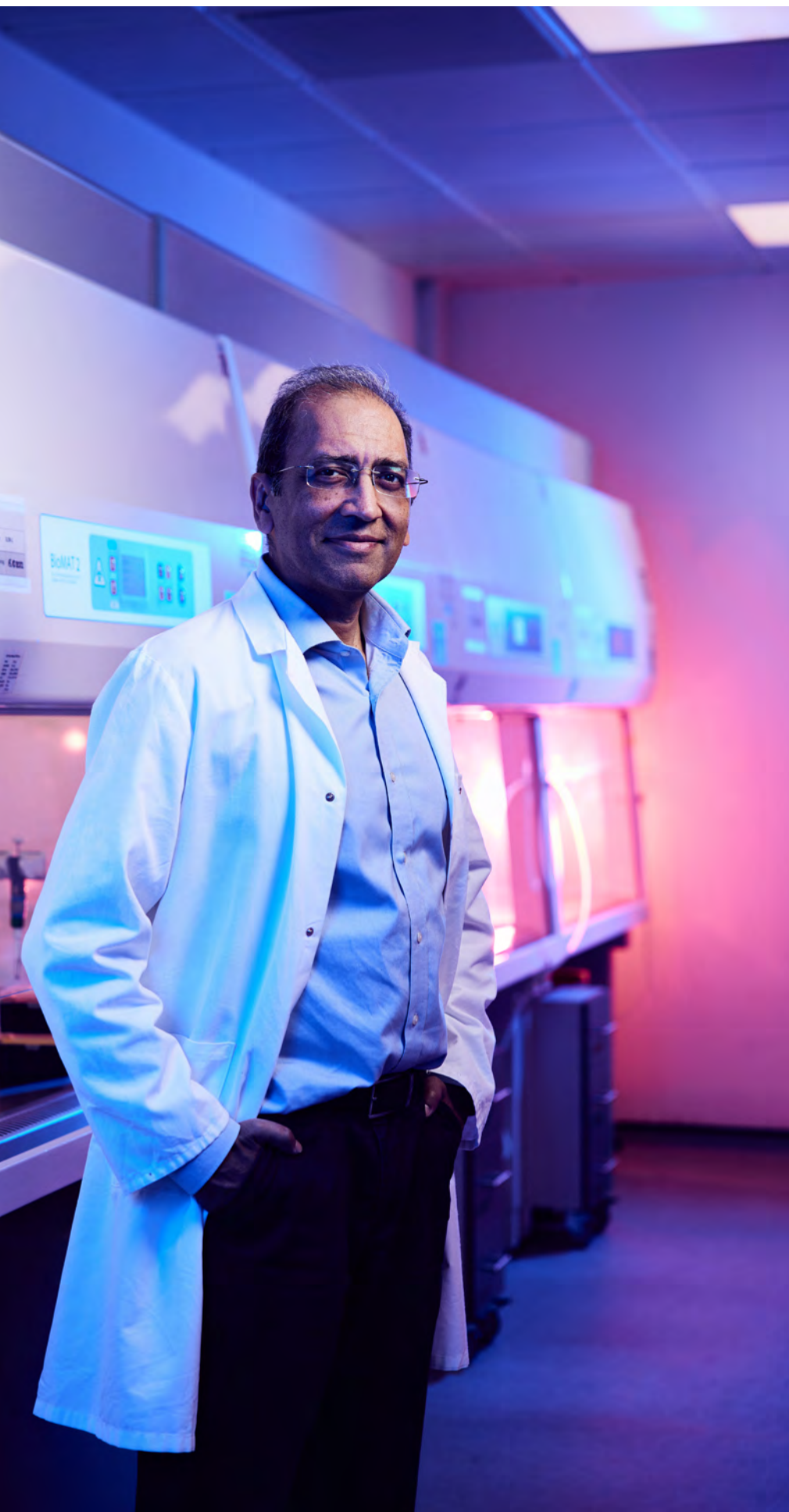
“We are now carrying out studies to see if this patch works and, if it does, we will scale-up from the size of a fingernail to something the size of the palm of your hand. If that works, we could then give that to a surgeon to stitch over the damaged part of the heart.”

The first human trials could be within just five years. “We have shown in models that the cells work. We are currently trying to find out if patches work best and, if they do, we can move quite quickly.” What could potentially follow sounds like science fiction – 3D-printing a completely new heart to order and populating it with heart cells derived from stem cells. That is further away but still achievable, Sinha believes.

