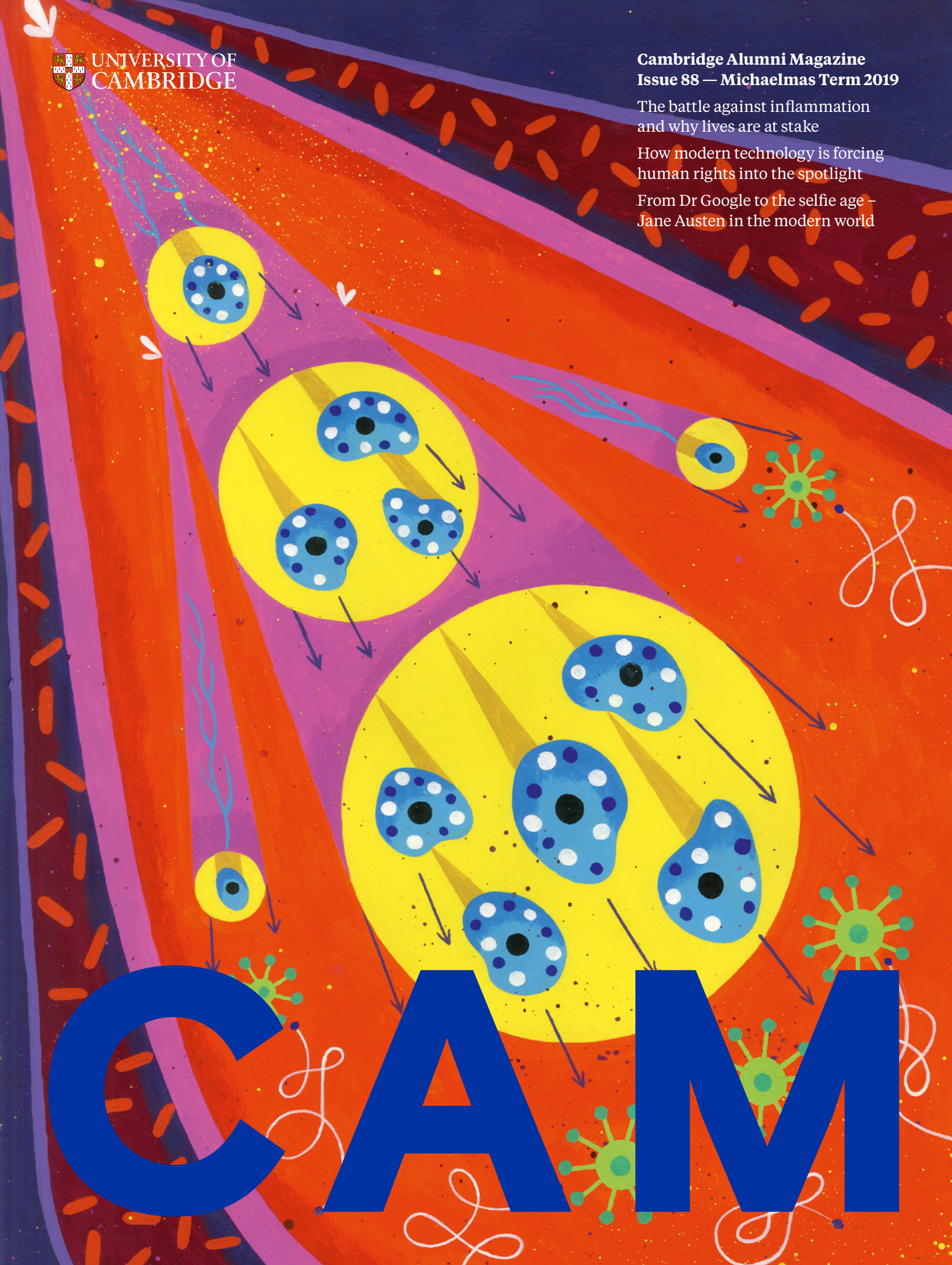
UNIVERSITY OF CAMBRIDGE

Cambridge Alumni Magazine
Issue 88 — Michaelmas Term 2019

The battle against inflammation and why lives are at stake

How modern technology is forcing human rights into the spotlight

From Dr Google to the selfie age – Jane Austen in the modern world



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CAM

Cambridge Alumni Magazine
Issue 88 Michaelmas Term 2019

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IMAGES FROM TOP: JOE SNOW; KATE PETERS; ALUN CALLENDER

Editor's letter

Welcome to the Michaelmas Term edition of *CAM*. Resolving the problems of the 21st century requires fresh thinking – and well-informed thinkers. So it will come as no surprise to hear that, in Cambridge, curricula are continually assessed and reviewed. However, in the past few years, this quest has become more searching, as academics and students endeavour to 'decolonise' the curriculum. If you've ever wondered what the fuss is all about – and what it has to do with you – turn to our report on page 34.

What would Jane Austen have thought? It might sound counterintuitive, but, as Professor Janet Todd points out on page 28, the great chronicler of Georgian domestic life has much to say to the denizens of our own century.

Elsewhere, on page 40, Dr Emily Shuckburgh discusses how a major new initiative, Cambridge Zero, will harness Cambridge expertise from across the University to tackle the climate emergency. On page 21 we assess what digital technology means for human rights law, and on page 14 we examine the role of inflammation in heart disease, obesity and depression.

On all these topics – along with anything else Cambridge-related – we look forward to your contribution to the debate, whether by post, email or on social media.

Mira Katbamna (Caius 1995)

cameditor@alumni.cam.ac.uk

Inbox

Brexit

What point does Victor Launert imagine he is making (Letters, *CAM 87*)? He expresses concern that "no democracy can survive" a statistic showing that, if Brexit were reversed, 65 per cent of the electorate would fall into the disenfranchised don't care/don't have faith category. May I point out that, as a remainer, I belong to the 63 per cent already disenfranchised since June 2016 (on his analysis), but have seen no sign of British democracy's imminent demise?
Dariel Francis
(Girton 1965)

Douglas Adams

As a direct contemporary of Douglas Adams at St John's, I very much enjoyed your piece prompted by the new archive (*CAM 87*).

Among my own recollections are that Douglas was an accomplished guitar player and singer of original comic songs – something that is rarely mentioned. One of his songs was about a local planner who was going to demolish the narrator's house (shades of Arthur Dent here) – which was never going to be allowed. He is sadly missed.
Neil Margerison
(St John's 1971)

A silly bit of memorabilia that I still have from my last year at St John's is a beer mat invitation that I did for a boozy party that Douglas, Nick Burton and I held in November 1973. The great thing about Douglas was that his

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surreal take on the world rubbed off on Nick and myself, and I was so pleased with the design that it is one of the very few things that I did not throw away. I still have a chuckle, and wonder if I am alone in this?
Johnnie Simpson
(St John's 1971)

Many years ago my then girlfriend, now wife, got into conversation on a train with the tall chap (Adams) opposite, who had got out an early Mac PowerBook. Having waxed lyrical about how the computer enabled him to write on trains and hit deadlines, he typed not one word. She says it was the most interesting chat she's ever had.
Stefan Kukula
(Churchill 1984)

Why tax is good

Congratulations on another excellent edition. An eclectic range of articles to choose from; my main read was on taxation as I, too, believe it is good for us!
John Gamlin
(Fitzwilliam 1958)

I take issue with the claim by May Hen-Smith that we should reconsider the negative image of the Cayman Islands because neighbours in the Caribbean "consider them an economic success story".

This ignores the negative externalities of the tax policies of a territory that has been linked to numerous financial crime scandals. The country's financial crimes unit has just 18 people to investigate $1.3tn in assets; there is no transparent corporate register of beneficial ownership; and money laundering from developing countries through Cayman entities has been proven over and over. Drug dealers, mafia bosses and con artists are often considered economic success stories, but this doesn't mean that we should ignore the socially destructive roots of their prosperity.
George Horsington
(Downing 1992)

Someone once said about elections that it is not so much the casting of ballots that matters, as the counting. So too with taxes. It is not so much the collecting of taxes that matters, as the spending.
Flash qFiasco
(St Edmund's 1981)

The latest issue of *CAM* is particularly appreciated. But I have to lodge a fiver at the article on tax as the diagram 'Why tax is good' omits the most important area of spending. The first duty of every government is Defence of the Realm, and you leave that out altogether! This may well reflect reality, but it explains why our armed forces are so over-stretched and unable to deal properly with the challenges that appear regularly. As I write, we struggle to cope with mere motorboats in the Hormuz strait, and by the time this is printed there will be another problem somewhere else.
Colin Robins
(St John's 1955)

Summer podcasts

A big thank you to Dr Hugh Hunt for recommending the podcast 'Outrage and Optimism'. There are a lot of great interviews, not so much about the science of climate change, but about the process of change.
Patrick Coghlan
(Downing 1966)

Sport and wellbeing

The interesting finding that participation in sport is associated with superior examination results and improved mental health makes one wonder whether participation in musical activities, by students who are not studying music formally, has a similarly positive effect.

Active engagement of students with music, whether as composers, performers, or self-directed students of musicology, independently of their formal areas of academic study, is surely an example of a beneficial "extracurricular" (or is that "co-curricular"?) activity.
Martin Heyworth
(St John's 1965)

Murray Edwards

I always enjoy *My Room, Your Room* as it allows us older alumni to muse on the idea that "the more things change, the more they stay the same".

And this month I was particularly thrilled that my old college Murray Edwards/New Hall was featured. If you'd only chosen me and my old room it would have given us the opportunity to muse on the opposite: "Everything changes, nothing stays the same forever" – my beloved first-year room is now the photocopying room!
Julie Perigo
(New Hall 1976)

Plastic wrap

It made me very happy to see this latest edition of *CAM* wrapped in compostable plastic. Keep up the good work!
Stuart Ritson
(Corpus 2008)

Thank you for converting to the potato-starch wrap. This is one small gesture in the fight against the irresponsible and ubiquitous use and disposal of plastic, but powerful lobbies can, and hopefully will, develop from gestures both large and small.
David O'Gorman
(Trinity 1960)

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ILLUSTRATION: MICHAEL KIRKHAM

Compendium

IN NUMBERS

91

The number of black students who won places at Cambridge this academic year, a rise of almost 50 per cent. The 'Stormzy effect' could be encouraging more black students to apply, after the award-winning grime artist announced that he would fund tuition fees and living costs for two students a year.

VICE-CHANCELLOR'S 1 OCTOBER ADDRESS

A global vision for global challenge

The University must retain its reputation as a global leader in innovation, be more open to talented students from all backgrounds, and address the fundamental issues that face society, the Vice-Chancellor has said.

Professor Stephen J Toope set out a plan of action based on these three overarching objectives in his annual address to the Senate House in October. He highlighted the University's determination to address barriers to education, widen access and help students make the most of their experience.

Provisional admissions data, Toope pointed out, showed that one in four students will be from under-represented and disadvantaged backgrounds in the 2019-20 intake, while more than two-thirds of UK undergraduates will be from state schools. And the launch of the Harding Challenge, a dedicated fund that makes it possible for the University to do more for undergraduate students in the greatest financial need, will mean donors who give to Cambridge's Student Support Initiative will see their impact doubled.

Later this term, the University will also formally launch Cambridge Zero – this pioneering initiative will support the global transition to a carbon-neutral future. Under the direction of Dr Emily Shuckburgh, Cambridge Zero will harness the University's research and teaching capabilities to respond to climate change and support the transition to a zero-carbon future.

"When other institutions are perceived to be failing their societies, our University must step up," he said. "It is our duty as a public institution."

PHOTOGRAPHY: NICK SAFFELL

HEPWORTH AT DOWNING

A new exhibition of work by sculptor Barbara Hepworth (1903–75) has opened at Downing's Heong Gallery. *Barbara Hepworth: Divided Circle* focuses on the last 20 years of Hepworth's life, and features sculpture in bronze, gold, marble and silver, as well as lithographs and a painting. The exhibition is open from noon to 5pm, Wednesdays to Sundays, from 15 November to 2 February. Admission is free.

NOBEL PRIZES

Cambridge pioneers recognised

Two eminent Cambridge scientists, Sir Peter Ratcliffe (Caius 1972) and Professor Didier Queloz, have been awarded Nobel prizes.

Sir Peter has been jointly awarded (with William Kaelin Jr and Gregg Semenza) the Nobel prize in physiology or medicine for discoveries of how cells sense and adapt to oxygen availability.

Speaking at the announcement by the Nobel prize committee in Stockholm, Dr Andrew Murray, from the Department of Physiology, Development and Neuroscience, paid tribute to Sir Peter's work, saying that it paved the way to a greater understanding of common, life-threatening conditions such as heart failure, chronic lung disease and many cancers, and new strategies to treat them.

Professor Queloz, Professor of Physics at the Cavendish Laboratory, Fellow of Trinity, and director of the Cambridge Exoplanet Research Centre, has been jointly awarded the Nobel prize in physics. Professor James Peebles and Professor Michel Mayor were also awarded the prize, given for pioneering advances in physical cosmology, and the discovery of an exoplanet orbiting a solar-type star.

"It's an incredible honour and I'm still trying to digest it," said Queloz, whose work was featured in CAM 77 (read the feature at alumni.cam.ac.uk/magazine).

Queloz and Mayor's discovery of the first exoplant, 51 Pegasi b, "started a revolution in astronomy", said the Nobel assembly. "Over 4,000 exoplanets have since been found in the Milky Way. Their discoveries have forever changed our conceptions of the world."