Much of the research at the Institute focuses on deciphering and mapping how the development of stem cells happens – something that's particularly relevant to the eight million people in the UK who suffer from osteoarthritis, a condition that often leads to joint replacement. Replacement joint surgery has been described in no less

01





01

Cardiomyocyte patch

Tiny beating pieces of heart tissue are built in Petri dishes using a collagen-based scaffold.

02

Professor Sanjay Sinha

Professor Sinha is a British Heart Foundation Senior Research Fellow and a Professor in Cardiovascular Regenerative Medicine.

03

Sinha Group

The lab's overall aim is to develop new treatments for vascular diseases using a stem cell-based approach.

“Normally when you look at cells under a microscope, they just sit there. But these heart patches actually start beating. The first time I saw it, I almost fell over”

03



The Cambridge Stem Cell Institute offers a tantalising future where people could go to hospital and have their organs fixed using their own cells

a publication than *The Lancet* as the “operation of the century”, but treatments for the next century, if they target early disease, might not require the same level of intervention as a metal hip or knee replacement now.

One of the most interesting areas of focus is the mesenchymal stromal cell (MSC), a cell that can be isolated from various areas of the body. Andrew McCaskie is Professor of Orthopaedic Surgery and Head of the Department of Surgery, and is leading the charge on MSCs. Previously described as stem cells, “these cells are multipotent – they can differentiate into different types of cell – and are easily accessible,” he says, but in fact appear to be important in inflammation by immunomodulation (therapeutic intervention intended to modify the immune response). “In terms of translation to clinic,” he adds, “every adult patient has cells like these in their bone marrow and fat, and a surgeon can easily extract them.”

McCaskie’s team is looking at how such cells can be used to repair cartilage together with a technique called microfracture. This involves a surgeon creating small holes in the underlying bone which brings about cartilage repair – not hyaline cartilage like in the undamaged joint, but fibrocartilage. They are looking to see if MSCs can influence the inflammatory response to improve the quality of the resulting cartilage. “We know these cells have been trialled for use in other conditions,” says McCaskie. “During the Covid pandemic, for example, we were able to get regulatory approval to manufacture MSCs to examine their impact on inflammatory response. We now aim to get approval to evaluate MSCs in osteoarthritis, using the same type of cell and manufacturing process.”

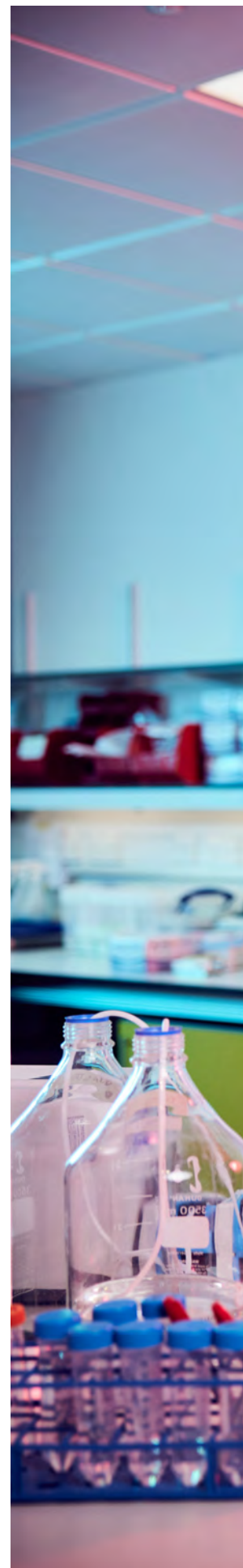
As the population ages, quality of life grows ever more into focus – the research being carried out by McCaskie’s team will be crucial. “People want to live their life well,” he says, and that’s exactly the sentiment driving Dr Fotios Sampaziotis and his team,

looking at how advances in the use of stem cells may also be able to help improve outcomes from liver disease.

Currently, the only treatment for many with liver disease is a transplant, but even then, up to one in five see a return of the disease in the transplanted liver. A major source of the problem is diseased and damaged bile ducts, and one of the most exciting research breakthroughs the team has made is to be able to grow human bile duct cells in a dish and use them to create the first-ever working bile ducts in the lab. “We were convinced our ducts were working when we transplanted them into mice, successfully replaced the animals’ own ducts, and the mice recovered from the operation and survived long-term without any issues. We have now upscaled this to human size and we are trying to gain regulatory approval for first-in-human studies” says Sampaziotis.

Their work is divided into two areas: growing cells in a dish and using them to test new drug treatments; and using stem cells to create organs or replacement organ parts. And one of the problems the team is trying to solve is the growing demand for healthy organs. “When disease gets to the terminal stage, your organ is completely damaged; the only way forward is to give you a new organ. There has to be a donor and it has to be a healthy donor. There is a huge imbalance between supply and demand and,

04





04

Ducts in a dish

Patient tissue and bile duct cell (cholangiocyte) organoids are used to better understand how bile ducts regenerate.

05

Dr Fotios Sampaziotis

Dr Sampaziotis is a UK Research and Innovation Future Leaders Fellow.

06

Sampaziotis Group

Research combines cholangiocyte biology, bioengineering and regenerative medicine to develop new therapies for biliary disease.

“This means that for the first time we can use cell therapy to recover and repair an organ that would normally be discarded”

06



07

Patch clamp microscope

This microscope is used to study neurotransmitter signalling by recording the electrical activity of single cells.

08

Dr Thóra Káradóttir

Dr Káradóttir is a co-lead of the MS Society Cambridge Centre for Myelin Repair.

09

Káradóttir Group

The lab's interests cover neurotransmitter signalling to oligodendrocytes and their progenitor cells, in both health and disease.

“From research over the past 15 years, we know that people with MS have damaged myelin sheaths, and stem cells in the brain respond to this”

07





Unlocking the potential of stem cells has long been something of a holy grail for biological, clinical and physical scientists

unfortunately, a small percentage of people die on the waiting list while waiting for an organ to become available. If we could have ready-made organs in the lab it would solve all these problems.”

The team is also looking at hybrid treatments. When you remove the liver from the body, the blood and oxygen supply to the organ is temporarily cut off. The tiny bile ducts in the liver are extremely sensitive to lack of blood and oxygen and often get destroyed during this time. At Addenbrooke’s, Sampaziotis is using a perfusion machine to circulate warm, oxygenated blood, which minimises small duct damage and buys time for transplanting these organs. Despite these advances, small duct damage remains the leading cause for not being able to use a liver graft, which occurs to half of all livers offered for transplantation.

“We recently had four damaged livers from Addenbrooke’s, which we had to discard due to small duct damage. So we took those organs, and tried to use our cells to repair the damage. We injected our cells directly into damaged ducts and they started regenerating them. By the end of the experiment the damage had been corrected. This means that for the first time we can use cell therapy to recover and repair an organ that would normally be discarded.”

In the next couple of years, he aims to see whether these enhanced organs can be transplanted into patients. “Finding a way

to combine transplantation with regenerative therapy to create an increased pool of available organs would be a gamechanger.”

A little known fact is that the nervous system also features stem cells that repair and regenerate a fundamentally crucial part of our bodies, myelin. This insulating layer forms a sheath around our bodies’ nerves, including those in the brain and spinal cord, which allows electrical impulses to transmit quickly and efficiently along the nerve cells. If myelin is damaged, these impulses slow down, something prevalent in multiple sclerosis (MS) patients.

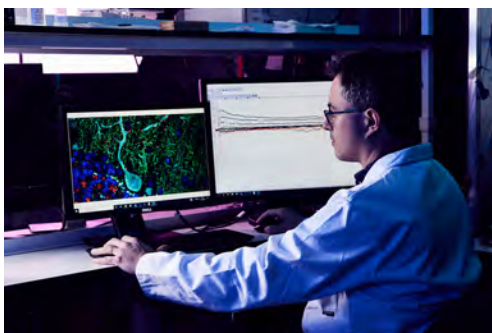
Professor Ragnhildur Thóra Káradóttir, Director of the MS Society Cambridge Centre for Myelin Repair, explains that establishing a Centre around myelin repair in Cambridge has helped design new drugs that help to prevent the immune system from attacking the brain. The focus now has moved from immune therapy to stem cell therapies focused on repairing the myelin itself.

“From research over the past 15 years, we know that people with MS have damaged myelin sheaths, and stem cells in the brain respond to this,” she says. “We have made huge progress in the last decade. In recent clinical trials we have seen regeneration of the cells. It is a proof of concept that this can happen. It is not necessarily going to cure the disease, but if you get the diagnosis it will no longer be the Sword of Damocles.”