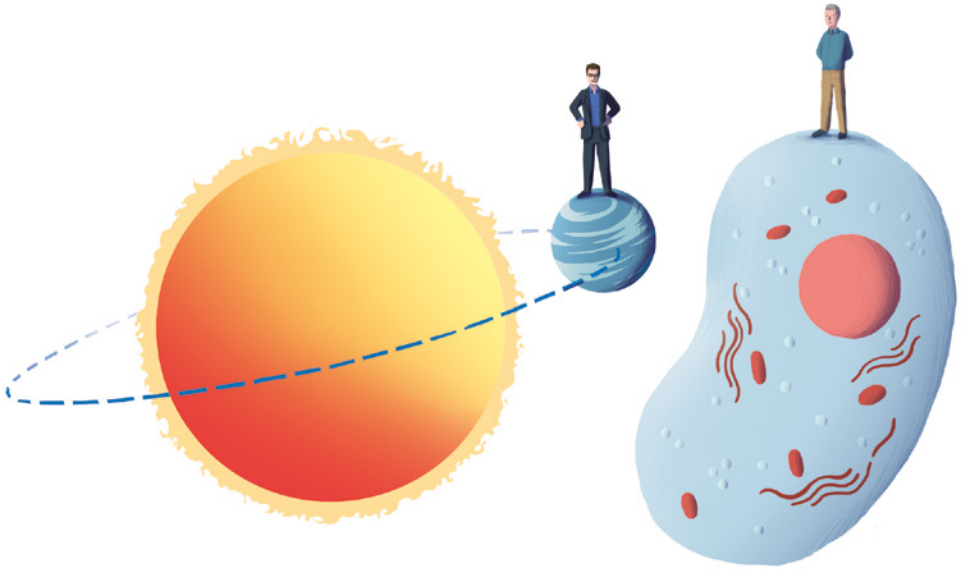

ILLUSTRATION: MICHAEL KIRKHAM

TWO-MINUTE TRIPOS

SUBJECT
MECHANISMS OF REAL-TIME SPEECH REVEALED.

The elderly man ate the apple.
What?
I said, the elderly man ate the apple.
Ah! I see. You're repeating the phrase used by researchers investigating semantic composition at the Centre for Speech, Language and the Brain.
Well, actually, I was …
You know, semantic composition. That's when your brain combines the meaning of words in a sentence as they are heard, so that they make sense in the context of what has already been said.
Did you not hear me? I said: the elderly man ate the apple!
Ah, but when we hear 'eat', the brain is primed to put constraints on how it interprets the next word! We hear 'eat' and we think 'food'!
Seriously. How do you …
They developed computational models of the meanings of words, and tested these directly against real-time brain activity in volunteers. So they watched how the volunteers' brains responded to 'the elderly man ate the apple', tracking the dynamic patterns of information flow between critical language regions in the brain.
So your interpretation of what I'm saying is…
Unique. In fact, Lorraine Tyler, who is the head of the Centre for Speech, Language and the Brain, agrees that it's about the unique nature of the human brain to put words into context depending on the other words around them. We still don't understand it fully, which is why we can't fully replicate it with computers.
Look. This is all very interesting but if you'd paid more attention to the context of my words, that guy wouldn't have nicked your lunch.
What? Where? No!
I imagine you can catch him if you run. After all, he's pretty elderly.

cam.ac.uk/mechanismsofrealtimespeech

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Bastardy books tell a different story about the plight of Georgian and Victorian unmarried mothers

Dr Samantha Williams is University Senior Lecturer at the Institute of Continuing Education and a Fellow of Girton

Georgian and Victorian portrayals of unmarried mothers are pretty uncompromising. Take Richard Redgrave's 1851 painting, *The Outcast*, which shows a paterfamilias casting his daughter and her infant into a hostile world. Or Gustave Doré's 1878 illustration for *The Bridge of Sighs*, which depicts a pregnant woman throwing herself into the cold waters of the River Thames. Intriguingly, however, my research of bastardy books for Southwark, Lambeth and Chelsea suggests that the truth for most women finding themselves single and pregnant in Georgian and Victorian England was far more complex.

Levels of illegitimacy rose quickly following the Restoration of Charles II until the 1850s, such that a quarter of all first births were illegitimate and a further quarter of brides were pregnant when they married. These rates are similar to the 1960s and 70s. Couples were having sex in anticipation of marriage but, for the women I study, something happened to prevent the wedding: death, impressment into the armed services, unemployment, poverty or abandonment.

We might also assume that single women had to resort to the dreaded workhouse for the birth of their babies, but this was the case for around only two-fifths. Most stayed in their lodgings and a midwife attended, experiencing the same kind of childbirth as married women. Many turned up in labour at the workhouse gates, the equivalent of a modern maternity hospital. A few women managed to gain admittance to the new lying-in hospitals, which had better facilities.

And under the poor laws, fathers were held financially responsible for their illegitimate children, a ruling that operated not unlike an early form of the Child Support Agency. The so-called bastardy laws meant that women swore the paternity of their infants before local magistrates who also interviewed witnesses. If the magistrates were persuaded that the man was the father, they issued an order for maintenance of the child, as well as an instruction to recoup the birth and court costs. The outcomes of these cases were then recorded in bastardy books.

> “Couples were having sex in anticipation of marriage but something happened to prevent the wedding – death, poverty, the armed services, unemployment or abandonment”

There were various ways men might pay for their illegitimate children: poor men or those deemed a flight risk paid a lump sum upfront; others paid smaller sums that were given to the mothers weekly. The credit of these men was supported with a bond put up by three or four others – this was a large amount, called in if the father defaulted or in the event of his death. In Southwark, weekly maintenance instalments were relatively high and paid for over a period of seven to 15 years.

Overall, however, Londoners were particularly bad at recovering the costs from fathers. Other research has established that communities in Yorkshire might recover as much as four-fifths of the amount due compared with one-fifth in the capital. Importantly, if an order had been made and the money was not forthcoming, the parish continued to pay for the child. The bastardy books show that although parish constables were quite skilled at finding fathers, they were hopeless at getting money out of them. Men could disappear easily, such as David Byron, who, in 1824, was committed to the house of correction in Brixton for refusal to pay the bastardy expenses for his child Alfred with Susannah Turell. Although he “got sick of the mill & paid the bill”, he then fled to America – leaving five illegitimate children behind him.

The history of unmarried mothers is full of conflicting evidence. Unmarried mothers and fathers were defamed by fellow inhabitants and harassed by parish watchmen and beadles, overseers and magistrates, but they were also offered material and emotional support by masters and mistresses, neighbours and friends, philanthropists and those same overseers and magistrates.

Dr Williams's book Unmarried Motherhood in the Metropolis, 1700-1850 *is published by Palgrave Macmillan.*

ILLUSTRATION: KATE COPELAND

> There was no bar in College! Can you imagine? I went to parties in town and did a lot of dancing to the Beatles and the Rolling Stones

C2, Girton

Brenda Hale DBE (Girton 1963) and third-year Mathematician *Maisie Muir* discuss Yorkshire roots and the challenge of being outnumbered.

When Brenda Hale (Girton 1963), now president of the Supreme Court, first arrived at room C2, her overriding impression was of what *wasn't* there: specifically, the trunk containing all her possessions. "I had sent it ahead on the train from North Yorkshire, five days in advance, but I got here before it did. So for the first few days I didn't have any luggage …"

When the trunk did finally arrive, it contained not just the necessaries of life but also reminders of Lady Hale's background: notably, prints of Richmond, near her home village of Scorton, North Yorkshire. This prompts fellow Yorkshire native Maisie Muir, the room's current occupant, to show off her Yorkshire tea. "I have to have something that says I'm from Yorkshire," Muir explains. "It's very important to me. I work in my local pub and it was the talk of Wrenthorpe, my village, when I got into Cambridge. It was a really big deal – massive."

It's a story Lady Hale can relate to. "I'm a girl from a small place in North Yorkshire and I knew I was going to be a tiny fish in a great big pond. I had no particular expectations of myself – I was absolutely flabbergasted when I got first-class marks at the end of my first year. And so then I upped my sights about what I might do in the future!"

Not that she spent all her time in the library. Far from it. Although Lady Hale says that, in those days, Girton could be rather quiet. "There was no bar in College! Can you imagine? But I went to lots of parties in town. The real tennis court was a popular place, because the walls were all black. I did a lot of dancing to the Beatles and the Rolling Stones. But we had to be back at College by midnight."

Muir is happy to report that Girton has now acquired a bar. "There is a lot going on! I have supervisions and lectures five days a week in

PHOTOGRAPHY: KAT GREEN

THE RISING TIDE

A new exhibition at the UL will highlight the experience of women at Cambridge over the past 150 years. The Rising Tide focuses on: the lived experiences of Cambridge women; the ongoing fight for equal rights, recognition and inclusion; and the careers of women who have shaped the institution. The display includes costume, letters, and even fragments of fireworks used to oppose the awarding of degrees to women in 1897.

cam.ac.uk/therisingtide

Maisie is very proud of her Yorkshire roots.

town. But then I've got to decide whether I'm coming back here for the rest of the day or staying in town. I try not to go back and forth as you have to cycle up Castle Hill."

And they share not only a pride in their Yorkshire heritage but also the experience of being a minority in their field. Lady Hale was one of just six female undergraduates studying law – and while the numbers of women studying Maths at Cambridge are rising swiftly, Muir is still outnumbered. "I've learned that you've just got to have confidence in yourself," says Muir.

Lady Hale agrees. "I encountered many young men from public school backgrounds who felt entitled to good jobs. And I realised that, actually, quite a few of them were no better than me, and, in some cases, not as good as me. And that made me feel: OK, I don't feel entitled, but I'm going to try. And that turned out to be a very good thing."

Baroness Hale of Richmond *is president of the Supreme Court of the United Kingdom.*

ILLUSTRATION: MICHAEL KIRKHAM

A CAMBRIDGE GUIDE TO ...

Adjustment scheme

Cambridge has welcomed 67 students whose A-level results earned them a place under the Adjustment scheme. It's the first year that the University has participated in the Ucas Adjustment process, which gives students a chance to reconsider where and what they study at university if they meet and exceed the conditions of a firm offer elsewhere.

Although they narrowly missed out on a place following their original application, the Adjustment applicants were given the chance to reconsider Cambridge if they performed beyond expectations in their exams.

For instance, Zein Al-Hindawi, whose parents fled Saddam Hussein's regime in Iraq, achieved A* in Biology, Chemistry and Maths, gaining the highest mark in Biology and Chemistry at his school, the London Academy of Excellence.

cam.ac.uk/adjustment19

WHAT'S ON FOR ALUMNI

BOAT RACE

Last year saw the Light Blues men's rowers claim their third win in four years, while the women's team triumphed for the third year in a row. Will they maintain their winning streaks? Find out on Sunday 29 March 2020, the date for next year's race.

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The Cambridge University African Caribbean Society is no standard society – it's a celebration, a safe space and a campaign.

Below, left to right, back to front:
Naomi Okukenu (Murray Edwards), Nathania Williams (Trinity), Teta Thuku-Benzinge (Murray Edwards), Mary-Hannah Oteju (Selwyn), Kwaku Gyasi (Corpus), Makeda Brown (Queens'), Ayanfe Adebayo (Robinson), James Simkins (Pembroke), Gerline Ndombasi (Trinity Hall), Folu Ogunyeye (Fitzwilliam), Wanipa Ndhlovu (Trinity), Natanim Fekadu-Dessie (Murray Edwards).

Stormzy, Ozwald Boateng, the vice-president of Malawi. You never know who you might encounter at a Cambridge University African Caribbean Society (CUACS) event. The Society's mission is to educate, empower and entertain – but it often manages to do all three at once.

"Education is all about teaching our members about the history of Africa and the Caribbean, as well as helping them to be aware of the career paths and opportunities available to them," says president, and second-year lawyer, Wanipa Ndhlovu (Trinity).

For example, last year, the Society held a panel on the Windrush scandal, and this year it is organising a series of events for Black History Month. Blue-chips such as Goldman Sachs and Credit Suisse sponsor career presentations and workshops, which, says Ndhlovu, "has helped a lot of members, including myself".

Empowering, she says, is all about "showing us role models who look like us, sound like us and have similar backgrounds to us". That creates a virtuous circle, as members are inspired to get involved. Indeed, last year's Motherland Conference brought together the best of Africa, the Caribbean and the diaspora, with panels, keynote speeches and discussions led by big names. Stormzy was the main attraction, interviewed by former president, Toni Fola-Alade (St John's).

Society members are taking empowerment beyond Cambridge, too. The Access Conference, held at law firm Linklaters, was attended by 134 prospective black Year 12 students. The aim: to encourage more students of African and Caribbean heritage to apply to Cambridge.

"It was an amazing experience seeing how their perceptions of Cambridge changed in the space of one day," Ndhlovu says. "At the start, I asked for words they associated with Cambridge. They came up with what you'd expect – 'elitist', 'white'. At the end I asked them again and the answers included 'excellence' and 'pride'. I'll admit that I went home and had a little happy cry. We got incredible feedback, with some young people saying that they'd convinced themselves that they could never apply for Cambridge but now they were going to give it a shot."

And the third part of their mission – entertaining – usually involves music, food and fun, typified by the annual ACS Affair. But it also goes a little deeper, says Ndhlovu. "Being a black student at Cambridge can be quite daunting and stressful. We like to be a family for our members – a home away from home. It's somewhere where you can feel comfortable, and also be celebrated. It's more than just a society."

The ACS is inviting alumni back to Cambridge in Lent term. Please contact Aizraelle Clark Headley at caribbean@cambridgeacs.org

PHOTOGRAPHY: ADAM LAWRENCE

Christmas cards crafted by Charles Darwin's Granddaughter Cambridge artist Gwen Raverat

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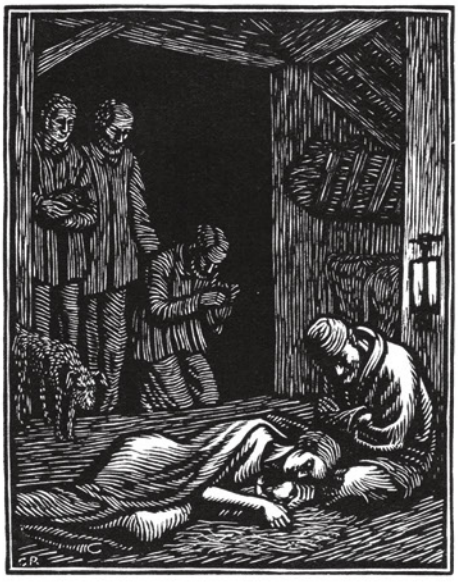

The Raverat Archive also has made two sets of Cambridge themed greetings cards featuring the Boat Race, Mill Lane, Swans, Queens College, Old Silver Street Bridge, Trinity Bridge, Ely Cathedral, St John's Old Bridge and Grantchester. You will find these at

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When researchers discovered an apparently medieval 'table top', the hunt was on to find out more

Professor Liba Taub examines an equatorium held at the Whipple Museum of the History of Science.

The round wooden thing cluttering up the storeroom at the Whipple Museum of the History of Science was around 6ft in diameter. It sported a large brass ring, dust and scratches. In 1999, when the collection was inventoried, it was nicknamed 'King Arthur's Table' and classified as some kind of astronomical or astrological instrument.

And back into storage it went. Until 2012. Dr Seb Falk, then an MPhil student (now Rosamund Chambers Research Fellow at Girton) was working in the Peterhouse library, researching a medieval manuscript called *The Equatorie of the Planetis* which an earlier PhD student, Derek de Solla Price had attributed to Geoffrey Chaucer.

The book featured instructions on how to make an astronomical instrument he called an equatorium. Unlike the more familiar astrolabe, which medieval astronomers used to track their position, this rarer instrument was used to calculate the past and future positions of the sun, moon and planets.

So how did this equatorium come to be in the Whipple? And is it medieval? Working with the museum's staff, Falk was able to demonstrate that the Whipple's equatorium was commissioned by Solla Price in the 1950s – and constructed by the Cavendish's lab technicians. Falk also recognised that the *Equatorie* was by the English Benedictine monk John Westwyk.

Professor Liba Taub, Director of the Museum, says the equatorium touches on many aspects of what the Whipple was intended to be. "The instruments help us understand the texts, and the texts help us understand the instruments.

"As Robert Whipple himself said, the museum should be much more than a well-arranged repository of historic scientific apparatus. It should be a valuable teaching instrument, and a cultural accessory to modern research."

Objects and Interpretations, the Whipple's 75th anniversary exhibition (and accompanying book, published by CUP), runs until summer 2020.

PHOTOGRAPHY: MEGAN TAYLOR

THE WHIPPLE MUSEUM

1898
Robert Whipple comes to Cambridge as assistant to Horace Darwin, Charles's son.

1944
Whipple donates scientific instruments and rare books to the University.

1959
The collection moves to its permanent home on Free School Lane.

1973–75
A library is created for the new Department of History and Philosophy of Science.

2019
The Museum celebrates its 75th anniversary as an integral part of the new department.

Inflammation is linked to obesity, diabetes and depression, but its full action and impact are only just beginning to be understood.

WORDS **BECKY ALLEN** ILLUSTRATION **RUSSELL COBB**

Titus

Professor Ed Bullmore is a psychiatrist and neuroscientist who thinks more deeply than most about the state of his teeth. In his 2018 book, *The Inflamed Mind*, Bullmore chews over a particularly painful chapter in his dental history: an old filling had become rotten and infected and required root-canal surgery. "As soon as it was all done, I wanted to go home, go to bed and not talk to anyone," Bullmore recalls. "And when I was alone at home I found myself cogitating gloomily on the grave until I went to sleep."

In time, that experience would prove pivotal. For part of his career, Bullmore worked closely with GlaxoSmithKline. The pharmaceutical firm was an active player in the search for new drugs against depression, but in 2010 it exited the field. Despite deep pockets and talented staff, the industry had failed to find better treatments for depression – so Bullmore decided to drill down into the roots of that failure. "One key reason was that all the failed trials assumed that depression is one thing and that there will be a panacea that works for everybody," he explains. "I think that flies in the face of common sense and emerging science."

Some of the emerging science Bullmore started looking at involved immunology, a field he had last studied at medical school two decades earlier, and what he discovered amazed him. "When I looked at modern textbooks it was like a palimpsest: I could see through the diagrams to the crude version that I'd been taught, yet overlaid was this huge amount of detail. And not just detail. Many of the big things we were taught as students – like the Berlin Wall of the blood-brain barrier – were wrong."

Bullmore cast his mind back to the existential gloom he had experienced after his root-canal treatment and began to wonder whether the inflammatory response his immune system had mounted against his infected tooth could have caused his low mood. The more he read, the more it made sense. Take cytokines, for example, the inflammatory proteins pumped out by macrophages into our immune system in response to injury or infection. If you inject them into rats, they become sleepy and sluggish, and stop taking pleasure from the sugar water they normally enjoy. If you treat hepatitis patients with interferon – a drug that gives the immune system a massive boost – one-third will develop clinical depression six weeks later. And a large-scale, long-term study revealed that increased levels of cytokines in the blood of nine-year-old children were strongly linked to the development of depression at age 18.

Given mounting evidence that inflammation can cause depression, and the fact that it is both common and costly (one in four of us will develop depression at some point in our lives, and it is set to be the biggest single cause of disability by 2030), Bullmore believes that viewing it as an inflammatory syndrome could lead to new ways of diagnosing and treating some forms of the illness. "There are still some important questions to resolve," he says, "like whether or not targeting inflammation can make a difference to treatment; we've not yet seen convincing data from a trial designed to test that idea."

Bullmore's new trial, launched in September 2019, could provide an answer. The trial is planning to recruit 1,420 patients from Glasgow, Cardiff, Oxford and London as well as Cambridge, whose depression has not responded to SSRIs (the current frontline antidepressant drug treatment). Half will receive a P2X7 antagonist – a drug that stops stress signals triggering an inflammatory response by the immune cells in the brain. "The P2X7 receptor is a critical step on the path from stress to inflammation, so we hope that by giving people this drug, we can protect stressed people from also becoming inflamed – and that might make them less depressed," he says.

However, depression is only one of many increasingly common diseases – from diabetes and dementia, to cancer and heart disease – that scientists now think could be caused by inflammation. At the Wellcome-MRC Institute of Metabolic Science, Professor Antonio Vidal-Puig is unpicking the molecular mechanisms that link obesity with insulin resistance, diabetes and heart disease in order to find new forms of treatment.

Bullmore cast his mind back to the gloom he had experienced and began to wonder whether the inflammatory response could have caused his low mood. The more he read, the more it made sense

"The big question we're trying to address is why people who are obese develop metabolic complications like diabetes and cardiovascular disease," he says. "Obesity is also associated with neurodegenerative diseases like Alzheimer's, autoimmune diseases and many other common diseases, and we think inflammation is the common thread that links them all."

Vidal-Puig and his group are interested in why obesity sets off this inflammatory chain of events. Their work revolves around an idea they call "adipose tissue expandability", a simple yet radical idea that our fat cells or adipocytes have a finite capacity for storing fat and that things go awry once this capacity is breached.

"When you see someone in the obesity clinic who is 190kg [30st], it's easy to get the impression that adipose tissue can go on forever, but we now have data suggesting that genetic factors may uncouple obesity from metabolic complications. Some obese people are healthy – they have no diabetes or heart disease – and some very lean people are sick," he explains. "Where we once thought people got sick because they were obese, we now think it's because their fat stores are full. It's like looking at the same picture but arriving at two different explanations – and that has different implications."

Part of the idea stems from how macrophages respond to fat. When adipocytes become full and start leaking fat, it is the macrophages that mop things up. And when those macrophages become full of fat they behave as if they're fighting an infection, pumping out cytokines into the immune system. "The macrophages are confused," says Vidal-Puig, "possibly because they misinterpret the fat from adipocytes as the lipids found in the cell wall of bacteria, so the lipids from our food are somehow triggering responses that are abnormal."

His key aims now are to gain a deeper understanding of how adipose tissue works, how we can best get rid of excess lipids, and which types of lipid are the most inflammatory. He hopes it will then be possible to stop the inflammation before it starts. "Dealing with inflammation is too late, because it's like a bomb," Vidal-Puig says. "When a bomb explodes it splits into more fragments than you can possibly deal with. So we want to act before the bomb goes off – to try to prevent the flame that causes the detonation."

This rationale is also behind a huge new effort to understand and treat cancers differently, and, in 2019, Cancer Research UK (CRUK) announced a £20m Grand Challenge award involving an international team of scientists from the US, Canada, the UK and Israel to find new ways of tackling cancers linked to chronic inflammation.

Globally, around 20-25 per cent of cancers are linked to chronic inflammation, including oesophageal, bowel and pancreatic cancer. Incidence of these cancers is rising, and while 57 per cent of the 42,000 people in the UK diagnosed with bowel cancer between 2014 and 2016 will survive, the outlook for others is much poorer. For oesophageal cancer, 9,101 cases were diagnosed during the same period and the 10-year survival rate is 12 per cent while 59 per cent of oesophageal cancers are preventable. ›

Obesity is associated with diseases like Alzheimer's, autoimmune diseases and many other common diseases – we think inflammation is the common thread that links them all

Dr Doug Winton of the CRUK Cambridge Institute is part of Grand Challenge. He believes that it is time to take a fresh look at these kinds of cancer. "A large part of the Grand Challenge is about pushing back against the idea of epithelial cancers arising just due to cancer-driving mutations. It's about thinking in a more holistic way," he says. "The epithelium is only one cell type among a community of cell types. They all interact, regulate and monitor each other, and our tissues are communities of cells that all relate to each other."

Inflammation is involved in nearly all cancers, not least because cancer usually causes inflammation – but for some cancers it is the inflammation that causes the disease. And while this idea is not new, what has changed is our ability to study communities of cells in minute detail. "It's the classic 'looking under the lamp-post for your lost keys'," says Winton. "Everybody looks where the light is, but that doesn't mean it's where you'll find your keys."

The Grand Challenge will be using two clever sources of illumination, called CODEX and Organs-on-Chips. Developed by Professor Garry Nolan at Stanford University in the US, CODEX employs myriad markers that allow researchers to identify and map all the cell types present in a tissue, and to do so dynamically as the tissue changes. Organs-on-Chips – developed by Harvard University's Wyss Institute – is a way of studying tissues outside the body by taking cells of interest and growing them on a chip supplied with a pseudo blood supply.

Taking cells from oesophageal cancer patients in Montreal, Canada, at different stages of the disease, the new tools will allow the team to build up a detailed picture of how communities of cells behave as the disease progresses.

"Oesophageal cancer is the poster child for this project because it begins with a normal epithelium, which changes to become metaplastic, dysplastic and then cancerous," Winton explains. Something causes inflammation, such as acid reflux, and the normal epithelium tries to protect itself by becoming metaplastic. This tissue looks like something further down the gut, where the environment is much more hostile. This tissue then becomes dysplastic, or more disordered, and it is this that can develop into cancer.

By getting a more complete picture of all the players in this process, Winton and the team should be in a better position to change the course of the disease – predicting which patients go on to develop cancer, and how these cellular changes can be halted and repaired earlier. Because by using new tools and ideas instead of looking under the same old lamp-post, we stand a better chance of finding new ways to combat cancer, depression, diabetes and dementia.

To find out more about Professor Bullmore's new trial, please visit neuroimmunology.org.uk.

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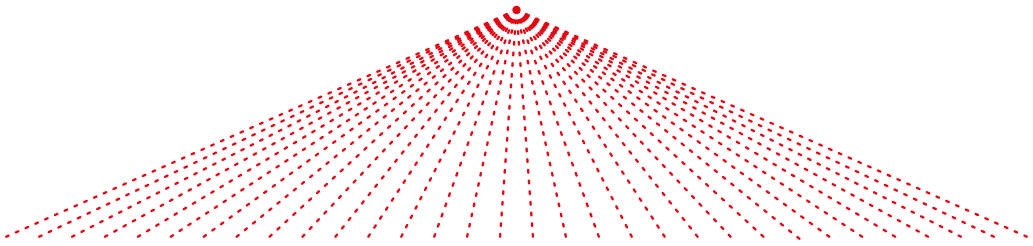
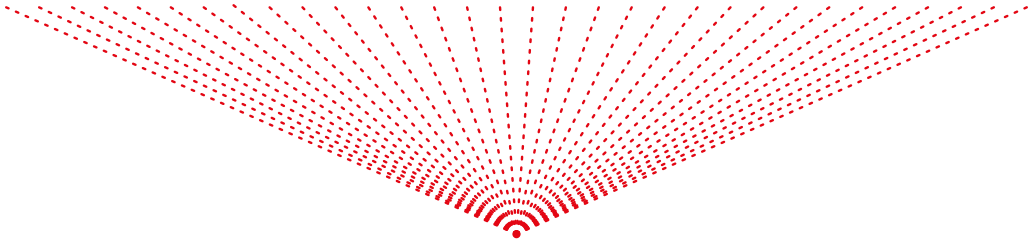


HUMAN RIGHTS IN A DIGITAL AGE



Privacy. Democracy. Freedom of speech. Anonymity. Access. Technology – from data to social media – is forcing human rights into the spotlight.