Across the sphere of its work, the Cambridge Stem Cell Institute offers a tantalising future where people who suffer from liver disease, osteoarthritis, multiple sclerosis and even heart failure could go to hospital and have their organs fixed using their own cells, or even replaced completely with a new organ created using a 3D printer. Working with these chameleon-like building block cells, they are turning one of life’s miracles into something extraordinarily real. ☺

The Stem Cell Institute is looking for partners and supports. To find out more, please contact Dr Cornelius Riethdorf: Cornelius.Riethdorf@admin.cam.ac.uk

09



“The advice that turned out to be the most useful? Get a bike as soon as you can”

Freshers' events help new students feel at home, before they've even left their own homes. Could you get involved?

WORDS LUCY JOLIN PHOTOGRAPHY MEGAN TAYLOR

We all know someone who arrived at freshers' week with everything sorted – who already knew everyone, had their timetable down and had apparently joined every society going. But for everyone else? Arriving at College for the first time can be terrifying.

To help calm the nerves, every year thousands of freshers are invited to events organised by Alumni Groups. From Dorset to Dortmund, Sussex to San Diego, and Bristol to Barcelona, all have the same aim: welcoming new students into the Cambridge community.

“Freshers' events are an opportunity for new students to ask the questions they might naturally be too scared to ask,” says Janet Myers (Caius 1989), one of the team at the Cheshire and North Wales Alumni Association. “They can learn a little bit about life in Cambridge, network and start to make friends.”

Many events include the chance to hear from, and talk to, current or recent students. “Many of the questions are really straightforward – ‘How will I find my way round? What do I do about dinner? How do I join societies?’” says Myers. “Others arrive clearly a bit apprehensive that Cambridge will be posh and full of people who are so much cleverer than them. What they then see is a normal village hall full of normal people – and the students giving the talks are just normal teenagers. You can feel the anxiety leave the room.”

The events are also great for helping freshers make their first Cambridge friends. “The buzz of conversation always gets louder and louder as the event goes on,” says Myers. “By the end, everyone has their phones out and they're all exchanging contact details. It's nice for them to know other people when they get to Cambridge, whatever course

they're doing. And they also connect with Second and Third Years, so when they get to Cambridge they know someone who knows the ropes.”

Muhammed Alakitan (King's 2020) found his freshers' event an invaluable introduction to life in Cambridge – and the UK. “I live in Nigeria and had never studied in the UK before,” he says. “I began my course in 2020 at the height of the pandemic, so my freshers' event was virtual, but I got so many excellent tips on how to adapt to Cambridge life. Being able to network immediately with other students, including others from Nigeria, before I'd started the course was extremely useful. After the event we immediately started a WhatsApp group.”

“But it wasn't just the networking,” adds Alakitan, who returned to Cambridge this year to begin his PhD. “The freshers' event cleared up some of my questions about how the College system worked, and I got some useful tips on what to bring to cope with the weather! But one of the first pieces of advice I received turned out to be the most useful – as soon as you can, get a bicycle, because it's the best way to get to know the city. I arrived in September so I could observe my Covid quarantine for two weeks, and the first thing I did was get my bike!”

“It's extremely satisfying,” says Myers reflecting on this year's successful event. “When you see students relax during the course of the event you really do feel you're making a difference. Some teenagers can get really worried about leaving home and going into this new chapter in their lives. We help them feel at home so that, before they even arrive in Cambridge, they feel they already belong.”

To find out more about how you could get involved, and to find your nearest Alumni Group, visit alumni.cam/groups





Left to right: Emily Chung, St John's, MPhil Economic and Social History; Raphaël Kalfon, Trinity, Master's Mathematics; and Gabrielle Kurniawan, King's, First Year Human, Social and Political Sciences all benefited from attending freshers' events.



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“*Nine to Five* got me pumped to get going – you can’t let Dolly down”

Comedian Alice Fraser (Sidney Sussex 2007) adapted to a newfound independence with opera, love songs and a turn on the banjo.

WORDS MEGAN WELFORD



Le Nozze di Figaro with Cecilia Bartoli and Bryn Terfel

I remember going for long walks with this on my headphones when I was feeling homesick for Australia – my mum often used to have it on in the car in Sydney when I was little, so it’s my home soundtrack. My twin brother and I had been carers for her since we were 10 or so,

because she was seriously ill with MS, and being at Cambridge was my first time away from home, aged 23. It was strange, gaining independence and losing responsibility at the same time. I felt guilty about leaving but excited to be free, and I threw myself in neck-deep. It made a disproportionately impactful dent in my life, because I was growing down as well as growing up.