WORDS **WILLIAM HAM BEVAN** DESIGN **ROB FLANAGAN**

Data has become a ubiquitous – yet almost imperceptible – part of our daily lives. Every one of our interactions with technology, from tapping a debit card in a convenience store to liking a Facebook post, adds to the near-limitless store of information generated by and about us.

Dr Sharath Srinivasan, co-director of the University's Centre for Governance and Human Rights (CGHR), likens it to a dense but invisible fog. "We don't see it, but it's there and always being produced by our intended and unintended efforts," he says. "And the fog ends up sublimating into something that, in terms of seeing patterns, can be analysed, shaped, bought and sold in ways that allow for possibilities we can't even imagine. Those patterns are then used to make decisions that affect us."

Digital technologies control, blur and fragment a whole process through which judgments are made about our lives that can have a bearing on our freedom, our agency, how we understand our place in society and how others understand us. And they impact greatly on our human rights – both positive rights such as freedom of speech and association, and negative rights such as freedom from harassment, intrusion of privacy and even violence.

It's a far cry from the optimism of the early 2010s, when social media platforms were hailed as neutral facilitators for citizens seeking to assert their rights – most notably in the news narratives surrounding the Arab spring.

Dr Stephanie Diepeveen, a post-doctoral research associate at CGHR, has been examining the ways in which Kenyans engage in discussion of politics on Facebook. Her work suggests that the platform itself affects the conversation in some unpredicted ways.

"There was an assumption that, when we speak online, we'll be freer with what we say because there's this physical distance, and we have this digital avatar personhood through which we speak to others," she says. "That did happen; but we found this distancing also made people revert to their entrenched beliefs and familiar tropes – 'common sense' – to explain what was going on in politics. So, contrary to expectations, it wasn't really changing mindsets."

To support freedom of association and other fundamental human rights, Diepeveen believes that online spaces need to be more suited to open discussion. "How do we preserve a space where there's freedom for people to speak to one another in ways that don't have foregone conclusions?" she asks. "A lot of the concern focuses on the way platforms such as Facebook are using our data to try to predict and shape our future behaviour. How do we prevent that and retain the unpredictability in politics?"

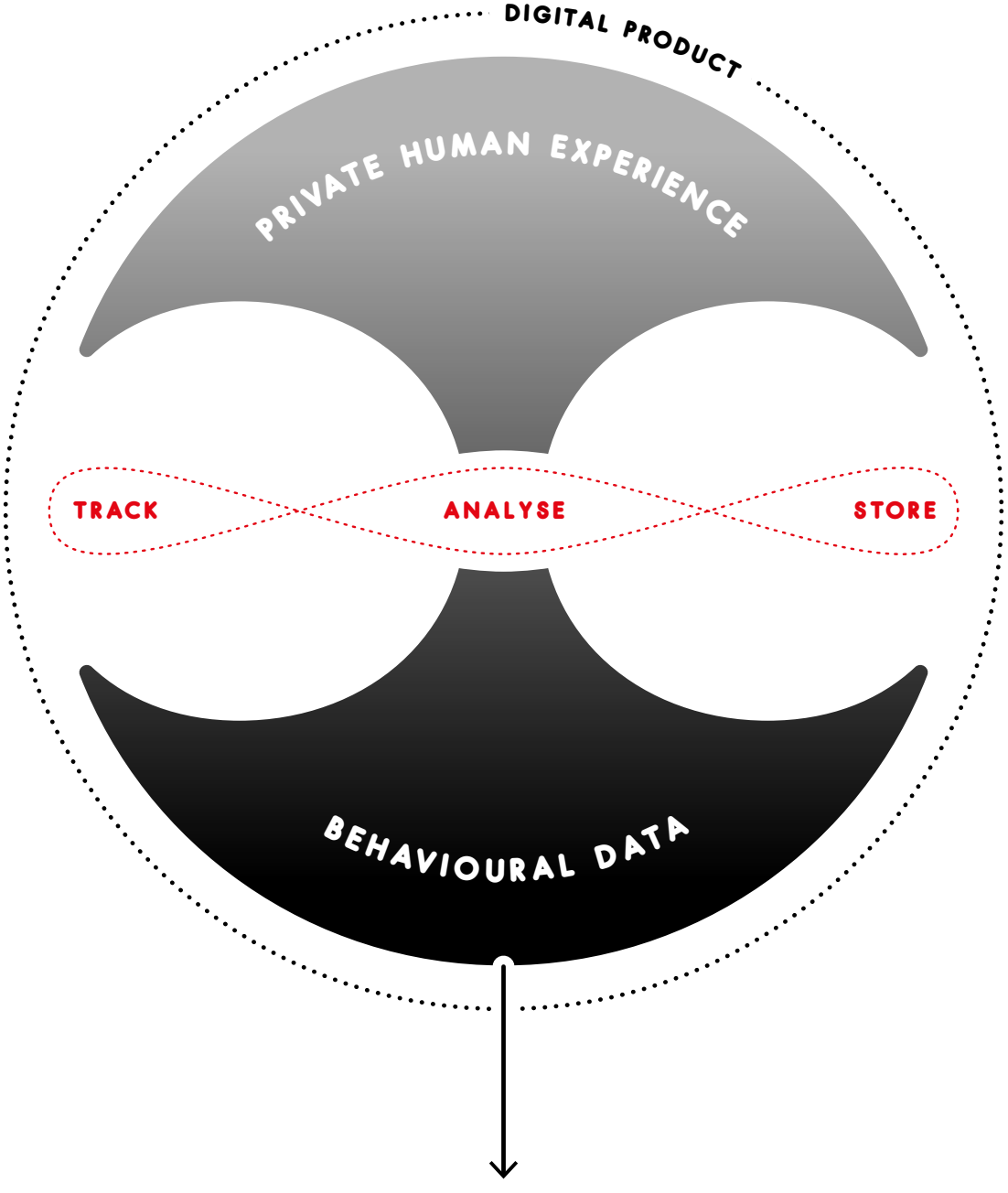
The top four or five largest companies in the world are involved in the commodification of personal data. There's no way we can't think about the role they have in the way we understand human rights

The business model underpinning all this has been characterised as 'surveillance capitalism' – a term popularised by the Harvard Business School academic Shoshana Zuboff. It's a framework in which the complex of tech leviathans such as Google and Facebook "unilaterally claims human experience as free raw material for translation into behavioural data", and generates profit by turning it into "prediction products" that can be used to sell products, change markets and potentially influence elections.

Rebekah Larsen (St John's, 2014) is a PhD researcher at the Sociology department who has worked on digital rights and privacy topics with CGHR. She says: "If you look at market capitalisation, the top four or five companies in the world are involved in the commodification of personal data. There's no way we can't think about the role they have in the way we understand human rights."

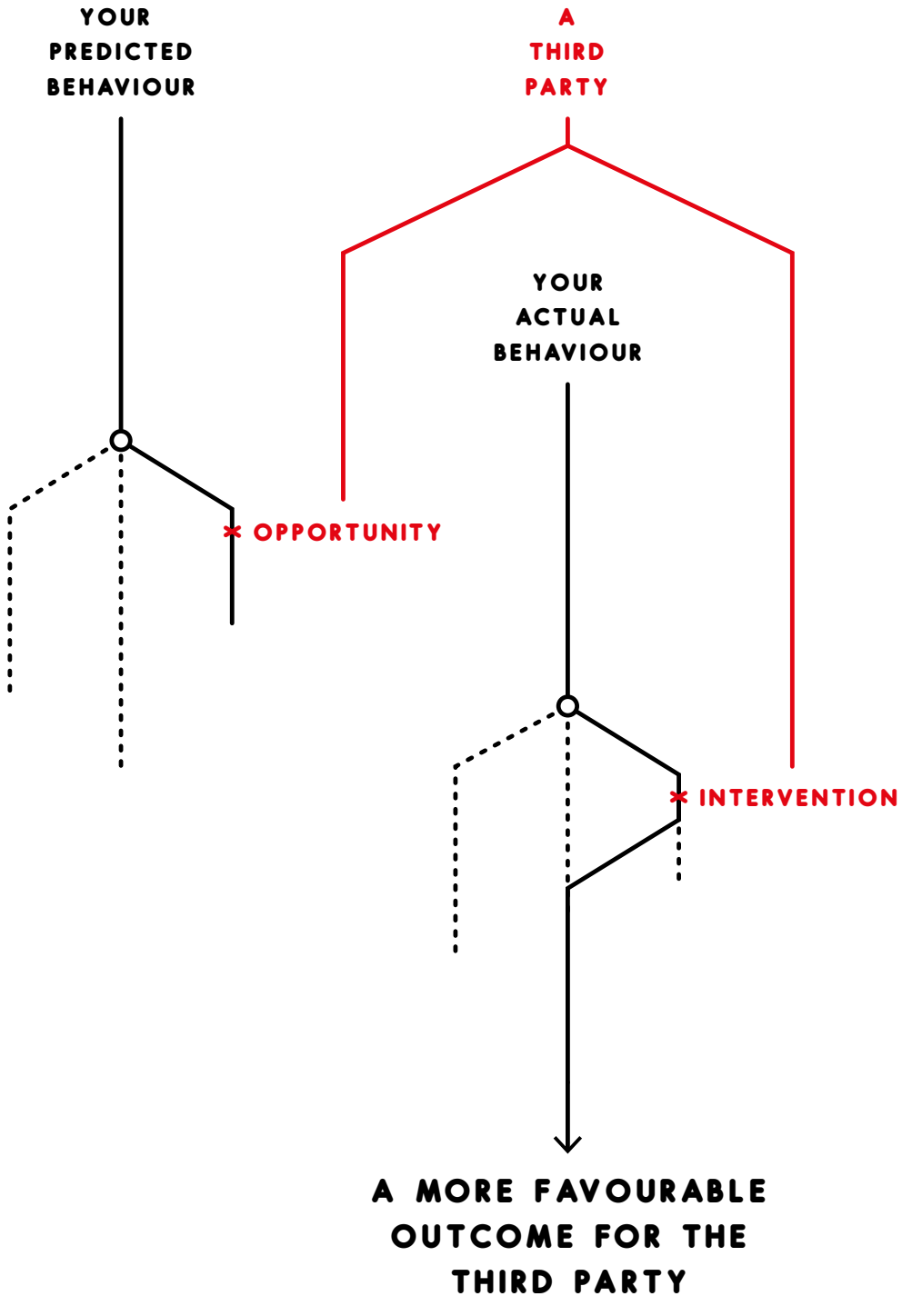
But despite the difficulties, Dr Ella McPherson, co-director of the CGHR, believes that researchers will still need to engage with the big media platforms. "It's a real tension that the human rights community feels," she says. "These platforms are where people are already communicating, so there's a real impetus to maintain relationships with them. At the same time, how can you trust these companies on human rights matters when it's clear that they have a very self-serving relationship with the concept? We've seen this with surveillance capitalism, and all the data-hungry mechanisms by which they make their money." ›

THE 'USER' AS A FREE RAW MATERIAL



A PRODUCT THAT PREDICTS YOUR FUTURE BEHAVIOUR IS SOLD TO A THIRD PARTY

"TECHNOLOGY IS NEITHER GOOD NOR BAD; NOR IS IT NEUTRAL"



We were looking at ways to give people more control over their data. However, if we embrace the notion that personal data is a commodity that can be traded, we lose a very important part of what privacy means both in social terms and in the way it helps us develop as individuals

So is it possible to regulate the digital realm while protecting and enabling the new democratic possibilities that it affords? Dr David Erdos, Deputy Director of the Centre for Intellectual Property and Information Law, believes that the prevailing wind is now behind more robust policing of digital spaces. His research looks at whether regulation could be effective in upholding citizens' rights online – combating violations like cyberbullying, harassment, and extreme infringements of privacy such as revenge pornography.

He says: "It may be successful in tackling all this, but it will depend on a degree of monitoring and management of online content beyond what we've seen to date. We'd be talking about a duty of care that managed platforms would have. Many activists see that as potentially an infringement on the privacy of users who may want to remain anonymous and unregulated.

"Europe has always had an approach that stresses the state's responsibility to protect rights, not just to be a nightwatchman. We have existing legislation – notably the whole data protection framework – where the state has decided to intervene in a strong way. The laws threaten companies with four per cent of their annual global turnover, which can mean hundreds of millions of euros in the case of Facebook or Google."

Within the EU, the totem of data protection is the General Data Protection Regulation (GDPR), which imposes one of the strictest such controls of any democratic jurisdiction – and it has brought debates concerning the balance between freedom of speech and privacy into sharp focus.

Erdos says: "You can't really move digitally without being impacted by the GDPR. If you take the law seriously, it encroaches on people's rights to associate, to run a business or start a club – right down to one person trying to manage a choir. It's rather a mess, and that's before you go into questions of how you enforce it. With sites outside EU jurisdiction, in the US, Russia or China, can you enforce it? When should you reach over and say, 'Because you have an impact on our citizens or residents, we have the right to regulate you'?"

Within Europe, the so-called right to be forgotten – permitting individuals in some cases to demand that Google and other search engines "de-index" material that includes their personal data – has proved particularly controversial. Media outlets overwhelmingly presented it as a threat to freedom of expression and an example of state-endorsed censorship. Larsen, who solicited the opinions of journalists across the broadcast and print media, says: "It was a sticky case for them, because many saw it as an instance where editorial privileges were being taken away from them by the EU. But many of my interviewees reported that they couldn't help thinking they may have been primed by platform providers to react in this way."