9 to 5 Dolly Parton

I was a member of the Hare and Hounds, and this song would get me pumped up to get going, because you can’t let Dolly down. I would go for these immensely long runs with interesting people like mathematicians and geographers.

I loved that although Cambridge life

corralled you into Colleges, the club cut across them. I’d train six times a week, and I still have friends from it today.



Stronger Kanye West

On nights out, this song would always come on at some point – it was the law. Back in Sydney, I didn’t have much of a social life. I’d always felt I had to have worthy hobbies – like choir or study groups – if they took me away from looking after mum. And I couldn’t stay out

too late because I’d have housework to do before I left home in the morning. So, being able to be completely self-indulgent and go out and have fun was special.



Even When I'm Sleeping Leonardo's Bride

This is the greatest love song of all time. It’s an international love story told from opposite sides of the world. One side is always asleep when the other is awake, but the song says ‘I love you even when I’m sleeping’. It comforted me and reminded me that people

still loved me, even in the handover from day to night. The winter time difference is difficult, there’s only about an hour’s crossover between the UK and Australia, so I’d listen to this if I missed a Skype call with my mum or my brother.

Being at Cambridge was my first time away from home; it made a disproportionately impactful dent in my life, because I was growing down as well as growing up



The Bad Touch Bloodhound Gang

I went to a friend’s flat for a cup of tea, but he thought it was a date. He made his move during this song which, if you know the words, was such a bad idea that we both ended up laughing hysterically. We were prepping for a Footlights Smoker. I’d done a bit of theatre at uni

in Sydney and had been really bad at it, but here my pitches kept getting accepted. I’d sing songs on my banjo and perform with much more talented people, with no goal apart from to be funnier each time. I had generally taken myself seriously, but this chance to be silly and bring joy was revelatory.

Alice Fraser is a writer, performer, broadcaster and comedian – and an ex-corporate lawyer.

This idea must die: “The University is an ivory tower”

In fact, says innovation expert Diarmuid O’Brien, ideas created at Cambridge create impact on a global scale.

WORDS SARAH WOODWARD ILLUSTRATION GEORGE WYLESOL

It is ironic that the idea that “the University is an ivory tower” has gained any traction when the very opposite is the case. Perhaps it’s because many of the people in positions of influence today had their university experience some 20 to 30 years ago – and since then a radical transformation has taken place. Universities today operate as the most porous of entities and are the most collaborative of any organisation I can think of. Which makes sense because they can only thrive when they are relevant.

Indeed, few other institutions have such a wide range of stakeholders, from government agencies and public bodies to the charitable and corporate world. At Cambridge, our mission is to contribute to society, essentially to create impact from our research and education. Our commitment to delivering social and economic impact is part of the unwritten social contract with the bodies that fund our research.

It is not enough to create knowledge that exists only within the University, we need to build on the mechanisms to transfer that knowledge out. This isn’t new of course – many homes in the UK will already be benefiting from Cambridge research. It may be the child born as a result of IVF, it could be the battery in your car, or the webcam or the voice-controlled artificial intelligent assistant in your kitchen. Many of the leading medicinal drugs used globally are a result of the Nobel Prize-winning research on human monoclonal antibodies.

What is new is the University’s commitment to the transitional journey, to translating research into commercial development at scale. And industry is looking

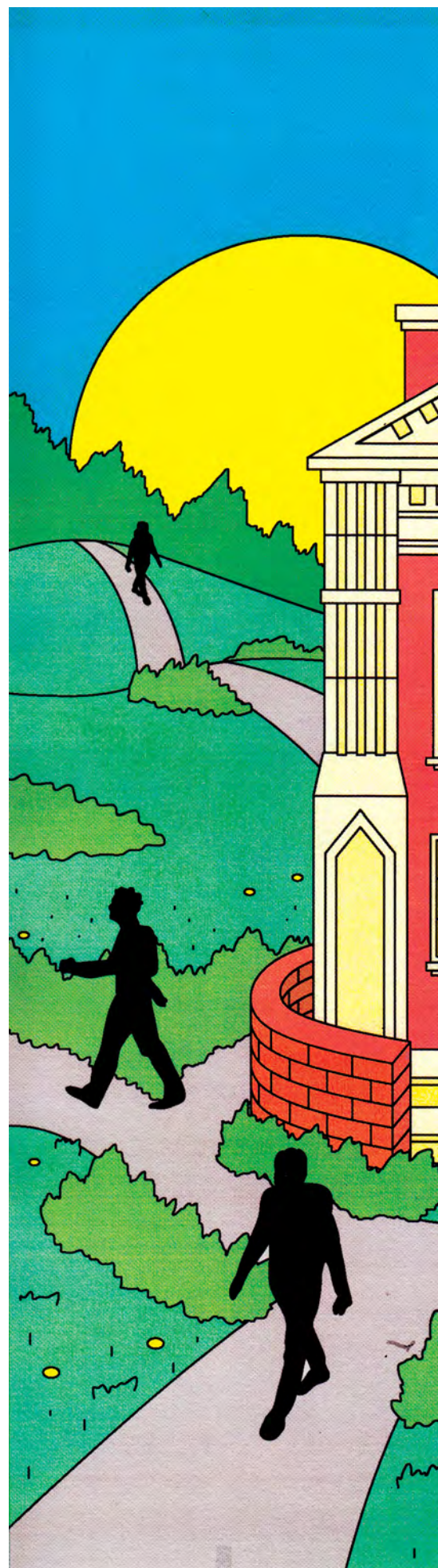
to us to do just that. Unshackled by quarterly profit figures and shareholder expectations, universities are better positioned to translate ideas into reality. To achieve that, we have become skilled at developing spinouts through our network of angel investors, venture capitalists and entrepreneurs.

An exemplar company is Nyobolt, co-founded by Professor Dame Clare Grey and Dr Sai Shivareddy, to commercialise their novel, ultra-high power battery technology. Nyobolt is delivering on a vision of better batteries – that charge rapidly and are recyclable – and closed a £50m funding round that will allow the company to start manufacturing at scale. It will also enable Nyobolt’s first materials manufacturing plant in the UK.

Another spin-out company, Cambridge GaN Devices, is also delivering on this dual mission of transformative technology that can impact the environment. Data centres now account for two per cent of the world’s energy usage. They are developing a highly efficient gallium nitride (GaN)-based integrated circuit for use in data centre server power supplies that has the potential to save more than five megatons of CO₂ emissions each year over the next decade.

Last year alone, Cambridge-associated companies turned over £8.5bn, generating investment of more than £2bn and employing 25,000 people. Much of this activity has no direct economic benefit to the University; instead, ideas created at Cambridge create impact on a global scale.

With 141 countries now represented here, the international student and research base feeds off collaborative projects with other academic institutions globally. The recent





The idea that you can live and work in isolation from what impact you have on the real world simply does not happen in a college world, where everyone exchanges ideas

experience of the pandemic showed the world the vital roles universities can play, through the rapid sequencing of DNA and the development of vaccines.

Indeed, universities are expected to contribute to the big challenges facing us: climate change; sustainability; global health. To do so successfully, they must continue to engage in provocative thinking, yet remain in close partnership with society.

In many ways, the College environment at Cambridge provides the example. Colleges are a melting pot of people from different backgrounds and cultures, studying and working on a huge range of topics from both science and the humanities. The idea that you can live and work in isolation from what impact you have on the real world simply does not happen in a college world, where everyone exchanges ideas.

Yet few people realise how many of those ideas end up having a practical impact on their lives, whether it be through the technological advances or the cultural dividend. They remain largely oblivious to the collaborative nature of the work we do here. That can be a challenge when seeking financing, and as an institution we need to work harder at getting our story across.

Cambridge University is proud to strive for excellence by attracting the most capable students, but it is not elitist. Excellence is empowering, not distancing. Far from pulling up the drawbridge on its ivory tower, the University is the very opposite, committed to impacting on society globally and enhancing people's lives.

Dr Diarmuid O'Brien is Chief Executive of Cambridge Enterprise.

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More information from Mary Stefanini

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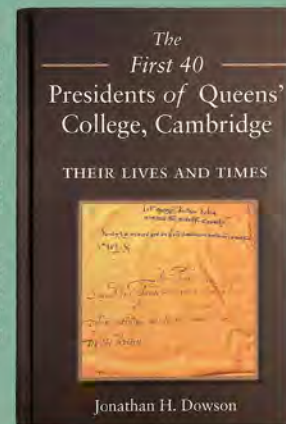
Queens' College, Cambridge

Queens' College, Cambridge, was founded in 1448 by Margaret of Anjou, wife of the ill-fated Henry VI. The first of its 40 Presidents to date was an ambitious Catholic priest; the latest, the eminent economist Dr Mohamed El-Erian, was installed in 2020.