More broadly, Larsen believes that these initiatives are not necessarily challenging the larger assumptions that frame the debates around digital rights – such as on the ownership and monetisation of data. As an example, she recalls her involvement in a project for the European Commission while completing her MPhil at Cambridge Judge Business School. "We were looking at ways to give people more control over their data," she says. "However, if we embrace this notion of personal data being like a commodity that can be traded, I think we lose a very important part of what privacy means in social terms, and the way it helps us develop as individuals. And it can entrench existing inequalities: people who have fewer resources would be more likely to sell their personal data. You can end up with a very neoliberal version of human rights that actually supports the practices of surveillance capitalism." ›

It is a sentiment that chimes with broadcaster and author Jonnie Penn (Pembroke 2014), who is a project lead at the Leverhulme Centre for the Future of Intelligence and is completing a PhD on the political history of AI. He says: "Historians of technology talk about 'technologies of control' like digital computing. In the west, the public have seen these tools – at least until recently – as affording us all sorts of new opportunities and benefits. Now, I think they're starting to awaken to the fact that, in the wrong hands, there's serious room for abuse.

"That's why we're talking about digital rights, because we need to rebalance the whole equation somehow. My worry is that if we re-centre this around the individual, a kind of neoliberal conception of an individual's rights, we risk devaluing the collective systems that are actually what are failing today. A good example is the environment: we don't afford it the protections that we might for a human being. We risk peril as a result. Indigenous societies have known this for millennia."

With a new economy that heavily depends on big data – and, increasingly, on artificial intelligence to process it – Penn believes that if collective protections are not brought in now, they will be exponentially more difficult to establish in the future.

"I always use Central Park as an analogy," he says. "There was a moment in the mid-19th century when the decision was taken to build this park in the middle of what became a metropolis. It would be a lot harder to do now – to knock on doors and say, 'We're going to demolish your building and put a park here.' If we don't affirm the collective good in our systems, the outcomes could be really awful. Our Central Park is a Just Transition to zero carbon: decent work, divestment, warming below two degrees – whatever it takes to keep our grandchildren from extinction."

As artificial intelligence becomes more complex, the processes that drive its decisions become increasingly opaque and more difficult to scrutinise and hold to account. Where errors are made, the consequences can damage an individual's quality of life, as in cases where social-media posts have been mistakenly flagged up as offensive, leading to a ban from the platform. And, as Srinivasan points out, the real-world consequences can be far more severe. Artificial intelligence has already been piloted in criminal justice contexts, helping to determine sentencing and parole decisions.

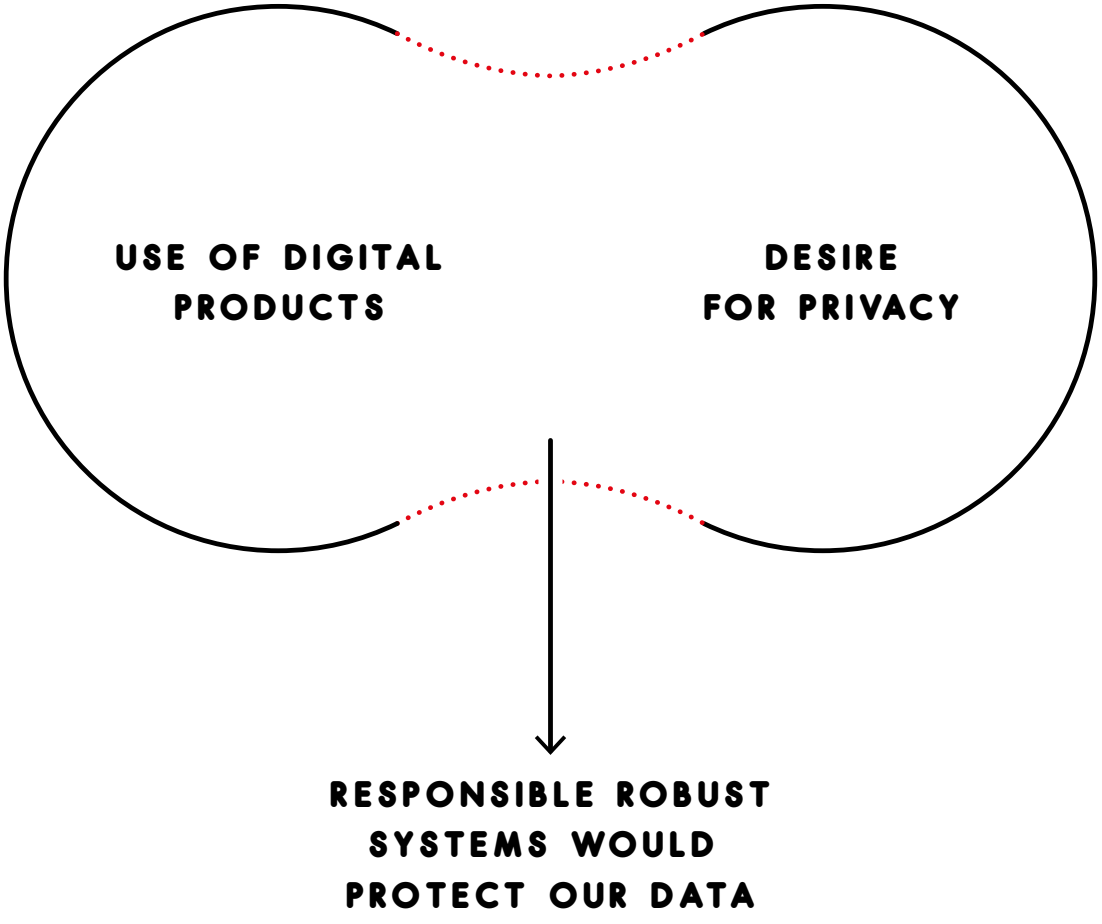
"Where do we point the finger if we want to say an outcome was a bad one?" he says. "Who is responsible? It becomes increasingly difficult to understand where the sources of the decision-making mechanics are located. The policymaker may just say, 'Wait here – the data scientists analyse the data and come up with the algorithms that drive our decisions. You should talk to them.'"

Nevertheless, Srinivasan remains sanguine about the ability of digital technology to perform social good, and the role of institutions such as CGHR in bringing this about. He says:

Artificial intelligence can make it difficult to understand exactly where decision-making is taking place. It enables the policymaker to say: 'It is the data scientists who analyse the data and come up with the algorithms that drive our decisions. You should talk to them'

"We know quite well that spaces such as Facebook and Twitter don't lend themselves to the better qualities of democratic life. So where and how do new possibilities come about? The answer is, through innovation, and through public demand for digital technologies that enable the things that we still value and cherish in democratic life."

UTILITY VS PRIVACY
A FALSE DICHOTOMY




Mr & Mrs Parker
I am astonished at their cheerfulness, considering their state. Three teeth drawn at once—frightful!
Your sister Diana seems almost as ill as possible, but the teeth of your sister Susan's are more distressing than all the rest.
Tom Parker
Oh, they are so used to the operation—to every operation—and have such fortitude!
They know what they are about, I dare say, but their measures seem to touch on extremes.
I feel that in illness, I should be anxious for professional advice.
Mary Parker
I do think they carry it too far sometimes. And it is unfortunate that poor Arthur should be encouraged to give way to indisposition. It is bad that he should be fancying himself too sickly for any profession and sit down at one and twenty, on the interest of his own little fortune, without any idea of attempting to improve it or of engaging in any occupation that may be of use to himself or others.

A Jane Austen Guide to the 21st Century

In 2019, Austen's writing is even more popular than it was in 1819. But beyond the carriages and costumes, she has far more to say about our digital lives than you might imagine.

WORDS **PROFESSOR JANET TODD** PHOTOGRAPHY **KATE PETERS**

What could Jane Austen possibly have to say to the average inhabitant of the 21st century? If you've ever taken a selfie, worried about financial insecurity, consulted Dr Google, pondered whether capitalism is really good for you, or spent more of your day than seems sensible following the activities of your friends and relations on social media, then perhaps she has a great deal to say. Indeed, Austen's later works – *Emma, Persuasion* and *Sanditon* – turn on her examination of the moral and social problems of consumerism and the cult of self, issues that continue to preoccupy us today.

Dr Google

Austen's final – and famously unfinished – novel, *Sanditon*, is set in a speculative coastal resort, founded on the 18th-century fashion for the seaside, and particularly sea-bathing. From mid-century on, claims for the sea and salt water had accelerated: sea-bathing was supposedly efficacious for "Indigestion, Gout, Fever, Jaundice, Dropsy, Haemorrhages, Violent Evacuations, or any other disorder", while "inspiring", or breathing sea air, recovered health more than breathing anywhere inland.

So, despite loving the seaside herself, Austen can't help but poke fun at such credulity. *Sanditon*'s Tom Parker holds that "the sea air and sea bathing together were nearly infallible, one or the other of them being a match for every disorder, of the stomach, the lungs, or the blood; they were anti-spasmodic, anti-pulmonary, anti-septic, anti-bilious and anti-rheumatic". Indeed, literature's most famous possessor of nerves, Mrs Bennet of *Pride and Prejudic*e, believes she'd be "set up with a little sea bathing" in Brighton.

Austen gives us a picture of health tourism, fads and bodily obsessions that speaks as much to 2019 as it did to her own time: to our proliferating allergies and ailments, our propensity to Google untried treatments and to believe self-serving salesmen who exploit our bodily self-obsessions. Austen is unsparing in her portrayal of characters as diligent faddists and self-medicators. Diana Parker (*Sanditon*) declares that the cure for a sprained ankle is to rub it for six hours ›


Sir Edward
While we are on the subject of poetry, what think you of Burns's lines to his Mary? Oh! There is pathos to madden one! If ever there was a man who felt, it was Burns.
If Scott has a fault, it is the want of passion. Tender, elegant, descriptive but tame. The man who cannot do justice to the attributes of woman is my contempt. But Burns is always on fire.
I have read several of Burns's poems with great delight. But I am not poetic enough to separate a man's poetry entirely from his character; and poor Burns's known irregularities greatly interrupt my enjoyment of his lines.
I have difficulty in depending on the truth of his feelings as a lover. I have not faith in the sincerity of the affections of a man of his description.
Oh! No, no! He was all ardour and truth! Nor can you, loveliest Miss Heywood, be a fair judge of what a man may be propelled to say, write or do by the sovereign impulses of illimitable ardour.
I really know nothing of the matter. This is a charming day. The wind, I fancy, must be southerly.

Austen gives us a picture of health tourism, fads and bodily obsessions that speaks as much to 2019 as it did to her own time: to our proliferating allergies and ailments, our propensity to Google untried treatments and to believe self-serving salesmen who exploit our bodily self-obsessions

(provided the friction can be "applied *instantly*"), and her sister Susan decides that the answer to a headache is to have three teeth extracted (leeches having already been tried and failed). The youngest sibling, Arthur, just 21, declares that his whole right side was paralysed by a cup of green tea – while his sisters believe you should fast for a week after any journey.

Poignantly, the writing of this book was interrupted by Austen's own ill-health. She would die, aged just 41, a few months later. She perhaps wanted her readers to remember that an obsession with health and self can never change the underlying reality of ordinary sickness and mortality. Which is certainly something to bear in mind next time Dr Google tells you your symptoms equate to a rare, but fatal, illness.

The state of capitalism

During the depressed years following Waterloo, the national economy was a topic of discussion throughout England. Debate raged in pamphlets and books, in taverns and private homes – and in Austen's last novel. As today, some argued that the pursuit of self-interest could benefit society generally. Others doubted that the greed and extravagance of the rich would benefit those below them, that wealth inevitably trickles down. Satires noted that the lavish and dissolute lifestyle of the Prince Regent in his elaborate pavilion in Brighton failed to improve the lot of the town's deprived inhabitants.

Austen wants to know whether neoliberalism works for everyone in society, or will it benefit only the few? Is speculation always precarious? Is profit alone a worthy motive? Will the country prosper most under a laissez-faire system or should there always be welfare and paternalistic controls, so that development does not despoil an organic community? The characters in *Sanditon* debate these questions from differing (well-to-do) social positions.

The traditional, stay-at-home landowner Mr Heywood expresses the reactionary view that society is best when all know their place. Change erodes class divisions, he believes, and disturbs the tested ways of the past. The new resorts are bad because they cause inflation: they raise prices and "make the poor good for nothing". Mr Parker, traveller and projector, disagrees. He accepts the working of the marketplace: it may disturb the old order, turning traditional fishermen and farmers into commercial sellers, but the new capitalist economy will benefit all in the long run. When the rich spend, they "excite the industry of the poor and diffuse comfort and improvement among them". Rich and poor are symbiotic: butchers, bakers and traders cannot prosper without "bringing prosperity to us".

We don't know where Austen herself stood in the debate – the answer would depend on what fate she was proposing for Sanditon. But in playing out these questions in the private lives of her characters, Austen reminds us that economics is not just a matter for opinion and discussion, but of real life. ›

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If Jane Austen were on Instagram she'd have more followers than Kim Kardashian

I shop, therefore I am

Austen's characters are all, in various ways, defined by money. We know who is landed and who funded; whose fortune derives from trade or an ancestor's clever speculation. In short, we know what most characters are worth. We also know what they spend money on. Regency England was increasingly awash with consumer goods: indeed, in seaside Sanditon, even foodstuff is imported or bought. And, like the real seaside resorts of the late-18th and early-19th centuries, its shops sell all manner of expensive things that mark status and answer whim: fashionable frocks, lace, straw hats, blue shoes, nankin boots, gloves, books, camp stools and harps. Carriages are the consumer items that best convey status: Sir Edward's sister – genteel but not monied – is "gnawed by the want of a handsomer equipage than the simple gig in which they travelled, and which their groom was leading about still in her sight".