This account traces the history of the College through the lives and times of each of the 40 Presidents in chronological order.

Their varied lives (which encompass martyrdom and preaching at the burning of heretics on Cathedral Green at Ely) illustrate the interactions between the academic community and the social, political and scientific life in Britain over the last five and a half centuries.

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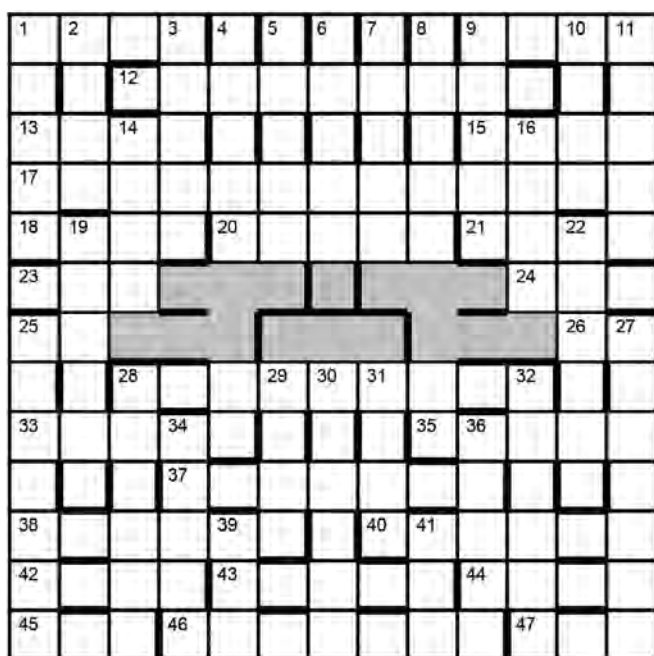
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A joint production by Nimrod

Including the theme tunes of two TV series, the titles of six thematic tracks on an as-yet unreleased album are to be discovered, together with the working title of the album. The second and second-last letters of single redundant words in each of 33 clues in order spell the six titles. The wordplay in each of the other 18 clues does not indicate one or more letters of the solution, allowing solvers to identify in different quarters of the grid four blocks of four letters each. These blocks may be used to reconstruct the central area of the grid, revealing the album title. Including a title, the name of the person who is mixing the album is to be written under the grid.

9ac and 24 are in *SOED* and 15 is in *Collins* and *SOED*; otherwise all grid entries are at each stage real names or phrases/entries in *Chambers*.



Mixed by: _____

All entries to be received by 24 February 2023.
Send your entry:

- **by post to:** CAM 97 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 *Devil-Land, England Under Siege, 1588-1688* by Dr Clare Jackson. Two runners-up will receive a £50 CUP book token. Solutions and winners will be published in CAM 98 and online on 10 March 2023 at: magazine.alumni.cam.ac.uk/crossword

Across

- 1 A short riddle like this (4, 2 words)
- 9 Right-wing Quebecois Club letter boxes (4)
- 12 Marines east of capital, troubled, sent update abroad? (9)
- 13 Celebrity heading for Tyneside, say? (4)
- 15 What about Latin – suitable for schoolkids in Texas? (4)
- 17 Functions of Spaniards maybe crossing inhospitable area (13)
- 18 Fish combo is sent back by lady, oddly (4)
- 20 Kicking sexist husband out, she can become established (5, 2 words)
- 21 Problem grandma's equilibrium disturbed, having disposed of dram! (4)
- 23 Caging new, superb rare bird (3)
- 24 Hats off to Telegraph hound, after you in the country (3)
- 25 Very large bagpipe opening (2)
- 26 Assigned to cricket side against Leicestershire (2)
- 28 Troops aptly are redeployed as machinists (9)
- 33 Emaciated patient turning up to propose (5)
- 35 Tinting solution received by hairdresser in secret memo (5)
- 37 Lineman fitting square back into brown shovel (7)
- 38 Seafront with a most prominent address (6)
- 40 Top secret engineering position (6)
- 42 Recalled liberal leader of honest ambassadorship – and fine Chancellor (4)
- 43 Person exposing Yorkshire Water (5)
- 44 What makes glassware tough? Annealer, finally (4)
- 45 I see they overpaid entrepreneur somewhat (3)
- 46 Being in the Med, sail around watery expanse (7)
- 47 Headland scared African royal (3)