Houses, too, declare rank, but, while all Austen's novels are obsessed with living spaces, none mentions so many kinds as *Sanditon*, a veritable estate agency of a book, with its terraces, tourist cottages, hotels, and "puffed" (marketed) lodging houses. The whole town is for sale and to let; a sort of seaside theme park. Like the fake palm-leaf huts built to attract modern tourists to the tropics, the resort's exploiters construct picturesque "rural" cottages. Visitors are consumers who must buy from local shops "all the useless things in the world that could not be done without". Like celebrities and Instagram influencers now, people themselves become saleable items: Sidney, Mr Parker's dashing younger brother, is a useful attraction for showy, nubile girls and their scheming mothers. The rich" half mulatto" Miss Lambe is desirable as a paying visitor and as prey for a needy bachelor.

The cult of self

Beneath the activity lurk serious questions. How does consumption affect morality? How does the constant need to buy new things, to enjoy purchasing then throwing away, impact on society and its traditional crafts? Under the urge to buy and sell, will the country dwindle into tourist haunts and shopping malls? Austen asks us to examine our own consumerism as we judge that of her characters. Something to bear in mind, next time you declare yourself immune to online advertising.

If Jane Austen were alive and on Instagram she'd have more followers and friends than Kim Kardashian. She is a global brand: quotations from *Pride and Prejudice* and a prettified image of its author are instantly recognisable. Yet, beyond a sketch by her sister, which delivers a sardonic, slightly contemptuous image, there is no authenticated portrait of her.

However, as a writer Austen clearly understood the power of images. In *Emma*, the heroine tries to make her protege attract a suitor by painting her as more impressive than she is. *Sanditon*'s Lady Denham, twice widowed, lives in the big house of the first husband, while enjoying the title of the second. This classier second holds pride of place on the mantelpiece while the original owner languishes elsewhere in miniature.

The cast of *Sanditon* are avid promoters of themselves and their hobby horses. The husband-hunting Miss Beauforts arrange their bodies in attractive tableaux at their window – surely the equivalent of generating Instagram "likes" – while Sir Edward intends to make himself irresistible to every pretty girl he meets. The characters' egoism often prevents success. As in *Emma*, they rattle on, self-exposing and uninterrupted, allowing Austen to brilliantly mock the cult of self, self-promotion and self-obsession.

"Vanity working on a weak head, produces every sort of mischief," she wrote in *Emma*. The hypochondriacal Miss Parkers in *Sanditon* have an "unfortunate turn for quack medicine" and a "love of the wonderful". Austen sums them up in words that fit many of the characters in the novel – and many in the 21st century: "There was vanity in all they did, as well as in all they endured."

Jane Austen's Sanditon*, edited and with an introduction by Janet Todd, is published by Fentum Press. Professor Todd is an Honorary Fellow of Lucy Cavendish.*

HOW TO BE MODERN

Why do students want to decolonise their curricula? And what does it have to do with the rest of us?

WORDS **LUCY JOLIN** ILLUSTRATION **ERIN ANIKER**

Climate change. Technology monopolists. Artificial intelligence. The rise of China. An increasingly mercurial US. Resolving the problems of the 21st century requires fresh thinking – and well-informed thinkers. So it will come as no surprise that, in Cambridge, curricula are under review as academics aim to give students access to the widest range of ideas and thinkers, as well as the analytical tools they will need to shape their world.

However, over the past few years, this quest has become more searching, and in some ways more painful. Because, at lectures, discussion groups, and at Hall and in the library, the work of 'decolonising' the curriculum has begun.

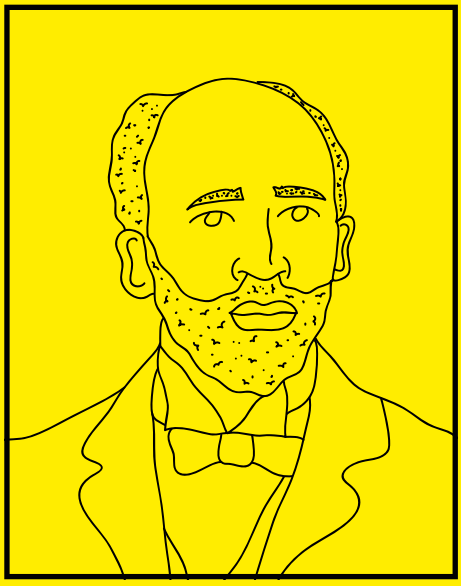
You may have read about it in the newspapers – perhaps accompanied by a headline blaming 'snowflake' students who want 'diversity', or maybe alongside reports that academics are busy throwing away the canon in favour of new and unfamiliar writers and thinkers. Out with Shakespeare, Milton, Plato! In with non-white authors from around the world! (*CAM* readers will be unsurprised to hear that this is not actually the case, of course.)

And it would be funny, except that decolonising the curriculum is important, exciting and invigorating. It has got academics thinking about the most important thing they do: thinking about thinking. But it is can be painful, challenging and slow. It deserves to be better understood. So if you have ever wondered why students around the world are protesting about their curricula, why it has made some sections of the media so very cross, and what on earth it has to do with the average Cambridge undergraduate – or graduate – please read on. ›

AUDRE LORDE

TONI MORRISON

CHINUA ACHEBE



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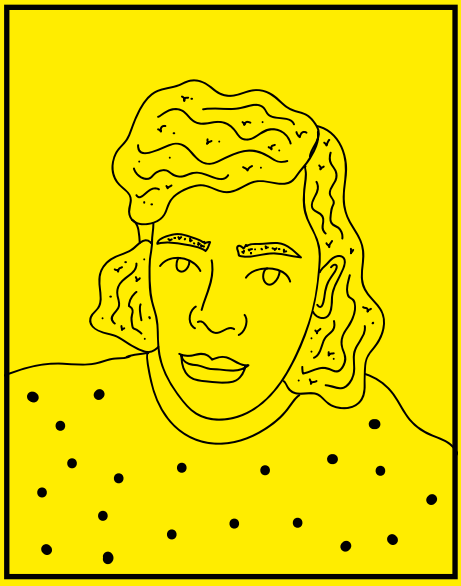

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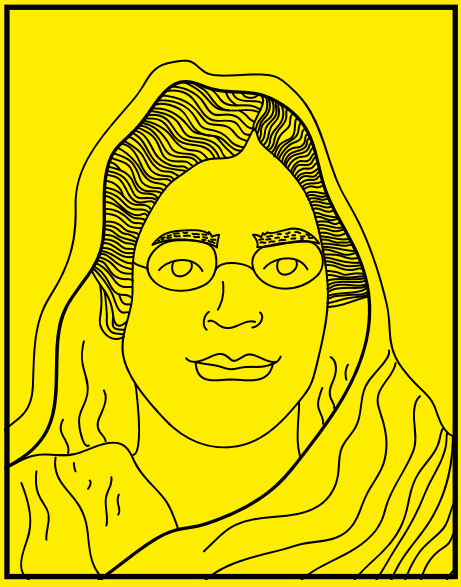

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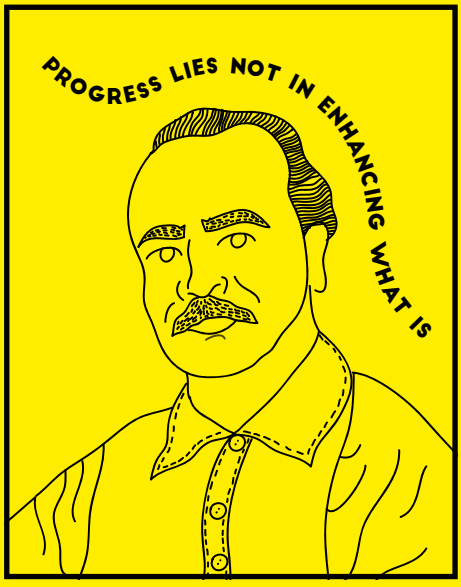
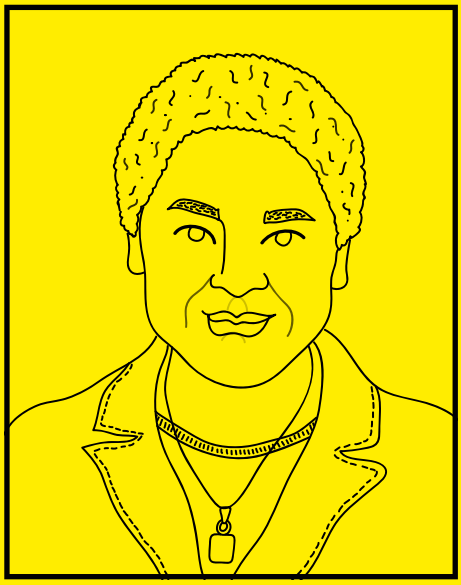


KAHLIL GIBRAN



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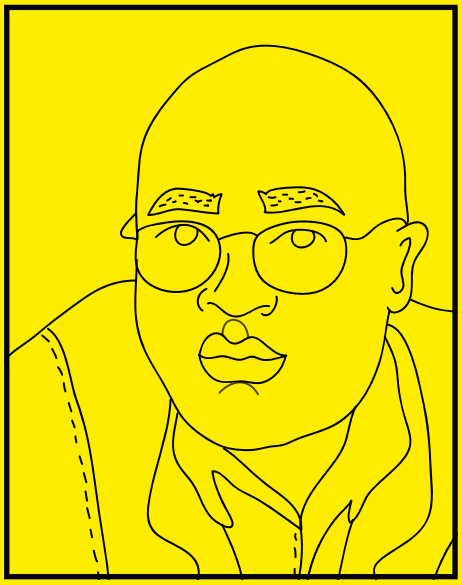

ACHILLE MBEMBE

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BABASAHEB AMBEDKAR

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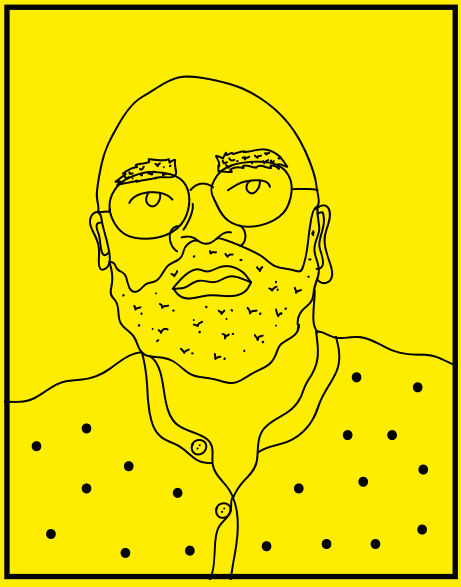

JAFARI S. ALLEN

ARUNDHATI ROY

AMBALAVANER SIVANANDAN

At its heart, 'decolonising the curriculum' is a rather blunt way of describing a way of thinking about what we know, and what that knowledge might mean. Like postmodernism at the end of the last century, 'decolonisation' offers the inquiring mind a new lens through which to assess the world, as Toni Fola-Alade, former president of the African Caribbean Society explains. "For me, it's about making the curriculum as inclusive and reflective of all the students as possible and reappraising what we collectively value and what's important," he says. "That's not necessarily demoting the individuals who are already in the canon or on the curriculum. It's thinking about how values and communities change over time, and ensuring the curriculum reflects that."

It is also important to say what decolonisation isn't. "One of the most harmful myths about decolonisation is that it's getting rid of all the white western scholars from the reading lists," says Dr Ali Meghji, Lecturer in Social Inequalities. "This is not about pointing fingers at anyone, or blaming people. We're saying, look, these things – empire, colonialism, imperialism – happened. And because context shapes academic knowledge, why don't we apply that context to colonialism, imperialism, enslavement and empires?"

INTELLECTUAL FIREPOWER

And that matters because students want to grapple with big issues: Brexit, immigration, Trump, racism, the culture wars. In the last century, a solid grounding in national history and western philosophy would have been more than enough to get by. But in a global, hyper-connected world, where cultural nuance can wipe billions off a company's value or start a war, some knowledge of other cultures is helpful – but an awareness that yours is not the only way of seeing the world is absolutely crucial.

Which is why, says Reader in Sociology Dr Manali Desai, they deserve access to all the intellectual firepower academics can give them. Why should her students not benefit from reading Ambalavaner Sivanandan and John Berger alongside John Locke and Max Weber? "I want to open up a space in which they can consider questions of identity and self in new and productive ways," she says. "If that sounds rather too theoretical, try this: would the Home Office have avoided the embarrassment of the Windrush crisis – in which citizens of the British empire were deprived of their British citizenship – had they been familiar with Sivanandan's bon mot: 'We are here, because you were there.' I like to think it would."

Indeed, recognise that a universal theory is not universal, and whole new avenues of possibility open up. For example, Michel Foucault is widely taught in sociology, philosophy, social sciences and history. "Foucault argues that there's this moment in history where punishments such as execution stopped being public – instead, people are hidden away in prison, or controlled by soft forms of surveillance," says Meghji. "And that's true in some parts of the world. But Foucault is talking about French society – at a time when executions were exactly what the French were doing in their colonies, such as Algeria. Why does Foucault say that his theory is universal when it is so easily refutable? Because, until recently, it was easy to think that you can universalise from the particular experiences of just a few countries and societies."

Students deserve access to all the intellectual firepower academics can give them

The decolonisation of curricula may make sense, but it can also be surprisingly difficult. The word itself, says Fola-Alade, "is quite ominous. It sounds big and threatening." When Desai reads angry headlines, she says that she senses a feeling of threat. "Making the effort to question my long-held, painstakingly researched intellectual positions is challenging. At least in my case, it's my job. For example, I had to question how, despite being a woman of colour, I had internalised my class and caste privilege. I had to – and still need to – approach thinking about race by questioning my own comfort zone."

Dr Mónica Moreno Figueroa, Senior Lecturer in Sociology, points out that it is easy to feel defensive when confronted by the ideas that fuel decolonisation, and that's fine. "You will have to understand that the value of what you know is, so far, insufficient – and not take that as offensive," she says. "It doesn't mean that what you know is not good. It means it is limited. I think that's uncomfortable and threatening – in the sense that we don't know exactly what is there on the other side of the western perspective. But I believe that confirming our place in the world, and what we already know, is not the objective of producing knowledge. It's not that those of us in favour of decolonisation are saying: we don't want your knowledge. What we are saying is: we want you – and all of us – to have more knowledge."

It involves, for many of us, a completely new way of thinking, as Desai explains. "When you put yourself, your people and your categories of thought at the centre, others are, by definition, at the margins. They can be brought in as bits of exotica, to look at with curiosity, but can never be an opportunity to re-examine or interrogate your own assumptions."

IS THIS GOING TO HURT?

Fola-Alade is studying Human, Social and Political Sciences (HSPS), giving him an insight into how changing the focal point can enable academics to get a much clearer understanding of how human societies – globally – really work. "Take the process of state formation," he says. "The traditional account of state formation uses a European model to discuss how war centralises big states in order to collect tax more efficiently. But when you look at how state formation occurs in China, Latin America or Africa, you get a very different picture. The European view is the one used as the universal model – yet it's *not* universal."

This kind of thinking can have very real consequences. Take climate change, for example: to manage this kind of unprecedented challenge, it is crucial to realise that yours is not the only way of doing things. In Cambridge, Desai says, much discussion focuses on how to reduce, reuse and recycle – how to continue as we are while making less impact on the Earth, and, via the Kyoto Protocol, to encourage the rest of the world to do the same. "It is therefore fascinating to discover how this approach, far from being universally accepted, is actually unique to western modes of thinking," she says. "In other places in the world, indigenous communities continue to maintain different forms of thought, built on different assumptions about nature. As we contemplate the possibility of environmental catastrophe, it makes sense to examine the fundamentals of how we got here – and how we could do things differently." ›

In a global, hyper-connected world, where cultural nuance can wipe billions off a company's value or start a war, some knowledge of other cultures is helpful – but an awareness that yours is not the only way of seeing the world is absolutely crucial

Two years ago, Desai, Dr Arathi Sriprakash (Education), Dr Adam Branch (Politics) and Dr Moreno Figueroa organised a series of exploratory seminars at CRASSH on the subject (Towards a Decolonised Curriculum in Cambridge: A Draft Manifesto). Demand was huge. Many departments have now set up working groups. Academics, and particularly Part II students, are working together to think deeply: about their subject content, about their analytical tools, about the future. Already, many departments have revised their curricula, and others are following, using formal and informal meet-ups, teach-ins, working groups and seminars in both specific subject areas and more widely across the University.

WHAT'S NEXT?

First, don't be afraid to get involved, says Fola-Alade. He explains: "These issues are wide-ranging. They are not reserved for those who deem themselves activists. Of course, activists do a lot of the work pushing the decolonisation movement forward, and deserve a lot of the thanks and the praise. But students and staff could be argued to be part of the decolonisation movement if they are doing any kind of work that seeks to make the University a more inclusive and accessible place."

Meghji says he would like to see more knowledge exchange: pointing out that the knowledge that is valued tends to come from institutions in the global north. "You could sponsor visiting academics from universities in the south, and work towards ways to increase awareness of the knowledge they produce, giving a platform to people who are doing excellent work," he says.

Happily, all is not lost for those of who left university many years ago. Simply reflecting on your own experiences and knowledge can be illuminating, suggests Moreno Figueroa. "First, think for yourself. What are you missing? What have you missed in your own education. And from there: what do you wish for the younger generations?"

But don't look for a final word on decolonisation: it is an ongoing process, not a means to an end, and there is no manual. "Sometimes I am asked if I have an end in mind, a time by which the curriculum will be 'decolonised'. I have to say that the answer is no," Desai says. "Once you start to change your perspective, many other issues come into focus. So, for me, decolonisation is not about who is 'in' or 'out' on a reading list, but rather about an opportunity to broaden our perspective and, hopefully, gain deeper insight and understanding."

And, in the meantime, despite the media brickbats and misunderstandings, she says she is very glad to be working on this now. "To be part of the generation that gets to engage with these issues is a privilege. Because the debate and the discussion have given a vibrancy to academic life: people are thinking about the essentials – what we teach and think, and why – and that's an incredibly exciting place to be."

THE GLOBAL HUMANITIES INITIATIVE: CONNECTING THE WORLD THROUGH CULTURE

The new Global Humanities Initiative aims to develop innovative approaches to teaching and research in the broad range of subjects that make up the School of Arts and Humanities. From religion, language and history, to art, architecture, literature, film, music and the study of the digital world, it will bring our community into dialogue with voices and viewpoints from around the world.

Through the initiative, we will create the links, internally and externally, that will positively influence *what we teach, what we do, and who we are*. These connections should grow organically from the bottom up, led by academics who understand implicitly how their areas of study need to grow and how they would benefit from wider thinking, as well as what their students want to learn about.

Universities should reflect the communities they serve, and the Global Humanities Initiative will ensure that Cambridge does that, holding a lens up to all cultures to promote better understanding and create important new connections.

Dr Emily Shuckburgh at the Cambridge Museum of Technology.

Absolute Zero

Director of Cambridge Zero, Dr Emily Shuckburgh, is harnessing Cambridge expertise to tackle the climate emergency.

WORDS **LUCY JOLIN** PHOTOGRAPHY **ALUN CALLENDER**

Dr Emily Shuckburgh's childhood ambitions did not involve climate science for the simple reason that, back then, climate change was largely unheard of. In fact, it wasn't until the early 1990s, as Shuckburgh was embarking on her university education, that the first IPCC climate change report came out. As she studied the maths and physics of how the Earth's atmosphere interacts with ocean dynamics, she began to realise the immense implications of a warming planet – and how she could use her skills to study them.

Today, that realisation has become an urgent mission. "I am, and have always been, passionate about the maths. But I want to use it in a productive way," she says, sitting in the café at the futuristic William Gates Building, on an unseasonably warm September day. "It is clear ›

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that we are in a state of climate emergency. And, having worked on the problem side of the question for my whole career, now is the time to focus on the solution. We need to transform our whole society over the next couple of decades. Because the science is very clear. Time is running out."

Over the years that Shuckburgh has been a climate scientist, the conversation has shifted from the purely scientific to the political and social. The last year, in particular, has seen an explosion in public consciousness, due to both the scale of severe weather events causing disruption across the globe, and the work of activists such as Greta Thunberg. But, for Shuckburgh, it's also personal. She has seen the climate emergency for herself, first-hand: until recently, she worked for the British Antarctic Survey, visiting both the Antarctic and the Arctic, observing and taking measurements. "In both places, you feel very close to major changes occurring in the climate system," she says.

What are those changes? Repeat measurements clearly show that the Southern Ocean is warming at all depths. There is already evidence that the Thwaites Glacier, a critical part of the western Antarctic ice sheet, may be in irreversible retreat: the warming waters melting it from below. Three to five million years ago, when there was a similar level of carbon dioxide in the Earth's atmosphere and the Greenland and West Antarctic ice sheets last melted, sea levels were between six and 20 metres higher than they are today. A fraction of that rise would inundate land inhabited by hundreds of millions of people.

"But we simply don't know how far into the future we are talking about," says Shuckburgh. "And that's why a lot of research at the moment is trying to understand what's happening with those ice sheets, and what the future risk might be. Currently, global emissions are increasing year on year, despite the Paris Agreement, and temperatures are increasing. We are seeing around the world how extreme weather is destroying lives and livelihoods. We need to turn that round over the next decade."

Climate change on this scale is a terrifying prospect, and, yes, seeing dramatic change and understanding its potential consequences is depressing, admits Shuckburgh. But she says she continues to be inspired by her work – and the new will for change, which, as the newly appointed director of the Cambridge Zero initiative, she will spearhead. "It remains fascinating to understand how the world works. On that level, it's just as fascinating now as it ever was. And while we face an enormous challenge, that's also exciting. Because that's where all the opportunities are. In Cambridge, we are drawing on all the expertise and creativity within the University – and connecting to that outside it – to help develop the technologies and insight to deliver a different future, a positive future, and one where we live in more harmony with the world that sustains us."

So just what is Cambridge Zero? It is, Shuckburgh explains, an unprecedented initiative that will bring together expertise from across the University – from science, technology and engineering to social science and the arts – aiming to generate the ideas and innovations that will meet the global challenge of climate change. That takes in everything from the work currently being done on what will be the first zero-carbon hospital in the UK (Cambridge Children's – a new children's hospital and research institute) to blue-sky research. "It is evident that technologies are going to need to be a significant part of the solution to climate change. But we can't solve something as complex as reaching a zero-carbon future purely through technology. How do we spark individual behaviour change, for example? How can we incentivise that? How can we learn from history to ensure that the transition to a zero-carbon future is done in a fair and equitable way, in a way that works for all sectors of society?"

Cambridge Zero will help to train up the next generation of leaders with the skillset to navigate through the coming decades. And it will look outwards, using the University's extraordinary network and convening power to disseminate those ideas across the globe. "We have all the relevant research expertise, of course," says Shuckburgh. "But that has not previously been joined up. It's very clear that if we are really going to tackle this, a substantial transition is required. We need to provide solutions and help support the delivery of those solutions in a holistic sense."

So another key component will be to create a dynamic ecosystem, linking the research undertaken at the University and internationally with the policy side, with industrial collaborations, entrepreneurship, the public and schools, and with the global network of alumni.

As Shuckburgh points out, solving the problems created by climate change will require nothing less than a wholesale transformation of society

Because, as Shuckburgh points out, solving the problems created by climate change will require nothing less than a wholesale transformation of society. And Cambridge Zero will be broad enough to take in every aspect of that: battery technology to artificial photosynthesis; green building materials to electric aircraft; sustainable finance to going beyond using just GDP as a measure of economic prosperity. Everything will be up for debate and discussion: how do we put in place policies that will accelerate transition to a green future? How can we find alternative ways of using carbon? What could we do to potentially repair some of the damage to our climate system – and what might be the legal, ethical and governance issues associated with that?

And, of course, Cambridge Zero will also help the University to decarbonise itself. Cambridge recently became the first in the world to announce that it has adopted a 1.5 degrees Science Based Target for carbon reduction. This commits it to reduce its energy-related carbon emissions to absolute zero by 2048, with a 75 per cent decrease on 2015 emissions by 2030.

The time is right. Change is coming, says Shuckburgh, you can feel it in the air: at the climate strike protests from Afghanistan to America; in the enthusiasm and passion of Cambridge students eager to use their skills to contribute to this new world. There's a sense of urgency, but there's also a sense of optimism. "Cambridge Zero is exciting and inspiring. It's switching from thinking 'What on earth can we do?' to 'Let's turn this round to an exciting opportunity.' I'm not aware of any other globally leading institution that has brought this range of topic areas together with a very clear emphasis on how, together, we can create a zero-carbon future."

Ambitious? Yes: it has to be. Over-ambitious? Never. "That's what we do, right?" says Shuckburgh with a grin. "We should recognise how vast and audacious it is but we also need to recognise that it can't fail. We have to take responsibility. This is one of the greatest challenges that has ever faced humanity."

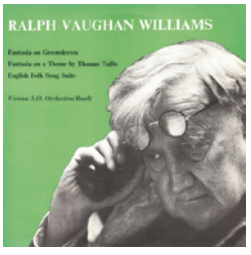
But, she points out, this isn't the first global, world-changing challenge that Cambridge had taken on. "Unlocking DNA, for example. Look at the changes that has created in the world, and you can trace it all back to Cambridge. We have a tradition of leading the way in transformational change. If ever we needed to step up and take a lead, now is the time. The University's mission is to contribute to society. So if anyone is doing this, it should be us. Let's be bold about it. Everyone can get involved: we need the skills of those in Cambridge right now but also the heritage of our alumni. Let's go do this."

To find out more, please visit zero.cam.ac.uk.

Extracular

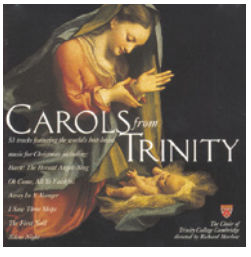
The candles were lit, the Benjamin West painting was radiating, and I just thought 'Wow!'

Vice-Chancellor Professor Stephen J Toope (Trinity 1983)

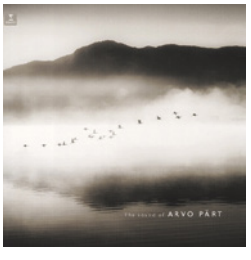


FANTASIA ON A THEME BY THOMAS TALLIS
RALPH VAUGHAN WILLIAMS
To me, this is almost quintessentially English music and I really like that – it epitomises the English romantic tradition. Although I knew Williams's music, I didn't know this piece until it was introduced to me in Hall at Trinity. I was sitting next to a guy who was an astrophysicist, and we were discussing the kinds of things you discuss at dinner, and then he started talking about this piece. I said I hadn't heard it and, a few days later, he went out and bought the tape and gave to me. Williams really is remarkable in the way he uses strings, and I love the richness of sound he creates while always ensuring that the rhythms drive you forward.