Down

- 1 Relations misuse sums of cash – instant outgoing (5)
- 2 Small reef in the sea (4)
- 3 Marlowe devotee runs away from society member (5)
- 4 In a hurry, phoned leader writer? (7)
- 5 Entertain habit in the morning break (5)
- 6 People from the south can't, I'm assuming, have hidden agendas (5)
- 7 In pursuit of half-century, one swings, risking edges (5)
- 8 Who conveys to press negative carried in attaché case of ambassador? (7)
- 9 We will be released by sexy ale producers (5)
- 10 One chap turning over about a bushel (4)
- 11 A consumer of mother's ruin not getting one round (5)
- 14 The greatest gardener in India (4)
- 16 Obsession of navel-gazer not entirely impartial in this affair (4)
- 19 Perhaps enjoying the mineral springs of Cape Town, prepare to depart (6)
- 22 Entertaining pro, silly getting up before eleven (6)
- 25 Making a scene Bigelow will choose to forget, she's ejected from steakhouse after fracas (7)
- 27 Spotted guzzling wine on counter, they require aspirin (7)
- 28 White wood barrel in the firing line (6)
- 29 Everyone else afraid to remain (4)
- 30 Like bird's phenomenal behind (6)
- 31 Print only a part of snotty editorial, perhaps? (4)
- 32 Cassiterite, chemical most often first to rouse sound sleeper? (6)
- 34 Rock solid fantasies of old imams (5)
- 36 Totally remote from the sea – and lost (5, 2 words)
- 39 Jesters step up to play the fool (3)
- 41 Miss out on close call (3)

Solution to CAM 96 Crossword Odes by Nimrod

The peripheral thematic items (NEWFOUNDLAND, SAINT PETER, ALCATRAZ ISLAND and GIBRALTAR) are each nicknamed "The Rock", as is the fifth, rock-shaped, DWAYNE JOHNSON to be highlighted. Superfluous letters in wordplay spelt TO A WEE TOT OF CHILLED WHISKY and TO A FAILING MARRIAGE, hence the alternative odic title of the puzzle ON THE ROCKS.



ODE: ON THE ROCKS

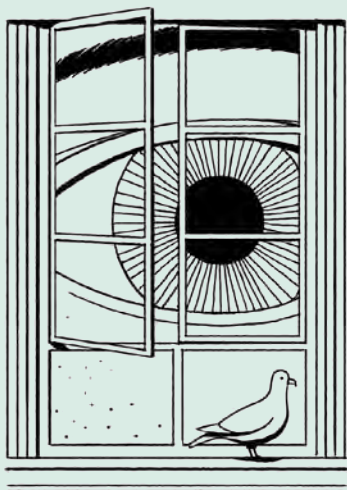
Winner: David Steward (Sidney Sussex 1976) **Runners-up:** Richard Chamberlain (Corpus 1977) and Hamish Symington (St Catharine's 1999).

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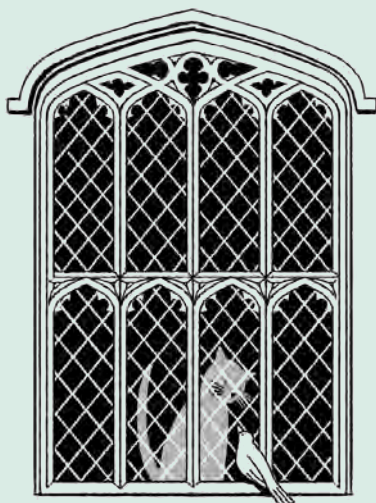
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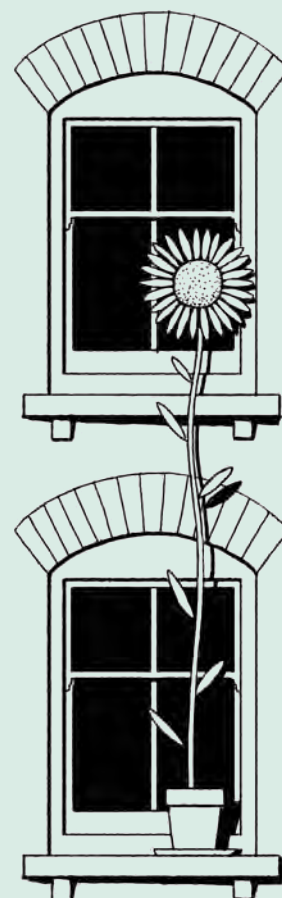
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