EVERY BREATH YOU TAKE
THE POLICE
I think the first time I heard this was in the car, driving with friends to a restaurant during the long vacation in Montreal. It was a beautiful summer night, and it just stuck in my mind. By the time I got back to Cambridge, of course, it had become a huge hit and was being played pretty much everywhere I went. So it reminds me of those first few weeks of the Michaelmas term, of warm days and good friends. I'll be very honest and say that I don't think I was very attuned to the lyrics at the time – it was just a song I really loved – but it does show, at least, that we have travelled some way since the 1980s!



O COME, O COME EMMANUEL
TRINITY COLLEGE CHOIR
In the Christmas of 1984 or 1985, Trinity's then chaplain, Robert Atwell, asked if I would read one of the lessons at the advent service. I used to go to services quite often, and as it was to be broadcast by the BBC I think they wanted different voices and accents. It was a really fun occasion – I remember the great opening of *O Come* and the whole rush of feeling – the place was packed, the candles were lit, the Benjamin West altar painting was radiating, and I just thought "Wow!" It was wonderful, and I feel immense gratitude for the experience. I also like the hymn! It builds so well, it's very singable, and it has a certain drama to it, which I like.



CANTUS IN MEMORIAM BY BENJAMIN BRITTEN
ARVO PÄRT
Although I am Canadian, I spent much of my younger years singing in choirs in the English choral tradition. So I love Arvo Pärt: I love his mathematical discipline as a composer, and I think this is a great example of that. I discovered Pärt when I was in Cambridge – I think I must have heard one of his pieces sung at Evensong and got very interested and bought a couple of albums. I also happen to be a lover of Benjamin Britten, so this piece is particularly special because of that resonance. Quite a lot of people don't like Pärt but, for me, it's the clarity, the force of precision about the music, that I really enjoy.

FAMOUS BLUE RAINCOAT: THE SONGS OF LEONARD COHEN
JENNIFER WARNES
I love Leonard Cohen, but he was a quite dreadful singer in my view – so while I have always been a big fan of his music, I mostly prefer to listen to cover versions, and this album is one of my favourites. Jennifer Warnes was a country and western singer; not someone I knew, but I just thought she had such a haunting voice and such a range. I associate it with mist in Trinity Great Court – it brings back memories of evening drizzle, and a feeling of wistful nostalgia. But also of playing music in my room with my roommate Stuart Young (Queens' 1983), who was later best man at my wedding. I didn't have much money at the time, so I had it on tape and played it on repeat.

School leavers in the UK today have a greater opportunity to go to university than ever before, regardless of their backgrounds. That is how it should be in an advanced economy that puts a premium on intellectual achievement and skills.

But the noisy debate over the affordability of student loans in England and the limited availability of postgraduate funding underlines how the cost of study can still act as a real barrier to education. Whatever the outcome of the government's current review into the funding of post–18 education, these are issues that will not go away. This is why it is so important that universities like Cambridge are able to offer financial support to the most talented students from around the world.

I am passionate about breaking down the barriers that might prevent some of those very talented students from coming to Cambridge. It is good for them – and it is good for the University – if we can help cover their tuition fees, living and study expenses. They benefit from a great education. In turn, the University benefits from working with some of the finest minds from around the world.

– Professor Stephen J Toope

Scholarships create a better future for all

Matt Mahmoudi on the academic and financial support that, he says, has changed his life forever.

At the end of the first year of my doctoral studies, I almost walked away. I simply could not afford to be at Cambridge. However, the Jo Cox Studentship changed my life, making it possible for me to continue my studies.

My parents were refugees from Iran. As a child in Denmark, I watched them struggle to navigate life as immigrants in a country built around its native population. The Iranian diaspora and other displaced people would come together to share knowledge about housing and study opportunities. This informal network was vital at a time when little official help was available to new migrants – and came to be a key focus of my research.

Education was important to my family and I aspired to go to university in the UK because of its open attitude to learning. While completing my undergraduate studies in London, I met Dr Ella McPherson, who encouraged me to come to Cambridge to undertake my Master's in development studies, and to work with her on The Whistle, a digital human rights reporting project she had founded.

In 2017, I began a PhD, investigating the social, political and economic impact of digital tools used to help refugees find their way through migration and settle into their new homes. The opportunities available at Cambridge through the PhD programme are incredible. I have been able to collaborate with local authorities, technologists and activists as far afield as New York and Berlin. In addition to my involvement with The Whistle, I co-ordinate Amnesty International's digital verification corps at Cambridge, and I've founded *Declarations*, a human rights podcast.

None of this would have been possible without my scholarship. Philanthropic investment in education and research hasn't simply changed *my* life, but will, I believe, change the lives of those I seek to help. So I am delighted that Cambridge is actively raising money to educate and enable the potential of more under-represented students, and students who have faced other major hurdles getting here. Students like me.

PHOTOGRAPHY: MEGAN TAYLOR

The Vice-Chancellor is putting student support at the top of his agenda with an ambitious new initiative.

What is the Student Support Initiative (SSI)?
The SSI is a new programme to support current and future generations of Cambridge students, covering wellbeing and mental health, financial support and access. It is backed by a £500m fundraising initiative.

What does the SSI do for student wellbeing and mental health?
It has enabled a review of student pastoral and welfare support (ensuring that gaps are filled and that services do not overlap), and a proactive public health approach to these challenges, informed by leading research on both sides of the Atlantic and working in partnership with Universities UK.

What does the SSI do for undergraduate access and financial support?
It will enable Cambridge to offer greater financial support to students who have experienced socio-economic and educational disadvantage, and enable investment in actively attracting students from under-represented groups.

What does the SSI do for PhD and Master's students?
It will enable Cambridge to provide fully funded PhD studentships, and financial support to students applying to Master's courses. This is vital for the students concerned, but also for Cambridge itself – the best research students are in demand, and Cambridge must compete with universities in North America, Europe and Asia to attract them.

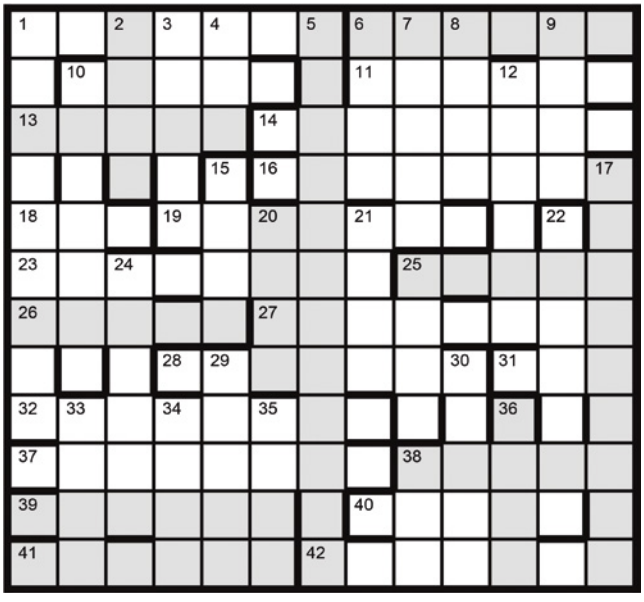
Hasn't Cambridge recently received a donation to do this?
Yes. The extraordinary generosity of David and Claudia Harding's £100m gift to the University and St Catharine's will support 100 PhD students in residence, attract students from under-represented groups and encourage further philanthropy. But to meet its aims fully, the SSI requires much more – which is where the Harding Challenge comes in.

What is the Harding Challenge?
Part of David and Claudia Harding's gift has been set aside to encourage further giving to students. This means that if you are a new donor and decide to donate to any aspect of the SSI at your College, your gift will unlock additional funds for students in greatest need across Cambridge – doubling the impact of your donation.

How can I support the SSI?
A gift has the potential to make a huge impact on students across Cambridge. If you would like to support student wellbeing and mental health, access and funding for postgraduates or undergraduates, please contact your College's development office.

CAM 88 PRIZE CROSSWORD

NOT OUR NAMES
by Nimrod



VARIATIONS

- Live news?
- He won't want to say much about ego
- Go on a Big Sur rambling holiday – west coast only?
- May well rid of "Head of State"
- Not taking care of Uncle Sam's balls
- Hollywood perhaps my current location?
- Having vocal exchange in mind?
- What, in retrospect, revamped CAM's about
- Expresses some surprise about crossword compiler
- Rock concert free of ghastly country-dances!
- Let in extra women
- Spooner's phoney lift, ready to use

INSTRUCTIONS

A normally clued answer, to be highlighted in the final grid, defines each of three Themes (A, B & C), which do not appear in the final grid and are to be deduced. Each Theme is associated with two pairs of Variations (see below), each clued by wordplay only, in alphabetical of order of solution, to be entered in the silver slots in the grid, jigsaw-fashion. The pairs of Variations are related to their Theme in a similar way, but this is different for each Theme.

THEME A: VARIATIONS 26ac/38ac & 39ac/20dn
THEME B: VARIATIONS 13ac/2dn & 25ac/41ac
THEME C: VARIATIONS 5dn/17dn & 6ac/36dn

ACROSS

1 Flash and glitzy antique shrouding (7)
10 Little sausage! (5)
11 Difficulty digesting *A Year in the Life of a Football Manager*? (6)
14 Paint ingredient acceptable, Titian restored by earl (8)
16 Inn lout ravaged, needing women to date (8, 2 words)
18 Items that follow so 9 get loose (3)
19 The woman has unfortunately lost the case (7)
23 Home between Kent and Hampshire perhaps suits Mark? (8)
27 Again curates damn Moselle commune (8)
28 Somerset town keeps writer spellbound (7)
31 Go downhill fast after losing second fine pot? (3)
32 Son left duck in position to catch old prowler (8)
37 Dreadfully cruel, describing sage being denied whiskey chaser (8)
40 With evil in heart, goes to Parisian holiday home (5)
42 Could you confirm whether or not toboggan caused difficulty? (7)

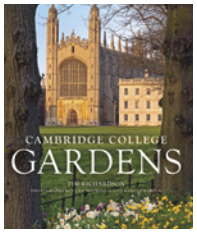
DOWN

1 Pottery cases stored in soaring tower block (9)
3 In reading up list, see old physician (5)
4 The Tories, at the time of writing, not entirely cut up (3)
6 One devout seed-spilling rustic (4)
7 Heading for London cup match, this to make final? … (5)
8 … score being 1-1, there's no end to heat – tougher later (4)
9 About a third slashed by a shop? (4, 2 words)
10 Without a lot to engage lecturer of the fairer sex? (7)
12 Stick figure, a little over three thousand, on an outside number (3-3)
15 Make money to support pro (4)
21 End of time? I'm not so sure (4)
22 Tumour spreading from egomaniac's heart (7)
24 Native American band on tour of Long Island (6)
25 The chap's into it for a source of butter (4)
29 In line to occupy Eel Pie Island? (5)
30 Salah and Vardy regularly raising the pulse (5)
33 Old bookmaker – hard going for one Muscovite? (4)
34 Court 1337 (4)
35 Guide swapping tips to do business (4)
38 Contempt shown by South African relative (3)

All entries to be received by 31 January 2020.
Please send completed crosswords

- **by post to:** CAM 88 Prize Crossword, University of Cambridge, 1 Quayside, Bridge Street, Cambridge CB5 8AB
- **online at:** alumni.cam.ac.uk/crossword
- **by email to:** cameditor@alumni.cam.ac.uk

Solutions and winners will be printed in CAM 89 and posted online on 14 Feburary 2020 at: alumni.cam.ac.uk/magazine



The first correct entry drawn will receive £75 of vouchers to spend on Cambridge University Press publications and a copy of *Cambridge College Gardens* (White Lion Publishing). This book combines in-depth research and elegant prose by Tim Richardson with stunning new photography by Clive Boursnell and Marcus Harpur.

Two runners-up will also receive £50 to spend on CUP publications.

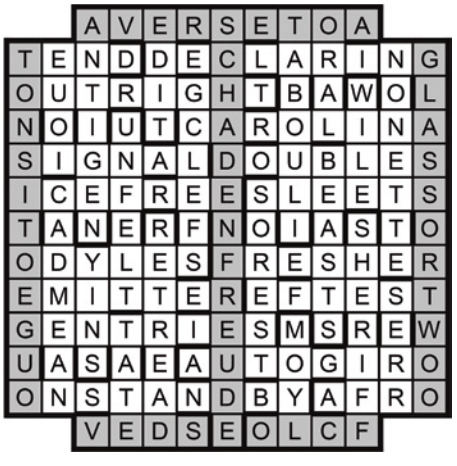
SOLUTION TO CAM 87 CROSSWORD
TOAST BY NIMROD

The puzzle formed a tribute to the late crossword compiler John Harrington (1944-2019), known to CAM solvers as SCHADENFREUDE. In *A-Z OF CROSSWORDS* by JONATHAN CROWTHER (superfluous letters), the entry for Schadenfreude concludes '…and he IS NOT AVERSE TO A GLASS OR TWO OF CLOS DE VOUGEOT'.

Here's to you, John, and *Requiescat in pace*.

Winner:
Robert Race (Trinity Hall 1962)

Runners-up:
Robert Eastwood (Trinity 1967)
Mike Ewart (Jesus 1971)



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